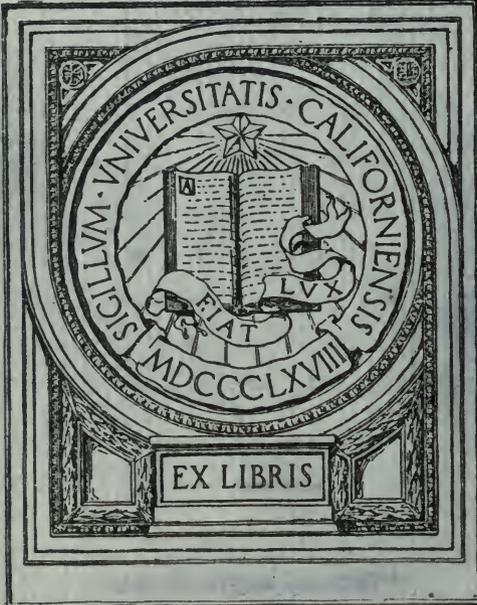


GIFT OF
JULIUS WANGENHEIM '87



The Bancroft Library

University of California • Berkeley

Q8
Z956
v.2

BIBLIOTHECA
CHEMICO-MATHEMATICA.

VOLUME II.



Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

UNIV. OF
CALIFORNIA

BIBLIOTHECA CHEMICO-MATHEMATICA:

CATALOGUE
OF WORKS IN MANY TONGUES
ON
EXACT AND APPLIED SCIENCE,
WITH A SUBJECT-INDEX.

COMPILED AND ANNOTATED BY

H. Z.

AND

H. C. S.

*With 127 Plates,
containing 247 Portraits and Facsimiles.*

VOLUME II.

LONDON:
HENRY SOTHERAN AND CO.
(HENRY CECIL SOTHERAN)
140 STRAND, W.C.2, AND 43 PICCADILLY, W.1.

1921.

To Adult
ABSTRACT

WINDLIPS
ATYMPETALON

Gift of J. Wangerheim
to Math Dept

- 8410 **GILL** (Sir David, F.R.S.; *Cape Astronomer Royal*) CATALOGUE of 1713 STARS, for the Equinox 1885-0, from Observations at the Royal Observatory, Cape of Good Hope, 1879-85, with APPENDICES: Catalogue of 104 Southern Circumpolar Stars, and separate Observations of β , α and α_1 Centauri, impl. 4to. cl., 5s 1894
- 8411 — CATALOGUE of 3007 STARS, for the Equinox 1890-0, from Observations at the Royal Observatory, Cape of Good Hope, 1885-95, with APPENDICES: Comparison with other Catalogues, Meridian Observations of a *Canis Majoris*, a *Canis Minoris*, β Centauri, α^1 and α^2 Centauri, and Positions of Southern Circumpolar Stars, impl. 4to. cl., 7s 1898
- 8412 — CATALOGUE of 8560 ASTROGRAPHIC STANDARD STARS between Declinations -40° and -52° for 1900, from Observations at the Royal Observatory, Cape of Good Hope, 1896-9, with Appendixes, roy. 4to. cl., 7s 6d 1906
- 8413 — CATALOGUE of 2798 ZODIACAL STARS for the Epoch 1900, arranged for Differential Observations of the Planets, roy. 8vo. sewn, 1s 6d 1899
- 8414 — HELIOMETER OBSERVATIONS for Determination of STELLAR PARALLAX at the ROYAL OBSERVATORY, CAPE OF GOOD HOPE, large 8vo. cl., 3s 1893
- 8415 — REPORT on the GEODETIC SURVEY of SOUTH AFRICA, Vols. I—III and V (all published), with numerous folding plates, and other illustrations, 4 vols. folio, original hf. roan (one v. cl.); SCARCE, £2. 10s Cape Town, 1896-1901-5—London, 1908
- CONTENTS.—I. Geodetic Survey executed by Lt.-Col. Morris, R.E., 1883-92, with Rediscussion of the Survey executed by Sir Thomas Maclear, F.R.S., 1841-8: II. Report on a Rediscussion of Bailey's and Fourcade's Surveys, and their Reduction to the System of the Geodetic Survey: III. — on the Geodetic Survey of Part of Southern Rhodesia, executed by Alexander Simms: V. Reports on the Geodetic Survey of the Transvaal and Orange River Colony, executed by Col. Sir W. G. Morris, and of its Connexion, by Capt. H. W. Gordon, R.E., with the Geodetic Survey of Southern Rhodesia.
- * Sir David Gill's grandiose scheme for uniting two hemispheres by a continuous network of triangulation.—Miss Agnes M. Clerke.
- 8416 — VOLUME I: REPORT on the GEODETIC SURVEY of SOUTH AFRICA, executed by COL. [SIR W. G.] MORRIS, 1883-92, with Rediscussion of the Survey executed by SIR THOMAS MACLEAR, F.R.S., 1841-8, with 22 plates and plans (mostly folding), and diagrams, folio, sewn, 12s 6d Cape Town, 1896
- 8417 — VOLUME II: — on a REDISCUSSION of BAILEY'S and FOURCADE'S SURVEYS, and their Reduction to the System of the Geodetic Survey, with diagrams, folio, hf. roan, 8s 6d *ibidem*, 1901
- 8418 — VOLUME III: — on the GEODETIC SURVEY of PART of SOUTHERN RHODESIA, executed by ALEXANDER SIMMS, Government Surveyor, with folding plate, and diagrams, folio, hf. roan (SCARCE), £1. 10s *ib.*, 1905
- 8419 — REPORT on the BOUNDARY SURVEY between BRITISH BECHUANALAND and GERMAN SOUTH WEST AFRICA, executed by LT.-COL. LAFFAN, LT. WETTSTEIN and OBERLT. DOERING [in English and German], with 2 folding plates, and diagrams, folio, sewn, 6s 6d Berlin, 1906
- 8420 — RESULTS of MERIDIAN OBSERVATIONS of STARS at the ROYAL OBSERVATORY, CAPE OF GOOD HOPE, COMPLETE from 1855 to 1904, with APPENDIX to 1890-1, 8 vols. roy. 4to. cl., £1. 15s 1894—Edin., 1906
- 8421 — — during 1861-70, '77-9, and '82-5, 5 thick vols. roy. 8vo. cl., 18s 6d 1887—Edin., 1901
- 8422 — — during 1866 to 1870, under the Direction of SIR THOMAS MACLEAR, F.R.S., thick roy. 8vo. cl., 4s 6d Edin., 1900
- 8423 — — during 1877, under the Direction of E. J. STONE, F.R.S., roy. 8vo. cl., 4s (p. 10s 6d) *ib.*, 1901
- 8424 — — during 1878-9, under the Direction of E. J. STONE, F.R.S., roy. 8vo. cl., 5s (p. 12s 6d) *ib.*, 1901
- 8425 — — during 1896-7, roy. 4to. cl., 6s (p. 15s) *ib.*, 1901
- 8426 — — during 1900-4, roy. 4to. cl., 6s (p. 15s) *ib.*, 1906
- 8427 — —, and William Lewis ELKIN; Yale Observatory: HELIOMETER-DETERMINATIONS of STELLAR PARALLAX in the SOUTHERN HEMISPHERE, with 4 plates (3 folding), 4to. sewn, 5s 6d 1884
- ^{To A. M. W. Downing, Esq. [F.R.S.] with kind regards from David Gill.—Inscr. on flyleaf.}
- 8428 — —, and Jacobus Cornelius KAPTEYN; Univ. Groningen: THE CAPE PHOTOGRAPHIC DURCHMUSTERUNG for the Equinox 1875, with plates and woodcuts, 3 thick vols. hf. calf, with the Revision, with diagrams, 3 parts in 1 vol. cl.—in all 4 vols. roy. 4to., £2. 5s (p. £5. 5s) 1896—Edin., 1903
- The completion of Argelander's 'Bonner Durchmusterung'. 'It placed at the disposal of astronomers a photographic census of the heavens fuller and surer than the corresponding visual enumeration executed at Bonn. It includes 454,875 stars, nearly to the 10th magnitude, and their positions are reliable to about one second of arc.'—Miss Agnes M. Clerke.
- 8429 **GILL** (J., F.R.A.S.) TEXT-BOOK on NAVIGATION and NAUTICAL ASTRONOMY, with front. and 212 illustrations, 8vo. cl., 4s (p. 10s 6d) 1898
- 8430 **GILL** (Joseph; C.E.) ESSAY on the THERMO-DYNAMICS of ELASTIC FLUIDS, with 5 woodcuts, 8vo. sewn, with auto. of Sir E. Frankland, F.R.S., 5s 1860-1
- An attempt to prove the fallacy of the principle of the conservation of energy.
- 8431 **GILL** (Thomas, patent agent) TECHNICAL REPOSITORY; containing Practical Information on Discoveries and Improvements in Useful Arts, from the beginning in 1822 to 1830, with numerous copperplates (many folding), 17 vols. 8vo. old crimson hf. morocco gilt (nice set), with bookplate of Henry B. H. Beaufoy, F.R.S. (rare), £1. 5s 1822-30
- Including First Series, 10 vols., and Second Series (Technological and Microscopic Repository), 7 vols.
- 8432 **GILLY** (David), and Johann Albert EYTELWEIN: PRAKTISCHE ANWEISUNG zur WASSERBAUKUNST, I. HEFT: Von den Pfählen, den Rammen und den Fangdämmen, 2. vermehrte Auflage; with 14 folding copperplates, 4to. boards, 4s Berlin, 1809

- 430 HENRY SOTHEBAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8435 GILLMORE (Col. Quincy Adams, U.S. Army) PRACTICAL TREATISE ON COIGNET-BÉTON, and other ARTIFICIAL STONE, with 9 plates (mostly folding), 8vo. cl., 4s (p. 12s 6d) *New York, 1871*
- 8436 ——— PRACTICAL TREATISE ON LIMES, HYDRAULIC CEMENTS, and MORTARS, with Reports of numerous Experiments conducted in New York City, 1858-61, with 57 woodcuts, 8vo. cl. (title stamped), 5s (p. £1.) *ib.*, 1863
- 8437 ——— FIFTH EDITION, enlarged, with front. and 57 illustrations, 8vo. cl., 6s 6d (p. £1.) *ib.*, 1879
- 8438 ——— PRACTICAL TREATISE ON ROADS, STREETS, and PAVEMENTS, with 70 woodcuts, cr. 8vo. cl., 3s 6d *ibidem*, 1876
- 8439 GILPIN (George) TABLES for reducing the QUANTITIES by WEIGHT, in any Mixture of Pure SPIRIT and WATER, to those by MEASURE; and for determining the Proportion, by Measure, of each of the two Substances in such Mixtures, 4to. (pp. 108), *sewn*, 3s 1794
- 8440 GIRARD (J. B.) TRAITÉ PRATIQUE des CHAUDIÈRES MARINES: Description, Entretien, Conduite; with 20 folding plates and 276 woodcuts, thick post 8vo. cl., 6s (p. F. 12.50 nett) 1897
- 8441 GIULIANELLI (Antonio, s.j.) ESSAME delle ACQUE di CIVITA VECCHIA e di TREVÌ; with folding copperplate, 12mo. *sewn* (browned); rare, 7s 6d *Roma*, 1701
- 8442 GLAISHER (James, F.R.S.; founder of Roy. Met. Soc.) On the DETERMINATION of the MEAN TEMPERATURE of EVERY DAY in the YEAR, from all the Thermometrical Observations at the Royal Observatory, Greenwich, 1814-56, with 12 folding tables, 8vo. (pp. 8), *sewn*, 2s 1858
- 8443 ——— The INFLUENCE of the MOON on the DIRECTION of the WIND, 8vo. (pp. 20), *sewn*, 2s 1867
- 8444 ——— On the METEOROLOGY of ENGLAND, 1867 and 1868, 2 plates, 8vo. (pp. 17), *sewn*, 1s 6d 1869
- 8445 ——— On the RECENT FREQUENT APPEARANCE of the AURORÆ, with plate, 8vo. (pp. 17), *sewn*, 1s 6d 1870
- 8446 ——— REPORT on the METEOROLOGY of LONDON, and its RELATION to the EPIDEMIC of CHOLERA, with 3 folding charts, 8vo. (pp. 118), *sewn*, 3s 6d 1855
- 8447 ——— On the TEMPERATURE and HUMIDITY of the AIR at the Heights of 22' and 50' above the Ground, in Comparison with those at the Height of 4', with plate, 8vo. (pp. 22), *sewn*, 1s 6d 1870
- 8448 ———, Camille FLAMMARION, Wilfrid de FONVIELLE, and Gaston TISSANDIER: TRAVELS in the AIR, edited by J. GLAISHER, with 118 plates and woodcuts, roy. 8vo. cl. (o. p.), 12s 6d (p. £1. 11s 6d) 1871
- 8449 ——— ANOTHER COPY, new hf. green calf gilt, uncut, t. e. g. (name on title), 16s
Containing also important meteorological observations.
- 8450 ———: VOYAGES AÉRIENS; with portrait of Glaisher, 6 coloured plates, 116 woodcuts, and 15 charts, impl. 8vo. original hf. red morocco gilt (o. p.), 15s 1870
- 8451 GLAISHER (James Whitbread Lee; son of the foregoing; Fellow of Trinity; F.R.S.) On CERTAIN IDENTICAL DIFFERENTIAL RELATIONS, 8vo. (pp. 5), *sewn*, 1s [1872]
- 8452 ——— On Some DEFINITE INTEGRALS expressible in Terms of the First Complete Elliptic Integral and of Gamma Functions, 8vo. (pp. 8), *sewn*, 1s 6d [1876]
- 8453 ——— On EARLY LOGARITHMIC TABLES, 8vo. (pp. 7), *sewn*, 2s 1873
- 8454 ——— On an ELLIPTIC FUNCTION SOLUTION of KEPLER'S PROBLEM, 8vo. (pp. 22), *sewn*, 2s 1877
- 8455 ——— EXPRESSIONS for LAPLACE'S COEFFICIENTS, BERNOULLIAN and EULERIAN NUMBERS, etc., as DETERMINANTS, 8vo. (pp. 15), *sewn*, 1s 6d 1876
- 8456 ——— On a FORMULA of CAUCHY'S for the EVALUATION of a Class of DEFINITE INTEGRALS, 8vo. (pp. 11), *sewn*, 1s 6d 1876
- 8457 ——— NOTE on certain SYMBOLIC OPERATORS, and their Application to the Solution of certain Partial Differential Equations, 8vo. (pp. 7), *sewn*, 1s 6d 1878
- 8458 ——— NUMERICAL VALUES of the FIRST TWELVE POWERS of π , etc. etc., 8vo. (pp. 6), *sewn*, 1s [1874]
- 8459 ——— On RICCATI'S EQUATION and its TRANSFORMATIONS, and on some Definite Integrals which satisfy them, roy. 4to. (pp. 70), *sewn*, 3s 1881
- 8460 ———, and others: SOLUTIONS of the CAMBRIDGE SENATE-HOUSE PROBLEMS and RIDERS for 1878, with 4 plates, 8vo. cl., 6s (p. 12s) 1879
- 8461 GLANVILL (Joseph; pr., Provost of Eton, F.R.S.) SCEPSIS SCIENTIFICA: or CONFEST IGNORANCE, the WAY to SCIENCE. In an Essay of the VANITY of DOGMATIZING, and Confident Opinion, with a REPLY to the Exceptions of the learned THOMAS ALBIUS [WHITE], with Royal Society's Arms, 2 vols. sm. 4to. in 1, contemporary calf, newly rebounded (two names rubbed out of title, otherwise a fine copy); RARE, £1. 12s 6d *E. Cotes, for H. Eversden*, 1665
- RARE, many copies having perished in the Fire of London. It is a recast of the author's 'Vanity of Dogmatizing,' published in 1661, and first contains his reply to Thomas White's 'Sciri,' a defence of scholastic philosophy.
- 8462 GLAREANUS [vere LORITI sive LORETI] (Heinrich) DE GEOGRAPHIA Liber unus, ab ipso Authore iam tertio recognitus; with woodcuts and diagrams, sm. 4to. (pp. 70), *sewn* (RARE), £1. 15s *Friburgi Brisgoviae*, 1536
- Including also mathematical and physical geography. On folio 35 the discovery of AMERICA is mentioned. The above edition was unknown to Graesse, and is not mentioned by Brunet.
- 8463 GLASER (Christophe, Apoticaire ordinaire du Roy) TRAITÉ de la CHYMIE, enseignant par une brève et facile methode toutes ses plus necessaires preparations; 4^e Edition, augmentée par l'Authour; with 3 folding copperplates of distilling apparatus, 24mo. old calf, 12s *Bruxelles*, 1676
- Glaser was the chemist from whom the Marchioness of Brinville and her paramour Ste.-Croix got their poisons, and had to flee France when the facts came out at the trial.
- 'On lui doit la connoissance du sulfate de potasse, connu, avant la réforme de la nomenclature chimique, sous le nom de sel polychreste de Glaser, parce qu'il en indiqua le premier la composition.'—*Biogr. Gén.*

- 8465 **GLASGOW** (David) WATCH and CLOCK MAKING, with 69 woodcuts, fcap. 8vo. cl. (o. p.), 5s
1855, or '93
- 8466 **GLAUBER** (Johann Rudolph) WORKS, containing Great Variety of Choice Secrets in MEDICINE and ALCHEMY, in the WORKING of METALLIC MINES, and the SEPARATION of METALS: also, various Cheap and Easie Ways of making Salt-petre, and Improving of Barren-Land, and the Fruits of the Earth, translated by CHRISTOPHER PACKE, first English edition, with 10 plates, folio, hf. calf (title guarded, but a very sound copy); RARE, £2. 10s
Thomas Milbourn, 1689
- 8467 ——— SECOND EDITION, with 10 plates on copper and wood, folio, hf. morocco (last 2 ll. of Index missing), £1. 10s
printed for the Author, 1694
- 8468 ——— FURNI NOVI PHILOSOPHICI, sive Descriptio Artis Destillatoriæ Novæ; with folding plates, and other woodcuts, 5 v.: ANNOTATIONES IN APPENDICEM V. PARTIS—6 parts in 1 vol. 12mo. old limp vellum (sound copy); RARE, £1. 1s
Amst., J. Jansson, 1651
One of the author's most important works, describing a large number of new chemical processes, with illustrations of his apparatus.
- 8469 ——— DESCRIPTION OF NEW PHILOSOPHICAL FURNACES, or a new ART of DISTILLING, with a Description of the TINCTURE of GOLD, or the True Aurum Potabile, also the FIRST PART of the MINERAL WORK, set forth in English by J[OHN] F[RENC]H D. M., with curious woodcuts, sm. 4to. very sound copy in contemporary calf (joints cracked); RARE, £3. 3s
R. Coats, 1651
FIRST ENGLISH EDITION of the 'Furni Novi Philosophici.' The translator was JOHN FRENCH, M.D. (1616?-57), author of 'The Art of Distillation' (q. v. ante)—a fact unknown to Lowndes and Halkett and Laing.
Besides the particulars on Glauber given in the note to no. 1570 ante, it may be mentioned that according to Dr. Percy he seems to have been the first to use leaden cisterns for the condensation of acid vapours in metallurgical processes.
- 8470 **GLAZEBROOK** (Richard Tetley, F.R.S., director, National Physical Laboratory) ELECTRICITY and MAGNETISM, with 270 woodcuts, cr. 8vo. cl., 3s 6d (p. 7s 6d) Univ. Press, Cambridge, 1903, or '4
- 8471 ——— HEAT: an Elementary Text-Book, Theoretical and Practical, with 38 illustrations, cr. 8vo. cl., 1s 6d
a. e., ib., 1894
- 8472 ——— MECHANICS and HYDROSTATICS: an Elementary Text-Book, Theoretical and Practical, with 336 illustrations, 3 vols. cr. 8vo. cl., 5s (p. 10s)
a. e., ib., 1895
- 8473 ——— PHYSICAL OPTICS, with 183 woodcuts, cr. 8vo. cl., 3s (p. 6s)
1883
- 8474 ———, and William Napier SHAW, F.R.S., Director, Meteorological Office: PRACTICAL PHYSICS, with frontispiece and 80 woodcuts, cr. 8vo. cl., 2s (p. 6s)
1885
- 8475 ——— NEW [FOURTH] EDITION [greatly enlarged], with 134 woodcuts, thick post 8vo. cl., 3s (p. 6s)
1894
- 8476 **GLASENAPP** (Serge de; Univ. St. Petersburg) MESURES d'ÉTOILES DOUBLES, Série I à III et V; with frontispiece, 4 parts impl. 8vo. sewn, with inscrs. to Dr. A. M. W. Downing, F.R.S., 6s 6d
St.-Petersbourg, 1892-99
- 8477 ——— ORBITES des ÉTOILES DOUBLES du CATALOGUE de POULKOVA; impl. 8vo. (pp. 51), sewn, 2s
ib., 1889
- 8478 **GLENIE** (James, F.R.S.) The ANTECEDENTAL CALCULUS, or a GEOMETRICAL METHOD of REASONING, WITHOUT any Consideration of MOTION or VELOCITY, applicable to every Purpose to which FLUXIONS have been or can be applied, with the Geometrical Principles of Increments, etc., etc., with diagrams, 4to. (pp. 16), sewn, 4s 6d
1793
- 8479 **GLOBES**:—AN INTRODUCTION to GEOGRAPHY and ASTRONOMY; containing chiefly the DESCRIPTION and USE of the TERRESTRIAL and CELESTIAL GLOBES, with many New and Useful Particulars not yet made Publick in any other Treatise on this Subject; 2nd Edition, with 3 copperplates, 16mo. contemporary calf, with Chippendale bookplate of Sir William Irby (rare), 12s 6d
1735
On p. 96 is an account of the foundation of GEORGIA, U.S.A., 'come to hand while this sheet was printing off.'
- 8480 **GLOESENER** (Michel, Univ. Liège) RECHERCHES sur la TÉLÉGRAPHIE ÉLECTRIQUE; with 15 plates (14 folding), large 8vo. sewn, with author's inscr. (scarce), 10s 6d
Liège, 1853
'Contenant un exposé sommaire des nombreuses recherches que j'ai faites sur tous les systèmes de télégraphes électriques, à l'exception de celui qui a pour but l'impression à l'aide de lettres.'—Page 1.
- 8481 **GLYNN** (Joseph, F.R.S.) THE CONSTRUCTION of CRANES and other HOISTING MACHINERY, 5th Edition, with 39 woodcuts, 12mo. hf. maroon morocco, 1s 6d
1873
- 8482 **GMELIN** (Johann Friedrich, Univ. Göttingen) EINLEITUNG in die CHEMIE, zum Gebrauch auf Universitäten, sm. 8vo. sewn (some ll. at end gnawed), 3s
Nürnberg, 1780
- 8483 ——— GRUNDSÄTZE der TECHNISCHEM CHEMIE, sm. 8vo. (p. 766), sewn, 5s
Halle, 1786
- 8484 ——— Ueber die NEUERE [sic] ENTDECKUNGEN in der LEHRE von der LUFT, und deren Anwendung auf Arzneikunst, 8vo. sewn, 3s 6d
Berlin, 1784
None of the above works is in Prof. John Ferguson's 'Bibliotheca Chemica'.
- 8485 **GMELIN** (Johann Georg; Univ. Tübingen) DISSERTATIO INAUGURALIS CHYMICA, sistens Celebrium Wurtembergiæ nostræ ACIDULARUM TENACENSIVM SPIRITUSQUE VITRIOLI VOLATILIS et ejus Phlegmatis EXAMEN per REAGENTIA, cum Phænomenorum Explicatione; accedunt quedam de Metallorum et Mineralium Diagnosti, variis curiosis illustrata Experimentis; with folding table, sm. 4to. (pp. 48), sewn (rare), 10s 6d
Tübingen, 1727
The author's first published work, and unknown to Pogendorff and other bibliographers. He was a well-known botanist and the founder of comparative geography.
- 8486 **GMELIN** (Leopold) HAND-BOOK of CHEMISTRY, translated, with INDEX, by HENRY WATTS, F.R.S., with plates, 19 vols. 8vo. cl., uncut, t. e. g. (o. p.), £3. 3s
Cavendish Soc., 1848-72
CONTENTS:—Anorganic Chemistry, 6 v.: Organic Chemistry, 12 v.: Index, 1 v.
- 8487 ——— ANOTHER COPY, without Vols. 18 and 19 (Organic Chemistry, v. XII, and Index), 17 vols. 8vo. cl., uncut, t. e. g., £2. 2s
1848-66
The English version of this classical work contains many additions by its translator.

- 8489 **GLEICHEN** (Alexander) *LEHRBUCH der GEOMETRISCHEN OPTIK*; with 251 diagrams, 8vo. cl., 13s 6d (p. M. 20) Leipzig, 1902
- 8490 **GOAD** (John; pr., *Headmaster of Merchant Taylors' School*) *ASTRO-METEOROLOGICA, or APHORISMS and DISCOURSES of the BODIES CELESTIAL, their NATURES and INFLUENCES, discovered from the Variety of the Alterations of the Air, Temperate, or Intemperate, as to Heat or Cold, Frost, Snow, Hail, Fog, Rain, Wind, Storm, Lightnings, Thunder, Blasting, Hurricane, Tuffon, Whirlwind, etc. etc., collected from the Observation at leisure Times, of above Thirty years, folio, contemporary calf (very sound copy)*; RARE, £1. 15s J. Rawlins, 1686
 'By far the largest and most important work devoted to astrological meteorology.'—G. J. Symons, *F.R.S.*
- 8491 **GODFRAY** (Hugh) *ELEMENTARY TREATISE on the LUNAR THEORY*, with brief Sketch of the History of the Problem to Newton, folding plate, 8vo. cl., 2s Cambridge, 1853
- 8492 ——— SECOND EDITION, revised, with diagrams, post 8vo. cl., 2s 6d *ibidem*, 1859
- 8493 ——— THIRD EDITION, revised, with diagrams, post 8vo. cl., with auto. of Prof. H. W. Lloyd Tanner, *F.R.S.*, 3s 1871
- 8494 ——— *TREATISE on ASTRONOMY, LAST EDITION, with plate and numerous diagrams*, 8vo. cl., 7s (p. 12s 6d) 1886, or '94
- 8495 **GODFREY** (Ambrose, *Chymist, F.R.S.*) *ACCOUNT of the NEW METHOD of EXTINGUISHING FIRES by EXPLOSION and SUFFOCATION*; wherein a Description is given of the several Machines and their Uses, with Directions for their proper Application, with short NARRATIVE of MR. POVEY'S BEHAVIOUR in relation to this useful Invention, by which it will appear, that the said Mr. Povey's pretended Watch Engine is at best a precarious, and often dangerous Remedy, imperfectly Stolen from Ambrose Godfrey's Method, published with a Design to rob the right Owner of the just Reward by imposing upon the Publick in suppressing an Invention of real and universal Benefit, and substituting an imperfect and dangerous one in its room, with vignette on copper, sm. 8vo. hf. bound (very rare), £1. 1s Printed in the Year 1724
 'Godfrey's method was tried in a house, erected for the purpose by the Society of Arts, in Marylebone Fields, 19 May 1761, when it seems to have proved entirely successful'.—D. N. B.
 The author was for many years assistant to the Hon. Robert Boyle, *F.R.S.*, to whom he refers in the introduction to the above work. The latter was reprinted, but without the interesting Narrative, in 1743.
- 8496 **GODFREY** (Charles; *Headmaster Roy. Naval Coll., Osborne*) *On the APPLICATION of FOURIER'S DOUBLE INTEGRALS to OPTICAL PROBLEMS, with 2 diagrams*, roy. 4to. sewn, 1s 6d 1900
- 8497 **GOERENS** (P., *Aix-la-Chapelle*) *INTRODUCTION à la MÉTALLOGRAPHIE MICROSCOPIQUE, traduite par A. CORVISY, revue et augmentée par F. ROBIN*; with 34 plates and 157 other illustrations, roy. 8vo. sewn, 6s (p. F. 10 nett) 1911
- 8498 **GOETHE** (Johann Wolfgang v.) *THEORY of COLOURS*, translated, with Notes, by SIR CHARLES LOCK EASTLAKE, *R.A., F.R.S.*, with 4 coloured plates, 8vo. cl., uncut (cover damaged); SCARCE, 15s 1840
 A violent—and quite futile—attack on Newton's theory of colours by the poet-philosopher, but which is still suggestive to artists, though it has long lost its place as a contribution to optics.
 'It must be admitted that the statements contain more useful principles in all that relates to harmony of colour than any that have been derived from the established doctrine.'—Preface.
- 8499 ———: *SECHSZEHN TAFELN zur FARBENLEHRE, und SIEBENUNDZWANZIG TAFELN zu BEITRÄGE zur OPTIK, nebst Erklärung*; 43 plates (mostly coloured), 4to. sewn, 5s Stuttgart, 1842
- 8500 ——— *ŒUVRES SCIENTIFIQUES, analysées et appréciées par ERNEST FAIVRE*; with 4 plates, 8vo. hf. calf (joints rubbed), 4s 1862
- 8501 **GOLDMANN** (Charles Sydney, *F.R.G.S.*), and Joseph **KITCHIN**: *SOUTH AFRICAN MINES: their Position, Results, and Developments, with Account of Diamond, Land, Finance, and kindred Concerns, with over 100 plates (many folding and coloured)*, 3 vols. 4to. cl., 17s 6d (p. £3. 3s) 1895-6
- 8502 **GOMPERTZ** (Benjamin, *F.R.S.*) *On the ABERRATION of LIGHT, with plate*, 4to. (pp. 16), sewn, 3s 1824
- 8503 ——— *On the NATURE of the FUNCTION expressive of the LAW of HUMAN MORTALITY; and on a NEW MODE of DETERMINING the VALUE of LIFE CONTINGENCIES*, 4to. (pp. 75), sewn, with author's inser. (scarce), 6s 1825
 'Had his principle been propounded in the days of Newton, vitality would have been made a thing of, like attraction.
 —Prof. de Morgan.
- 8504 ——— *The THEORY of ASTRONOMICAL INSTRUMENTS, PARTS I and II, with SUPPLEMENT, with folding plate*, 4to. (pp. 31), sewn, 4s 6d 1824
- 8505 **GOODEN** (James, *S.J., e Collegio Anglorum Leodii*) *TRIGONOMETRIA PLANA et SPHERICA, cum selectis ex Geometria et Astronomia PROBLEMATIS; accedunt SINUUM CANONES, et ex Euclide Propositiones magis necessariæ; with numerous diagrams*, 12mo. sewn, uncut, with auto. of General Robert Melville, *F.R.S.* [1723-1809], 6s Leodii, 1704
- 8506 **GOODMAN** (John) *On a NEW and PRACTICAL VOLTAIC BATTERY of the HIGHEST POWERS, in which Potassium forms the Positive Element*, 8vo. (pp. 13), sewn, 1s 6d Manchester, 1847
- 8507 ——— *RESEARCHES into the IDENTITY of the EXISTENCIES or FORCES; Light, Heat, Electricity, and Magnetism*, 8vo. (pp. 23), sewn, 1s 6d *ib.*, 1847
- 8508 **GOODRICKE** (John, *F.R.S.*) *OBSERVATIONS of a NEW VARIABLE STAR*, 4to. (pp. 12), sewn, 4s 1785
 An account of the author's discovery of the variability of β Lyrae.
- 8509 **GOODWIN** (Henry Bedingfield) *PLANE and SPHERICAL TRIGONOMETRY, with numerous diagrams*, 8vo. cl., 3s (p. 8s 6d) 1886
- 8510 ——— FIFTH EDITION, with numerous diagrams, 8vo. hf. calf, 4s 6d (p. 8s 6d) 1896
- 8511 ——— SIXTH IMPRESSION, with diagrams, 8vo. cl., 5s 1901
- 8512 **GOOS** (Fritz, *Hamburg*) *Der SPEKTROSKOPISCHE DOPPELSTERN CAPELLA: Inaugural-Dissertation; with photographic plate, and diagram*, 4to. sewn, 4s Bonn, 1908

- 8514 **GOODWIN** (Harvey; 51st Bp. of Carlisle) ELEMENTARY COURSE OF MATHEMATICS, *woodcuts, interleaved throughout with plain writing paper*, 1 vol. 8vo. in 3, *hf. russia (rubbed)*, 3s Cambridge, 1846
- 8515 ——— THIRD EDITION, *with woodcuts*, thick 8vo. *cl.*, 3s *ib.*, 1849
- 8516 ——— FOURTH EDITION, *with woodcuts*, thick 8vo. *cl.*, 3s 6d *ib.*, 1853
- 8517 ——— FIFTH EDITION, *with woodcuts*, thick 8vo. *cl.*, 4s *ib.*, 1857
- 8518 ——— SIXTH [LAST] EDITION, revised and enlarged, by PHILIP THOMAS MAIN, *with woodcuts*, thick 8vo. *cl.*, 6s 6d *ib.*, 1866
- 8519 ——— PROBLEMS and EXAMPLES, adapted to the 'Elementary Course of Mathematics', *with diagrams*, 8vo. *cl.*, or, *sewn*, 2s *ib.*, 1847
- 8520 ——— SECOND EDITION, with APPENDIX, containing Senate House Examination Questions, 1848-51, 8vo. *hf. cl.*, 2s 6d *ib.*, 1851
- 8521 ——— THIRD [LAST] EDITION, with additional Examples in Conic Sections and Newton, by T. G. VYVIAN, 8vo. *cl.*, 3s 6d *ib.*, 1862
- 8522 **GOPPELSROEDER** (Friedrich) CAPILLARANALYSE beruhend auf Capillaritäts- und Absorptions-Erscheinungen, mit dem Schlusskapitel: das EMPORSTEIGEN der FARBSTOFFE in den PFLANZEN; *with 59 plates*, 8vo. *sewn*, *with author's inser.* (scarce), 12s 6d Basel, 1901
One of the most important works ever written on capillary action, containing numerous original researches by the author, preceded by an interesting historical account of the subject.
- 8523 **GORDAN** (Paul, Univ. Erlangen) VORLESUNGEN über INVARIANTENTHEORIE, herausgegeben von GEORG KERSCHENSTEINER (Determinanten und Binäre Formen), 2 vols. roy. 8vo. in 1, *hf. cl.*, 12s 6d (p. M. 18 sewn) Leipzig, 1885-7
'Paul Gordan showed, with the aid of symbolic methods, that the number of distinct forms for a binary quartic is finite.'—*Prof. Cayley.*
- 8524 **GORDON** (Alexander, M.I.C.E.) TREATISE ON ELEMENTAL LOCOMOTION, and INTERIOR COMMUNICATION, wherein are explained and illustrated, the History, Practice, and Prospects of STEAM CARRIAGES, and the comparative Value of Turnpike Roads, RAILWAYS, and Canals; 3rd Edition, with SUPPLEMENT of Rules and Tables, and Description of an improved Road-Surveying Instrument, etc., *with 13 plates (several folding), and numerous woodcuts*, 8vo. *cl.* (scarce), 12s 6d 1836
Containing full descriptions and illustrations of early types of locomotives.
- 8525 **GORDON** (J. W.) MATHEMATICAL TABLES (ACTUARIAL), 8vo. in *cl. portfolio (o. p.)*, 4s [1896]
- 8526 **GORDON** (James Edward Henry) PHYSICAL TREATISE ON ELECTRICITY and MAGNETISM; 2nd Edition, re-arranged and enlarged, *with 73 plates (8 coloured), and 312 woodcuts*, 2 vols. 8vo. *cl.*, 5s (p. £2. 2s) 1833
'Probably the best book of the kind that has ever been published in England.'—*Academy.*
- 8527 ——— PRACTICAL TREATISE ON ELECTRIC LIGHTING, *with 23 plates, and 94 woodcuts*, 8vo. *cl.*, 5s (p. 18s) 1884
The author made original researches on electro-magnetic rotation of polarised light, and the specific inductive capacity of dielectrics.
- 8528 **GORDON** (Lewis Dunbar Brodie, F.R.S.E., Prof. Civil Engineering, Glasgow), MEMOIR of [by THOMAS CONSTABLE and DAVID STEVENSON, C.E.], *with 2 photo-portraits*, large cr. 8vo. *cl.* (scarce), 7s 6d *privately printed, Edin.*, 1877
- 8529 **GORDON** (Thomas) PRINCIPLES of NAVAL ARCHITECTURE, with Proposals for Improving the Form of Ships, and Observations on the Structure of Carriages for the Purposes of Inland Commerce, Agriculture, etc. [and Dictionary of Terms], *with 5 folding plates*, 8vo. *hf. maroon morocco extra, uncut, t. e. g.*, 10s 6d 1784
- 8530 **GORE** (George, F.R.S.) The ART of ELECTROLYTIC SEPARATION of METALS, etc. (Theoretical and Practical), *with 106 woodcuts*, 8vo. *cl.*, 6s (p. 10s 6d nett) [1890]
- 8531 ——— The ART of ELECTRO-METALLURGY; 2nd Edition [with Bibliography, List of Patents, etc.], *illustrated*, large 12mo. *cl.*, 2s (p. 6s) 1884
- 8532 ——— The ART of SCIENTIFIC DISCOVERY, or the General Conditions and METHODS of RESEARCH in PHYSICS and CHEMISTRY, thick large post 8vo. *cl.* (o. p.), 6s 6d (p. 15s) 1878
- 8533 ——— ANOTHER COPY, *with inser. to HERBERT SPENCER, and the latter's book-stamp*, 8s 6d
'To Herbert Spencer, Esqre with the Author's respect.'—*Inser. on half-title.*
- 8534 ——— On the ROTATION of HOLLOW SPHERES of METAL by HEAT, *with woodcuts*, 8vo. (pp. 8), *unbound, with inser. to Sir E. Frankland, F.R.S.*, 1s 6d 1859
- 8535 ——— THEORY and PRACTICE of ELECTRO-DEPOSITION, including every known Mode of depositing Metals, preparing Metals for Immersion, taking Moulds, and rendering them conducting, *with 36 woodcuts*, 8vo. *cl.*, 3s 1836
- 8536 **GORE** (John Ellard, F.R.A.S.) PLANETARY and STELLAR STUDIES, *illustrated*, post 8vo. *cl.*, 3s (p. 7s 6d) 1888
- 8537 **GORING** (C. R., M.D.) MICROSCOPIC ILLUSTRATIONS (1838)—*v. PRITCHARD, post.*
- 8538 **GORING** (David Allyn) HISTORY of MEDICINE, Philosophical and Critical, from its Origin to Cent. XX, *with numerous portraits and other illustrations*, 2 vols. large post 8vo. *cl.*, *uncut, t. e. g.*, 12s 6d (p. £1. 5s nett) New York, 1910
Incidentally also a history of early chemistry.
- 8539 **GORUP-BESANEZ** (Eugen Franz Freiherr v., Univ. Erlangen) TAFELN zur ERLÄUTERUNG der TYPENTHEORIE und der Ableitung der typischen Formeln organischer Verbindungen der Typen, mit Text, 8vo. *sewn*, 1s 6d Braunschweig, 1860
- 8540 **GOSSE** (Philip Henry, F.R.S.) CREATION (OMPHALOS): an Attempt to untie the Geological Knot, *with numerous woodcuts*, post 8vo. *cl.*, 3s 6d 1857
The book whose pathetic failure is so vividly told in 'Father and Son'.
- 8541 **GOTSHALL** (William C.) NOTES on ELECTRIC RAILWAY ECONOMICS and PRELIMINARY ENGINEERING, *with 3 folding plates, and numerous other illustrations*, 8vo. *cl.* 5s (p. 8s 6d nett) New York, 1903

- 8543 **GORSE (F.)** A SCHOOL ALGEBRA COURSE, post 8vo. *cl.*, 2s *Univ. Press, Cambridge, 1907*
- 8544 **GOTTINGIEZ (Gilles François, S.J.)** EPISTOLA RESPONSORIA, sive Rescriptum ad nonnulla suorum Amicorum Quæsitâ de ÆQUILIBRIO ARTIFICIALI, sivè STEREO-STATICA; with 3 engravings, 4to. (pp. 7), *sewn*, 3s 6d [s l., 1687]
- Unknown to Poggendorff and other bibliographers.
- 8545 **GRAAF (Abraham de)** INSTRUCTIE van het ITALIAANS BOEK-HOUDEN, met Memoriaal toegepast op de Negotie Particulier, in Commissie, en in Compagnie, 8^{de} Druk, gecorrigeert, gezuivert van al de voorgaande Fouten, en met veel nodige Aantekeningen verrykt door N. E., folio, boards (RARE), £1. 1s *Amsterdam [c. 1730]*
- 8546 ——— PRINCIPA ARITHMETICÆ, Theoreticæ et Practicæ: of de BEGINSELEN der TELKUNST, of Rekenkunst, naar Eigenschappen en Toepassing, voornamelijk in de KOOPHANDEL; with numerous diagrams; interleaved, with numerous MS. notes in a neat contemporary hand, thick sm. 8vo. *fine copy in contemporary Dutch vellum*, 18s 6d *ibidem*, 1661
- RARE, and unknown to Prof. de Morgan, who only mentions among his list of authors of arithmetical works a 'Graf' and 'de Graff.' The author is not mentioned by Poggendorff, Brunet, or Graesse, but is referred to by Montucla, who praises his works as 'de fort bons ouvrages pour son temps.'
- 8547 **GRAHAM (Robert Hudson, C.E.)** GRAPHIC and ANALYTIC STATICS in Theory and Comparison: their Practical Application to Stresses in Roofs, Solid Girders, etc.; with Chapter on WIND PRESSURES; numerous plates (3 folding), and diagrams, 8vo. *cl.*, 7s 6d (p. 16s) 1883
- 8548 **GRAHAM (Thomas, F.R.S.)** CHEMICAL and PHYSICAL RESEARCHES; with Preface and Analytical Contents by R. ANGUS SMITH, F.R.S., *collo type portrait, and woodcuts*, thick roy. 8vo. *cl.*, uncut, £2. 10s *collected and printed for presentation only, Edin.*, 1876
- VERY SCARCE, only a limited number having been printed for presentation only. It contains the author's numerous papers in various periodicals, divided under 'Gases,' 'Salts and Solutions,' and 'Unclassified Papers,' with interesting preface on 'Graham and other Atomists' (pp. 17). The excellent analytical Index greatly facilitates the use of the great mass of papers here collected together.
- As a chemist Graham held ideas far in advance of his contemporaries. Before 1840 he had discovered and proved the polybasic character of phosphoric acid, proving that this acid forms several distinct compounds with water. He even laid down the bold theory that all the (so-called) elements may be only forms of one primordial one.—D. N. B.
- 8549 ———: CHEMICAL REPORTS and MEMOIRS, on Atomic Volume, Isomorphism, Endosmosis, the Simultaneous Contrast of Colours, Latent Heat, Artificial Formation of Alkaloids, etc. [translated by G. E. DAY, M.D., and] edited by THOMAS GRAHAM, F.R.S., with 2 folding plates, and woodcuts, 8vo. *cl.*, uncut, t. c. g., 7s 6d *Cavendish Soc.*, 1848
- Comprising valuable chemical treatises by Otto, Filhol, Julius Vogel, Chevreul, Regnault, E. Kopp, and Bunsen.
- 8550 ——— ON THE DIFFUSION OF LIQUIDS (Bakerian Lecture), with 4 diagrams, 4to. (pp. 46), *sewn*, with author's *inscr.*, 5s 1850
- 8551 ——— ELEMENTS of CHEMISTRY, with the Applications of the Science in the Arts, first edition, with woodcuts, thick 8vo. *cl.*, or, *hf. calf (scarce)*, 7s 6d 1842
- 8552 ——— SECOND EDITION, entirely revised and greatly enlarged, with 212 woodcuts, 2 vols. 8vo. *hf. calf and cl.*, 6s 6d 1850-8
- 8553 ——— ANOTHER COPY, prize morocco gilt, g. e., with auto. of Prof. H. W. Lloyd Tanner, F.R.S., 8s
- His admirable text-book, *Elements of Chemistry* . . . Graham's originality was shown by his valuable physico-chemical investigations on the diffusion of gases, osmose, etc., which opened out new paths in the science, while at the same time he enriched general chemistry, especially inorganic, by his purely chemical work.—Prof. E. v. Meyer.
- 8554 ——— INQUIRIES respecting the CONSTITUTION of SALTS of OXALATES, NITRATES, PHOSPHATES, SULPHATES, and CHLORIDES, 4to. (pp. 27), *sewn*, 6s 6d 1837
- 'Richard Phillips Esq^r. F.R.S. with the Author's best respects.'—*Inscr. on flyleaf.*
The above copy contains numerous MS. notes and additions by the former.
- 8555 ——— ON THE LAW of the DIFFUSION of GASES, 4to. (pp. 37), *sewn*, with *inscr.* to Richard Phillips, F.R.S. (*scarce*), 3s 6d *Edin.*, 1832
- Containing the discovery of the law of the diffusion of gases, which he showed to be inversely proportional to the square root of their densities.
- 8556 ——— ON THE MOTION of GASES, BOTH PARTS, with 3 plates, 2 parts 4to. *sewn*, with author's *inscr.*, 8s 6d 1846-9
- Containing his investigation of the motion of gases through capillary tubes, and giving valuable information on the molecular action of gases.
- 8557 ——— ON THE RELATION of HYDROGEN to PALLADIUM, 8vo. (pp. 10), *sewn*, with author's *inscr.*, 2s 1869
- 8558 ——— RESEARCHES on the ARSENATES, PHOSPHATES, and MODIFICATIONS of PHOSPHORIC ACID, 4to. (pp. 32), *sewn (scarce)*, 8s 6d 1833
- 8559 ——— ANOTHER COPY, with *inscr.* to Richard Phillips, F.R.S., MS. notes by the latter, and ink corrections by the author, 10s 6d
- This paper contains the discovery of the polybasic character of phosphoric acid, which enabled Liebig to establish the theory of polybasic acids.
- 8560 ———, August Wilhelm v. HOFMANN, F.R.S., and Theophilus REDWOOD: The FERMENTATION of BEER: Report on 'Original Gravities', addressed to the Chairman of the Board of Inland Revenue, 8vo. (pp. 34), *sewn*, 3s 1852
- Added is 'A Reply to Messrs. Thorne & Co., by the Authors of the Report on Original Gravities' (pp. 8).
- 8561 [—————, —————, and William Allen MILLER, F.R.S.]: REPORT by the GOVERNMENT COMMISSION on the CHEMICAL QUALITY of the SUPPLY of WATER to the METROPOLIS, 8vo. (pp. 45), *sewn*, 3s 1851
- 'Professor [Sir Edward] Frankland from THO. GRAHAM.'—*Inscr. on title.*
- 8562 **GRAHAM (Thomas John, M.D.)** CHEMICAL CATECHISM: in which the Elements of Chemistry, with the RECENT DISCOVERIES, are clearly and fully explained, with select Experiments, etc.; 2nd Edition, with plate, 8vo. *hf. calf*, 5s 6d 1829
- This work, which was unknown to Lowndes, Allibone, and Poggendorff, claims superiority over Parkes's 'Chemical Catechism' (v. No. 3461, *ante*). It contains a chapter on the Atomic Theory.

A
DESCRIPTION
 OF NEW
Philosophical Furnaces,

OR
 A new ART of Distilling, divided into five parts.
 Whereunto is added a Description of
 the Tincture of **GOLD,**

Or the true
AURUM POTABILE;

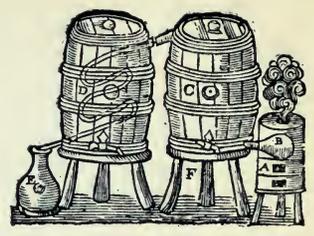
ALSO,
 The First part of the **MINERAL**
WORK.

Set forth and published for the sakes of them
 that are studious of the **TRUTH.**

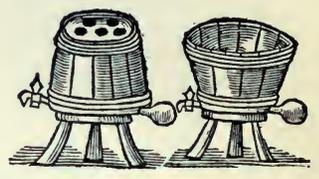
By **JOHN RUDOLPH GLAUBER.**

Set forth in English, By **J. F. D. M.**

LONDON, Printed by Richard Coats, for Tho: Williams, at
 the Signe of the Bible in Little-Britain. 1651.



A. The furnace with a Copper globe. B. The Copper globe.
 C. The distilling vessel. D. The refrigeratory with a worme.
 E. The receiver. F. Stooles on which the vessels stand.



A Balneum with a cover
 having holes in it for
 the glasses, set upon a
 trectoot.
 A wooden vessel
 for the making of
 Beer.

C o 2

A Tub

Book. I. *Of the Art of Distillation.* 21

A furnace with his vessels, to distill liquors with the
 steam of boiling water.



A, Shows the head
 of the Alembick;
 B, The body thereof,
 placed in a brass
 vessel made for that
 purpose.
 C, A brass vessel per-
 forated in many
 places to receive
 the vapour of the
 water. This vessel
 shall contain the
 Alembick compas-
 sed about with saw-
 dust, not only that
 it may the better
 and longer retain
 the heat of the va-
 pour, but also lest
 it should be broken
 by the hard touch
 of the brasen ves-
 sel.

D, Shows the brass vessel containing the water as it is plac'd in the
 Furnace.
 E, The Furnace containing the vessel.
 F, A Funnel by which you may now and then powre in water, in stead
 of that which is vanisht and dissipated by the heat of the fire.
 G, The Receiver.

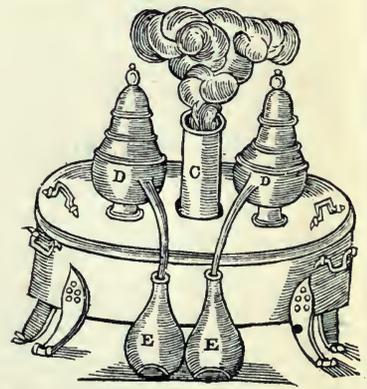
E 3

The

Book. I. *Of the Art of Distillation.* 22

A *foaming water made of Elder-berries.*
TAke of Elder-berries as many as you please, press out the juice
 thereof; to every gallon thereof, put a pint of White wine-
 vinegar, of the lees of White-wine a pint: let them stand in a
 wooden vessel, which thou mult then set in some warm place
 near the fire side for the space of a week, then distill them in a hot
 Still, or Alembick.

The Furnace for a Balneum Martis, with the Alembicks
 and their Receivers.



A, Shows the brass kettle full of water.
 B, The necks of the kettle perforated in two places, to give passage forth to the vessel.
 C, A pipe or Chimney added to the kettle, wherein the fire is contained to heat the
 water.
 D, The Alembick consisting of its body and head.
 E, The Receivers, whereinto the distilled liquor runs.

No. 8469 (page 431).
 An early chemical book.

- 8564 **GÖTTLING** (Johann Friedrich August; *Univ. Jena*) CHEMISCHE VERSUCHE über eine VERBESSERTE METHODE den SALMIAK zu BEREITEN, nebst Vorschläge diese Bereitung fabrik-mässig zu betreiben, und Beschreibung einiger chemischer Produkte, so mit einer solchen Fabrik zu verbinden sind, 12mo. *sewn, uncut, 5s 6d*
Weimar, 1782
An early attempt to make sal ammoniac synthetically, till then it having been got almost exclusively from root.
- 8565 ——— **HANDBUCH** der THEORETISCHEN und PRAKTISCHEN CHEMIE, 3 vols. 8vo. *old hf. calf, 7s 6d*
Jena, 1798-1800
Vol. III was published separately as 'Handbuch der Pharmazie chemisch bearbeitet.'
- 8566 **GOULD** (Benjamin Aphorp; F.R.S.) CORDOBA PHOTOGRAPHS: Photographic Observations of STAR CLUSTERS, from Impressions made at the Argentine National Observatory, measured and computed with Aid from the Argentine Government [Text in English and Spanish on parallel Columns], with 37 charts (many folding), 4to. *sewn, 12s 6d*
Lynn, Mass., 1897
'Through Dr. Gould's unceasing labours during his 15 years' residence at Cordoba, a detailed acquaintance with Southern stars was brought about.'—*Miss A. M. Clerke.*
- 8567 ——— The TRANSATLANTIC LONGITUDE, as determined by the U.S. Coast Survey Expedition of 1886, 4to. (pp. 101), *sewn, 3s 6d*
[Washington], 1869
- 8568 **GOWER** (Alfred Roland) ELEMENTARY TEXT-BOOK of PRACTICAL METALLURGY, with 32 woodcuts, cr. 8vo. *cl., 2s*
1888
- 8569 **GOWER** (Richard Hall, H.E.I.C.'s Sea Service; naval architect; designer of the 'Transit') NARRATIVE of a MODE pursued by the British Government to effect IMPROVEMENTS in NAVAL ARCHITECTURE, with 3 plates of H.M.S. 'Transit', and woodcuts, 8vo. *hf. calf (scarce), 12s 6d* 1811
Gower at twenty years' old invented one of the earliest anticipations of the Patent Log, and in 1800 had built at Itchenor in Chichester Harbour the 'Transit,' a ship of remarkable speed, four-masted, with sails of peculiar character, which beat the government sloop Osprey out of all comparison in a trial of speed; and became almost the ablest ship and yacht designer of his day, besides an inventor of many valuable naval appliances.
- 8570 **GRAINGER** (Thomas), and John MILLER, C.E.E.: REPORT relative to the PROPOSED RAILWAY to connect the CLYDESDALE, or UPPER COAL FIELD of LANARKSHIRE, with the City of GLASGOW, and the East and West Country Markets, with two folding maps, 4to. (pp. 17), *sewn (scarce), 6s*
Edin., 1828
Grainger was one of the earliest Scottish railway engineers, and built the Edinburgh, Perth, and Dundee and the Arbroath and Forfar lines, and also the original main line of the Lancashire and Yorkshire Railway. He was killed in a railway accident.
- 8571 **GRAMBERG** (Anton, Danzig) TECHNISCHE MESSUNGEN, insbesondere bei MASCHINENUNTERSUCHUNGEN; with 18 woodcuts, 8vo. *cl., 3s* (p. M. 6.)
Berlin, 1905
- 8572 **GRANDGEORGE** (Gaston) Les INDUSTRIES TEXTILES en FRANCE, et les Matières Premières qu'elles transforment (1889), impl. 8vo. (pp. 65), *sewn, 3s 6d*
Imprimerie Nationale, 1890
- 8573 ——— L'INDUSTRIE TEXTILE en FRANCE en 1898, impl. 8vo. (pp. 138), *sewn, 3s 6d*
apud eandem, 1899
- 8574 ———, et Léon TABOURIER: Les INDUSTRIES TEXTILES en FRANCE en 1892, impl. 8vo. (pp. 102), *sewn, 3s*
a. e., 1893
- 8575 **GRANDI** (Guido, Abate Camaldolese; Italian mathematician, opponent of Alessandro Marchetti), VITA di, da un suo DISCEPOLO [GIOVANNI MARIA ORTES; con Bibliografia], sm. 4to. *old boards, uncut, 3s 6d*
Venezia, 1744
'Grandi avait avancé dans sa 'Quadrature du Cercle et de l'Hyperbole' (no. 1622 ante) que 0 + 0 + 0 . . . à l'infini donne une quantité fluide. Celle idee était étrange; Marchetti la trouva impie, et en demanda la suppression. Grandi écrivit un dialogue mordant contre Marchetti, et la dispute dura deux ans, et aurait duré plus longtemps encore sans la mort de Marchetti. Celui-ci, dit Montucla, avait d'autant plus tort de faire à Grandi une querelle théologique que au sujet de son idée, qu'au contraire d'autres ont cru y trouver l'explication du mystère de la création.'—*Biogr. Gén.*
- 8576 **GRANGER** (Albert, Sévres) LA CÉRAMIQUE INDUSTRIELLE: Chimie et Technologie; with 179 illustrations, 8vo. *cl., 9s* (p. F. 17 nett)
1905
- 8577 ——— FABRICATION et EMPLOI des MATÉRIAUX et PRODUITS RÉFRACTAIRES utilisés dans l'Industrie; with 172 woodcuts, roy. 8vo. *cl., 8s* (p. F. 15 nett)
1910
- 8578 **GRANT** (Robert, F.R.S.) CATALOGUE of 6,415 STARS, for the EPOCH 1870, deduced from Observations at GLASGOW UNIVERSITY OBSERVATORY, 1860-81, with Synopsis of the Annual Results of each Star arranged in the Order of Right Ascension, thick roy. 4to. *cl., 16s*
(p. £1. 11s 6d)
Glasgow, 1883
'Of sterling value.'—*Agnes M. Clarke.*
- 8579 ——— HISTORY of PHYSICAL ASTRONOMY, from the Earliest Ages to the Middle of the XIXth Century, with detailed Account of the ESTABLISHMENT of the THEORY of GRAVITATION by NEWTON, and its DEVELOPMENT by his Successors; with the Progress of Research in Celestial Physics, thick 8vo. *hf. calf, or, cl., (scarce) 10s*
1852, or n. d.
Still one of the best histories on the subject. Its merits were acknowledged by the Royal Astronomical Society by awarding the author its gold medal.
- 8580 ——— The TRANSIT of VENUS in 1874, with front. and diagrams, sq. 12mo. *cl., with author's inscr., 2s*
Glasgow, 1874
- 8581 **GRANTHAM** (John, M.I.C.E.) GRANTHAM'S STEAM CAR for TRAMWAYS, with 2 folding plates of the car and sections, 8vo. (pp. 15), *sewn (scarce), 7s 6d*
1874
- 8582 **GRANVILLE** (Augustus Bozzi, M.D., F.R.S.) THE ROYAL SOCIETY in the XIXTH CENTURY: a Statistical Summary of its Labours during the last 35 Years, with many Original Tables and Official Documents (never before published), and a Plan for its Reform, 8vo. *cl. (cover damaged); scarce, 7s 6d*
1836
The author was son of the postmaster-general of Milan, a physician and Italian patriot, and a remarkable man. He brought warning of Napoleon's expected escape from Elba, introduced iodine, offered the crown of Italy to the Duke of Sussex, gave prussic acid for chest affections, advocated the establishment of a Kingdom of Italy, and the treatment of Thames sewage, and criticised the constitution of the Royal Society. Though he gave much offence he helped to secure reforms in the mode of electing fellows and publishing papers (*D. N. B.*). See Babbage (*No. 5893 ante*) for another attack on the Royal Society.

- 436 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8584 **GRANVILLE** (William Anthony, *Yale Univ.*), and Percey Franklyn SMITH: ELEMENTS of the DIFFERENTIAL and INTEGRAL CALCULUS, with numerous diagrams, large 8vo. buckram, with bookplate of Prof. H. W. Lloyd Tanner, *F.R.S.*, 6s (p. 10s 6d)
Boston [Mass., 1904]
- 8585 [**GRASSI** (Oratio, s.j.)] LIBRA ASTRONOMICA ac PHILOSOPHICA, qua GALILAEI GALILAEI Opiniones de Cometis a MARIO GUIDUCIO in Florentina Academia expositae, atque in lucem nuper editae, examinantur a LOTHARIO SARSIO SIGENSANO; with vignette on copper, woodcuts, and diagrams, sm. 4to. *hf. calf* (LARGE AND FINE COPY); RARE, £1. 1s
Raro opuscolo.—Riccardi.
Perusia, 1619
- 8586 ——— ANOTHER COPY (having title and one l. slightly wormed): with Stelluti (Giovanni Battista, da Fabriano) SCANDAGLIO sopra la LIBRA ASTRONOMICA et FILOSOFICA di LOTARIO SARSIO, nella Controversa della Comete, e particolarmente delle Tre ultimamente, vedute l'Anno 1618—2 vols. sm. 4to. in 1, *old limp vellum* (large copies); RARE, £1. 10s
Perusia, 1619—Terni, 1622
The first work was an attack on Galileo's supposed opinion on the nature of comets, as expressed by his disciple Guiducci, and is important as having provoked Galileo's crushing reply in his *Il Saggiatore* (v. No. 8221 ante). The second is a reply to Grassi.
- 8587 [——] RATIO PONDERUM LIBRAE et SIMBELLE: in qua quid è LOTHORII SARSII Libra Astronomica, quidque è GALILEI GALILEI SIMBELLATORE, de Cometis statuendum sit, collatis utriusque Rationum Momentis, Philosophorum Arbitrio proponitur, Auctore eodem LOTHARIO SARSIO SIGENSANO, editio princeps; with copperplate, sm. 4to. contemporary limp vellum (browned, but large and sound copy); rare, 15s
Lutetiae Paris., 1626
The author's answer to Galileo's *Il Saggiatore* (v. No. 8221 ante). Grassi was one of the chief movers in Galileo's prosecution.
- 8588 **GRASSMANN** (Hermann Günther) DIE AUSDEHNUNGSLEHRE, vollständig und in strenger Form bearbeitet, 8vo. *hf. calf gilt* (nice copy); scarce, 7s 6d
Berlin, 1862
An enlargement and continuation of this classical work originally published in 1844. 'His researches on non-commutative algebras are contained in his *Ausdehnungslehre*. This work has had great influence, especially on the continent, where Grassmann's methods have generally been followed in preference to Sir W. R. Hamilton's.'—*W. W. R. Bull.*
- 8589 **GRATTAROLI** (Marco, *Veneto*) RAGGUAGLI de' CAMBII de tutte le PIAZZE, che NEGOTIANO con VENETIA, con le Regole, e Distintioni, ed altri Conti da fare Arbitrii in Mercantie, 2 vols. sm. 4to. in 1, *fine copy in old Italian vellum*, £1. 10s
Venetia, 1680
VERY RARE, and apparently unknown to Mr. Richard Brown, who does not mention the work in his 'Bibliography of Bookkeeping', while Prof. Riccardi, who had seen no copy of it, merely quotes it on the authority of Cicogna's *Saggio*. There was also no copy in the Libri Library.
- 8590 **GRAVESANDE** (Willem Jacobus 's; F.R.S.) THE ELEMENTS of UNIVERSAL MATHEMATICS, or ALGEBRA; with a Specimen of a COMMENTARY on SIR ISAAC NEWTON'S UNIVERSAL ARITHMETIC, containing Demonstrations of his Method of finding Divisors, and of his Rule for extracting the Root of a Binomial; also a New Rule for determining the Form of an Assum'd Infinite Series, translated from the Latin; 2nd Edition, with 4 folding plates, 8vo. *old sheep* (joints cracked), 6s
1752
- 8591 ——— ESSAI de PERSPECTIVE; with 32 plates, 12mo. contemporary vellum gilt, 5s
La Haye, 1711
- 8592 ——— ESSAY on PERSPECTIVE, translated [by EDMUND STONE, F.R.S.], with 32 copperplates, 8vo. *old panelled calf gilt* (back slightly damaged), 6s
1724
Pp. 96-100 treat of Dialling, and pp. 101-20 of 'The Use of the Camera Obscura in Designing'
- 8593 ——— MATHEMATICAL ELEMENTS of NATURAL PHILOSOPHY, confirmed by Experiments; or an Introduction to Sir Isaac Newton's Philosophy; translated by J. T. DESAGULIERS, pr., F.R.S.; 2nd Edition, with numerous folding copperplates, 2 vols. 8vo. *old calf gilt*, with fine old armorial bookplate of W. B. Sumner, and engraved slip 'The Bequest of my Brother, the Rev^d Dr. Rob^t Carey Sumner' (1729-71, master of Harrow and friend of Dr. Johnson), 8s 6d
1721
- 8594 ——— PHILOSOPHIAE NEWTONIANÆ INSTITUTIONES, in Usus Academicos, Editio II. auctior; with 17 plates, 2 vols. 12mo. boards, uncut, with bookplate of John Gough, *F.S.A.*, 6s
Leidæ et Amst., 1728
- 8595 ——— EDITIO ALTERA, ex Editione Amstelodamensi II. auctiore recusa; with 17 plates, thick 12mo. interleaved; *old hf. calf* (back damaged), with bookplate of Prof. H. W. Lloyd Tanner, *F.R.S.*, 4s
Vindobonae, 1760
- 8596 ——— PHYSICES ELEMENTA MATHEMATICA, Experimentis confirmata, sive Introductio ad Philosophiam Newtonianam, Editio III., duplo auctior; with 127 folding copperplates, 2 thick vols. 4to. contemporary calf gilt, 12s 6d
Leidæ, 1742
LAST AND BEST EDITION, containing a description of the author's invention of the heliostat.
'Le mérite de cet ouvrage consiste principalement en ce qu'il est peut-être le premier dans lequel on ait vu les expériences et les démonstrations substituées aux hypothèses.'—*Biogr. Gén.*
- 8597 **GRAWINKEL** (C.), und Karl STRECKER: HILFSBUCH für die ELEKTROTECHNIK; unter Mitwirkung von FINK, GÖRZ, u. A. m., 2. Auflage; with 204 woodcuts, large post 8vo. *cl.*, with auto. of Edouard Hospitalier, 3s (p. M. 12)
Berlin, 1891
- 8598 **GRAY** (Edward Whitaker, M.D., F.R.S.) ACCOUNT of the EARTHQUAKE felt in various Parts of ENGLAND, Nov. 18, 1795; with some Observations thereon, 4to. (pp. 29), *sewn*, 2s
1796
- 8599 ——— OBSERVATIONS on the MANNER in which GLASS is charged with the ELECTRIC FLUID, and discharged, 4to. (pp. 4), unbound, 2s
1788
- 8600 **GRAY** (John) ELECTRICAL INFLUENCE MACHINES: their Historical Development and Modern Forms, with Instructions for making them, with 4 folding plates, and 89 woodcuts, cr. 8vo. *cl.*, 2s 6d
1890
- 8601 **GRAY** (P. L.) THE PRINCIPLES of MAGNETISM and ELECTRICITY, with 181 woodcuts, cr. 8vo. *cl.*, 2s
1901

- 8603 **GRAY (Andrew, F.R.S., Univ. Glasgow)** ABSOLUTE MEASUREMENTS in ELECTRICITY and MAGNETISM, with 15 woodcuts, 16mo. cl., 1s 6d 1884
- 8604 ——— SECOND EDITION, greatly enlarged, with 66 woodcuts, 12mo. cl., 2s 6d (p. 5s 6d) 1889
- 8605 ——— The THEORY and PRACTICE of ABSOLUTE MEASUREMENTS in ELECTRICITY and MAGNETISM, with 303 illustrations, 2 vols. cr. 8vo. in 3, cl., £1. 1s (p. £1. 17s 6d) 1888-93
- 8606 ——— VOL. I ONLY, with 105 illustrations, thick cr. 8vo. cl., 6s (p. 12s 6d) 1888
The standard work on the subject.
- 8607 ——— TREATISE on MAGNETISM and ELECTRICITY, Vol. I (all pub.), illustrated, 8vo. cl., 8s (p. 14s nett) 1898
- 8608 ——— TREATISE on PHYSICS, Vol. I (all pub.): DYNAMICS and PROPERTIES of MATTER, with 350 woodcuts, 8vo. cl., 7s 6d (p. 15s) 1901
'Providing a treatise which may serve for those who wish to have in one book an account of theoretical and experimental physics sufficient for most practical purposes of scientific and technical education.'—Preface. It supposes, however, a knowledge of the calculus.
- 8609 ———, and **George Ballard MATHEWS, F.R.S.**: TREATISE on BESSEL FUNCTIONS, and their Applications to Physics, with diagrams, 8vo. cl., 9s (p. 14s nett) 1895
Including a special chapter on Steady Flow of Electricity or of Heat in Uniform Isotropic Media; Propagation of Electromagnetic Waves along Wires; Diffraction of Light; and at end a Bibliography.
- 8610 **GRAY (Peter, F.R.A.S.)** TABLES for the FORMATION of LOGARITHMS and ANTI-LOGARITHMS to TWELVE PLACES, with explanatory Introduction, 8vo. boards (scarce), 6s 1865
The author devoted his life to the study of Life-Contingencies as a labour of love, and was a constant contributor to the Journal of the Institute of Actuaries.
- 8611 ——— TABLES for the Formation of LOGARITHMS and ANTI-LOGARITHMS to 24 and less Places, with Introduction and Historical Preface, roy. 8vo. cl. (scarce), 10s 6d 1876
An enlargement of the foregoing work. The tables are calculated chiefly on original methods invented by the author.
- 8612 **GRAY (Thomas)** OBSERVATIONS on a GENERAL IRON RAILWAY, or LAND STEAM-CONVEYANCE; to supersede the Necessity of Horses in all Public Vehicles; showing its vast Superiority in every Respect, over all the present PITIFUL METHODS of CONVEYANCE by TURNPIKE ROADS, CANALS, and Coasting Traders, containing every Species of Information relative to RAIL-ROADS and LOCO-MOTIVE ENGINES; 5th Edition, with 5 plates (2 folding), 8vo. hf. cl., uncut (VERY SCARCE), £1. 5s 1825
- 8613 ——— ANOTHER COPY, hf. morocco extra, uncut, t. e. g., £1. 7s 6d
Thomas Gray was a native of Leeds, and as a boy had seen Blenkinsopp's famous locomotive at work on the Middleton cogg'd railroad. He was one of the first to advocate the building of a 'general iron road,' more especially one between Liverpool and Manchester, but shared the usual fate of prophets in his own country, and died poverty-stricken and broken-hearted in 1848 (*D. N. B.*).
The above work however, which first appeared in 1822, may be said to have materially contributed towards familiarising the idea of a general railway system, although his own plan—cog wheels on cog rails—proved as impracticable as unnecessary.
The above edition contains some interesting plates of railway carriages, and plans of a 'General Iron Rail-way for Great Britain and Ireland'.
- 8614 **GREAVES (John, Savilian Prof. Astronomy, Oxon.)** MISCELLANEOUS WORKS, many now first published, with LIFE by THOMAS BIRCH, F.R.S., with copperplates (some folding), 2 vols. 8vo. sound copy in contemporary calf gilt, with fine old bookplate of Sir Robert Abdy, 12s 6d 1737
- 8615 ——— ANOTHER COPY, 2 vols. contemporary calf extra, richly tooled, 15s
Containing the 'Pyramidographia', the author's best-known work, 'a Discourse of the Roman Foot, and Denarius', 'Dissertation on the Sacred Cubit of the Jews, trans. from the Latin of Sir Isaac Newton, not yet published', etc., etc. The author was besides one of the most learned Orientalists of the day and a great Eastern traveller and collector of MSS., all with a view to the study of mathematics. He was Sub-Warden of Merton and a friend of Abp. Laud, and was accordingly expelled from his office and chair by the Parliamentary visitors in 1648, with the loss of nearly all his library.
——— v. ABULFEDA, No. 5627, ante.
- 8616 **GREAVES (John, Christ's Coll., Cantab.)** TREATISE on ELEMENTARY HYDROSTATICS, with diagrams, cr. 8vo. cl., 2s 6d (p. 5s) Univ. Press, Cambridge, 1902
- 8617 ——— TREATISE on ELEMENTARY STATICS, with 133 illustrations, post 8vo. cl., 2s 6d (p. 5s) 1836
- 8618 ——— SECOND EDITION, with 129 illustrations, post 8vo. cl., 3s 1888
- 8619 **GREELY (Major-Gen. Adolphus Washington, U.S. Army)** CHRONOLOGICAL LIST of AURORAS, observed from 1870 to 1879, 4to. sewn, with auto. of Prof. A. S. Herschel, F.R.S., 2s 6d Washington, 1881
- 8620 ——— ISOTHERMAL LINES of the UNITED STATES, 1871-1880, 12 maps, 4to. sewn, with Prof. Herschel's auto., 2s 6d *ibidem*, 1881
- 8621 **GREEN, (Alexander Henry, F.R.S., Prof. Geology, Oxon.)** GEOLOGY for Students and General Readers, PART I (all pub.): PHYSICAL GEOLOGY, first edition, with 144 woodcuts, thick large post 8vo. cl., with author's inscr., 5s 1876
- 8622 ——— [THIRD AND LAST EDITION, wholly re-written], with 236 woodcuts, 8vo. cl., 12s (p. £1. 1s) 1882
'Certain branches of the subject were exceptionally well treated.'—*D. N. B.*
- 8623 ———, **Robert RUSSELL, C.E., F.G.S., and others:** The GEOLOGY of the YORKSHIRE COALFIELD, with numerous folding plans and woodcuts, thick roy. 8vo. hf. calf, 12s (p. £2. 2s) 1878
A proof copy, not including the Appendix and Index, and with List of Contents added and mounted.
- 8624 **GREEN (Commander Francis Mathews, U.S.N.)** REPORT on the TELEGRAPHIC DETERMINATION of DIFFERENCES of LONGITUDE in the WEST INDIES and CENTRAL AMERICA, with 2 plates (one of zenith telescope added), 4to. sewn, 3s 6d Washington, 1877
- 8625 ———, **Rear-Admi. Charles Henry DAVIS, and Lt. J. A. NORRIS, U.S.N.:** TELEGRAPHIC DETERMINATION of LONGITUDES on the EAST COAST of SOUTH AMERICA, with the Latitude of several Stations, with 3 plates, 4to. sewn, 4s *ib.*, 1880

8627 **GREEN** (George, *Fellow of Caius Coll.*) **MATHEMATICAL PAPERS**, edited by NORMAN MACLEOD FERRERS, pr., Master of Caius, original edition, 8vo. cl., uncut (VERY SCARCE) £1. 15s

1871

Including his important 'Essay on the Application of Mathematical Analysis to the Theories of Electricity and Magnetism,' as well as papers on the motion of waves in a canal, and on the reflexion and refraction of sound and light. 'In the latter the geometrical laws of sound are deduced by the principle of energy from the undulatory theory, the phenomenon of total reflexion is explained physically, and certain properties of the vibrating medium are deduced. He also discusses the propagation of light in any crystalline medium.'—*W. W. R. Ball.*

8628 ——— **ESSAY on the APPLICATION of MATHEMATICAL ANALYSIS to the THEORIES of ELECTRICITY, and MAGNETISM, first edition, 4to. FRESH COPY in the original paper cover, uncut, £2. 10s**

Nottingham, printed for the author, by T. Wheelhouse, 1828

VERY SCARCE, only very few copies having been published by subscription. This important paper, which for the first time stated, and powerfully developed, the dynamical significance of the potential, lay neglected and forgotten for nearly 20 years, until Lord Kelvin called public attention to it. This circumstance probably contributed to its extreme scarcity.

'In this essay he first introduced the term 'potential' to denote the result obtained by adding the masses of all the particles of a system, each divided by its distance from a given point; and the properties of this function are first considered, and applied to the theories of magnetism and electricity.'—*D. N. B.*

8629 ——— **MATHEMATICAL INVESTIGATIONS, concerning the LAWS of the EQUILIBRIUM of FLUIDS analogous [*sic*] to the ELECTRIC FLUID, with other similar Researches, 4to. (pp. 63), sewn, 6s 6d**

[Cambridge,] 1832

'Displaying great analytical power.'—*D. N. B.*

8630 **GREEN** [*sive GREENE*] (**Robert, Clare Hall; D.D.**) **THE PRINCIPLES of NATURAL PHILOSOPHY, in which is shewn the INSUFFICIENCY of the PRESENT SYSTEMS, to give us any just Account of that Science: and the Necessity there is of some New Principles, in order to furnish us with a True and Real Knowledge of Nature, with plate and diagrams, sm. 8vo. old calf gilt, (joints cracked); rare, 10s 6d**

Cambridge, 1712

'Greene, while taking an active part in college and parochial work, was convinced that the whole field of knowledge was his proper province. In his preface to the 'Principles,' after being at some pains to prove himself a Whig, he declared his intention of proposing a philosophy, English, Cantabrigian, and Clarendian, which he ventured to call the 'Greenian,' because his name was not much worse in the letters which composed it, than those of Galileo and Descartes. The book is a monument of ill-digested and misapplied learning.'—*D. N. B.*

At end is 'Geometria Solidorum, sive Materiae, seu de Varia Compositione, Progressione, Rationeque Velocitatum.'

8631 **GREENER** (**William Wellington**) **THE GUN, and its Development, 6th Edition, re-written, with numerous plates and woodcuts, cr. 4to. (pp. 768), cl., 5s (p. 10s 6d)**

1896

With an interesting and copiously illustrated history of fire-arms.

8632 **GREENHILL** (**Sir Alfred George, F.R.S.**) **THE APPLICATIONS of ELLIPTIC FUNCTIONS, with diagrams, 8vo. cl. (cover slightly soiled), 6s 6d (p. 12s)**

1892

8633 ——— **ANOTHER COPY, cl. (fresh copy), 7s**

8634 ——— **THE ASSOCIATED DYNAMICS of a TOP and of a BODY UNDER NO FORCES, with diagrams, 8vo. (pp. 68), sewn, 1s 6d**

[1896]

8635 ——— **DIFFERENTIAL and INTEGRAL CALCULUS, with Applications, with diagrams, post 8vo. cl., 3s (p. 7s 6d)**

1886

8636 ——— **SECOND EDITION [greatly enlarged and rewritten], with 58 diagrams, thick post 8vo. cl., 5s 6d (p. 10s 6d)**

1891

'The chief novelties in the present work consist in carrying on the subjects of the differential and integral calculus together, and in the use of the hyperbolic functions in conjunction with the ordinary circular trigonometrical functions.'

—*Preface.*

8637 ——— **GEOMETRICAL CONSTRUCTION of GUN STRAINS, with diagrams, 8vo. sewn, 1s 6d**

Fort Monroe, Va., 1895

8638 ——— **NOTES on DYNAMICS; 2nd Edition, with 15 folding plates, folio, boards, 3s**

1903

The above copy contains an auto. letter and diagrams from the author to F. J. Jervis-Smith, pr., F.R.S.; also MS. matter by the latter, etc.

8639 ——— **SOLUTIONS of the CAMBRIDGE SENATE-HOUSE PROBLEMS and RIDERS for 1875, with 4 folding plates, cr. 8vo. cl. (scarce), 6s**

1376

8640 ——— **TREATISE on HYDROSTATICS, with 108 diagrams, post 8vo. cl., 4s (p. 7s 6d)**

1894

8641 **GREENOUGH** (**George Bellas, F.R.S., first P.G.S.**) **CRITICAL EXAMINATION of the FIRST PRINCIPLES of GEOLOGY, 8vo. boards, uncut, 8s 6d**

1819

Including essays on Stratification; the Figure of the Earth; the Inequalities on its Surface previously to diluvian Action, and their Causes; Formation; the Order of Succession in Rocks, and the Properties of Rocks; the History of Strata; and Mineral Veins.

'Mainly directed against the views of the plutonists. The work was translated into French, German, and Italian.'—*D. N. B.*

8642 **GREENWELL** (**George C.**) **PRACTICAL TREATISE on MINE ENGINEERING, with 62 coloured folding plates, besides woodcuts, roy. 4to. hf. morocco (nice copy), 10s 6d**

Newcastle-on-Tyne, 1855

Treating more especially of coal-mining.

8643 **GREENWOOD** (**Col. George**) **RAIN and RIVERS; or HUTTON and PLAYFAIR against LYLELL and ALL COMERS; 2nd Edition, with woodcuts, 8vo. cl. (o. p.), 4s 6d (p. 10s 6d)**

1866

'An excellent little work, in which the atmospheric origin of all river valleys is advocated in the clearest and most convincing style. I recommend it to the perusal of all geologists.'—*A. J. Jukes-Browne, F.R.S.*

8644 **GREENWOOD** (**William Henry, M.I.C.E.**) **STEEL and IRON: the Practice and Theory of the several Methods pursued in their Manufacture, and of their Treatment in the Rolling Mills, the Forge, and the Foundry, with 97 illustrations, 12mo. cl., 2s 6d**

1900

8645 **GREG** (**Robert Phillips, F.G.S.**) **ESSAYS on METEORITES, 8vo. (pp. 40), sewn, 1s 6d**

1855

8646 **GREGORIO di San FRANCESCO** (**Padre**) **L'OMBRE ILLUSTRATE, ovvero TRATTATO di OROLOGJ a SOLE; with numerous diagrams, sm. 4to. boards, g. e. (title guarded, but fine copy);**

Roma, 1715

RARE, £1. 5s

RARE, and unknown to Poggendorff and other bibliographers. The last 95 pp. have a separate pagination and comprise 'Tavola delli Logaritmi, e Mesologaritmi regolati dal seno tutto 100,000' (pp. 95).

Houzeau-Lancaster no. 11,586, who state that the author's real name was D. Malberto.

AN ESSAY

ON THE

APPLICATION

OF

MATHEMATICAL ANALYSIS TO THE THEORIES OF
ELECTRICITY AND MAGNETISM.

BY

GEORGE GREEN.

Reprinted:

PRINTED FOR THE AUTHOR, BY T. WHELDON.

SOLD BY HAMILTON, ADAMS & Co. 35, PATERNOSTER ROW; LONGMAN & Co. 1 AND W. JOY, LONDON,
J. DEIGHTON, CAMBRIDGE;

AND S. BENNETT, H. BARNETT, AND W. DEANER, NOTTINGHAM.

1828,

Über

die Erhaltung der Kraft,

eine physikalische Abhandlung,

vorgelesen in der Sitzung der physikalischen Gesellschaft zu Berlin,
am 23sten Juli 1847

VON

Dr. H. Helmholtz.

B e r l i n ,

Druck und Verlag von G. Reimer.

1847.

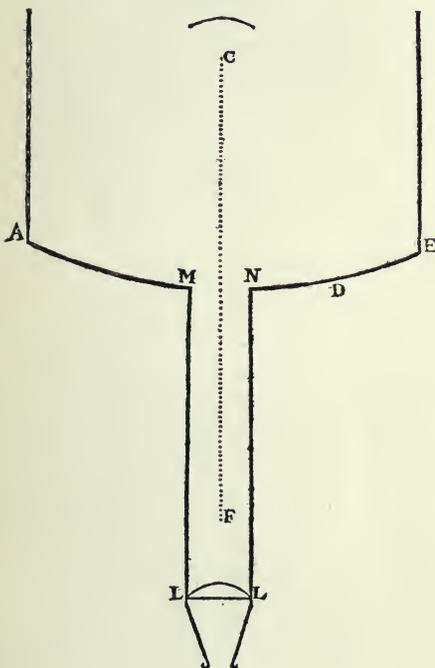
CATOPTRICÆ ET DIOPTRICÆ SPHÆRICÆ ELEMENTA.

Auctore *DAVIDE GREGORIO*,
M. D. Astronomiæ Professore *Saviliano*
Oxoniz, & Societatis Regiæ Socio.



EDINBURGI,

Excudebat *Jacobus Watson*, impensis *Davidis*
Scot Bibliopolar, apud quem ad Signum *Apol-*
linis in Arcâ Parliamentari venalia prostant.
Anno Dom. MDCCXIII.



98 DIOPTRICÆ

est a : Similiterque radii qui intra lentem ad β convergunt, refractione ad NLP à b divergunt, hoc est, radiantis AEB , distantia datâ VE à lente remoti, imago distincta est oculo dato in o ; quoniam in data distantia oe oculo debita ponitur: sed & in angulo dato oob videtur ab oculo o , distantia datâ OL , à lente remoto, & lentis crassities VL æqualis est datæ rectæ, q. e. f.

Eadem constructio infervit, si oculus presbytae detur: in eo enim casu, aeB infinitè distat, & rectæ quæ prius erant aL , bL , ducendæ sunt per L , positione datis o a , ob parallelæ, & centrum superficiæ NLP (per *Corol. 6. Prop. XIV.*) triente rectæ Ls ab L distabit.

Quòd si visibile propositum longinquum sit, constructio adhuc simplicior evadet: centrum enim superficiæ anterioris KVM (per *Corol. 1. Prop. XIV.*) triente rectæ vs à vertice v distabit.

Prop. XXIV.

[95]

distantiam ejusdem ab oculi centro, ita tangens semianguli visorii imaginis primæ ex oculi centro, ad tangentem semianguli visorii ejusdem imaginis primæ, ex vertice suæ emergence, vel semianguli visorii imaginis secundæ, ex vertice suæ incidentiæ: & rursus ut distantia imaginis secundæ à vertice suæ emergence, ad distantiam ejusdem à vertice suæ incidentiæ: ita tangens semianguli visorii imaginis secundæ ex vertice suæ incidentiæ, ad tangentem semianguli visorii imaginis secundæ ex vertice suæ emergence, vel semianguli visorii imaginis tertie ex vertice suæ incidentiæ: & ita progrediatur ad semiangulum visorium imaginis ultimæ ex vertice suæ emergence, seu visibilis ex vertice suæ incidentiæ, qui semiangulus duplicatæ dat angulum visibilis quæritur ex vertice suæ incidentiæ. Demonstrationem videre licet in *Prop. 53 & 57* hujus.

De Mechanica horum speculorum, & lentium, ab aliis frustra tentata; ego in mechanicis minus versatus nihil dico: audacter tamen asserto, optice perfectionem in lentibus & speculis sphericis frustra queri. Si vero cui placeat poterit præcipuus hujus tractatus propositiones, sphericis applicare: est non adeo perfectæ. Porro enim sphaeræ (præterquam quod radios parallelos in unum punctum non congregat) locum imaginis præbet in una superficie spherica, habente idem centrum cum portione; quæ superficies non potest omnimodo concurrere cum alia superficie spherica: igitur tamen concurrere requiriter, saltem ad sentium, ut ex prædictis satis apparet. Aliæ etiam sunt lentium sphaericarum imperfectiones, à dictis emergentes: veluti, quod in telescopiis multum amplificandis, pertinet ad imaginem ultimam, vix poterit ultra duos vel tres gradus dilatari: ut computanti satis patebit: unde provenit horrenda obscuritas. At contra, lentes hyperbolicas solum obijciat, quod nihil possit distinctissime videri, præter punctum visibilis, in axe machine existens: Sed hæc infirmitas (si ita appellare liceat) in ipso oculo est: satis manifesta; non tamen nature imputanda; quæ nihil frustra, sed omnia quam commodissime peragit. Nihilominus, lentibus, & speculis concavis non concessis; satis erit portionibus sphericis uti loco sphaerideon, & conoideon parabolicarum, in catoptrica; quæ hyperbolicarum in dioptrica; cum quibus portiones sphericæ minus conveniunt.

Hic inur ad astra.

Prop.

No. 8656 (page 439).

The first suggestion of an achromatic telescope.

- 8648 **GREENWICH OBSERVATIONS**:—ASTRONOMICAL, MAGNETICAL and METEOROLOGICAL OBSERVATIONS at the ROYAL OBSERVATORY, GREENWICH, under the Direction of SIR GEORGE BIDDELL AIRY, SIR WILLIAM HENRY MAHONEY CHRISTIE, F.R.S., and others, from 1873 to 1908, 36 vols., with **Extra Publications** as under, 13 v.—in all 49 vols. thick impl. 4to. *cl.*, £8. 8s (p. £44.) 1875-1910
- LIST OF EXTRA PUBLICATIONS:—ASTROPHYSICAL CATALOGUE 1900-0, Greenwich Section, Dec. + 64° to 90°, 2 plates, 2 v., '04-8: Telegraphic Determination of Longitude, 1888-1902, 7 plates, '06: New Reduction of Groombridge's Circumpolar Catalogue for 1810-0, by F. W. Dyson, F.R.S., and W. G. Thackeray, F.R.A.S.; *portrait and plate*, '05: Photo-Heliographic Results, 1874-85, '07: Observations of the Planet Eros, 1900-1, *front.*, etc., '03: Nine-Year and Ten-Year Star Catalogues for 1872, 1880, 1890, and 1900, 4 v., 1876-1909: Reduction of Greenwich Meteorological Observations, pts. I, III—IV (pt. II forming part of 'Observations' for 1887), plates, 3 v., '78-1906.
- 8649 ——— ANOTHER SET, from 1896 to 1907, 12 v.: with the **Extra Publications as above** (except 'Photo-Heliographic Results,' and 'Meteorological Observations,' pt. IV), 11 v.—in all 23 vols. impl. 4to. *cl.*, £5. 5s (p. £19. 6s) 1878-1909
- 8650 ———: ASTROGRAPHIC CATALOGUE, 1900-0. Greenwich Section, Dec. + 64° to 90°, from Photographs taken and measured at the Royal Observatory, Greenwich, 2 plates, and diagrams, 2 thick vols. impl. 4to. *cl.*, £1. 5s (p. £3.) *Edin.*, 1904-8
- 8651 **GREGAN-CRAUFURD** (Alexander Quintin, *pr.*) ESSAY on the DEVELOPMENT of FUNCTIONS, 8vo. (pp. 34), *sewn* (*scarce*), 4s 1844
- 'All the ordinary and fundamental developments are here obtained by a new method.'—*Preface*.
- 8652 **GREGORIUS a Sto. VINCENTIO**, S.J.: OPUS GEOMETRICUM de QUADRATURA CIRCULI et SECTIONE CONI X Libris comprehensum; with *fine engraved title*, and numerous diagrams (pp. c. 1200): **SARASA** (Alfonso Antonius de, S.J.) SOLUTIO PROBLEMATIS a R. P. MARINO MERSENNO propositi (pp. 35)—2 vols. roy. folio in 1, *old calf gilt, newly rebounded* (RARE), £1. 18s 6d *Antverpiæ*, 1647-9
- 'Gregory St. Vincent is the greatest of circle-squarers, and his investigations led him into many truths: he found the property of area of the hyperbola which led to Napier's logarithms being called *hyperbolic*. Montucla says of him, with sly truth, that no one has ever squared the circle with so much genius, or, excepting his principal object, with so much success. His reputation, and the many merits of his work, led to a sharp controversy on his quadrature, which ended in its complete exposure by Huygens and others.'—*Prof. de Morgan*.
- He discovered the expansion of $\log(1+x)$ in ascending powers of x In the *Opus Geometricum* he used indivisibles.—*W. W. R. Ball*.
- His method *ductus plani in planum*, employed in Book VII of the above work, is important in connexion with the invention of the differential calculus.
- 8653 ——— OPUS GEOMETRICUM POSTHUMUM ad MESOLABIUM per RATIONUM PROPORTIONALIAM NOVAS PROPRIETATES. Finem Operis Mors Auctoris antevertit; with numerous diagrams, large folio, *fine copy in old calf* (RARE), £1. 1s *Gandavi*, 1668
- 'Son objet étoit l'invention des deux moyennes proportionnelles continues, problème qu'il poursuivit à travers une multitude de propositions, et de propriétés nouvelles des propositions et proportionnalités, des figures rectilignes, des sections coniques, et surtout de l'hyperbole rapportée à ses asymptotes; mais l'ouvrage n'étant pas terminé, on ne sait pas si son auteur avoit, à l'égard de ce problème, la même prétention que sur la quadrature du cercle.'—*Montucla*.
- 8654 **GREGORY** (David; F.R.S., *Savilian Prof. Astronomy, Oxon.*) ASTRONOMIÆ PHYSICÆ et GEOMETRICÆ ELEMENTA, Editio II, revisa et correctæ, accesserunt Præfatio Editoris [C. HUARTI (pp. 63)], COMETOGRAPHIA HALLEIANA, brevis ad CALCEM HOROLOGIORUM SCIOTERICORUM TRACTATUS [auctore C. HUARTO], et INDEX duplex; with *front. and 46 plates*, 2 vols. 4to. in 1, *contemporary calf gilt* (RARE), £1. 5s *Genevæ*, 1726
- This finely printed edition is specially valuable for containing the first reprint of the now very rare 'Astronomie Cometicæ Synopsis' by EDMUND HALLEY, F.R.S.
- 'It was the first textbook composed on gravitational principles, and remodelling astronomy in conformity with physical theory. Newton thought highly of it, and communicated for insertion in it his 'lunar theory', long the guide of practical astronomers in determining the moon's motions. The discussion in the preface, in which the doctrine of gravitation was brought into credit on the score of its antiquity, likewise emanated from Newton.'—*D. N. B.*
- 8655 ——— The ELEMENTS of ASTRONOMY, PHYSICAL and GEOMETRICAL, done into English, with Additions and Corrections, with DR. HALLEY'S SYNOPSIS of the ASTRONOMY of COMETS, with numerous plates, 2 vols. 8vo. *old panelled calf*, 8s 6d 1715
- First English edition of the foregoing work, including the English version of Halley's 'Synopsis of the Astronomy of Comets.'
- 8656 ——— CATOPTRICÆ et DIOPTRICÆ SPHERICÆ ELEMENTA, editio princeps; with 3 folding plates, 12mo. *sound copy in contemporary sheep* (RARE), £1. 10s *Edinburgi*, 1713
- 'A concluding remark (p. 98), as to the possibility of counteracting colour-*aberration* in lenses, by combining in them media of different densities, gave the first hint of the achromatic telescope.'—*Miss Agnes M. Clerke*. The suggestion was realised in 1757 by the invention of the achromatic lens by JOHN DOLLOND, F.R.S.
- 8657 ——— TREATISE of PRACTICAL GEOMETRY, translated, with Additions [by COLIN MACLAURIN, F.R.S.]; 7th Edition, with 5 copperplates, 8vo. *sewn*, 4s *ib.*, 1769
- 8658 **GREGORY** (James, F.R.S.) GEOMETRIÆ PARS UNIVERSALIS, inserviens QUANTITATUM CURVARUM TRANSMUTATIONI et MENSURÆ; with numerous diagrams, sm. 4to. *sewn*, (*large and sound copy*); rare, 12s 6d *Patavi*, 1668
- 'In the *Geometria Pars* the author explained how the volumes of solids of revolution can be determined.'—*W. W. R. Ball*.
- 8659 ——— OPTICA PROMOTA, seu addita Radium Reflexorum et Refractorum Mysteria, Geometricæ enucleata; cui subnectitur APPENDIX, subtilissimorum Astronomiæ Problematum Resolutionem exhibens, editio princeps; with numerous diagrams, sm. 4to. LARGE AND SOUND COPY in *contemporary calf* (VERY RARE), £2. 12s 6d *Londini, J. Hayes, pro S. Thomson*, 1663
- 'Containing the first feasible description of a reflecting telescope, his invention of which dated from 1661. It consisted essentially of a perforated parabolic speculum in which the eye-piece was inserted with a small elliptical mirror, placed in front to turn back the image. The first Gregorian telescope was presented to the Royal Society by Robert Hooke in 1674, and the same form was universally employed in the XVIIIth Century.'—*D. N. B.*
- The utility of the transits of the inferior planets in furnishing an accurate method of determining the value of the solar parallax was first pointed out by James Gregory in his *Optica Promota*, in 1663.—*Prof. R. Grant, F.R.S.*
- 8660 **GREGORY** (John, C.E.) COMPLETE COURSE of CIVIL ENGINEERING, comprising Plane Trigonometry, Surveying, and Levelling, with their Application, 5 folding plates, and numerous other illustrations, 8vo. roan, 3s 6d [1842]

- 440 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8662 **GREGORY** (Duncan Farquharson; first editor of 'Cambridge Mathematical Journal') EXAMPLES of the PROCESS of the DIFFERENTIAL and INTEGRAL CALCULUS, with 4 folding plates, 8vo. calf gilt, 4s
Cambridge, 1841
- 8663 ——— SECOND [LAST] EDITION, by WILLIAM WALTON, with 4 folding plates, large 8vo. cl., 6s
ib., 1846
- 8664 ——— ANOTHER COPY, prize calf gilt, 7s
Prize copy t. Dr. James Bell, F.R.S., signed by PROF. DE MORGAN.
'A work which produced a great change for the better in the Cambridge mathematical books. It is the first in which constant use is made of the method known by the name of the separation of the symbols of operation, and the author has enlivened its pages by occasionally introducing historical notices of the problems discussed.'—D. N. B.
- 8665 ———, and William WALTON: TREATISE on the APPLICATION of ANALYSIS to SOLID GEOMETRY, with 3 plates: **HYMERS** (John, Rector of Brandesburton, F.R.S.; founder of *Hymers College, Hull*) TREATISE on CONIC SECTIONS, 3rd Edition, enlarged, with 4 folding plates—2 vols. 8vo. in 1, hf. calf gilt, 4s
ib., 1845
- 8666 ——— SECOND [LAST] EDITION, with 3 plates, 8vo. boards, 5s
ib., 1852
- 8667 ——— ANOTHER COPY; also: **Hymers** (John, D.D., F.R.S.) TREATISE on ANALYTICAL GEOMETRY of THREE DIMENSIONS, containing the Theory of Curve Surfaces, and of Curves of Double Curvature; 3rd Edition, with 6 plates—2 vols. 8vo. in 1, hf. calf, 7s
ib., 1852-48
'The first treatise in which the system of solid geometry is developed by means of symmetrical equations, and a great advance on those of Leroy and Hymers.'—D. N. B.
- 8668 **GREGORY** (George, D.D., *Prebendary of St. Paul's*) The ECONOMY of NATURE explained and illustrated on the Principles of Modern Philosophy, with 46 plates, 3 vols. 8vo. contemporary hf. calf gilt (nice copy), with Bp. Watson's Calgarth Park booklabel, 7s 6d
1796
- 8669 ——— SECOND EDITION, with considerable Additions, 56 plates, 3 vols. 8vo. old hf. calf gilt (sound copy), with Bp. Watson's Calgarth Park booklabel, 8s 6d
1798
- 8670 ——— ANOTHER COPY, mottled calf extra (fine copy), 10s
- 8671 ——— LECTURES on EXPERIMENTAL PHILOSOPHY, ASTRONOMY, and CHEMISTRY, with 35 plates, 2 vols. fcap. 8vo. in 1, hf. calf, 5s
1808
- 8672 **GREGORY** (Olinthus Gilbert, LL.D., F.R.A.S.) ACCOUNT of some EXPERIMENTS made to determine the VELOCITY with which SOUND is TRANSMITTED in the ATMOSPHERE, 4to. (pp. 19), sewn, with author's inscr., 4s 6d
Cambridge, 1824
'His treatise on mechanics and his experiments to determine the velocity of sound were his most important contributions to physical science.'—D. N. B.
- 8673 ———, and Henry LAW, C.E.: MATHEMATICS for PRACTICAL MEN: a Commonplace Book of Pure and Mixed Mathematics; 4th Edition, by JOHN RADFORD YOUNG, with 13 folding plates, besides woodcuts, large 8vo. cl., 6s
1862
- 8674 **GREGORY** (William, Prof. Chemistry, Edin.) On the COMPOSITION of the PETROLEUM of RANGOON, with Remarks on Petroleum and Naphtha in general, 4to. (pp. 7), sewn, with author's inscr., 2s
Edin., 1835
- 8675 ——— HANDBOOK of ORGANIC CHEMISTRY: a new and greatly enlarged Edition of the 'Outlines of Organic Chemistry'; 3rd [last] Edition, much extended, post 8vo. cl., 3s 6d
1852
'Having been a favourite pupil of Liebig at Giessen, Gregory did much to introduce his researches into this country.'—D. N. B.
He introduced a process for making hydrochlorate of morphia from opium which came into general use.
- 8676 ——— LETTERS to a CANDID ENQUIRER on ANIMAL MAGNETISM, thick post 8vo. cl., 5s
1851
Almost exclusively on 'occult science', and mentioning a number of interesting cases.
- 8677 **GRELLE** (Friedrich) ANALYTISCHE GEOMETRIE der EBENE; with 91 woodcuts, 8vo. cl., 2s
Hannover, 1861
- 8678 **GREN** (Friedrich Albert Karl; founder of 'Annalen der Physik') PRINCIPLES of MODERN CHEMISTRY, systematically arranged, translated, with Notes and Additions, concerning later Discoveries, by the Translator, with Tables [on Chemical Attraction, etc.], with 7 copperplates, 2 vols. 8vo. boards, uncut, 7s 6d
1800
Containing descriptions and illustrations of the chemical apparatus in use at the time.
- 8679 **GRESLEY** (William Stukeley) GLOSSARY of TERMS used in COAL MINING, with 138 woodcuts, post 8vo. cl., 2s 6d (p. 5s)
1883
- 8680 [**GRETSCHHEL** (Heinrich)] Das TELEPHON, der PHONOGRAPH, und das MIKROPHON; with 19 woodcuts, post 8vo. (pp. 44), sewn, 3s
Leipzig, 1878
Interesting as an early work on the phonograph. 'Das Telephon' since 1873 has been admirably translated (by August Command ?) into the vulgar tongue as der Fernsprecher.
- 8681 [————] ZWEITE AUFLAGE, umgearbeitet und wesentlich vermehrt; with 70 woodcuts, 8vo. (pp. 139), sewn, 2s
ibidem, 1883
- 8682 **GREW** (Edwin Sharpe) The GROWTH of a PLANET, with 6 plates, and numerous diagrams, post 8vo. cl., 3s 6d (p. 6s)
[1911]
- 8683 [**GREW** (Nehemiah, M.D., F.R.S.)] NEW EXPERIMENTS, and USEFUL OBSERVATIONS concerning SEA-WATER MADE FRESH, according to the PATENTEE'S INVENTION, by a FELLOW of the COLLEGE of PHYSICIANS, and of the ROYAL SOCIETY, 4th Edition, sm. 4to. (pp. 13), sewn (rare), 7s 6d
1684
'It speedily went into ten English, besides French and Italian, editions. The process of boiling and condensing, though approved by him, did not originate with him.'—D. N. B.
- 8684 ———: RECUEIL d'EXPERIENCES et OBSERVATIONS sur le COMBAT qui procede du MELANGE des CORPS [par N. GREW]; sur les SAVEURS et sur les ODEURS [par ROBERT BOYLE]; et sur le SANG et le LAIT [par A. VAN LEEUWENHOEK], 12mo. fine copy in contemporary calf gilt (rare), 12s
1679
Grew's paper is a translation of his 'Of the Nature, Causes, and Power of Mixtures', originally read before the Royal Society, Dec., 1674. He was an early and able vegetable physiologist, and probably the first man to observe sex in plants.

- 8686 **GRIBBLE** (Theodore Graham, C.E.) PRELIMINARY SURVEY and ESTIMATES, with 133 illustrations (9 being plates), 12mo. cl., 2s 1891
- 8687 ——— SECOND EDITION [enlarged], with 133 illustrations (12 being plates), 12mo. cl., 3s 6d (p. 7s 6d) 1897
- Containing at end a valuable glossary of astronomical and geodetic terms (pp. 25).
- 8688 [**GRIFFIN** (John Joseph)] CHEMICAL RECREATIONS: a Series of Amusing and Instructive Experiments, which may be performed Easily, Safely, and at Little Expense, with the First Lines of Chemistry, and a Minute Description of a Cheap and Simple Apparatus; 2nd Edition, with 6 plates, 18mo. calf extra (scarce), 8s 6d Glasgow, 1823
- This early edition of this well-known work was written at the age of 21, and was unknown to D. N. B., where the first edition is dated 1834. 'He devised many new and simple forms of chemical apparatus, and did much in introducing scientific methods into commercial processes.'—D. N. B.
- 8689 **GRIFFIN** (Robert William) The PARABOLA, ELLIPSE, and HYPERBOLA, treated geometrically, with 52 diagrams, cr. 8vo. cl., with author's inscr., 3s 6d Dublin, 1879
- 8690 **GRIFFIN** (William Nathaniel, pr.) TREATISE on the MOTION of a RIGID BODY, with plate, 8vo. boards, or, sewn, 2s Cambridge, 1847
- 8691 ——— ANOTHER COPY, with Solutions of the Examples, 2 plates, 2 vols. 8vo. boards, 3s 6d ib., 1847-8
- 8692 **GRIFFITH** (Alexander, Vicar of Cratfield) The CYCLE CALENDAR (C. C.), or 128 Years' Cycle System of Measuring Time, large impl. 8vo. cl., g. e., with inscr. to Dr. A. M. W. Downing, F.R.S., 4s 1892
- 'This system is founded on the fact that the solar year multiplied by 128 produces net days without any odd hours, minutes, or seconds.'—Preface.
- 8693 **GRIFFITHS** (Capt. Anselm John, R.N.) OBSERVATIONS on some POINTS of SEAMANSHIP; with Practical Hints on Naval Economy, etc. etc., 8vo. contemporary calf gilt (names on title), 4s Cheltenham, 1824
- 8694 **GRIFFITHS** (Ernest Howard, F.R.S., Principal Univ. Coll. Wales) The LATENT HEAT of EVAPORATION of WATER, with 3 plates, 4to. (pp. 81), sewn, 2s 6d 1895
- 8695 ——— THE THERMAL MEASUREMENT of ENERGY, with 19 illustrations, cr. 8vo. cl., 1s 6d Univ. Press, Cambridge, 1901
- 8696 **GRIFFITHS** (John) NOTES on the APPLICATION of the THEORY of ELLIPTIC TRANSFORMATION to the FORMATION of SEMI-CO-VARIANTS and SEMI-INVARIANTS, 8vo. (pp. 18), sewn, 2s Oxford, 1890
- 8697 **GRIFFITHS** (Thomas) CHEMISTRY of the FOUR SEASONS, principally concerning Natural Phenomena admitting of Interpretation by Chemical Science, and illustrating Passages of Scripture, with 68 woodcuts, post 8vo. cl., 3s 6d 1846
- 8698 ——— REPRINT, with woodcuts, 12mo. cl., 3s 1853
- 8699 **GRIFFITHS** (William) TRUSSES of WOOD and IRON, with complete Working Drawings, 12 plates, oblong 12mo. cl., 2s 6d 1886
- 8700 **GRIMANI** (Raffaello) PRATICA FACILE, e BREVE di MOLTE SORTI di HOROLOGI SOLARI in questa 2^a Stampa corretta et accresciuta; with numerous diagrams, sm. 4to. sewn (browned, otherwise a sound copy), £1. 1s Viterbo, 1642
- RARE, and not noticed by Brunet, Graesse, Poggendorff, etc.
- 8701 **GRIMINELLI** (Domenico, sacerdote da Correggio) NOVISSIMA PRATICA d'ARITMETICA MERCANTILE, 2^a Edizione, corretta, 16mo. old vellum (partly browned), 10s 6d Roma, 1670
- 'Contiene alcuni giuochi numerici, curiosi e dilettevoli'.—Riccardi.
- 8702 **GRIMTHORPE** (Sir Edmund Beckett-Denison, first Lord, K.C., F.R.A.S.) ASTRONOMY WITHOUT MATHEMATICS, 6th Edition, revised for the Results of the Transit of Venus, with woodcuts, cr. 8vo. cl., 4s 1876
- 8703 ——— SEVENTH EDITION, revised and enlarged, with woodcuts, cr. 8vo. cl., 4s 6d 1883
- 8704 ——— CLOCKS and LOCKS; 2nd Edition, with full Account of the GREAT CLOCK at WESTMINSTER ['BIG BEN'], with folding plate of 'Big Ben', and 72 woodcuts, post 8vo. cl. (scarce), 6s Edin., 1857
- The redoubtable author, one of the most remarkable personalities of his race or time, was the designer of 'Big Ben'. Alas! that his self-confidence and wealth prompted him to try to improve St. Alban's Abbey Church as well!
- 8705 ——— RUDIMENTARY TREATISE on CLOCK and WATCH MAKING, with Chapter on CHURCH CLOCKS, and the Proceedings respecting the GREAT WESTMINSTER CLOCK ['BIG BEN'], first edition, with front., and numerous woodcuts, fcap. 8vo. cl. boards (name cut off title); scarce, 7s 6d 1850
- 'The best work on the subject probably extant.'—Engineering. It contains an interesting account of the Airy-Dent-Vulliamy controversy concerning 'Big Ben.'
- 8706 **GRINWIS** (G. H. C.; Univ. Utrecht) Over den INVLOED der MASSAVERDEELING op de SLINGERLENGTE; with diagrams, 8vo. (pp. 32), sewn, 1s 6d Amsterdam, 1886
- 8707 ——— De WAARDE der WISKUNDE voor de Beoefening der PHYSICA, 8vo. (pp. 48), sewn, 2s Utrecht, 1867
- 8708 **GROLLIER** (Gaspard, Comte de Servière): RECUEIL d'OUVRAGES CURIEUX de MATHEMATIQUE et de MECANIQUE, ou Description du Cabinet de M. GROLLIER de SERVIERE; with 88 fine copperplates, illustrating many ingenious water-raising machines, etc. etc., 4to. old calf gilt (RARE), 18s 6d 1719
- 8709 ——— ANOTHER COPY, contemporary white vellum (large copy), £1. 1s
- 8710 **GROSHANS** (J. A.) ÉTUDES et CONSIDÉRATIONS sur la NATURE des ÉLÉMENTS (Corps non-Décomposés) de la CHIMIE, 3 parts 8vo. sewn, 3s [Rotterdam, 1866]-7
- 8711 **GROSS** (Edward John) ALGEBRA, Part II; 3rd Edition, post 8vo. cl. (o. p.), 4s (p. 8s 6d) 1884
- A continuation of J. Hamblin Smith's Algebra, which forms Part I.
- 8712 **GRÜNHUT** (Leo) Die CHEMIE des WEINES, roy. 8vo. sewn, 2s Stuttgart, 1897

- 442 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8715 **GROSS (Georg)** DIE MECHANISCHE WÄRMETHEORIE (THERMODYNAMIK), unter besonderer Berücksichtigung der MOLEKULARTHEORIE, I. Band; with 47 woodcuts, 8vo. sewn, 5s (p. M. 8) Jena [1898]
- Intended as a preparatory work to those of Clausius and Zeuner. The 2nd volume has never been published.
- 8716 **GROSSMANN (J.)** FÜHRER in der GEOMETRISCHEN ANALYSE der KRYSTALLOGRAPHIE; with plate and 29 woodcuts, 8vo. sewn, 2s Leipzig, 1857
- 8717 **GROSSMANN (Jacob, F.I.C.)** AMMONIA and its COMPOUNDS, with woodcuts, cr. 8vo. cl., 2s 1906
- 8718 **GROTH (Lorentz Albert)** The POTASH SALTS: their Production and Application to Agriculture, Industry, and Horticulture, with numerous illustrations, 8vo. sewn, 3s 1902
- 8719 **GROTH (Paul H. Ritter v.; Univ. Munich)** PHYSIKALISCHE KRYSTALLOGRAPHIE, und Einleitung in die kristallographische Kenntniss der wichtigeren Substanzen; with 3 folding plates (1 coloured), and 557 woodcuts, 8vo. hf. calf neat, 5s (p. M. 16 unbound) Leipzig, 1876
- First edition of this classic work.
- 8720 **GROTHER (Hermann)** Die ENTWICKELUNG des MASCHINENWESENS und die grossen Ingenieure, 12mo. (pp. 40), sewn, 1s 6d Berlin, 1867
- 8721 **GROVE (Sir William Robert, Justice of the Queen's Bench Division; F.R.S.)** On the CORRELATION of PHYSICAL FORCES: Lectures in the London Institution, 1843, first edition, 8vo. (pp. 56), sewn (very scarce), 10s 6d 1846
- 8722 ——— FIFTH EDITION, with DISCOURSE on CONTINUITY, 8vo. (pp. 330), cl., 4s 1867
- 8723 ——— SIXTH [LAST] EDITION, with other CONTRIBUTIONS to SCIENCE, woodcuts, thick 8vo. cl., uncut (o. p.), 8s 6d (p. 15s) 1874
- This edition includes the Bakerian Lecture, 1852, 'On the Electro-Chemical Polarity of Gases', 'On the Striae seen in the Electrical Discharge in Vacuo', the papers containing his invention of a zinc and platinum galvanic cell, named after him, and of 'gas voltaic battery', as well as numerous other papers contributed to the 'Philosophical Transactions', etc.
- 8724 **GRUBB (Sir Howard, T.C.D., F.R.S.)**, DESCRIPTION of the GREAT 27-INCH REFRACTING TELESCOPE and REVOLVING DOME, for the Imperial and Royal OBSERVATORY of VIENNA, designed and constructed by, with 3 plates (2 folding), and 31 woodcuts, folio, sewn, 4s 1891
- 8725 **GRUNERT (Johann August, Univ. Greifswald)** OPTISCHE UNTERSUCHUNGEN; with 3 plates, 3 vols. 8vo. in 1, hf. calf gilt (scarce), 10s 6d Leipzig, 1846-51
- INHALT: I. Allgemeine Theorie der Fernröhre und Mikroskope: II. Theorie der achromatischen Objective für Fernröhre: III. Theorie der zweifachen achromatischen Oculare.
- 8726 **GRYNAEUS [Germanice GRYNER, junior] (Simon)**: De COMETIS DISSERTATIONES NOVAE Clariss. Virorum THOM. ERASTI, ANDR. DUDITHII, MARC. SQUARCIALUPI, SYMON. GRYNAEI; with vignette on title, and 4 large woodcuts, sm. 4to. old limp vellum (names torn off title, otherwise a fine copy); RARE, £1. 5s [Basileæ], 1580
- The work by GRYNAEUS is entitled: 'Commentarii Duo, de Ignitis Meteoris unus: alter de Cometarum Causis atque Significationibus; accessit ejusdem Observatio Cometæ, qui anno superiore 77, et ab initio 78 fulsit, et Disputatio de Inusitata Magnitudine et Figura Veneris conspecta in fine anni 1578, et ad initium 1579.' There are also two treatises by THOMAS ERAST: 'De Cometarum Significationibus Judicium', and 'De Cometarum Ortu, Natura et Causis Tractatus', and one 'De Cometa in Universum, atque de illo qui anno 1577, visus est, opinio MARCELLI SQUARCIALUPI Plumbinensis.'
- 8727 ——— IDEM TRACTATUS, necnon, HISTORIA ADMIRANDA de PRODIGIOSA APOLLONIAE SCHREIBERAE, Virginis in Agro Bernensi, INEDIA; a PAULO LENTULO, M.D., complurium etiam aliorum, de eiusmodi PRODIGIOSIS INEDIIS NARRATIONES, with front. of the fasting girl (mounted), 2 vols. sm. 4to. in 1, old hf. calf, £2. 2s ib., 1580—Bernæ Helv., 1604
- This rare and curious work, probably the first on fasting as an 'art', is dedicated to James I.
- 8728 **GUADAGNI (Carolo Alfonso, Univ. Pisa)** SPECIMEN EXPERIMENTORUM NATURALIUM; with 8 folding copperplates, sm. 4to. contemporary boards, uncut, 15s Pisis, 1764
- Very rare, and unknown to Riccardi and Poggendorff, nor noticed by Brunet, Graesse, and other bibliographers. The work contains a large number of experiments on electricity and magnetism.
- 8729 **GUARESCHI (Icilio, Univ. Turin)** EINFÜHRUNG in das STUDIUM der ALKALOIDE, mit besonderer Berücksichtigung der vegetabilischen Alkaloide und der Ptomaine, in deutscher Bearbeitung herausg. von HERMANN KUNZ-KRAUSE, impl. 8vo. hf. German morocco gilt, £1. 1s (p. M. 39) Berlin, 1896
- 8730 **GUERICKE (Otto v.; Bürgermeister of Magdeburg)** EXPERIMENTA NOVA (ut vocantur) MAGDEBURGICA de VACUO SPATIO, primum à GASPARE SCHOTTO, S.J.: nunc verò ab ipso Auctore perfectius edita, variisque aliis Experimentis aucta; accesserunt de AERIS PONDERE circa TERRAM, de VIRTUTIBUS MUNDANIS, et SYSTEMATE MUNDI PLANETARIO, sicut de STELLIS FIXIS, ac Spatio illo immenso, quod tam intra quàm extra eas funditur; with finely engraved title, and 20 other fine engravings on copper, folio, contemporary vellum (fine copy); RARE, £2. 8s Amstelodami, 1672
- This celebrated work contains an account of the author's discoveries, viz. the air-pump, the Magdeburg Hemispheres, and the manometer, his electrical machine (the first one invented) consisting of a ball of sulphur, and his experiments on the nature and effects of air, as well as his astronomical treatises.
- The plates include the fine folding one showing the author's experiments with his hemispheres in 1654 at Ratisbon before the Diet and the Emperor Ferdinand III.
- 8731 **GUEST (James J.)** On the STRENGTH of DUCTILE MATERIALS under COMBINED STRESS, with diagrams, 8vo. (pp. 64), sewn, 2s 1900
- 8732 **GUILIELMUS (S., Abbas Hirschaugiensis)**: PHILOSOPHICARUM et ASTRONOMICARUM INSTITUTIONUM Libri III: Opus vetus at nunc primum evulgatum et Typis commissum, sm. 4to. hf. roan (title slightly soiled, but a sound copy); RARE, £1. 1s Basileæ, Henr. Petrus, 1531
- St. William of Hirschau was not only one of the greatest mathematicians of the Eleventh Century, but a great monastic reformer, who introduced the Cluniac rule into Germany, with the result that his strictness filled his House with monks, many of whom shared his learning. He was also a great student of Plain-song.
- 'Pour son époque Guillaume possédait les connaissances les plus étendues; versé dans toutes les sciences du quadrivium, il était le plus renommé pour la finesse des ses raisonnements philosophiques.'—Biogr. Gén.

- 8734 **GUETIER** (André Victor) GUIDE PRATIQUE des ALLIAGES MÉTALLIQUES, *cr. 8vo. cl.*, 3s 1865
- 8735 **GUGLIELMINI** (Domenico, M.D.; F.R.S.) Della NATURA de' FIUMI: Trattato Fisico-Matematico, nuova Edizione, con le Annotazioni di EUSTACHIO MANFREDI; with 18 folding plates, 4to. printed on 'CARTA DISTINTA'; boards, uncut (sound copy), 15s Bologna, 1739
'Raro ed apprezzato, specialmente negli esemplari in carta distinta.'—Riccardi.
 BEST EDITION of this celebrated work in the history of hydraulic engineering.
- 8736 ——— RIFLESSIONI FILOSOFICHE dedotte dalle FIGURE de' SALI, prima edizione; with copper-plate, sm. 4to. old green vellum, with inscr. 'DONO DELL' AUTORE' on title (VERY RARE), £1. 15s
ibidem, 1688
'Opuscolo rarissimo ed interessantissimo per la storia della cristallografia . . . perchè primo in esso l'autore esposi le basi fondamentali della moderna cristallografia.'—Riccardi.
- 8737 **GUGLIELMINI** (Abate Giovanni Battista) PRELECTIONES III [MATHEMATICAE] in Archigymnasio Bononiensi lectae, 8vo. *sewn*, 3s [Bononia, 1815]
- 8738 **GUIBOURT** (Nicolas Jean Baptiste Guillaume) HISTOIRE abrégée des DROGUES SIMPLES; 2 vols. 8vo. in 1, *hf. calf*, 4s 1820
- 8739 **GUIGNET** (Charles Ernest), et Edouard GARNIER: La CÉRAMIQUE ANCIENNE et MODERNE; with 69 illustrations, also numerous *fs.* of trademarks, 8vo. *cl.*, 3s 6d (p. F. 6 nett) 1899
- 8740 **GUILLAUME** (Charles Ed.) Les RAYONS X, et la PHOTOGRAPHIE à travers les CORPS OPAQUES; with 5 plates, and 21 other illustrations, 8vo. *sewn*, 1s 6d 1896
- 8741 **GUMERSALL** (T. B.) TABLES OF DISCOUNT, or SIMPLE INTEREST, at the several Rates of 5, 4½, 4, 3½, 3, and 2½ per cent., from 1 to 365 Days, and from £1 to £20,000, etc., with Tables of Brokerage or Commission, etc., new Edition, 8vo. *cl.*, 3s 6d [1851 or '2]
- 8742 **GUMPACH** (Johannes v.) Über den ALTJÜDISCHEN KALENDER, zunächst in seiner Beziehung zur neuteamentlichen Geschichte; zugleich ein Beitrag zur Evangelien-Harmonistik; roy. 8vo. *cl.* (slightly damaged), with bookplate of William Spottiswoode, P.R.S., 5s Brüssel, 1848
- 8743 ——— The TRUE FIGURE and DIMENSIONS of the EARTH, newly determined from the Results of Geodetic Measurements and Pendulum Observations, etc. etc. etc.; 2nd Edition, entirely recast, with 30 diagrams, 8vo. *cl.* (scarce), 10s 6d 1862
For another work by this believer in a pear-shaped world, see No. 1703, ante. He believed that thousands of lives were lost at sea through ignorance of this Orleanist configuration of the earth.
- 8744 **GUM** (James) The PRACTICAL DESIGN of MOTOR CARS, with 162 illustrations, 8vo. *cl.*, 6s 6d 1910
(p. 10s 6d nett)
- 8745 **GUNTER** (Edmund; pr., Gresham Prof. Astronomy; originator of 'Gunter's Chain') WORKS, containing the Description and Use of the Sector, Cross-Staff, and other Instruments, with a CANON of ARTIFICIAL SIGNES [sic] and TANGENTS, to a Radius of 10000.0000 parts, and the Use thereof in Astronomie, Navigation, Dialling, etc., with a new Treatise of Fortification, and the further Use of the Quadrant fitted for daily practise, etc. etc., by SAMUEL FOSTER; 3rd Edition, corrected and amended by HENRY BOND, with engraved title, frontispiece, and numerous diagrams and woodcuts, sm. 4to. old calf (binding slightly damaged, but a sound and clean copy); VERY RARE, £2. 10s F. Eglesfield, 1653
- 8746 ——— FOURTH EDITION, with the Description and Use of another Sector with more Lines, differing from that of Mr. Gunter, both in Form and Manner of Working, as also, of a Quadrant fitted with new Lines serving the former Uses, and many other, more accurately, both invented and written by SAMUEL FOSTER, the whole Work examined, and in many places enlarged, by WILLIAM LEYBOURN, with 2 copperplates, and numerous woodcuts and diagrams, sm. 4to. FINE COPY in contemporary calf, with auto. and fine old armorial bookplate of Sir Robert Throckmorton (RARE), £2. 10s apud eundem, 1662
- 8747 ——— FIFTH EDITION, diligently corrected, and divers necessary Things and Matters (pertinent thereunto) added, throughout the whole work, not before Printed, by WILLIAM LEYBOURN, with engraved title, 3 copperplates, and numerous diagrams and woodcuts, sm. 4to. contemporary calf (binding slightly damaged, otherwise a very sound copy); RARE, £1. 18s 6d a. e., 1673
- 8748 ——— ANOTHER COPY, old calf, rebounded (wanting the engraved title, and some ll. water-stained, £1. 5s
- The final edition.
- 8749 ——— SIXTH [LAST] EDITION [identical with the Fifth], with engraved title, 3 copperplates, and numerous woodcuts and diagrams, sm. 4to. contemporary calf, newly rebounded, with auto. and bookplate of Prof. W. A. Copinger, F.S.A., £1. 12s 6d a. e., 1680
A verbatim reprint of the fifth Edition. The engraved title bears the date 1673.
 All the above editions contain the celebrated 'Canon Triangulorum', 'the first table of its kind published, which did for sines and tangents what Briggs did for natural numbers.'—D. N. B.
 'The honour of the invention of Logarithms, next to the Lord of Merchiston, and our Mr. Briggs, belongeth to Master Gunter, who exposed their numbers upon a straight line.'—Oughtréd.
 'Gunter was the first to use the terms cosine, cotangent and cosecant for the sine, tangent, and secant of the complement of an arc. To him are also due the invention of the surveying-chain, a quadrant, and a scale, and the first observation of the variation of the compass. The name of Gunter's Scale, or Gunter's Lines, is usually given to the 3 lines to be seen on almost any sector, and marked N, S, T, meaning the lines of logarithmic numbers, of logarithmic sines, and of logarithmic tangents. . . . Many rough problems in areas, heights, cubic contents, and other matters, may be performed through the agency of Gunter's Scale'.
 'Gunter introduced a simple form of slide rule, or as he called it, a 'line of numbers' which provided a mechanical method for finding the product of two numbers.'—W. W. R. Ball.
- 8750 ——— The DESCRIPTION and USE of the SECTOR, CROSS-STAFFE, and other Instruments, with a CANON of ARTIFICIAL SINES and TANGENTS, to a Radius of 10000.0000 parts; 2nd Ed., much enlarged, with a new TREATISE of FORTIFICATION, not before Printed [by SAMUEL FOSTER], with engraved title, copperplate, and numerous diagrams and woodcuts, sm. 4to. *cl.*, with old MS. notes, and a few blank margins cut off, otherwise a fine copy); RARE, £2. 2s W. Jones, 1636

- 444 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8752 **GÜNTHER** (Emil) Die DARSTELLUNG des ZINKS auf ELEKTROLYTISCHEM WEGE; with 59 woodcuts, roy. 8vo. sewn, 6s 6d (p. M. 10) Halle a. S., 1904
- 8753 **GÜNTHER** (Siegmond; Technische Hochschule, München) GESCHICHTE der ANORGANISCHEN NATURWISSENSCHAFTEN im XIX. JAHRHUNDERT; with 15 portraits, thick 8vo. sewn, 6s (p. M. 10) Berlin, 1901
- 8754 ——— HANDBUCH der GEOPHYSIK, 2. [NEUESTE] gänzlich umgearbeitete Auflage; with 387 woodcuts, 2 vols. roy. 8vo (pp. 1685), *hf. green calf gilt, cl. sides (nice copy), with bookplate and auto. of Dr. Emil Reich*, £1. 10s (p. M. 38 sewn) Stuttgart, 1897-9
Latest edition of this well-known standard work. Pp. 1-374 of vol. II contain Meteorology.
- 8755 **GÜRICH** (Georg, Univ. Breslau) Das MINERALREICH; with 8 plates (4 coloured), and 521 other illustrations, roy. 8vo. cl. extra, with bookplate of Dr. Emil Reich, 4s 6d (p. M. 7.50) Neudamm, [1899]
- 8756 **GURNEY** (Sir Goldsworthy; inventor of the Drummond Light and the Gurney Stove) COURSE of LECTURES on CHEMICAL SCIENCE, as delivered at the Surrey Institution, with 8 lithographic plates (1 tinted) by GEORGE SCHARF, 8vo. boards, uncut (SCARCE), £1. 5s 1823
'Faraday, who was then assistant to Sir Humphry Davy at the Royal Institution, admitted his indebtedness to these lectures, which dealt chiefly with heat, electricity, and gases, and anticipated the principle of the electric telegraph'.—D. N. B. The work also contains the author's discovery of the oxy-hydrogen blowpipe. He also superintended the lighting and ventilation of the new Houses of Parliament, which, with their *sequelæ*, have enabled the House of Commons to coddle themselves and spend the public money.
- 8757 **GUTHRIE** (Frederick, F.R.S., founder of the Physical Society of London) On IODIDE of ACETYLE: On the PREPARATION of the DOUBLE ÆTHERS, 8vo. (pp. 7), unbound, 2s 1857
'His first paper printed in English'.—D. N. B.
- 8758 ——— On SALT SOLUTIONS and ATTACHED WATER, with 2 diagrams, 5 parts 8vo. sewn, with author's inscr., 6s 1875-6
Including the discovery of 'cryohydrates'.
- 8759 ——— On STATIONARY LIQUID WAVES, with 8 diagrams, 8vo. (pp. 24), sewn, with author's inscr., 1s 6d 1875
- 8760 **GÜTLE** (Johann Konrad) LEHRBUCH der THEORETISCHEN BLIZABLEITUNGSLEHRE in Vereinigung mit JOHANN FRIEDRICH LUZENS ABHANDLUNG vom BLIZ und den Bliz- und Wetterableitern; with folding copperplate, 8vo. sewn, uncut (rare), 8s 6d Nürnberg, 1804
This work was unknown to Poggenдорff, who only mentions the author's 'Neue Erfahrungen Blitzableiter anzulegen', published in 1813.
- 8761 **GUTTMANN** (Oscar, M.I.C.E.) BLASTING, with 136 woodcuts (including 2 folding plates), large 8vo. cl., 5s (p. 10s 6d) 1892
Including an interesting historical sketch.
- 8762 **GUYOT** (Jules) ÉTUDE des VIGNOBLES de FRANCE, 2^e [dernière] Édition, augmentée d'une Notice et de 4 Tables, par P. COIGNET; with 974 woodcuts, and coloured map, 3 vols. in 6 parts roy. 8vo. sewn, 15s (p. F. 30 nett) Imprimerie Nationale, 1876
- 8763 **GUYTON** de MORVEAU (Louis Bertrand) DESCRIPTION de l'ÆROSTATE — v. No. 5657, ante.
- 8764 **GWILT** (Joseph, F.S.A.) TREATISE of the EQUILIBRIUM of ARCHES, in which the Theory is demonstrated on familiar Mathematical Principles, also the Method of finding the Drift or Shoot of an Arch, etc., first edition, with 3 folding plates, and numerous diagrams, 8vo. *hf. green morocco gilt (nice copy), rare*, 10s 6d 1811
- 8765 ——— SECOND EDITION [much enlarged], with 5 folding plates, and numerous diagrams, 8vo. *hf. cl.*, 7s 6d 1826
The frontispiece of the Second Edition represents a view of the new London Bridge designed by the author, which was chosen as the best by the Board of Works, but rejected by the Court of Common Council.
- 8766 **GYLDÉN** (Johan August Hugo; Univ. Stockholm) STUDIEN auf dem GEBIETE der STÖRUNGS-THEORIE, I. Entwicklung einiger Verbindungen elliptischer Functionen; impl. 4to. sewn, 3s St. Pétersbourg, 1871
- 8767 ——— THEORETISCHE UNTERSUCHUNGEN über die INTERMEDIÄREN BAHNEN der COMETEN in der Nähe eines störenden Körpers, impl. 4to. (pp. 23), sewn, 1s 6d *ibidem*, 1884
- 8768 **HAACK** (R.) SCHIFFSWIDERSTAND und SCHIFFSBETRIEB, nach Versuchen auf dem Dortmund-Ems-Kanal, im Auftrage des Ministers der Öffentlichen Arbeiten bearbeitet; with 2 folding charts, and 31 illustrations, impl. 4to. *hf. cl.*, with Atlas, containing 77 plates, 2 vols. atlas folio, *hf. cl. portfolio*—3 vols., £3. 10s (p. M. 120) Berlin, 1900
- 8769 **HABLÜZEL** (J. J.) LEHRBUCH der SYNTHETISCHEN GEOMETRIE, BAND I: AELTERE und NEUERE PLANIMETRIE; with 295 diagrams, 8vo. *hf. calf gilt*, 2s 6d Leipzig, 1875
- 8770 **HACHETTE** (Jean Nicolas Pierre, de l'Académie) Sur les EXPÉRIENCES ELECTRO-MAGNÉTIQUES de MM. ØRSTED et AMPÈRE, 8vo. (pp. 8), sewn, 3s [1820]
Added is: Note sur un Mémoire lu à l'Académie royale des Sciences, 4 déc. 1820, par M. Ampère (pp. 4).
- 8771 ——— HISTOIRE des MACHINES à VAPEUR, depuis leur Origine jusqu'à nos Jours; with 3 plates, 8vo. *hf. calf (scarce)*, 7s 6d 1830
A valuable historical account, largely based on historical research, but attributing with Arago the invention of the steam engine to Papin.
- 8772 ——— TRAITÉ ÉLÉMENTAIRE des MACHINES, première édition; with 28 folding copperplates, 4to. old *hf. russica*, with auto. and MS. notes of George Rennie, F.R.S., 6s 6d 1811
The first systematic treatise of machinery treated as part of physics.
- 8773 **HADDAN** (Reginald) THE INVENTOR'S ADVISER and MANUFACTURER'S HANDBOOK to PATENTS, DESIGNS and TRADE MARKS, with Appendixes of Forms for every Country, etc., 8th Edition, 8vo. cl., 3s (p. 5s nett) 1911
- 8774 **HADLEY** (H. E.) MAGNETISM and ELECTRICITY for STUDENTS, with 378 illustrations, cr. 8vo. cl., 3s 6d (p. 6s) 1905

8777 **HADLEY** (John, F.R.S.) A SPIRIT LEVEL to be FIXED to a QUADRANT for taking a MERIDIONAL ALTITUDE at SEA, when the HORIZON is NOT VISIBLE, with copperplate (pp. 6): **Hodgson** (James, F.R.S.) CATALOGUE of ECLIPSES of JUPITER'S SATELLITES for 1735 (pp. 9)—4to. unbound (rare), 9s [1734]

The spirit level was the final improvement of Hadley's sextant.

8778 ———: The NATURE and USE of HADLEY'S QUADRANT, with the Theory of that Noble and Useful Instrument, and Description of the NONIUS, 8vo. (pp. 32), *sewn* (plate wanting), rare, 6s 6d [c. 1750]

The only description of the invention of the sextant by Hadley himself was a 10 pp. contribution to the Philosophical Transactions of the Royal Society. The above tract was written by a London optician, and is now rare.

8779 **HAEDER** (Hermann) KONSTRUIERTEN und RECHNEN, 2. neu bearbeitete Auflage; with 24 folding plates, and 1400 cuts, post 8vo. cl., 4s (p. M. 12) *Duisburg*, 1903

WITH MS. NOTES BY AN EARLY ENGLISH BREWER:

8780 **HAGECIUS** [HAJEK] ab **HAYCK** (Thaddæus; M.D.) De CERVISIA, eiusque CONFICIENDI RATIONE, Natura, Viribus, et Facultatibus, Opusculum; interleaved with old writing paper, 12mo. fine copy in contemporary vellum (very rare), £5. 5s

Francofurdi [ad M.], *Andreas Wechel*, 1585

One of the earliest, if not the earliest, printed works on BREWING, and containing numerous and interesting references to English Beer. The above copy is specially interesting for containing at end 12 pp. of MS. in a contemporary English hand, containing recipes for making beer.

The author, ignored both in *Biographie Universelle* and *Biographie Générale*, and other standard biographical works, was a native of Prague, a teacher of mathematics at the Carolinum there, and physician-in-ordinary to the Emperors Maximilian II. and Rudolph II. He died in 1600.

8781 **HAGEN** (Gotthilf Heinrich Ludwig) HANDBUCH der WASSERBAUKUNST, I. Theil: BRUNNEN, WASSERLEITUNGEN und FUNDIRUNGEN, 3. [neueste] neu bearbeitete Auflage, 2 vols. 8vo. in 1, with Atlas, containing 23 plates, oblong folio—3 vols. in 2, half roan, 12s 6d (p. M. 24 *sewn*) *Berlin*, 1869-70

8782 **HAGEN** (Karl Gottfried; *Univ. Königsberg*) GRUNDRISS der EXPERIMENTALCHEMIE; with vignette on title, and 4 folding tables, 8vo. *sewn*, uncut (rare), 8s 6d *Königsberg*, 1786

First edition of one of the earliest text-books of experimental chemistry, which went through four editions.

8783 **HAGENBACH** (August), et **Heinrich KONEN**: ATLAS des SPECTRES d'ÉMISSION des ÉLÉMENTS d'après des Photographies, avec Texte explicatif, traduit par HENRI VEILLON; with 28 plates, 4to. *sewn*, 19s (p. F. 30 net) *Jena*, 1905

'Un atlas établi sur une base unique, et contenant les spectres de tous les éléments avec le degré de perfection que les procédés modernes permettent d'atteindre dans une échelle de reproduction identique pour tous les spectres, et embrassant tant les parties visibles que les invisibles.'

8784 **HAGUE** (Arnold), and Samuel Franklin EMMONS: DESCRIPTIVE GEOLOGY, with 26 fine lithographic plates, thick 4to. cl., 14s *Washington*, 1877

Forming vol. II of the U.S. Geological Exploration of the Fortieth Parallel.

8785 **HAGUE** (Charles Arthur) PUMPING ENGINES for WATER WORKS, with portrait of James Watt, and 113 illustrations, roy. 8vo. cl., 12s 6d (p. £1. 1s net) *New York*, 1907

8786 **HAGUE** (James Duncan) MINING INDUSTRY, with GEOLOGICAL CONTRIBUTIONS by CLARENCE KING, with 38 plates (many folding), thick 4to. cl., with Atlas, containing 14 coloured plans and maps (2 folding), oblong atlas folio, hf. morocco, cl. sides—2 vols., £1. 14s *Washington*, 1870

Forming vol. III of the U.S. Geological Exploration of the Fortieth Parallel.

8787 ———, George Ferdinand BECKER, and others: MINING INDUSTRIES (Report on the Exhibits of Ores, Minerals, and Crude Products of Mining Industry at the Paris Exhibition, 1878), 8vo. hf. roan, 2s 6d [1878]

8788 **HAGUE** (John), SPECIFICATION of the PATENT granted to, for RAISING WATER by the Application and Arrangement of a WELL KNOWN POWER, from Mines, Excavations, Holds of Ships, etc., and giving MOTION to certain MACHINERY, with plate, 8vo. (pp. 6), *sewn*, 4s [1837]

8789 **HAHN** (Daniel) ENTWICKELUNG der ANSICHTEN über die CHEMISCHE CONSTITUTION der NATÜRLICHEN SILICATE, 8vo. (pp. 50), *sewn*, 2s [Berlin], 1874

8790 **HAHN** (Philipp Matthias), and Albrecht v. MYLIUS: DESCRIPTION of a PLANETARIUM, or Astronomical Machine, which exhibits the most remarkable Phænomena, Motions, and Revolutions of the Universe, with folding copperplate, 8vo. (pp. 32), *sewn*, uncut, 5s 1791

Hahn constructed some of the most elaborate planetaria of his time. After his death they were brought to England for sale.

8791 **HADINGER** (Wilhelm Karl v.; F.R.S.E.) On the NATURAL-HISTORICAL DETERMINATION of DIALLAGE, 4to. (pp. 21), *sewn*, 3s 6d *Edin.*, 1823

'Diallage' is a variety of smaragdite. The author, a native of Austria, and afterwards the inventor of the dichroscope, writes a curious English.

8792 **HAIGH** (James, *Silk and Mustin Dyer, Leeds*) The DYER'S ASSISTANT in the Art of DYING [sic] WOOL and Woolen Goods, extracted from the Philosophical and Chymical Works of Ferguson, Dufay, Hellot, Geoffery [sic], Colbert, and de Julienne, translated from the French, with Additions and PRACTICAL EXPERIMENTS, first edition, sm. 8vo. fine and tall copy in contemporary hf. calf, with Bp. Watson's Calgarth Park booklabel (rare), 18s 6d *Leeds*, 1778

8793 ——— LONDON RE-ISSUE, sm. 8vo. hf. bound, 10s 6d [1778]

The first practical English treatise on the subject.

8794 **HAINDL** (Sebastian; *Munich*) MASCHINENKUNDE und MASCHINENZEICHNEN, 2. Auflage; with woodcuts, 8vo., and Atlas, containing 64 plates, folio—2 vols. hf. calf, 5s (p. M. 30 *sewn*) *München*, 1852

8795 **HALBERT** (William, *schoolmaster at Auchinleck*) The PRACTICAL FIGURER; or, an Improved System of Arithmetic, 8vo. tree-calf extra (rare), 15s *Paisley*, 1789

'This Book belonged to Provost John Ballantine of Ayr, the 'Provost John' of Burns's 'Kirk's Alarm.'—*Inscr. on flyleaf.* It also has his autograph on title.

The work was unknown to Lowndes and Allibone.

- 8798 **HALCKEN** (Paul) MATHEMATISCH ZINNEN-CONNECT, of Wiskundige Uytspanningen ter Beoeffeningen van het Verstand, bestaande in 574 zeer konstige Mathematische Voorstellen, met veele konstige Ontbindingen en Regelen vercierd; uyt het Hoogduytisch vertaald, en met eenige Aantekeningen vermeerderd door JACOB OOSTWOOD; with 4 *folding plates*, thick 12mo. *hf. vellum* (RARE), 15s
Purmerende, 1767
A number of curious rhymed problems are interspersed throughout the book. Prof. Moritz Cantor refers to the author as 'den reingewandten Rechenmeister, der ein Buch herausgab, welches zahlreiche Textgleichungen in mehr oder weniger witzige Verse kleidete.'
- 8799 **HALDANE** (John Wilton Cuninghame, C.E.) CIVIL and MECHANICAL ENGINEERING, popularly and socially considered; 2nd Edition, enlarged, with 12 *plates*, 8vo. *cl.* (o. p.), 5s (p. 12s 6d) 1890
- 8800 **HALDANE** (Robert) WORKSHOP RECEIPTS, SECOND SERIES, *illustrated*, cr. 8vo. (pp. 518), 1906
cl., 2s (p. 5s)
- 8801 [**HALE** (Sir Matthew, C.J.)] DIFFICILES NUGÆ: or, Observations touching the TORRICELLIAN EXPERIMENT, and the various Solutions of the same, especially touching the WEIGHT and ELASTICITY of the AIR, 2nd Edition, with some occasional Additions, with 2 *plates*, and *woodcuts*, 12mo. *sewn*, (RARE), £1. 5s
W. Godbid, 1675
'A strange and futile attempt of one of the philosophers of the old cast to confirm Dame Nature's abhorrence of a vacuum, and to arraign the new doctrines of Mr. Boyle and others concerning the weight and spring of the air, the pressure of fluids on fluids, etc.'—*Philos. Trans.* It was answered by Dr. Henry More, the Cambridge Platonist, in 'Remarks upon Two late Ingenious Discourses' (1676).
The above edition contains a chapter 'Concerning Siphons, and the Motions of Liquids in them, and the Reason thereof' (pp. 48), which is not included in the first edition of 1674.
'The final attempt at supporting the old notion that 'Nature abhors a vacuum.'—*G. J. Symons, F.R.S.*
- 8802 **HALE** (William, C.E.) TREATISE on the MECHANICAL MEANS by which VESSELS are PROPELLED by STEAM POWER, with 4 *plates*, 8vo. *cl.* (o. p.), 2s 6d 1868
- 8803 **HALES** (Stephen; Vicar of Teddington, parish pr. of Peg Woffington; F.R.S.) ACCOUNT of some EXPERIMENTS and OBSERVATIONS on TAR WATER; wherein is shown the Quantity of Tar that is therein; 2nd Edition, with Letter from Mr. [ANDREW] REID, concerning the NATURE of TAR, and a Method of obtaining it's MEDICAL VIRTUES, free from it's HURTFUL OILS: whereby also the Strength of each Dose may be better ascertained, with *woodcut*, sm. 8vo. (pp. 74), *sewn*, (rare), 8s 6d 1747
- 8804 — PHILOSOPHICAL EXPERIMENTS: shewing how SEA-WATER may be MADE FRESH and WHOLESOME: and how Fresh-Water may be preserv'd Sweet; how Biscuit, Corn, etc. may be preserved from the Weevil, Meggots, etc., and Flesh preserv'd in hot Climates, by Salting Animals whole, with Experiments and Observations on Chalybeate or Steel Waters, and a Proposal for cleansing away Mud, etc., out of Rivers, Harbours, and Reservoirs, first edition, with *copperplate*, 8vo. *sewn*, *uncut* (RARE), 15s 1739
- 8805 — ANOTHER COPY, contemporary calf, with fine engraved bookplate of Joseph Sparkes, antiquary, 1683-1740, 17s 6d
'The author claims to have first discovered 'not only to free distilled Sea-Water, from its nauseous Oily Bitumen, which made it most disagreeable to drink; but also from another hurtful Quality, viz. the Spirit of Bittern Salt.' The plate illustrates his apparatus.
- 8806 — STATICAL ESSAYS: containing I. Vegetable Staticks; or Statical Experiments on the Sap in Vegetables . . . also, a Specimen of an ATTEMPT to ANALYSE the AIR by a great Variety of Chymio-Statical Experiments, 2nd Ed., with Amendments, with 19 *copperplates* by S. Cribelin. II. Hæmostaticks; or Hydraulick and Hydrostatical Experiments made on the Blood and Blood-Vessels of Animals; also some Experiments on Stones in the Kidney and Bladder, and Observations and Experiments relating to several Subjects in the first Volume, with INDEX to both, first edition, 2 vols. 8vo. contemporary calf (joints of v. II cracked); RARE, £1. 12s 6d 1731-3
- FIRST EDITION of the collected work. It is the author's most important work, and may be said to have laid the foundation of vegetable physiology. 'Much of his work was devoted to the study of the loss of water which plants suffer by evaporation, and to the means by which the roots make good this loss. In these subjects many of his experiments remain of fundamental importance. . . . Finding that gas could be obtained from plants by dry distillation, he was led to believe that gas might be condensed or in some way changed into the substances found in plants. In thus recognising that the air may be a source of food to plants, he was a forerunner of Ingenhousz and de Saussure. . . . In first opening the way to a correct appreciation of blood pressure, Hales's work may rank second in importance to Harvey's in founding the modern science of physiology.'—*Francis Darwin, F.R.S.*
- 'He not only exactly measured the amount of blood pressure under varying circumstances, the capacity of the heart, the diameter of the blood-vessels and the like, but also by an ingenious method measured the rate of flow of blood in the capillaries in the abdominal muscles and lungs of a frog.'—*Sir M. Foster.*
- A passage in the first volume shows him to have known in one of its aspects the important phenomenon called Osmosis — completely recognised and explained only in 1877 by Wilhelm Pfeffer.
- 8807 — La STATIQUE des VEGETAUX, et l'ANALYSE de l'AIR: Expériences Nouvelles lûes à la Société Royale de Londres, Ouvrage traduit par [G. L. LECLERC, COMTE] DE BUFFON [avec Appendice (pp. 80)]; with 20 *copperplates*, 4to. *hf. bound*, *uncut* (rare), 15s 1735
First edition of Buffon's translation, which was reprinted in 1780. 'La nouveauté des découvertes et de la plupart des idées qui composent cet ouvrage, surprendra sans doute les physiciens. Je ne connois rien de mieux dans ce genre, et le genre par lui-même est excellent; car ce n'est qu'expérience et observation.'—*Buffon.*
- 8808 **HALES** (William, D.D.) ANALYSIS FLUXIONUM, 4to. *sewn* (rare), 12s Londini, 1800
- 8809 — ANOTHER COPY, contemporary smooth crimson morocco extra, leathern joints, with arms of T. C. D. in centre, *g. e.*, 17s 6d
'Mainly a vindication of Newton.'—*D. N. B.* It contains chapters 'de analysi antiqua', 'de æthere vibratorio', 'de philosophia atomica prisorum Chaldaeorum et Hebræorum', 'de æthere antiquo', etc.
- 8810 **HALL** (Alfred Daniel, F.R.S.) THE BOOK of ROTHAMSTED EXPERIMENTS, with 2 *portraits*, and 49 *illustrations* (including *plates*), roy. 8vo. *cl.*, 6s 6d (p. 10s 6d nett) 1905
With biographical notice of SIR JOHN BENNET LAWES, F.R.S., the founder of Rothamsted Experimental Station.
- 8811 — FERTILISERS and MANURES, with 9 *plates*, large post 8vo. *cl.*, 3s 6d (p. 5s nett) 1909

- 8813 **HALL (H. S.)** HIGHER ALGEBRA; 4th [LAST] EDITION, cr. 8vo. *cl.*, 4s (p. 7s 6d) 1894
- 8814 — ANOTHER COPY, with Solutions of the Examples, 2 vols. cr. 8vo. *cl.*, 10s 6d (p. 18s) 1896-4
- 8815 **HALL (Sir James, F.R.S.)** ACCOUNT of a SERIES of EXPERIMENTS, shewing the EFFECTS of COMPRESSION in modifying the ACTION of HEAT, with 5 plates, 4to. *sewn, uncut, with auto. of Richard Phillips, F.R.S.* (RARE), 15s [Edin., 1805]
- 8816 — ANOTHER COPY, *sewn (wanting plate V)*, 8s 6d
- This important memoir, which made the author the founder of experimental geology, contains his classic experiment undertaken in support of the Huttonian Theory. 'He showed, in opposition to the Wernerians, that basalt and even bottle-glass, when fused and very slowly cooled, became stony and crystalline, and not glassy; that carbonate of lime, when heated under pressure, was not burnt into quicklime, but became a crystalline marble.'—D. N. B.
- 8817 — On the CONSOLIDATION of the STRATA of the EARTH, 4to. (pp. 16), *sewn, with author's inscr.*, 3s *ib.*, 1825
- 8818 — On the VERTICAL POSITION and CONVOLUTIONS of CERTAIN STRATA, and their Relation with Granite, 5 plates (pp. 32): On the REVOLUTIONS of the EARTH'S SURFACE, 4 plates (pp. 74)—2 vols. 4to. in 1, boards, 10s 6d [ib. 1813-14]
- 'To Professor Playfair with the best compliments of the Author.'—*Inscr. on flyleaf.*
- 'He showed [in the above papers] that the vertical positions and convolutions of strata in the neighbourhood of granite have been produced by its intrusion in a molten state causing lateral pressure; and gave a true account of the formation of volcanic cones as illustrated by Vesuvius.'—D. N. B.
- 8819 [**HALL (Thomas Grainger, pr., Magd. Coll., Cantab.)**] CALCULUS of VARIATIONS: CALCULUS of FINITE DIFFERENCES (Encyclopædia Metropolitana), 4to. *sewn*, 2s 6d [c. 1819]
- 8820 — TREATISE on the DIFFERENTIAL and INTEGRAL CALCULUS, 2nd Edition, enlarged, with diagrams, large 8vo. *cl.*, 2s 6d Cambridge, 1837
- 8821 — FOURTH EDITION, including the CALCULUS of VARIATIONS, diagrams, 8vo. *cl.*, 4s 1846
- 8822 — SIXTH [LAST] EDITION, with diagrams, cr. 8vo. *cl. (o. p.)*, 4s 6d (p. 8s 6d) 1863
- 8823 — TREATISE on PLANE and SPHERICAL TRIGONOMETRY, 4th Edition, with diagrams, 8vo. *cl.*, 2s 6d 1848
- 8824 **HALL (Thomas Wright, M.D.)** CORRELATION THEORY of CHEMICAL ACTION and AFFINITY, 8vo. *cl. (o. p.)*, 4s 6d 1888
- 8825 **HALLAUER (Octave)** MOTEURS à VAPEUR: Analyses expérimentales comparées sur Machines fixes et marines; with folding table, impl. 8vo. *sewn*, 1s 6d 1880
- 8826 **HALLEY (Edmund; F.R.S., Astronomer Royal)** CATALOGUS STELLARUM AUSTRALIIUM, sive SUPPLEMENTUM CATALOGI TYCHONICI, exhibens Longitudines et Latitudines Stellarum Fixarum, quae, prope POLUM ANTARCTICUM sitae, in Horizonte Uraniburgico Tychoni inconspiciæ fuere, accurato Calculo ex Distantiis supputatae, et ad Annum 1677 completum correctas, cum ipsis OBSERVATIONIBUS in INSULA S. HELENÆ . . . accedit Appendicula de Rebus quibusdam Astronomicis, sm. 4to. *cl.* (VERY RARE), £2. 2s Londini, 1679
- Very important as the FIRST STAR CATALOGUE of the SOUTHERN HEMISPHERE, comprising 341 stars observed at St. Helena, reduced to 1677.
- 'His enterprise laid the foundation of austral stellar astronomy, and earned for him from Flamsteed the title of the "Southern Tycho." In the course of the voyage he improved the sextant, collected a number of valuable facts relative to the ocean and atmosphere, noted the equatorial retardation of the pendulum, and made at St. Helena, on 7 Nov. 1677, the first complete observation of a transit of Mercury.'—Miss Agnes M. Clerke.
- An account of the latter is included in the 'appendicula', which also contains the first suggestion of ascertaining the solar parallax by the transits of Venus.
- 8827 — **TABULÆ ASTRONOMICÆ**, accedunt de Usu Tabularum Præcepta; with fine engraved portrait, 4to. large copy in old calf gilt (joints mended); rare, 15s *ibidem*, 1749
- FIRST EDITION of the *Tabulæ* containing his discovery of the 'long inequality' of Jupiter and Saturn, and including 'Stellarum Annuas Aberrationes Supputandi Methodus', 'Tabula Logarithmorum Logisticorum', and 'Lunæ Meridianæ Ascensionis Rectæ'; as well as a reprint of his celebrated 'Synopsis Astronomiæ Cometice', in which he identified the comets of 1531, 1607, and 1682 ('Halley's Comet') as one and the same, and laid the foundation of modern cometary astronomy.
- 8828 — MISCELLANEA CURIOSA: a COLLECTION of some of the PRINCIPAL PHENOMENA in NATURE, accounted for by the Greatest Philosophers of this Age, being the most valuable DISCOURSES, read before the ROYAL SOCIETY, for the Advancement of Physical and Mathematical Knowledge, 2nd Ed., with Discourse of the Influence of the Sun and Moon on Humane Bodies, etc., by R. MEAD, F.R.S., also FONTENELLE'S Preface of the Usefulness of Mathematical Learning, with front. by v. d. Gucht, and numerous folding plates and map, 3 vols. post 8vo. fine copy in old contemporary tree-calf (RARE), £2. 2s 1708-27
- Containing the following 'discourses' by HALLEY: Estimate of the Quantity of Vapours raised out of the Sea; True Theory of the Tides; Theory of the Variation of the Magnetic Needle, and the Cause of the Change; Historical Account of the Trade Winds and Monsoons; The Rule of the Decrease of the Height of the Mercury in the Barometer; the Measure of Gold upon Gilt Wire; Account of Dr. R. Hooke's Invention of the Marine Barometer; Proportional Heat of the Sun in all Latitudes; Degrees of the Mortality of Mankind; Discourse concerning Gravity; the Excellency of the Modern Algebra; Analogy of the Logarithmick Tangents to the Meridian Line; Facile Method for constructing the Logarithms; New Methods of finding the Roots of any Equations; Synopsis of the Astronomy of Comets; etc. etc., besides contributions by JOHN COLLINS, J. CRAIG, DAVID GREGORY, A. DE MOIVRE, SIR ISAAC NEWTON, JOHN WALLIS, and many others.
- 8829 — ANOTHER COPY (Vol. I 3rd Ed., Vol. II 1st Ed., and Vol. III 3rd Ed.), with numerous folding plates, and map, 3 vols. post 8vo. new hf. calf gilt (front. wanting), £1. 12s 6d 1726-03-27
- 8830 — VOLS. I and II ONLY (Vol. I 3rd Ed. and Vol. II 2nd Ed.), with front. by v. d. Gucht, folding plates, and map, 2 vols. post 8vo. contemporary calf extra (joints cracked), with bookplate of Prof. H. W. Lloyd Turner, F.R.S., £1. 5s 1726-23
- Containing the following meteorological contributions besides those mentioned above: Experiment on the Refraction of the Air, by J. Lowthrop; Scale of the Degrees of Heat: Letter concerning the Generation of Hail, Thunder, and Lightning, by John Wallis; Geometrical Dissertation concerning the Rainbow, by Edmund Halley.
- The map included in vol. I is the earliest wind and current chart ever published.
- 8831 **HALLIDAY (George)** NOTES on the DESIGN of the SMALL DYNAMIC, with 27 diagrams, 8vo. *cl.*, 1s 6d 1892
- HALTON (Immanuel)**—v. FOSTER (Nos. 8051-2), ante.

- 8833 **HALLIWELL** [-**PHILLIPPS**] (**James Orchard**, F.R.S.; *Shakespearian*) COLLECTION of LETTERS illustrative of the PROGRESS of SCIENCE in ENGLAND from Elizabeth II., 8vo. *cl.*, or, *boards (scarce)*, 10s 6d H. S. S., 1841
A valuable work, containing much interesting correspondence of scientists of the period not elsewhere to be found, and one of the only two publications issued by the short-lived 'Historical Society of Science,' which Mr. Halliwell-Phillips founded.
- 8834 ——— INQUIRY into the PROBABLE ORIGIN of the BOETIAN NUMERICAL CONTRACTIONS, and how far they may have influenced the Introduction of the Hindoo Arithmetical Notation into Western Europe, 8vo. (pp. 6), *sewn*, 4s n. d.
- 8835 ——— RARA MATHEMATICA; or a Collection of Treatises on the Mathematics and Subjects connected with them, from ancient inedited MSS., *with plate*, 8vo. *boards, uncut (scarce)*, 10s 6d 1839
- M. LIBRI'S COPY :
- 8836 ——— ANOTHER COPY, *hf vellum, with the original wrappers bound up*, 17s 6d
The above copy belonged to the predatory M. LIBRI, and contains several MS. notes by him as well as the editor's inscr. on each part.
- 8837 ——— SECOND EDITION, *with frontispiece*, 8vo. *cl.*, 10s 1841
- 8838 ——— ANOTHER COPY, *cl.*, *with author's inscr.*, 10s 6d
Including the following reprints from old MSS.: Joannes de Sacro Bosco de Arithmetica: A Treatise on the Numeration of Algorithms: Bourne's Treatise on Optical Glasses: Joannes Robyus de Cometis: Carmen de Algorismo: Preface to an Almanac for 1480, and 8 others.
- 8839 ——— TWO ESSAYS: I. Inquiry into the Nature of the NUMERICAL CONTRACTIONS, found in a Passage on the Abacus, in some MSS. of the Geometry of BOETIUS: II. NOTES on EARLY CALENDARS, 2nd Ed., *with front.*, 8vo. (pp. 18), *sewn (scarce)*, 6s 6d 1839
- 8840 **HALPHEN** (**Georges Henri**, *de l'Institut*) TRAITÉ des FONCTIONS ELLIPTIQUES et de leurs Applications [avec Notice par E. PICARD]; *with plate and diagrams*, 3 vols. roy. 8vo. *sewn*, £1. 5s (p. F. 43.50 nett) 1886-91
'The first systematic presentation of Weierstrass's theory of elliptic functions.'—*Prof. Cajori*.
- 8841 ——— ANOTHER COPY, 3 vols.; also, **Klein** (**Felix**) CONFÉRENCES sur les MATHÉMATIQUES faites au Congrès de Mathématiques à CHICAGO, recueillies par A. ZIWET, traduites par L. LAUGEL; *with 21 woodcuts*, '98: **Galois** (**Évariste**) ŒUVRES MATHÉMATIQUES, avec Introd. par EMILE PICARD; *with portrait*, '97—5 vols. roy. 8vo. in 3, *hf. roan, with bookplate of Prof. H. W. Lloyd Tanner, F.R.S.*, £1. 15s (p. F. 52.50 nett *sewn*) 1886-98
Halphen's well-known standard work contains: I. Théorie des fonctions elliptiques et de leurs développements en série: II. Applications à la mécanique, physique, géodésie, géométrie et au calcul intégral: III. Applications à l'algèbre, en particulier à l'équation du 5^e degré, et à la théorie des nombres. Questions diverses.
'L'ouvrage exercera une grande influence sur cette importante branche de la science. Les questions traitées trouvent là leur solution définitive. Les transcendentes elliptiques y sont maniées avec la même aisance que les fonctions circulaires dans d'autres sujets plus élémentaires.'—*E. Picard*.
- 8842 **HALSTED** (**George Bruce**, *Texas Univ.*) The ELEMENTS of GEOMETRY, *with numerous diagrams*, large 8vo. *cl. (o. p.)*, 12s 6d 1886
- 8843 ——— The MESSAGE of NON-EUCLIDEAN GEOMETRY, roy. 8vo. (pp. 30), *sewn*, 2s 6d 1904
- 8844 ——— REPORT on PROGRESS in NON-EUCLIDEAN GEOMETRY, roy. 8vo. (pp. 28), *sewn*, 2s 6d 1899
- 8845 ——— The VALUE of NON-EUCLIDEAN GEOMETRY, roy. 8vo. (pp. 8), *sewn*, 2s 1905
- 8846 **HAM** (**John**, *of West Coker, Somerset*) INSTRUCTIONS for BREWING by a NEW METHOD from UNMALTED CORN; by which a Saving of nearly one-half in the Price of Malt may be effected, 2nd Edition [with additional Observations], 12mo. *sewn*, 6s 6d 1822
- 8847 ——— FIFTH EDITION, with great Improvements: The THEORY and PRACTICE of BREWING from Malted and Unmalted Corn, and from POTATOES [!], 2nd Edition, *with 6 plates*—2 vols. 12mo. in 1, *old hf. calf (joints cracked)*, *with MS. notes and bookplate of Henry B. H. Beaufof, F.R.S.*, 12s 1823
John Ham would have got short shrift for his sickly stuff from any self-respecting Assize of Ale!
- 8848 **HAMILTON** (**Hugh**, D.D., F.R.S.; *Bp. of Ossory*) PHILOSOPHICAL ESSAYS on the following Subjects: I. On the ASCENT of VAPOURS, the FORMATION of CLOUDS, RAIN and DEW, and on several other Phenomena of Air and Water. II. Observations and Conjectures on the Nature of the AURORA BOREALIS, and the TAILS of COMETS. III. On the PRINCIPLES of MECHANICKS; 3rd Edition, enlarged, *with plate*, 12mo. *old hf. calf (joints cracked)*; *rare*, 17s 6d 1772
Interesting for containing the author's theory of dew and evaporation, 'proceeding on a principle very different from any that has hitherto been used on this occasion; whereby I shall avoid those objections which late writers have made to the former Accounts that have been given us of these Phenomena.'—*Preface*. It was unknown to G. J. Symons, F.R.S.
- 8849 ——— De SECTIONIBUS CONICIS: Tractatus Geometricus, in quo, ex Natura ipsius Coni, Sectionum Affectiones facillime deducuntur Methodo Nova; *with 17 folding plates*, 4to. *old calf gilt*, 7s 6d Dublini, 1758

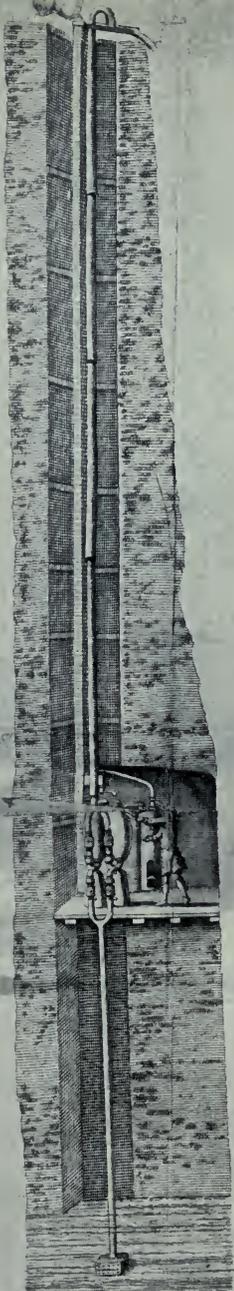
'Gulielmo Clemente, M.D. SS. T.C.D. ab Auctore.'—*Inscr. on flyleaf.*

- 8850 ——— REPRINT, *with 17 folding plates*, 4to. *old hf. calf*, 6s Londini, 1758
- 8851 ——— IDEM, necnon [**Jebb** (**Samuel**, M.D.)] EXCERPTA quædam e NEWTONI PRINCIPIIS PHILOSOPHIÆ NATURALIS, cum Notis Variorum; *with 12 plates*, 2 vols. 4to. in 1, *hf. calf gilt*, 10s 6d ibidem, 1758—*Cantabrigiæ*, 1765
- 8852 ——— GEOMETRICAL TREATISE of the CONIC SECTIONS, in which their Properties are derived from the Nature of the Cone, in an Easy Manner, and by a New Method, translated from the Latin, *with 17 folding plates*, 4to. *old calf*, 7s 6d 1773
Bp. Hamilton's treatment of the conic section is strictly Euclidean and excludes rigidly all approach to an algebraical treatment, even dispensing with the symbol for equality. According to Prof. M. Cantor the work contains several new theorems.

- 8854 **HAMILTON** (Henry Parr, F.R.S., *Dean of Sarum*) ANALYTICAL GEOMETRY, with plate: LINES of the SECOND ORDER, or CONIC SECTIONS, 3 plates—in 1 vol. 4to. sewn, 2s [1827-8]
- 8855 ——— ANOTHER COPY, *hf. cl.*, 2s 6d
- 8856 ——— AN ANALYTICAL SYSTEM of CONIC SECTIONS, 4th Edition, enlarged, with diagrams, 8vo. *hf. calf gilt*, 3s Cambridge, 1838
- 8857 **HAMILTON** (John, F.R.S.) STEREOGRAPHY, or a Compleat Body of PERSPECTIVE, with their Projections or Shadows, and their Reflections by Polished Planes, performed by Uniform, Easy, and General Methods, for the most Part ENTIRELY NEW, with 130 folding plates, 2 vols. roy. folio in 1, *old hf. calf, uncut, with bookplate of Philip 2nd Earl Stanhope, F.R.S.*, 10s 6d 1738
- 8858 **HAMILTON** (Sir William, F.R.S.; diplomatist and archaeologist; husband of Emma Lady Hamilton) ACCOUNT of the late ERUPTION of MOUNT VESUVIUS, with 7 folding plates and maps, by Basire, etc. (2 coloured), 4to. (pp. 44), sewn, 6s 6d 1795
- 8859 ——— CAMPI PHELEGRÆI: Observations on the VOLCANOS of the TWO SICILIES, as they have been communicated to the Royal Society of London [in English and French], with large folding map of the Gulf of Naples, and 54 plates of Volcanos in action, Views and Scenery, and Minerals, all beautifully handcoloured by Peter Fabris, in imitation of drawings, original edition, 2 vols. roy. folio, *fine copy in the original hf. binding* (RARE), £4. 4s Naples, 1776
The plates of the above original edition are of a singular beauty, which was never approached even in the Largest Paper copies of that of 1799. Dent's copy fetched £29.
- 8860 ——— OBSERVATIONS on MOUNT VESUVIUS, MOUNT ETNA, and other VOLCANOS, with Explanatory Notes by the Author, hitherto unpublished, first edition, with 5 copperplates of volcanos, and folding map, 8vo. boards, uncut (sound copy); RARE, 16s 1772
- 8861 ——— ANOTHER COPY, *old calf gilt, with Mr. William Gott's bookplate*, 14s
- 8862 ——— SECOND EDITION, with 5 copperplates of volcanos, and folding map, sm. 8vo. *old calf* (joints cracked), 8s 6d 1773
- 8863 ——— NEW [THIRD] EDITION, with 5 copperplates, and folding map, 8vo. boards, uncut, 10s 1774
- 8864 ——— ANOTHER COPY, *old calf (large copy)*, 8s 6d
- 8865 ——— ANOTHER COPY, *old hf. calf (joints cracked)*, 6s 6d
- 8866 ——— Some PARTICULARS of the PRESENT STATE of MOUNT VESUVIUS; with a Journey into the Province of Abruzzo, and a Voyage to the Island of Ponza, with folding map, and 2 folding plates by Basire, 4to. (pp. 16), sewn, 3s 1786
'His leisure was chiefly occupied in the study of volcanic phenomena. . . . Within four years he had ascended Vesuvius twenty-two times, more than once at great risk, making himself or causing Fabris, an artist trained to the work by him, to make numberless sketches at all stages of eruptions.'—D. N. B.
- 8867 **HAMILTON** (Sir William Rowan, *Royal Astronomer of Ireland*) LECTURES on QUATERNIONS: containing a Systematic Statement of a New Mathematical Method, with some Geometrical and Physical Applications, only edition, with diagrams, thick 8vo. *cl.*, uncut (VERY SCARCE), £2. 7s 6d Dublin, 1853
This important work embodies the author's invention of quaternions, 'giving him right to rank in originality and insight with Diophantus, Descartes, and La Grange' (R. E. Anderson). The Introduction (pp. 64) is especially valuable as giving an historical account of it.
- 8868 ——— On SYMBOLIC GEOMETRY, 8vo. (pp. 19), sewn, 2s [Cambridge, 1849]
- 8868 ——— THEORY of CONJUGATE FUNCTIONS, or ALGEBRAIC COUPLES; with a Preliminary and Elementary Essay on Algebra as the Science of Pure Time, 4to. sewn (a few ll. soiled), with author's inser. (see below); SCARCE, 12s 6d Dublin, 1835
'Professor Wallace, etc. etc. with very kind regards from the author.'—Inscr. on title.
'In 1835 Hamilton published his "Theory of Algebraic Couples." He regarded algebra "as being no mere art, nor language, nor primarily a science of quantity, but rather as the science of order of progression." Time appeared to him as the picture of such a progression. Hence his definition of algebra as the science of pure time.'—Prof. Cajori.
- 8869 ——— THEORY of SYSTEMS of RAYS [PART I: On Ordinary Systems of Reflected Rays], with the THIRD SUPPLEMENT, 2 vols. 4to. in 1, *hf. calf (scarce)*, 12s 6d [ib., 1827-34]
'Applying the laws of optics he proved that under certain circumstances a ray of light passing through a crystal will emerge not as a single or double ray but as a cone of rays. This theoretical deduction involved the discovery of two laws of light; and under the mathematical aspects was pronounced by Sir John Herschel to be "a powerful and elegant piece of analysis", while Prof. Airy, on the physical side, said "it had made a new science of optics".—D. N. B.
- 8870 **HAMILTON** (Sir William [Stirling]; metaphysician) DISCUSSIONS on PHILOSOPHY and LITERATURE, EDUCATION, and UNIVERSITY REFORM, 3rd [last] Edition, thick 8vo. *cl.* (scarce), 10s 6d 1866
Many of the most characteristic of Sir William Hamilton's uncompromising criticisms, including the 'Edinburgh' review of Victor Cousin, according to Lord Jeffrey 'the most unreadable thing that ever appeared in the Review' and 'sheer nonsense', and 'On the Study of Mathematics as an Exercise of Mind' (pp. 78), a sharp attack on Dr. Whewell, and another on Professor de Morgan 'as a logical critic and reasoner', who replied to it at length in his *Budget of Paradoxes* (v. No. 3073, ante).
- 8871 **HAMMOND** (Nathaniel) THE ELEMENTS of ALGEBRA in a NEW and EASY METHOD; with Introduction, containing a succinct HISTORY of this SCIENCE; 3rd Edition, with diagrams, 8vo. *old sheep*, 5s 1764
Unknown to Lowndes and Allibone.
- 8872 **HAMPSON** (P., *Oriel Coll.*) THE ROMANCE of MATHEMATICS: being the Original Researches of a Lady Professor of Girtham College in Polemical Science, 12mo. *cl.*, 3s 1886
- 8873 **HAMY** (Maurice; *de l'Institut*) Sur le DÉVELOPPEMENT APPROCHÉ de la FONCTION PERTURBATRICE dans le Cas des INÉGALITÉS d'ORDRE ÉLEVÉ; with diagrams, 4to. (pp. 82), sewn, with author's inser., 3s 6d [1894]
- 8874 **HANDS** (Joseph, M.R.C.S.) NEW VIEWS of MATTER, LIFE, MOTION, and RESISTANCE: also an Enquiry into the Materiality of Electricity, Heat, Light, Colours, and Sound; 8vo. *cl.*, 4s 6d 1879
- 8875 **HANEY** (Lewis Henry, *Univ. Iowa*) CONGRESSIONAL HISTORY of RAILWAYS in the UNITED STATES to 1850, with 3 maps, 8vo. sewn, 1s 6d Madison, 1903

- 450 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8877 **HANBURY** (Daniel, F.R.S.; *pharmacist*), PORTRAIT of, engraved on steel by CHARLES HENRY JEENS, PROOF BEFORE LETTERS, 3s [Sæc. XIX.]
- 8878 — THE SAME, on INDIA PAPER, signed by the engraver, 4s 6d
- 8879 **HANCOCK** (Thomas) PERSONAL NARRATIVE of the ORIGIN and PROGRESS of the CAOUTCHOUC or INDIA-RUBBER MANUFACTURE in ENGLAND, with the Plants from which Caoutchouc is obtained, its Chemical Analysis, Statistical Tables, etc. etc., and Appendix, containing Specifications of the AUTHOR'S PATENTS, with lithographic portrait and numerous plates, 8vo. *cl.*, uncut (SCARCE), £1. 5s 1857
The author, a member of the firm of Charles Mackintosh & Co., of London (the eponymous originators of mackintoshes), was the founder of the indiarubber trade in England, and may even be held remotely responsible for the motor-car pandemonium. His chief inventions were those of 'masticated' indiarubber, and of hard indiarubber, and in connexion with vulcanised indiarubber.
'Although Hancock was not the inventor of vulcanising in the strictest sense of the word, he first showed that sulphur alone is sufficient to effect the change, where as Goodyear employed other substances in addition. Hancock also discovered that if the vulcanising process is conti nued, and a higher temperature employed, a horny substance, now called vulcanite or ebonite, is produced.'—D. N. B.
- 8880 **HANDBUCH der PHYSIK**, unter Mitwirkung von R. AEBGG, F. AUERBACH, A. BEMORAD, F. BRAUN, M. CANTOR, S. CZAPSKI, P. DRUDE, K. EXNER, L. GRAETZ, H. KAYSER, M. V. ROHR, u. A. herausgegeben von A. WINKELMANN, 2. [NEUESTE und gänzlich umgearbeitete] AUFLAGE, BAND I. III—VI; with 1557 illustrations, 5 thick vols. roy. 8vo., vv. 4-6 in the original *hf. moleskin*, and the rest sewn, £7. (p. M. 202) Leipzig, 1905-8
INHALT:—I. Allgemeine Physik; III. Wärme; IV-V. Elektrizität und Magnetismus; VI. Optik.
The most extensive treatise on the subject hitherto published, and of well-known excellence.
- 8881 **HANDL** (Alois), und Adolf WEISS: UNTERSUCHUNGEN über den ZUSAMMENHANG in den ÄNDERUNGEN der DICHTEN und BRECHUNGSEXONENTEN in Gemengen von FLÜSSIGKEITEN und Verbindungen von GASEN; with plate, roy. 8vo. (pp. 53), sewn, 2s 6d [Wien, 1858]
- 8882 **HANDMANN** (Rudolf) Der NEUE EGGER'SCHE ELECTROMAGNETISCHE MOTOR, und die electromagnetische Triebkraft im Allgemeinen; with plate and 32 woodcuts, 8vo. sewn, 2s 6d Münster, 1879
- 8883 **HANDWÖRTERBUCH der CHEMIE und PHYSIK**, von E. F. AUGUST, F. W. BARENTIN, W. H. DOVE u. A.; with woodcuts, 3 vols. 8vo. *calf*, 3s 6d Berlin, 1842-50
- 8884 — der NATURWISSENSCHAFTEN, herausgegeben von E. KORSCHLITZ (Zoologie), G. LINCK (Mineralogie und Geologie), F. OLTMANN (Botanik), K. SCHAUM (Chemie), H. TH. SIMON (Physik), M. VERWORN (Physiologie) und E. TEICHMANN (Hauptredaktion); with hundreds of illustrations, 10 thick vols. impl. 8vo. *new hf. calf*, £11. 10s Jena, in progress
A very important new publication treating, in the form of an encyclopædia, of the whole subject of natural sciences. The work, which is to be completed within the next three or four years, may also be had in 80 parts (two of which have hitherto been published) at 2s 6d nett each.
A specimen part may be had post free on application.
- 8885 **HANKE** (Friedrich Gottlob), et Benjamin Gottlieb Binder: PRINCIPIA THEORIAE de INFINITO MATHEMATICO et DEMONSTRATIO POSSIBILITATIS PARALLELARUM; with diagrams, sm. 4to. (pp. 21), sewn (rare), 8s 6d Lipsiæ, 1751
Unknown to Poggendorff.
- 8886 **HANKEL** (Hermann, Univ. Tübingen) Die ENTWICKELUNG der MATHEMATIK in den LETZTEN JAHRHUNDERTEN, 8vo. (pp. 36), sewn, 2s Tübingen, 1869
- 8887 — THEORIE der COMPLEXEN ZAHLENSYSTEME, insbesondere der gemeinen imaginären Zahlen und der HAMILTON'SCHEN QUATERNIONEN, nebst ihrer geometrischen Darstellung; with 36 diagrams, 8vo. *hf. cl.*, with bookplate of Prof. H. W. Lloyd Tanner, F.R.S., 3s 6d Leipzig, 1867
Containing 'an admirable historical summary of the theory of the complex variable.'—W. W. R. Ball.
- 8888 **HANN** (James; M.I.C.E.), and Placido and Justo GENER, C.E.E.: THE STEAM ENGINE for PRACTICAL MEN, with 4 folding plates, woodcuts, and diagrams, 8vo. *cl.*, 3s 1854
- 8889 **HANSEMANN** (Gustav) Die ATOME und ihre BEWEGUNGEN: ein VERSUCH zur VERALLGEMEINERUNG der KRÖNIG-CLAUSIUS'SCHEN THEORIE der GASE; with 4 folding plates, 8vo. *sewn*, 3s Cöln, 1871
- 8890 **HANSEN** (Peter Andreas; F.R.S.) I. ALLGEMEINE AUFLÖSUNG eines BELIEBIGEN SYSTEMS von LINEARISCHEN GLEICHUNGEN. II. Ueber die ENTWICKELUNG der Grösse $(1 - 2\alpha H + \alpha^2)^{-\frac{1}{2}}$ nach den Potenzen von α , large impl. 8vo. *sewn*, 2s 6d Leipzig, 1849
- 8891 — Ueber die CHRONOMETER, welche Herr KESSELS verfertigt, aus den Notizen über ihren Gang von BESSEL, BOHNENBERGER, HANSTEEN, SCHUMACHER, und ZAHRTMANN gezogen, mit der vortheilhaftesten Art sie zu Längenbestimmungen zu gebrauchen u. s. w., 8vo. (pp. 55), *sewn*, 3s 6d Altona, 1836
- 8892 — RELATIONEN einestheils zwischen SUMMEN und DIFFERENZEN und andertheils zwischen INTEGRALEN und DIFFERENTIALEN, large impl. 8vo. *sewn* (title soiled), 3s Leipzig, 1865
- 8893 — TABLES de la LUNE, construites d'après le Principe Newtonien de la Gravitation Universelle; impl. 4to. *cl.*, 17s 6d Londres, 1857
'Hansen's lunar tables, when first introduced, were very exact, and still remain the best extant.'—Neison.
The above copy includes the corrections by the Nautical Almanac Office (1862), and those of the American Ephemeris (1878).
- 8894 **HARANT** (Henri), et Pierre LAFFITTE: LEÇONS de COSMOGRAPHIE; with 7 folding plates, 8vo. *sewn* (o. p.), 3s 1853
- 8895 **HARCOURT** (Augustus George Vernon, F.R.S.), and Henry George MADAN: EXERCISES in PRACTICAL CHEMISTRY, 5th [latest] Edition, revised, with 116 woodcuts, and table, cr. 8vo. *cl.*, 5s (p. 10s 6d) Clarendon Press, Oxford, 1897
- 8896 **HARDEN** (Arthur; F.R.S., Lister Inst.) ZYMASE and ALCOHOLIC FERMENTATION, 8vo. (pp. 15), *sewn*, 1s 1905
— v. ROSCOE, No. 4078, ante.

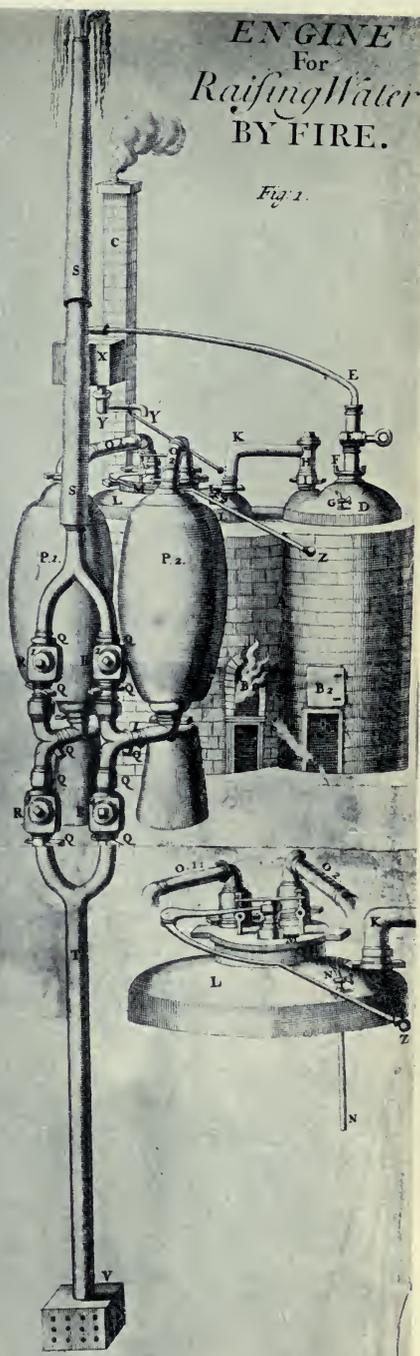
Fig. 2.



The
ENGINE
Working in a
MINE.

ENGINE For Raising Water BY FIRE.

Fig. 1.



B. Lewis delin. I. Sturt sculp.



- 8899 **HARBOUR and DOCK WORKS**: AVONMOUTH DOCK, by J. B. MACKENZIE: The RIVER LAGAN and HARBOUR of BELFAST, by T. R. SALMOND: WHITEHAVEN HARBOUR and DOCK WORKS, by J. E. WILLIAMS, MM.I.C.E.: with Abstract of the Discussion, ed. by JAMES FORREST, 8vo. (pp. 48), *sewn*, 2s 6d 1878
- 8900 **HARDWICK** (Thomas Frederick, *pr.*) MANUAL of PHOTOGRAPHIC CHEMISTRY, including the COLLODION PROCESS, 5th Edition, *illustrated*, fcap. 8vo. (pp. 532), *cl.* (*scarce*), 6s 6d 1859
Of interest to the historian of photography for containing a number of processes and recipes long since forgotten.
- 8901 ——— SEVENTH EDITION, edited by G. DAWSON and E. HADOW, *illustrated*, fcap. 8vo. (pp. 610), *cl.*, 3s 6d 1864
- 8902 ——— NINTH [LAST] EDITION, edited by J. TRAILL TAYLOR, with 57 *illustrations*, fcap. 8vo. 1883
cl. (*o. p.*), 4s 6d
- 8903 **HARDY** (Antoine François) EXPÉRIENCES sur les CIDRES, les POIRÉS et les BIERRES; sur les FALSIFICATIONS de ces BOISSONS; sur les différents MOYENS de les DÉCOUVRIR, etc., 4to. *sewn Rouen*, 1785
(*rare*), 12s 6d
The author took a prominent part in the French Revolution, and was one of the few Girondists who escaped the guillotine.
The above work was unknown to the author's biographer in *Biogr. Gén.*, Quérard, and other bibliographers.
- 8904 **HARDY** (Godfrey Harold, F.R.S.) THE INTEGRATION of FUNCTIONS of a SINGLE VARIABLE, 8vo. *sewn*, 2s *Univ. Press, Cambridge*, 1905
- 8905 **HARDY** (Peter, F.R.S.) A NEW and GENERAL NOTATION for LIFE CONTINGENCIES, 8vo. *cl.*, with *inscr. to Benj. Gompertz, F.R.S.*, 5s 1840
An attempt to introduce a uniform notation in insurance mathematics.
- 8906 **HARE** (Robert, M.D., *Univ. Penna.*) DESCRIPTIONS of APPARATUS and PROCESSES for the ISOLATION of the METALS of the ALKALINE EARTHS, with *woodcuts*, 4to. (pp. 26), 3s *Philadelphia*, 1840
- 8907 ——— EXPERIMENTAL OBSERVATIONS and IMPROVEMENTS in APPARATUS and MANIPULATION; with Theoretical Suggestions respecting the Causes of Tornadoes, Falling Stars, and the Aurora Borealis, *front. of chemical laboratory and lecture room, and numerous woodcuts*, 4to. *sewn*, 4s 6d *ibidem*, 1836
- 8908 **HARGREAVE** (Charles James, Q.C., F.R.S.; *Judge of Landed Estates Court, Ireland*) On the CALCULATION of ATTRACTIONS, and the FIGURE of the EARTH, 4to. (pp. 23), *sewn*, 2s 6d 1841
- 8909 ——— ESSAY on the RESOLUTION of ALGEBRAIC EQUATIONS [with Preface by GEORGE SALMON, *pr.*, Provost of T.C.D.], 8vo. *cl.* (*scarce*), 6s 6d *privately printed, Dublin*, 1866
'The present essay, humanly speaking, may be regarded as the cause of his death.'—*Dr. Salmon*. 'In 1866 his attention was again drawn to a new method of solving algebraic equations, and he began an essay on this question. Want of rest brought on an exhaustion of the brain, from which he died at Bray on April 23rd'.—*D. N. B.*
- 8910 **HARKER** (Alfred, F.R.S.) THE BALA VOLCANIC SERIES of CAERNARVONSHIRE and associated Rocks (Sedgwick Prize Essay, 1888), with 6 *plates*, 8vo. *cl.*, 3s (p. 7s 6d) *Univ. Press, Cambridge*, 1889
- 8911 **HARLEY** (Robert, F.R.S.) On the INTERCHANGE of TWO DIFFERENTIAL RESOLVENTS, 8vo. (pp. 11), *sewn*, 1s 6d *Manchester*, 1892
- 8912 **HARLEY** (Timothy, F.R.A.S.) LUNAR SCIENCE: Ancient and Modern, 8vo. *cl.*, 2s 1886
- HARPER'S SCIENTIFIC MEMOIRS**, edited by J. S. AMES, *illustrated*, large post 8vo. *cl.*, as under:—
- 8913 I. The Free Expansion of Gases: MEMOIRS by GAY-LUSSAC, JOULE, and JOULE and THOMSON [LORD KELVIN], translated and edited by J. S. AMES, 2s (p. 3s 6d nett) *New York*, 1898
- 8914 II. Prismatic and Diffraction Spectra: MEMOIRS by JOSEPH V. FRAUNHOFER, trans. and ed. by J. S. AMES, 2s (p. 3s nett) *ib.*, 1898
- 8915 III. Röntgen [X] Rays: MEMOIRS by RÖNTGEN, STOKES, and [SIR] J. J. THOMSON, trans. and ed. by G. F. BARKER, 2s (p. 3s nett) *ib.*, 1899
- 8916 IV. The Modern Theory of Solution: MEMOIRS by PFEFFER, VAN 'T HOFF, ARRHENIUS, and RAOULT, trans. and ed. by H. C. JONES, 3s (p. 5s nett) *ib.*, 1899
- 8917 V. The Laws of Gases: MEMOIRS by ROBERT BOYLE and E. H. AMAGAT, trans. and ed. by CARL BARUS, 2s (p. 3s 6d nett) *ib.*, 1899
- 8918 VI. The Second Law of Thermodynamics: MEMOIRS by CARNOT, CLAUDIUS, and THOMSON [LORD KELVIN], trans. and ed. by W. F. MAGIE, 2s 6d (p. 4s nett) *ib.*, 1899
- 8919 VII. The Fundamental Laws of Electrolytic Conduction: MEMOIRS by FARADAY, HITTORF, and F. KOHLRAUSCH, trans. and ed. by H. M. GOODWIN, 2s (p. 3s 6d nett) *ib.*, 1899
- 8920 VIII. The Effects of a Magnetic Field of Radiation: MEMOIRS by FARADAY, KERR, and ZEEMAN, ed. by C. P. LEWIS, 2s (p. 3s 6d nett) *ib.*, 1900
- 8921 IX. The Laws of Gravitation: MEMOIRS by NEWTON, BOUGUER, and CAVENDISH, with Abstracts of other important Memoirs, trans. and ed. by A. S. MACKENZIE, 3s (p. 5s nett) *ib.*, 1900
- 8922 X. The Wave Theory of Light: MEMOIRS by HUYGENS, YOUNG, and FRESNEL, ed. by HENRY CREW, 3s (p. 5s nett) *ib.*, 1900
- 8923 XI—XII. The Discovery of Induced Electric Currents: MEMOIRS by JOSEPH HENRY and MICHAEL FARADAY, ed. by J. S. AMES, 2 vols. 4s (p. 7s nett) *ib.*, 1900
- 8924 XIII. The Foundations of Stereo-Chemistry: MEMOIRS by PASTEUR, VAN 'T HOFF, LEBEL, and WISLICIENUS, trans. and ed. by G. M. RICHARDSON, 3s (p. 5s nett) *ib.*, 1901
- 8925 XIV. The Expansion of Gases by Heat: MEMOIRS by DALTON, GAY-LUSSAC, REGNAULT, and CHAPPUIS, trans. and ed. by W. W. RANDALL, 3s (p. 5s nett) *ib.*, 1902
- 8926 XV. The Laws of Radiation and Absorption: MEMOIRS by PRÉVOST, STEWART, KIRCHHOFF, and KIRCHHOFF and BUNSEN, trans. and ed. by D. B. BRACE, 3s (p. 5s nett) *ib.*, 1901

- 452 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 8929 **HARRIS (G. Montagu)**, and **Henry Titus WAKELAM**, M.I.C.E.: THE FIRST INTERNATIONAL ROAD CONGRESS, Paris, 1908, *illustrated*, roy. 8vo. *cl.*, 2s [1909]
- 8930 **HARRIS (George F., F.G.S.)** GRANITES and our GRANITE INDUSTRIES, with 15 woodcuts, cr. 8vo. *cl.*, 2s 1888
- 8931 **HARRIS (John, D.D., F.R.S.)** LEXICON TECHNICUM: or UNIVERSAL ENGLISH DICTIONARY OF ARTS and SCIENCES, explaining not only the Terms of Art, but the Arts themselves, first edition, with portrait by G. White, fine copperplates (some folding), and numerous woodcuts, thick folio, old panelled calf (joints mended), £1. 1s 1704
The rare first edition of the first technical dictionary in any language. It is specially interesting for an early account of Savery's 'fire [sc. steam] engine', with a folding plate illustrating it, reproduced on an enlarged scale from 'The Miner's Friend' (1702).
- 8932 ——— NEW EDITION [greatly enlarged; with Table of Artificial Sines, Tangents, and Secants, to every Degree and Minute of the Quadrant], Vol. I 4th Ed., and Vol. I 2nd Ed., with portrait by R. White, copperplates, and numerous woodcuts and diagrams, 2 vols. folio, old calf, joints cracked, with old bookplate 'A. Crocker, schoolmaster, Ilminster', 15s 1725-3
- 8933 **HARRIS (John, 'Kuklos')** SOME PROPOSITIONS IN GEOMETRY, with 15 plates, and numerous diagrams, 4to. *cl.*, 7s 6d 1884
Containing this Canadian paradoxer's problems in circle-squaring, trisection of the angle, etc. on a system 'strictly based upon fact.' An appendix at end, printed in 1879, is entitled 'Geometrical Demonstration of the Ratio of the Circle's Circumference to the Diameter'. Besides these mathematical delectations he set Macaulay right on the Relations of Theology to Government, and tackled Kant's Critique of Pure Reason.
- 8934 **HARRIS (Joseph; Assay Master, Royal Mint)** DESCRIPTION and USE of the GLOBES and the ORRERY, with brief Account of the Solar System; 2nd Edition, with folding plates, 8vo. old calf (joints cracked), 6s 1732
- 8935 ——— FIFTH EDITION, with folding plates, 8vo. old panelled calf, 5s 1740
- 8936 ——— TENTH EDITION, with folding plates, 8vo. old sheep, 4s 1768
'On his monument in Talgarth Church it is said, that he invented many mathematical instruments.'—D. N. B.
- 8937 **HARRIS (Vincent Dormer, M.D.)**, and **d'Arcy POWER**, F.R.C.S.: MANUAL for the PHYSIOLOGICAL LABORATORY, 5th [last] Edition, with 120 illustrations, cr. 8vo. *cl. (o. p.)*, 4s (p. 7s 6d) 1892
- 8938 **HARRIS (William A.)** TECHNOLOGICAL DICTIONARY of INSURANCE CHEMISTRY, cr. 8vo. *cl.*, with inscr. to Dr. J. W. Russell, F.R.S., 4s 1890
Liverpool
- 8939 **HARRIS (Sir William Snow, F.R.S.)** ON CERTAIN PHENOMENA of ELECTRICAL DISCHARGE, 8vo. (pp. 6), sewn, with inscr. to Dr. T. L. Phipson, 1s 6d 1856
- 8940 ——— ON THE CORRECT INTERPRETATION of the Electrical Terms: INTENSITY and TENSION, with plate, 8vo. (pp. 12), sewn, with inscr. to Dr. Phipson, 1s 6d 1863
- 8941 ——— INQUIRIES concerning the ELEMENTARY LAWS of ELECTRICITY, 2ND SERIES, with 6 copperplates, 4to. (pp. 36), sewn, with inscr. to Henry Warburton, M.P., 3s 6d 1836
- 8942 ——— FURTHER INQUIRIES concerning the LAWS and OPERATION of ELECTRICAL FORCE, 8vo. (pp. 12), sewn, 1s 6d 1864
- 8943 ——— ON A GENERAL LAW of ELECTRICAL DISCHARGE, with plate, 8vo. (pp. 21), sewn, with inscr. to Dr. Phipson, 2s 1856
- 8944 ——— INSTRUCTIONS for the APPLICATION of PERMANENTLY FIXED CONDUCTORS of LIGHTNING to H. M.'s SHIPS, with 6 coloured plates, besides woodcuts, 8vo. *hf. calf (scarce)*, 8s 6d 1848
The peculiarity of the author's lightning conductor for ships was that the metal was permanently fixed in the mast and extended throughout the hull.
- 8945 ——— ON THE NATURE of THUNDERSTORMS, and the Means of PROTECTING BUILDINGS and SHIPPING against LIGHTNING, plates and woodcuts, 8vo. *cl.*, uncut (scarce), 12s 6d 1843
- 8946 ——— ANOTHER COPY, *hf. calf (slightly soiled and binding damaged)*, 8s
A full account of his invention of a ship's lightning conductor, and an answer to his critics. His system was adopted in the Royal Navy in 1839, and rewarded with an annuity of £300. by the Government, and later with a knighthood and a grant of £5000—an unusual example of official gratitude.
- 8947 ——— RESEARCHES in STATICAL ELECTRICITY, with plate, 8vo. (pp. 27), sewn, 2s 1857
- 8948 ——— TREATISE on FRICTIONAL ELECTRICITY, in Theory and Practice, edited, with Memoir by CHARLES TOMLINSON, F.R.S., with numerous woodcuts, 8vo. *cl. (scarce)*, 10s 1867
A work of well-known merit, including chapters on Accumulators, and on Electrical Manipulation. The author was awarded the Royal Society's Copley Medal for his researches on the laws of electricity of high tension, and the Bakerian prize for his 'Inquiries concerning the Elementary Laws of Electricity'.
- 8949 **HARRISON (James, bell-founder, Barton-on-Humber; grand-nephew of 'Longitude Harrison')** INTRODUCTION to a TREATISE on the PROPORTIONS and CONSTITUENT PARTS of BELLS, and on the relative Proportions of Bells of different Degrees of Acuteness and Gravity to each other, etc. etc. etc., with plate, 8vo. sewn (VERY SCARCE), 12s 6d 1831
Hull
- 8950 ——— BIOGRAPHICAL NOTICE of, by THOMAS NORTH, F.S.A., a Manuscript on 2 pages, folio, 5s 1882
- 8951 **HARRISON (Joseph)**, and **G. A. BAXANDALL**: PRACTICAL PLANE and SOLID GEOMETRY for Advanced Students, including GRAPHIC STATICS, with numerous diagrams, fcap. 8vo. *cl.*, 2s 6d (p. 4s 6d) 1904
- 8952 **HARRISON (Newton)** PRACTICAL ALTERNATING CURRENTS and POWER TRANSMISSION, with 172 illustrations, cr. 8vo. *cl.*, 6s (p. 10s 6d nett) 1906
New York
- 8953 **HARRISON (Thomas and James)** THE COMPLETE OBSERVATOR, containing the various METHODS of FINDING the LATITUDE, . . . and of CORRECTING the WATCH, never before published, with a New Method of finding the Latitude . . . with a complete Set of Tables, and the Method of determining the Longitude by Lunar Observations, with a New, Concise, Easy, and Infallible Method, 4to. sewn (rare), 10s 6d 1788
York

MEMORIALS OF THE DISCOVERER OF FINDING THE LONGITUDE AT SEA, INCLUDING MANY ORIGINAL MANUSCRIPTS:

- 8955 **HARRISON** (John; '*Longitude Harrison*') An EXPLANATION of my WATCH or TIME-KEEPER for the LONGITUDE; and as with a View of other Time-keepers, *viz.* of such as have [been] hitherto produced in the World and as farther, with some Historical Account coincident with my Proceedings, a certified copy of the original Manuscript, with a tracing of the first page of the original MS.; neatly written on 158 pp. of writing paper, 4to. *hf. roan, with bookplate of Bennet Woodcroft, F.R.S., £1. 1s* 1869
- 8956 ——— NARRATIVE of the PROCEEDINGS relative to the DISCOVERY of the LONGITUDE at SEA, by Mr. JOHN HARRISON'S TIME-KEEPER, subsequent to those published in 1763, sm. 8vo. (pp. 18), *sewn, 7s 6d* printed for the author, 1765
- 8957 ——— Of the NATURE of a PENDULUM, as primarily implying in itself; and secondarily, as when, according to any particular Manner (good or bad) in which it may be apply'd to the Draught of the Wheels of a Clock, etc., a Manuscript, wholly in Harrison's handwriting, neatly written on 143 pp. of writing-paper, sm. 4to. *old vellum, £4. 4s* *Sacc. XVIII.*
The second part of the manuscript (pp. 77-143) treats of the author's scale of music, and the whole appears to be the original MS. of 'A Description concerning such Mechanism as will afford a nice and true Mensuration of Time, together with some Accounts of the Attempts for the Discovery of the Longitude by the Moon; as also an Account of the Discovery of the Scale of Music,' published in 1775.
- 8958 ——— The PRINCIPLES of MR. HARRISON'S TIME-KEEPER, with Plates of the same, published by Order of the Commissioners of Longitude, with 10 folding plates on copper, 4to. *sewn (RARE), £1. 1s* 1767
- 8959 ——— ANOTHER COPY, contemporary *hf. calf, £1. 3s 6d*
The fullest account published descriptive of Harrison's famous 4th chronometer (preserved with the three preceding time-pieces at Greenwich Observatory), for which he received the parliamentary grant of £20,000.
The preface and 'Notes taken at the Discovery of Mr. Harrison's Time-Keeper' were written by NEVIL MASKELYNE, PR., F.R.S.
- 8960 ———: MR. SANDERSON'S MECHANICKS: a Transcript of the Manuscript Lectures on Mechanics by Nicholas Sanderson, F.R.S., wholly and very neatly written on 304 pages, with numerous diagrams, by John Harrison when a young man, with some MS. additions by him written at an advanced age, sm. 4to. *old calf, £10. 10s* [c. 1710]
An exceedingly interesting manuscript, which may be said to have been the basis of Harrison's mechanical knowledge. Dr. Samuel Smiles, in his biographical sketch on Harrison, refers to the above MS. in the following words: 'In the meantime Harrison eagerly improved every incident from which he might derive further information. There was a clergyman who came every Sunday to the village [Barrow, near Barton-on-Humber] to officiate in the neighbourhood; and having heard of the sedulous application of the young carpenter, he lent a manuscript copy of Professor Sanderson's discoveries (*recte* lectures). The blind professor had prepared several lectures on natural philosophy for the use of his students, but they were never intended for publication. Young Harrison now proceeded to copy them out, together with the diagrams. Sometimes, indeed, he spent the greater part of the night in writing or drawing.'
THE ABOVE IS THE ACTUAL MS. COPY PREPARED BY HARRISON HIMSELF.
- 8961 ——— A TRUE and FULL ACCOUNT of the FOUNDATION of MUSICK, or, as principally therein, of the EXISTENCE of the NATURAL NOTES of MELODY, AN UNPUBLISHED MANUSCRIPT, neatly written on 182 pp., and wholly in the handwriting of John Harrison, 4to. *old vellum, £5. 5s* [c. 1770]
Harrison besides being an expert mechanician was also a noted musician, the only work published by him on the subject being however an 'Account of the Discovery of the Scale of Music', added as an Appendix to his 'Description concerning such Mechanism as will afford a nice and true Mensuration of Time', published in 1775, thus giving all the more interest to the above MS.
'He had a musical ear, and made experiments on sound with a curious monochord of his own invention, from which he constructed a new musical scale or mechanical division of the octave, according to the proportion which the radius and diameter of the circle have respectively to the circumference.'—D. N. B.
- 8962 ———: MINUTES of the BOARD of LONGITUDE, a COMPLETE SET of those which REFER to JOHN HARRISON, Transcripts in a contemporary hand, 45 Nos. folio, £2. 2s 1737-73
- 8963 ———, PORTRAIT of, engraved on steel by W. HOLL, after a painting by King, roy. 8vo. *n. d.*
(SCARCE), 5s
- 8964 ———, MANUSCRIPT MATTER containing BIOGRAPHICAL INFORMATION concerning, written on about 200 l. and including original information, in portfolio, £1. 1s *Sacc. XIX.*
The above Harrison manuscripts would be of great value to anyone intending to write a much-needed biography of the inventor of the gridiron pendulum and the compensation curb in chronometers, and THE FIRST MAN TO FIND A SURE MEANS OF FINDING THE LONGITUDE AT SEA. The scanty biographies of him hitherto published are wholly inadequate and incomplete, and few people have heard of the self-taught Englishman to whom the whole world has been indebted ever since.
- 8965 ———: [HARRISON (John; grandson of '*Longitude Harrison*')] MEMOIRS of a TRAIT in the CHARACTER of GEORGE III., authenticated by Official Papers and Private Letters in Possession of the Author: with Appendix of Illustrative Tracts, etc., abridged from the Original Work in Manuscript, by JOHAN HERRINS [anagram], Gent., 8vo. *hf. cl., uncut (scarce), 15s* 1835
Dealing exclusively with the last payment of £10,000 to John Harrison, tardily and unwillingly paid by the Board of Longitude on the intervention of King George III. himself. The work is especially directed against Dr. Maskelyne, the Astronomer Royal, who is supposed to have shown special hostility to Harrison in order to advance his own imperfect method of finding the longitude by lunar distances only.
- 8966 ——— THE ORIGINAL MANUSCRIPT, neatly written on 1376 pages, 16 parts 4to. *sewn, £5. 5s* *Sacc. XIX.*
A very interesting manuscript, very rich in information regarding John Harrison's life and work. Only a very small portion of it has been printed in the above published work.
- 8967 ———: SMILES (Samuel, LL.D.) JOHN HARRISON, the CHRONOMETER-MAKER, 8vo. (pp. 16), *hf. crimson morocco (scarce), 5s* [1882]
- 8968 ——— ANOTHER COPY, *sewn, 3s 6d*

- 8970 **HARRISON** (John, 'Longitude Harrison'): MASKELYNE (Nevil, *pr.*, F.R.S., *Astronomer Royal*) ACCOUNT OF THE GOING OF MR. JOHN HARRISON'S WATCH, at the ROYAL OBSERVATORY, from May 6th, 1766, to March 4th, 1767, with the Original Observations and Calculations of the same, published by Order of the Commissioners of Longitude, 4to. (pp. 84), *sewn (rare)*, 17s 6d 1767
This work forms perhaps the best testimonial, against the attacks of Harrison and Mudge, to the scrupulous fairness of the Astronomer Royal in testing the new chronometers; though, as mentioned above, Harrison was kept out of the covenanted reward as long as possible for reasons which some have imputed to Dr. Maskelyne. The conditions under which they were examined agree on the whole with the New rules of the present day.
An appendix contains 'Observations of Equal Altitudes of the Sun taken at Portsmouth, Jamaica, and Barbadoes, according to the Time of Mr. Harrison's Watch.'
- 8971 **HARRISON** (William Jerome, F.G.S.) GEOLOGY OF THE COUNTIES OF ENGLAND and of North and South WALES, with 106 woodcuts, 8vo. *cl.*, 4s (p. 8s) 1882
- 8972 ——— TEXT-BOOK OF GEOLOGY: intended as an Introduction to the Study of the Rocks and their Contents, with 140 woodcuts, *cr.* 8vo. *cl.*, 2s 1897
- 8973 **HARTIG** (Ernst) Die DAMPFKESSEL-EXPLOSIONEN; with 2 folding plates, 8vo. (pp. 39), *sewn*, 1s 6d Leipzig, 1867
- 8974 **HARTLEY** (David, M.P.; friend of Benjamin Franklin) ACCOUNT OF THE INVENTION and USE OF FIRE PLATES, for the Security of Buildings and Ships against Fire, with etched front., 8vo. (pp. 32), *sewn (scarce)*, 7s 6d 1834
The invention consisted of the placing of thin iron planks under the floors and attaching them to the ceilings to prevent an immediate access of the fire, and to stop the air current and free supply of fuel.
- 8975 **HARTLEY** (Sir Walter Noel, F.R.S.) COURSE OF QUANTITATIVE ANALYSIS for Students, with woodcuts, *cr.* 8vo. *cl.* (o. p.), 3s 6d 1887
- 8976 ——— On the OPTICAL PROPERTIES of a NEW CHROMIC OXALATE, 8vo. (pp. 9), *sewn*, with author's *inscr.*, 2s 1873
- 8977 **HARTMANN** (Carl Friedrich Alexander) HANDBUCH der MINERALOGIE zum Gebrauch für Jedermann; with 30 folding plates, and numerous woodcuts, 2 thick vols. 8vo. boards (*scarce*), 10s Weimar, 1843
- 8978 **HARTMANN** (Eduard v.) Die WELTANSCHAUUNG der MODERNEN PHYSIK, roy. 8vo. *sewn*, 3s 6d (p. M. 6.50) Leipzig, 1902
- 8979 **HARTMANN** (Johann; Univ. Marburg) PRAXIS CHYMIATRICA, edita à JOHANNE MICHAELIS, nova Editio: adjecti sunt TRES TRACTATUS NOVI, 16mo. (pp. 360), *old sheep (rare)*, 15s Geneva, 1647
- 8980 ——— ANOTHER COPY, contemporary vellum, 16s
This edition contains three new treatises: I. De Oleis variis Chymicè distillatis. II. Basilica Antimonii Homeri Poppii Thallini. III. Marci Cornacchini D.M. Methodus, qua omnes affectiones . . . Chymicæ et Galenicæ curantur.
- 8981 ——— EDITIO NOVA, recognita et emendata prae omnibus hactenus Editionibus [cum Prefatione JOHANNIS ANTONIDIS VAN DER LINDEN], 18mo. *nice copy in vellum*, 10s Lugd. Batavorum, 1663
This edition does not contain the three treatises included in that of 1647.
'C'est le plus important des ouvrages de Hartmann.'—*Biogr. Gén.* The author was the first professor of chemistry in any University.
- 8982 **HARTSOEKER** (Nicolas) CONJECTURES PHYSIQUES; with vignettes, map, and numerous diagrams: ECLAIRCISSEMENS sur les CONJECTURES PHYSIQUES; with diagrams—2 vols. 4to. in 1, *old calf gilt (rare)*, 12s Amsterdam, 1706-10
'Ses Eclaircissements sont des réponses à des objections dont la plupart étaient de Leibnitz. Il y censure aussi sévèrement les volumes publiés par l'Académie de Paris, disant qu'il ne critiquait que ce qu'il estimait.'—*Biogr. Gén.*
The author is perhaps best known for his improvements in the microscope and telescope.
- 8983 **HARVEY** (George, F.R.S.) METEOROLOGY (Encyclopædia Metropolitana), with 16 plates, 4to. unbound (*wanting pp. 89-96, and 1 plate*), 2s [1833]
- 8984 [———] NAVAL ARCHITECTURE (Encyclopædia Metropolitana), with 6 steel plates, 4to. unbound, 3s [1834]
- 8985 ——— On a REMARKABLE CASE of MAGNETIC INTENSITY of a CHRONOMETER, 4to. (pp. 10), *sewn*, with author's *inscr.*, 3s Edin., 1823
- 8986 ——— RESULTS OF EXPERIMENTS relating to COMPARATIVE MEANS OF DEFENCE afforded by SHIPS OF WAR having SQUARE and CURVILINEAL STERNS, with 2 folding plates by Basire, 8vo. *hf. calf gilt (SCARCE)*, 12s 6d 1824
'To the Right Honble. the Earl of Morley, with the Author's respectful Compliments.'—*Inscr. on title.*
The above work is not noticed by Lowndes and Allibone, and is scarce. There is no copy of it in the Library of the Institution of Naval Architects.
- 8987 **HARVEY** (Gideon, M.D.; physician to Charles II.) ARCHEOLOGIA PHILOSOPHICA NOVA, or NEW PRINCIPLES OF PHILOSOPHY, containing Philosophy in general; Metaphysics, or Ontology; Dynamology, or a Discourse of Power; Religio Philosophi, or Natural Theology; Physicks, or Natural Philosophy, with fine folding portrait by P. Philippe, and engravings on copper and wood, sm. 4to. contemporary English calf, one joint neatly mended (FINE COPY), 15s S. Thomson, 1663
The Natural Philosophy fills 439 pp. of the work, and includes chapters on light, colours, sound, the loadstone, and many others of meteorological or astronomical interest.
- 8988 **HARZER** (Paul; Univ. Kiel) ASTRONOMISCHE BEOBSACHTUNGEN auf der STERNWARTE der Universität zu KIEL, I. BESCHREIBUNG der NEUEN MERIDIANKREISANLAGE; with 6 autotype plates, roy. 4to. *sewn*, 6s Leipzig, 1905
- 8989 ——— Ueber die BESTIMMUNG und VERBESSERUNG der BAHNEN von HIMMELSKÖRPERN nach drei Beobachtungen, 4to. *sewn*, 5s *ib.*, 1901
- 8990 ——— Ueber die GEOMETRISCHE METHODE zur BESTIMMUNG der BAHNEN von HIMMELSKÖRPERN nach fünf Beobachtungen, 4to. *sewn*, 5s *ib.*, 1910
- 8991 ——— UNTERSUCHUNGEN über einen speciellen Fall des PROBLEMS der DREI KÖRPER; with plate, roy. 4to. *sewn*, 4s St.-Petersbourg, 1886
- 8992 ——— Ueber die ZEITBESTIMMUNG im VERTICALE des POLSTERNES, 4to. *sewn*, 3s 6d Leipzig, 1899

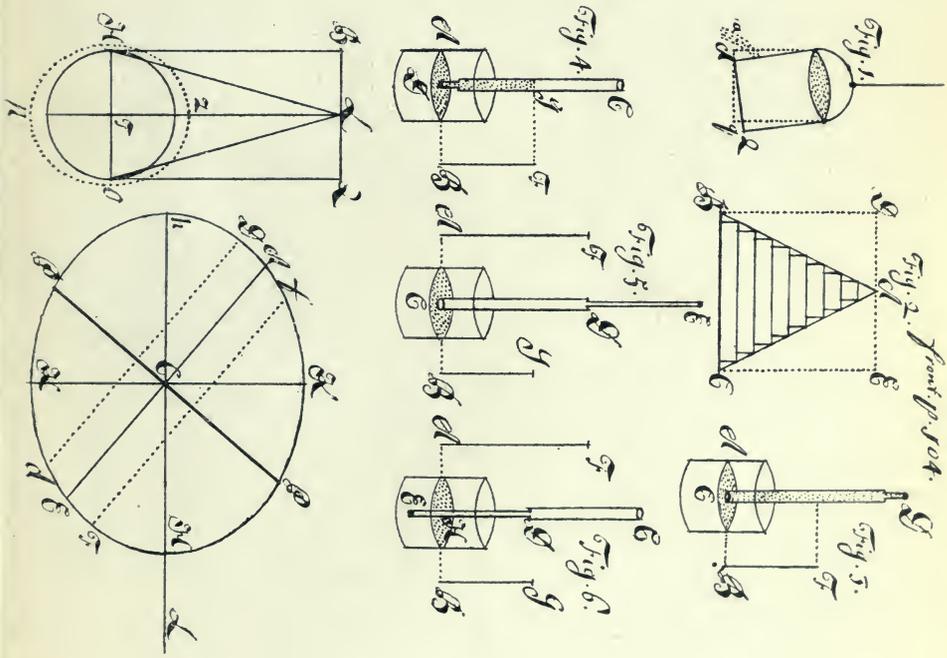
Mr. Haüy's Mechanics

1. *Mechanicks is that Art of Natural Philosophy with Tracts of Matter, & Laws of Motion.*
 2. *What we have to say on this Subject shall be reduced to three Heads, Under y^e 1st we shall explain y^e Nature of Machines, considering y^e Actions, & Powers of Matter acting inwardly by contrary Obstacles, & other Resistances. Under y^e 2^d we shall speak of these Laws, as relate to y^e Effects of moving Force upon solid Bodies, as at Liberty to move without any Obstacle, or Resistance. In y^e 3^d we shall apply y^e former notions & Laws to y^e Motion of Astronomical Bodies, & show y^e whole Planetary System is govern'd by 'em.*

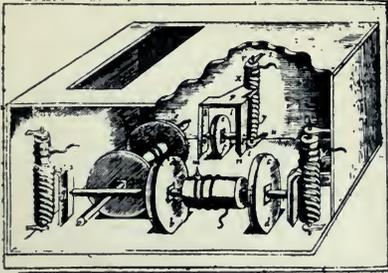
Part 1st of Motion in general.

5. *Motion is a continual passing out of one place into another, without continuing in y^e same place for any Time; that Effection of Motion, by w^{ch} a Body runs through a certain Space in uncertain Time is call'd y^e Velocity, or Facility of y^e Motion. The greater y^e Force is impressed upon a Body to make it change its Place, y^e greater is its Motion. The y^e Effect is always proportionable to its Cause, & that Force is call'd y^e Momentum or Quantity of Motion.*

Of

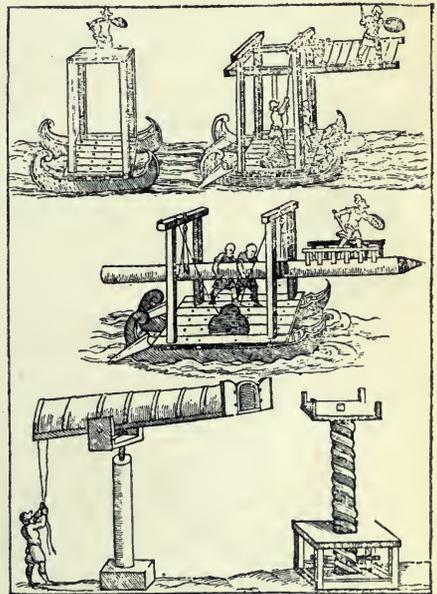
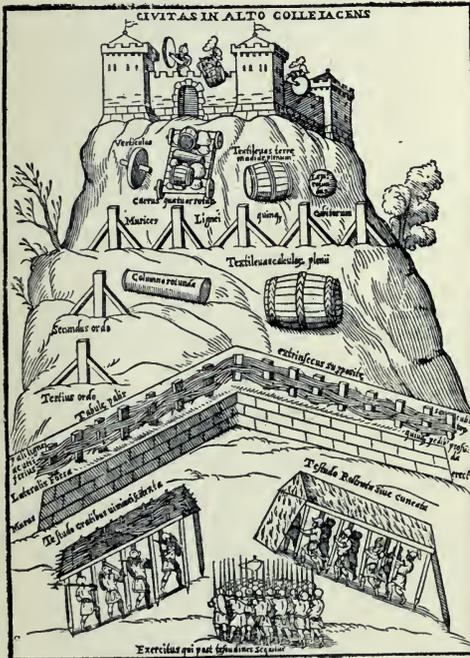
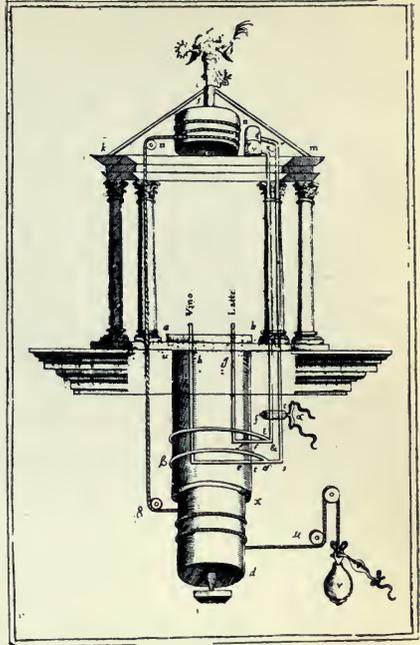


s, t, u, dentro questi si giri la vite x, y, e la lingua q, si cacci nel canale della detta vite. Quando dunque al ti girerà la vite, x, y, s'alzerà, & abbafterà il rigolo



I, m, mediante la linguetta q. Accioche poi ciò per se medesimo si faccia, auiluppisi la corda intorno vna parte della vite, la quale habbia scambieiuoli auilupamenti, & allentamenti aggomitolati, misurati agli spatij, ne quali si muoue la cassa; e le medesime cose si facciano ne gli altri due rigoli, ne i quali sono le punte g, h: Bisogna però auertire che le tre uiti siano al tutto eguali fra loro, e gli allentamenti parimente, accioche le tre ruote tutte insieme discendano, perche in questo modo il viaggio della cassetta sarà facile, & insieme sicuro.

Egli è possibile in altro modo ancora fare, che la cassetta pigli le volte, non fola per vn rettangolo parallelogrammo, ma per qual si voglia figura di linee diritte; Anzi egli si può fare ancora che si muoua à bisficia, e ciò con modo più facile, che non è quello, che di sopra habbia: mo in-



Nos. 9180 and 9183 (page 463).

Early machinery and engines of war.

- 8994 **HARZER (Friedrich)** Die SIEGELLACKFABRIKATION, nach den neuesten Verfahren und den bewährtesten Vorschriften, post 8vo. *sewn*, 3s 6d Weimar, 1848
- 8995 **HASELDEN (Thomas, Teacher of Mathematics in the Royal Navy; F.R.S.)** THE SEAMAN'S DAILY ASSISTANT: a Short, Easy, and Plain METHOD of KEEPING a JOURNAL at SEA, with Rules shewing the Allowances for Leeway, Variation, Heave of the Sea, Set of Currents, etc., and Tables for the Seaman's Use, sm. 4to. *contemporary sheep (binding slightly damaged, otherwise a sound and clean copy)*; RARE, 12s 6d 1759
- Requiring only the most elementary knowledge of arithmetic to be understood. The above edition was unknown to the author's biographer in D. N. B., who only mentions the reprint of 1785.
- 8996 **HASKELL (Mellen Woodman, Univ. Cal.)** THE CONSTRUCTION of CONICS under GIVEN CONDITIONS, roy. 8vo. (pp. 6), *sewn, with author's inser.*, 1s 6d [New York, 1905]
- 8997 **HASKOLL (W. Davis, C.E.)** THE ASSISTANT ENGINEER'S RAILWAY GUIDE in BORING, with the Tools and Methods of Proceeding, and Remarks on British Strata and their Contents as Materials in Construction; Stumping and Picking out Centre Lines and Curves, etc., etc., with Practical Memoranda on Specifications, 3 *folding plates* and 60 *woodcuts*, 8vo. *cl.* (SCARCE), 1846
- 8998 ——— THE ENGINEER'S, MINING SURVEYOR'S, and CONTRACTOR'S FIELD-BOOK: Tables for Traverse Surveying, Levelling with the Theodolite, Setting out Curves, and Earthwork Tables to 80 Feet deep, 2nd Edition, much enlarged, *with numerous woodcuts*, 12mo. *cl.*, 3s (p. 12s) 1866
- 8999 ——— THE PRACTICE of ENGINEERING FIELD-WORK, applied to Land, Hydrographic, and Hydraulic Surveying and Levelling, and Waterworks, including the Description and Use of Surveying and Levelling Instruments, and the Practical Application of Trigonometrical Tables, *with 27 folding and other plates*, 2 vols. 8vo. *cl.*, 6s (p. £2.) 1858-68
- 9000 ——— VOLUME II ONLY: WATERWORKS; Gauging Streams, Sewers, Sewage and Irrigation, 8vo. *cl.*, 3s (p. £1.) 1868
- 9001 **HASSALL (Arthur Hill, M.D.)** FOOD: its ADULTERATIONS, and the Methods for their Detection, *illustrated*, 8vo. *cl.*, 8s 6d (p. £1. 4s) 1876
- To Dr. Hassall we almost wholly owe our deliverance from the shameless and criminal adulteration of the first half of the Nineteenth Century—an adulteration fatuously styled by John Bright 'a form of competition', which competition was itself to bring to an end without the help of the law! The law may have to keep a sharp eye on the adulterator still but if we are sometimes robbed we are very seldom poisoned; so let us remember Dr. Hassall!
- 9002 **HASSELBERG (Klas Bernhard, Stockholm)** RUSSISCHE EXPEDITIONEN zur BEOBSACHTUNG des VENUSDURCHGANGS 1874. II. 1. BEARBEITUNG der PHOTOGRAPHISCHEN AUFNAHMEN im HAFEN POSSIET; *with 11 diagrams*, roy. 4to. *sewn*, 3s St. Petersburg, 1877
- 9003 ——— Ueber das durch electricische Erregung erzeugte LEUCHTEN der GASE bei NIEDRIGER TEMPERATUR, roy. 4to. (pp. 17), *sewn*, 1s 6d *ib.*, 1879
- 9004 ——— Zur SPECTROSKOPIE des STICKSTOFFES. I. UNTERSUCHUNGEN über das BANDENSPECTRUM; *with 5 folding plates*, roy. 4to. (pp. 50), *sewn*, 3s *ib.*, 1885
- 9005 ——— STUDIEN auf dem GEBIETE der ABSORPTIONSPECTRALANALYSE; *with 4 folding plates*, roy. 4to. (pp. 39), *sewn*, 3s *ib.*, 1878
- 9006 **HATCHETT (Charles, F.R.S.)** ANALYSIS of the CARINTHIAN MOLYBDATE of LEAD; with Experiments on Molybdic Acid, and some Experiments and Observations on the Decomposition of the Sulphate of Ammoniac, 4to. (pp. 55), *sewn*, 5s 1796
- 9007 ——— ANALYTICAL EXPERIMENTS and OBSERVATIONS on LAC, 4to. (pp. 28), *sewn*, 3s 1804
- 9008 ——— OBSERVATIONS on the CHANGE of some of the proximate PRINCIPLES of VEGETABLES into BITUMEN; with analytical Experiments on a peculiar Substance, which is found with the BOVEY COAL, 4to. (pp. 26), *sewn*, 3s 1804
- The 'coal' of the Bovey Heathfield, near Bovey Tracey in Devonshire, is a curious substance of much geological interest.
- 9009 ——— On an ARTIFICIAL SUBSTANCE, which possesses the principal Characteristic Properties of TANNIN, 4to. (pp. 16), *sewn*, 3s 1805
- 9010 ——— ANOTHER COPY, with ADDITIONAL REMARKS, and THIRD SERIES of EXPERIMENTS, with some Remarks on Coal, 3 parts 4to. (pp. 85), *sewn, with author's inser.*, 8s 1805-6
- The author discovered columbium and tantalum. He was a member of the Literary Club, founded by Dr. Johnson, and furnished John Wilson Croker with a complete list of members, reprinted in the latter's edition of Boswell's Johnson.
- 9011 **HATTON (Edward, Philomercat.)** ARITHMETICK; or, the Ground of Arts, originally composed by DR. RECORD, and others, and now new Methodized, much Improved, and added a New TREATISE of DECIMALS, Tables of Simple and Compound Interest, and the easiest Method of Extracting the SQUARE and CUBE-ROOTS of NUMBERS, *with fine portrait by E. White, and diagrams*, 4to. *contemporary calf gilt, newly rebound (somewhat browned)*; rare, 14s 1699
- 'The last edition of Recorde's *Grounde of Artes* I know of is that by Edw. Hatton, London, 1699, 4to.; it has an additional book called 'Decimals made easy'.—*Prof. de Morgan.*
- 9012 ——— MATHEMATICAL MANUAL: or, DELIGHTFUL ASSOCIATE, *with diagrams*, 8vo. *contemporary calf gilt*, 7s 6d 1728
- Containing chapters on 'Mysterious Curiosities in Numbers, or Numerical Novelties,' 'how to make a Line of Numbers, or Logarithms, to any Length,' 'The Hour of the Night by the Moon shining on a Sun Dial,' etc. etc. etc.
- 9013 ——— THE MERCHANT'S MAGAZINE: or Trades-Man's Treasury; containing Arithmetick, Merchants Accompts, Book-keeping, Maxims concerning Bills of Exchange, etc., the Port of Letters to and from Foreign Countries, an Account of the Commodities produced by all Countries, a Merchant or Trader's Dictionary, Precedents of Merchants Writings, etc., 8th Impression, corrected and improved, *with portrait et. 32 by E. White, and 8 plates of specimens of calligraphy*, 4to. *old calf, neatly rebound*, 17s 6d 1726
- 9014 ——— NINTH IMPRESSION, corrected and improved, *with portrait, and 8 plates*, 4to. *boards*, 12s 6d 1734

'A work of some celebrity. There is somewhat more of reason given for rules than was very common, and a vast quantity of mercantile terms, usages, etc. are explained.'—*Prof. de Morgan.*

- 9016 **HASSLER** (Ferdinand Rodolph, *West Point Military Academy*) COMPARISON of WEIGHTS and MEASURES of LENGTH and CAPACITY reported to the SENATE of the UNITED STATES by the TREASURY DEPARTMENT in 1832, with 4 folding plates, 8vo. (pp. 126), *sewn (scarce)*, 5s
Washington, 1832
- 9017 **HASTLER** (J. D.) The ELEMENTS of the CONIC SECTIONS, with the SECTIONS of the CONOIDS; 2nd Edition, with numerous diagrams, 8vo. (pp. 67), *sewn*, 2s
Cambridge, 1820
- 9018 **HAUDICQUER de BLANCOURT** (Jean) L'ART de la VERRERIE, où l'on apprend à faire le Verre, le Cristal, et l'Email; la Manière de faire les Perles, les Pierres Précieuses, la Porcelaine, et les Miroirs; la Méthode de peindre sur le Verre et en Email; de tirer la Couleur des Métaux, Minéraux, Herbes, et Fleurs; nouvelle Édition, augmentée d'un Traité des Pierres Précieuses; with 8 copperplates, illustrating contemporary tools, furnaces, etc., 2 vols. 12mo. contemporary French mottled calf extra (FINE COPY); rare, 15s
1718
'Accusé d'avoir contrefait et fabriqué d'anciens titres de noblesse, Haudicquer fut condamné aux galères en 1701. Cette peine fut ensuite commuée en une prison perpétuelle.'—*Biog. Gén.*
- 9019 **HAUGHTON** (Samuel, *pr.*, T.C.D.; M.D., F.R.S.) On a CLASSIFICATION of ELASTIC MEDIA, and the LAWS of PLANE WAVES propagated through them (pp. 42): On the ROTATION of a SOLID BODY round a FIXED POINT (pp. 16)—4to. *sewn*, 4s 6d
[Dublin], 1849
- 9020 ——— GEOMETRICAL ILLUSTRATIONS of NEWLANDS'S and MENDELEJEFF'S PERIODIC LAW of the Atomic Weights of the Chemical Elements, 5 diagrams, 8vo. (pp. 15), *sewn*, 2s *ibidem*, 1888
- 9021 ——— OUTLINES of a NEW THEORY of MUSCULAR ACTION, cr. 8vo. cl. (o.p.), with *inscr.* to Dr. William Stokes, F.R.S., P.R.I.A., 5s
1863
This work formed the basis of the author's 'Principles of Animal Mechanics'. It was unknown to the author's biographer in D. N. B.
- 9022 ——— PRINCIPLES of ANIMAL MECHANICS, 2nd [last] Edition, with 110 woodcuts and diagrams, 8vo. cl., with *inscr.* to Dr. Robert Atkinson, T.C.D., M.R.I.A. (o.p.), 10s 6d (p. £1. 1s)
1873
'The object of this volume is to show that the muscular mechanism is so arranged that the work required of it is done with a less expenditure of muscular contraction than would result from any other configuration. This he calls 'the principle of least action.'—D. N. B.
- 9023 **HAUKSBEE** [the elder] (Francis, F.R.S.) PHYSICO-MECHANICAL EXPERIMENTS on Various Subjects, containing an Account of the SURPRIZING PHENOMENA touching LIGHT and ELECTRICITY, producible on the ATTRITION of BODIES, with many other Remarkable Appearances, not before observ'd, with the Explanations of all the Machines, and other APPARATUS us'd in the Experiments, first edition, with 8 fine folding copperplates, sm. 4to. sound and large copy in contemporary panelled calf (very rare), £3. 15s
R. Brugis, for the Author, and sold only at his House in Wine-Office-Court in Fleet-street, 1709
- 9024 ——— SECOND [AND LAST] EDITION, with SUPPLEMENT, containing several New Experiments, with 8 fine folding copperplates, and engravings on copper and wood, 8vo. contemporary calf (LARGE AND FINE COPY); RARE, £1. 5s
1719
- 9025 ——— ANOTHER COPY, old calf (joints cracked, and 2 plates torn), 18s 6d
- 9026 ——— THE SAME, handsomely bound in hf. crushed brown Levant morocco gilt, t. e. g. (plates mounted, and two defective), 17s 6d
One of the most important early works on electricity, containing a description of the FIRST ELECTRICAL MACHINE with a GLASS CYLINDER (invented by the author), which was 'turned by a winch and rubbed by the hand', as well as descriptions and illustrations of an improved air-pump of his invention, founded on his discovery of the 'lateral communication of motion in air.'
In his preface he mentions that 'the Nature and Laws of Electrical Attractions have not yet been much consider'd by Any'. In the above work and his contributions to the Royal Society he carried further the tentative observations of Dr. Gilbert and Boyle on electricity, and by his experiments may be said to have laid the foundation of that science. He certainly was the first to discover the electric spark. He also determined the relative weight of water and air, and ascertained the refractive index of various fluids.
The above second edition contains a Supplement (pp. 86) of 24 new experiments, which is not contained in the edition of 1709.
- 9027 ——— ESPERIENZE FISICO-MECCANICHE sopra varj Soggetti, contenenti un Racconto di Diversi STUPIDI FENOMENI intorno la LUCE e l'ELETTRICITA, producibile dallo STROFINAMENTO de' CORPI, con molte altre notabile Apparenze, non mai prima osservate, colle Spiegazioni di tutte le Macchine, tradotta dall' Idioma Inglese; with 7 plates (6 folding), 4to. old vellum (rare), 10s
Firenze, 1716
'Eine Reihe von Versuchen über Elektrizität, die zu den besten gehören, die seit Gilbert's Zeiten angestellt wurden.'—*Poggendorf.*
- 9028 **HAUPT** (Herman; *Gen. Manager P. R. R.*) GENERAL THEORY of BRIDGE CONSTRUCTION, containing Demonstrations of the Principles of the Art and their Application to Practice, etc., with 16 plates, and 96 diagrams, roy. 8vo. cl., 5s
New York, 1862, or '73
- 9029 **HAUPT** (Lewis Muhlenberg; *Univ. Penna., son of the above*) MANUAL of ENGINEERING SPECIFICATIONS and CONTRACTS; 2nd Edition, with 3 folding plates (2 linen mounted), and numerous woodcuts, 8vo. hf. calf (rubbed), 4s (p. 12s 6d net)
Philadelphia, 1881
- 9030 ——— The TOPOGRAPHER, his INSTRUMENTS and METHODS, with 27 plates and maps (9 folding), and 42 woodcuts, 8vo. cl., 5s
New York [1883]
- 9031 **HAUTEFEUILLE** (Abbé Jean de) PROBLÈME d'ACOUSTIQUE, Curieux et Intéressant [avec sa Vie, et Bibliographie]; with plate, 8vo. fine copy in old hf. calf gilt (RARE), 18s 6d
1788
CONTENU:—Explication de l'Effet des Trompettes Parlantes: l'Art de Respirer sous l'Eau, etc.: la Balance Magnétique, etc.: Lettre à M. Bourdelot: Dissertation sur la Cause de l'Écho: Particularités essentielles de l'Instrument Acoustique de M. de Hautefeuille.
'Je m'étois donc chargé de perfectionner 1^o des cornets acoustiques; en trouver un dont la construction, plus conforme à la théorie de l'air sonore, fit plus d'effet sur l'oreille; de façon qu'étant appliqué sur cette partie, il fit entendre la conversation de plus loin, et épargnât désormais l'assujettissement incommode d'avoir la bouche si proche de cet instrument pour parler. 2^o Faire une machine par laquelle on pût entendre la conversation par les dents', etc. etc.—*Introduction.*
The editor was unknown to Barbier or Quéhard.

- 9033 **HAUSEN (Christian August; Univ. Leipzig)** NOVI PERFECTUS in HISTORIA ELECTRICITATIS, post Obitum Auctoris ex Msto. ejus editi; præmissa est Commentatiuncula de Vita et Scriptis Auctoris; with *fine copperplate*, 4to. *sewn (rare)*, 12s 6d
Lipsiæ, 1743
Valuable as containing a description (and illustration) of the author's electrical machine—the first one made in Germany—consisting of a glass cylinder. It differs only slightly from Hauksbee's (v. Nos. 9023-7, *ante*), but was of some importance in having finally displaced the glass tubes till then in general use.
- 9034 **HAUSER (A.)** COURS de CONSTRUCTION NAVALE, professé à l'École d'Application du Génie Maritime, 4to., with *Atlas*, containing 340 plates comprising 1771 figures, impl. 4to.—2 vols. *hf.*
roan (SCARCE), £2. 10s 1886
- 9035 ——— ATLAS of PLATES ONLY, impl. 4to. *portfolio (back damaged)*, £1. 1s
- 9036 **HAÛY (René Just, de l'Institut; Chanoine de Paris; F.R.S.)** COMPARAISON des FORMES CRISTALLINES de la STRONTIANE CARBONATÉE avec celles de l'ARRAGONITE; with *plate*, 4to. (pp. 21), *sewn*, 3s [1817]
- 9037 ——— Sur les CYMOPHANES des ÉTATS-UNIS; with *copperplate*, 4to. (pp. 13), *sewn*, with *inscr. (as below)*, 3s 6d [1812]
'À Monsieur [Thomas] Allan [F.R.S.], hommage de l'auteur.—*Inscr. on title.*
- 9038 ——— MÉMOIRE sur la CRISTALLISATION et sur les PROPRIÉTÉS PHYSIQUES de l'EUCLASE; with *plate*, 4to. (pp. 19), *sewn*, 2s 6d [1819]
- 9039 ——— NOUVELLES OBSERVATIONS sur la FACULTÉ CONSERVATRICE de l'ÉLECTRICITÉ acquise à l'Aide du Frottement, 4to. (pp. 7), *sewn*, 3s 1819
- 9040 ——— TRAITÉ des CARACTÈRES PHYSIQUES des PIERRES PRÉCIEUSES, pour servir à leur Détermination lorsqu'elles ont été taillées; with 3 plates, 8vo. *sewn*, *uncut (rare)*, 7s 6d 1817
- 9041 ——— TRAITÉ ÉLÉMENTAIRE de PHYSIQUE; 2^e Édition, considérablement augmentée; with 12 plates, 2 vols. 8vo. *unbound*, 2s 6d 1806
- 9042 ——— ELEMENTARY TREATISE on NATURAL PHILOSOPHY, translated, with Notes, by OLINTHUS [GILBERT] GREGORY, LL.D., 24 copperplates, 2 vols. 8vo. *hf. morocco gilt*, *uncut*, with *bookplate of Edward Solly, F.R.S.*, 8s 6d 1807
The author was the discoverer of piezo-electricity and the geometrical law of crystallisation, of which the above work contains his account.
- 9043 **HAVILAND (James)** TABLES of SPECIFIC GRAVITIES of all Substances; Land Measuring; the Old and New Weights and Measures; etc. etc., new Edition, 8vo. *hf. morocco*, or, *boards*, 2s 6d 1846
- 9044 **HAWKINS (Charles C., M.I.E.E.)** ARMATURE REACTION, and the THEORY of COMMUTATION, with 28 illustrations, 8vo. *sewn*, 2s *n. d.*
- 9045 ——— The THEORY of COMMUTATION, with 24 diagrams and 13 tables, 8vo. *sewn*, 2s [c. 1900]
- 9046 ———, and Frank WALLIS: The DYNAMO: its Theory, Design, and Manufacture, with 5 folding plates, and 185 other illustrations, thick cr. 8vo. *cl.*, 3s (p. 10s 6d) 1893
- 9047 **HAWNEY (William)** THE COMPLETE MEASURER: or the Whole Art of Measuring, the I. Part teaching DECIMAL ARITHMETIC, with the Extraction of the Square and Cube Roots, etc. etc., and the II. Part to measure all Sorts of Superficies and Solids, by Decimals, Cross-Multiplication, and Scale and Compasses; 4th Edition, with Appendix of Gauging and Land-Measuring, with numerous woodcuts, 12mo. *old calf (browned and binding broken)*, 7s 6d [c. 1730]
- 9048 ——— FIFTH EDITION, with Appendix of Gauging and Land-Measuring, with numerous woodcuts, 12mo. *old hf. calf*, 8s 6d 1743
- 9049 ——— NINTH EDITION [unchanged], with woodcuts, 12mo. *old sheep*, 8s 6d 1755
- 9050 ——— FOURTEENTH EDITION, with woodcuts, 12mo. *old sheep*, 6s 6d 1775
'A full treatise on decimal arithmetic.—*Prof. de Morgan*, who did not know any of the above editions. The work was recommended by Dr. John Harris, F.R.S., and was quite unknown to Lowndes, Allibone, or Watt.
- 9051 **HAY (David Ramsay, house-painter; F.R.S.E.)** THE LAWS of HARMONIOUS COLOURING, adapted to Interior Decorations, Manufactures, etc., 3rd Edition, with 5 coloured plates, 8vo. *cl.*, *uncut*, 5s *Edin.*, 1836
- 9052 ——— NOMENCLATURE of COLOURS, applicable to the Arts and Natural Sciences, to Manufactures, etc., 2nd Edition, improved, with 40 coloured plates by Lizars, containing 240 different colours, 8vo. *cl. (scarce)*, 10s 6d *ib.*, 1846
- 9053 ——— PROPORTION, or the GEOMETRIC PRINCIPLE of BEAUTY, ANALYSED, with 17 plates, and 41 diagrams, roy. 4to. *cl. (foxed and cover damaged)*, 7s 6d *ib.*, 1843
David Ramsay Hay was far more than a 'house-painter,' for he developed into the chief internal decorator of his day, and a man of much culture. It was he who decorated Abbotsford for Sir Walter Scott, and his work may be seen in London in the Great Hall of the Society of Arts.
- 9054 **HAY (John)** CALCULATIONS introductory to a NEW THEORY of the EARTH, showing, by Principles entirely original, that the SACRED ACCOUNT of CREATION is in HARMONY with NATURAL RESULTS, etc., etc., with 10 plates (2 folding), 4to. (pp. 10), *sewn (scarce)*, 10s 6d
apud auctorem, Edin., 1824
- A geological paradox, attempting to explain the shape of the earth, its stratification, the formation of mountains and the ocean, the origin of rivers, volcanoes, etc. etc.
- 9055 **HAYDEN (Ferdinand Vandever; M.D., Univ. Penna.)** GEOLOGICAL REPORT of the EXPLORATION of the YELLOWSTONE and MISSOURI RIVERS, with folding coloured map, 8vo. *sewn*, with *inscr. to Prof. Hilary Bauerman (scarce)*, 5s 6d *Washington*, 1869
- 9056 [———] ILLUSTRATIONS of CRETACEOUS and TERTIARY PLANTS of the WESTERN TERRITORIES of the UNITED STATES, 26 plates, 4to. *cl. (ONLY 500 COPIES PRINTED)*, 15s *ib.*, 1878
- 9057 **HAYN (Friedrich)** BAHN-BESTIMMUNG des COMETEN 1862 III.: Inaugural-Dissertation, 4to. (pp. 56), *sewn*, 2s *Leipzig*, 1889
- 9058 **HAZLEHURST (J. N.)** TOWERS and TANKS for WATER-WORKS: the Theory and Practice of their Design and Construction, with 2 plates, and 19 woodcuts, 8vo. *cl.*, 4s 6d (p. 10s 6d nett) *New York*, 1901

- 9060 **HAYES** (Charles; *Sub-Governor of the Roy. African Co.*) TREATISE OF FLUXIONS: or, Introduction to Mathematical Philosophy, containing a full Explication of that Method by which the most celebrated Geometers of the present Age have made such vast Advances in Mechanical Philosophy, *numerous diagrams*, folio, *old calf, roughly rebound* (RARE), 15s 1704
 'The first English work explaining Newton's method of infinitesimals. After an introduction setting forth most of the chief properties of the conic sections with concise proofs, Hayes applies Newton's method clearly and systematically, first to obtain the tangents of curves, then their areas, and lastly the problems of maxima and minima. His preface shows a good acquaintance with the existing literature of higher mathematics.'—*D. N. B.*
- 9061 **HAYMAN** (E. N., *Common Brewer*) PRACTICAL TREATISE to render the ART of BREWING more easy, with the Use of the SACCHAROMETER, and Instructions for the Purchase of Malt and Hops; also, particular Directions for the Management of the Brewery, etc., *with folding plate*, 12mo. boards, uncut, 6s 6d 1819
- 9062 **HAYWARD** (Joseph) On the SCIENCE of AGRICULTURE: comprising a Commentary on and Comparative Investigation of the Agricultural Chemistry of [RICHARD] KIRWAN and SIR HUMPHRY DAVY, etc., 8vo. hf. cl., uncut, 5s 1825
- 9063 ——— ANOTHER COPY, hf. roan gilt, 5s 6d
 'Showing a very sound scientific judgment in all practical points.'—*Donaldson.*
- 9064 **HAYWARD** (Robert Baldwin, F.R.S.) THE ALGEBRA of COPLANAR VECTORS and TRIGONOMETRY, *with numerous diagrams*, cr. 8vo. cl., 4s 6d (p. 8s 6d) 1892
 'An attempt to supply the place of the *Trigonometry and Double Algebra* of De Morgan.'—*Preface.*
- 9065 **HEAFORD** (A. S.) STRAINS on BRACED IRON ARCHES and ARCHED IRON BRIDGES, illustrated graphically, *with 7 folding plates*, 8vo. cl., 3s (p. 6s) 1883
- 9066 **HEARN** (Charles W.) THE PRACTICAL PRINTER: a Complete Manual of PHOTOGRAPHIC PRINTING: the Styles and Processes of Plain and Albumen Paper Printing, and of Printing on Porcelain, *with fine photographic portrait*, and 51 woodcuts, 8vo. cl., 6s Philadelphia, 1874
- 9067 **HEAT** in its MECHANICAL APPLICATIONS: Lectures at the Institution of Civil Engineers, 1883-4, *with 4 folding plates and 53 diagrams*, 8vo. hf. calf neat, 8s 6d 1885
- 9068 ——— ANOTHER COPY, sewn, 7s
 The lectures were by Osborne Reynolds, F.R.S. (General Theory of Thermo-Dynamics), W. Anderson, E. A. Cowper, H. C. Fleeming Jenkin, F.R.S. (Gas- and Caloric-Engines), A. C. Kirk, and Sir Andrew Noble, F.R.S. (Heat-Action of Explosives).
- 9069 **HEATH** (Robert) ASTRONOMIA ACCURATA; or the Royal Astronomer and Navigator; containing NEW IMPROVEMENTS in ASTRONOMY, CHRONOLOGY, and NAVIGATION, particularly NEW and correct SOLAR and LUNAR TABLES, with Precepts and Examples of their Use, according to Old or New Style, *with vignette and diagrams*, roy. 4to., LARGE PAPER; *old calf (joints broken)*, 6s apud auctorem, 1760
- 9070 **HEATH** (Robert Samuel; V.-P. Univ. Birmingham) TREATISE on GEOMETRICAL OPTICS, *with numerous diagrams*, 8vo. cl., 4s 6d (p. 12s 6d) Univ. Press, Cambridge, 1887
 The standard work on the subject, of which it includes a bibliography of memoirs and treatises.
- 9071 ——— ELEMENTARY TREATISE on GEOMETRICAL OPTICS, 2nd [latest] Edition, *with diagrams*, cr. 8vo. cl., 3s a. e., ib., 1897
- 9072 **HEATH** (Thomas Edward) OUR STELLAR UNIVERSE: a Road-Book to the Stars, *with 8 plates*, cr. 4to. cl., 3s (p. 5s nett) 1905
- 9073 **HEATHER** (J. F., R.M.A., Woolwich) MATHEMATICAL INSTRUMENTS, 3rd Ed.: Lardner (Dionysius, pr., F.R.S.) THE STEAM ENGINE, 4th Edition: Glynn (Joseph, F.R.S.) THE CONSTRUCTION of CRANES and MACHINERY, 2nd Edition: Gibbons (David) THE LAW of CONTRACTS—4 vols. 12mo. in 1, *copiously illustrated*; hf. morocco neat, 3s 6d 1849-56
- 9074 **HEAVISIDE** (Oliver; F.R.S.) ELECTRICAL PAPERS, *with diagrams*, 2 vols. large 8vo. cl. (VERY SCARCE), £2. 15s 1892
 A collection of the author's voluminous and important papers, originally issued in the *Electrician*, on Electromagnetic Waves and Surface Conduction, Telegraphy, the Theory of the Telephone, etc. etc.
- 9075 ——— ELECTROMAGNETIC THEORY, VOL. I, *with diagrams*, 8vo. cl., 6s 6d (p. 12s 6d) 1893
 Containing Outline of the Electromagnetic Connections; the Elements of Vectorial Algebra and Analysis; Theory of Plane Electromagnetic Waves.
- 9076 **HEBERDEN Jr.** (William, M.D., F.R.S.) Of the INFLUENCE of COLD on the HEALTH of the INHABITANTS of LONDON, 4to. (pp. 6), *sewn*, 2s 1796,
- 9077 **HÉBERT** (Alexandre) LA TECHNIQUE des RAYONS X: Manuel Opérateur de la Radiographie et de la Fluoroscopie; *with 16 plates (10 folding)*, 8vo. cl., 2s 6d (p. F. 5 nett) 1897
- 9078 **HEBERT** (Luke, C.E.) PRACTICAL TREATISE on RAIL-ROADS and LOCOMOTIVE ENGINES, in which the Mechanical Construction of Edge, Tram, Suspension, and all other Railways, and the various Locomotive Carriages, designed for Rail and Common Roads, are described in Chronological Order, etc., with EXPLANATION of every PATENT hitherto granted in ENGLAND for Improvements in the Mechanism of Locomotion, *with lithographic folding front.*, and over 200 woodcuts, 8vo. sewn, uncut (scarce), 16s 6d 1837
- 9079 ——— ANOTHER COPY, hf. cl. (front, foxed), 15s
 The front represents the 'Railway Gallery under the Canal near Holsden (? Harlesden) Green'—probably the complicated crossing of the Great Western Railway, high-road, and Regent's Canal near Wormwood Scrubbs, lately destroyed for the widening of the line.
- 9080 **HÉBERARD** (Pierre) CAMINOLOGIE, ou TRAITÉ des CHEMINÉES, contenant des Observations sur les différentes Causes qui font FUMER les CHEMINÉES, avec des Moyens pour corriger ce Défaut; *with 21 copperplates*, large 12mo. nice copy in old French mottled calf gilt, 12s Dijon, 1756
 Containing a preliminary chapter, 'Dissertation sur les Cheminées des Anciens' (pp. 22). The work was unknown to Quézard, Brunet, and others.
- 9081 **HEDDLE** (Matthew Forster, M.D., F.R.S.E., Univ. St. Andrews) THE MINERALOGY of SCOTLAND, edited [with Memoir], by J. G. GOODCHILD, *with portrait*, 117 plates, 30 text-illustrations, and map, 2 vols. roy. 8vo. cl., 12s (p. £1. 16s nett) Edin., 1901

- 9083 **HEDGES** (Killingworth, M.I.C.E.) CONTINENTAL ELECTRIC LIGHT CENTRAL STATIONS, with Notes on the Methods in Actual Practice for Distributing Electricity in Towns, with 25 folding plates, and 144 other illustrations, 4to. cl., 3s 6d (p. 15s) 1892
- 9084 **HEDLEY** (John, *Colliery Viewer*) PRACTICAL TREATISE on the WORKING and VENTILATION of COAL MINES, with Suggestions for Improvements in Mining, with 16 folding plates, roy. 8vo. cl., 5s 1851
- 9085 ——— ANOTHER COPY, *hf. morocco neat*, 6s
- 9086 **HEDRICK** (Henry B.) CATALOGUE of [1607] ZODIACAL STARS for the Epochs 1900 and 1920, reduced to an Absolute System, 4to. *hf. roan*, cl. sides, 5s 6d Washington, 1905
- 9087 **HEER** (Oswald, *Direktor des Botanischen Gartens, Zürich*) Die URWELT der SCHWEIZ; with geological map, and 17 plates of *Primæval Natural History*, etc., and woodcuts, roy. 8vo. *hf. calf gilt*, by Riviere, as good as new, 10s 6d Zürich, 1865
- 9088 ——— The PRIMEVAL WORLD of SWITZERLAND, edited by JAMES HEYWOOD, F.R.S., with folding coloured map, 18 plates, and 372 woodcuts, 2 vols. 8vo. cl., 10s (p. £1. 8s) 1876
The author reconstructed the flora of the Tertiary Period, and by comparing it with that of the present time, deduced the climate of the primeval world.
- 9089 **HEIGHWEY** (William) The HANDBOOK of PHOTOGRAPHIC TERMS, cr. 8vo. *sewn*, 1s 6d 1880, or, '4
- 9090 ——— PHOTOGRAPHIC PRINTER'S ASSISTANT, 12mo. *sewn*, 2s 1879
- 9091 **HEINEN** (Franz) Über einige ROTATIONS-APPARATE, insbesondere den Fessel'schen; with 28 woodcuts, 8vo. *sewn*, 2s Braunschweig, 1857
- 9092 **HELE-SHAW** (Henry Selby, F.R.S.), and Alfred HAY: LINES of INDUCTION in a MAGNETIC FIELD, with 8 plates and 8 woodcuts, roy. 4to. *sewn*, 2s 6d 1900
- 9093 **HELL** (Peter) Die WICHTIGSTEN KLEIN-KRAFT-MASCHINEN, ihre Vorzüge und ihre Mängel; with 16 woodcuts, 8vo. *sewn*, 1s 6d Braunschweig, 1878
- 9094 **HELLINS** (John, pr.; F.R.S.) DR. HALLEY'S QUADRATURE of the CIRCLE improved: a Transformation of his Series to others which converge by the Powers of 80, 4to. (pp. 6), *sewn*, 2s 6d 1794
- 9095 ——— Mr. JONES, COMPUTATION of the HYPERBOLIC LOGARITHM of 10 IMPROVED: a Transformation of the Series which he used in that Computation to others which converge by the Powers of 80, with Postscript, containing an Improvement of MR. EMERSON'S Computation of the same Logarithm, 4to. (pp. 7), *sewn*, 3s 6d 1796
- 9096 ——— MATHEMATICAL ESSAYS on Several Subjects: containing NEW IMPROVEMENTS and DISCOVERIES in the Mathematics, with diagrams, 4to. *sewn* (rare), 12s 6d 1788
Comprising the following important papers, originally published in the 'Philosophical Transactions', and now revised and enlarged: On the Computation of Logarithms: On the Reduction of Equations having two equal Roots: On the Correction of Fluents found by Descending Series: On the Transformation of certain Series to others of Swifter Convergence (for which the author received the Royal Society's Copley medal): On the Force of oscillating Bodies on their Centers of Suspension.
- 9097 **HELLMAN** (Gustav; *Director Prussian Meteorological Inst.*) REPERTORIUM der DEUTSCHEN METEOROLOGIE: Leistungen der Deutschen in Schriften, Erfindungen und Beobachtungen auf dem Gebiete der Meteorologie und des Erdmagnetismus, von den ältesten Zeiten bis 1881; with plate and folding map, large 8vo. (pp. 1017), *hf. cl.*, 10s (p. M. 15.60) Leipzig, 1883
An excellent bibliography of German meteorology, uniform with Poggendorf's 'Handwörterbuch', to which it should be added as a supplement.
- 9098 **HELLLOT** (Jean; F.R.S.) L'ART de la TEINTURE des LAINES et des Étoffes de LAINE, en Grand ou Petit Teint, avec une Instruction sur les Débouillis, première édition, 12mo. *old calf gilt* (RARE), £1. 5s 1750
- 9099 ——— NOUVELLE ÉDITION, 12mo. *contemporary boards*, 15s Didot fils, 1786
Important as the first work which created a scientific basis for the art of dyeing.
- 9100 ———, Pierre Joseph MACQUER, and LE PILEUR d'APLIGNY: The ART of DYING [*sic*] WOOL, SILK, and COTTON, translated from the French, with 6 copperplates, 8vo. *calf neat*, with *auto. of Sir Thomas Wardle on title* (RARE), £1. 10s 1789
- 9101 **HELLYER** (S. Stevens) LECTURES on the SCIENCE and ART of SANITARY PLUMBING, with 130 woodcuts, fcap. 8vo. *hf. morocco*, 2s [1882]
- 9102 ——— The PLUMBER and SANITARY HOUSES: a Practical Treatise on the Principles of Internal Plumbing Work or the Best Means for effectually excluding Noxious Gases from our Houses, 3rd Edition [wholly rewritten and enlarged], with 28 plates (many folding and linen-mounted), and 262 woodcuts, roy. 8vo. *hf. morocco*, 4s [1884]
- 9103 ——— FOURTH EDITION [with Appendix], with 28 plates (many folding), and 284 woodcuts, 8vo. cl., 4s 6d (p. 10s 6d) [1887]
'The best treatise existing on practical plumbing.'—*The Builder*.
- 9104 **HELMERT** (Friedrich Robert; *Univ. Berlin*) Die AUSGLEICHUNGSCHEUNUNG nach der METHODE der KLEINSTEN QUADRATE, mit Anwendungen auf die Geodäsie und die Theorie der Messinstrumente; with diagrams, 8vo. cl., 3s 6d (p. M. 7) Leipzig, 1872
- 9105 **HELMONT** (François Mercure Baron van) PARADOXAL DISCOURSES, concerning the MACROCOSM and MICROCOSM, or the Greater and Lesser World, and their Union, set down in Writing by J. B. and now published, with 2 plates, sm. 8vo. *calf*, with *Dr. Brushfield's bookplate* (rare), 15s 1685
- 9106 ——— ANOTHER COPY, *old calf*, neatly rebacked, with bookplate of Edward 9th Duke of Norfolk, E. M. (*nice copy*), 16s 6d
The author believes that gold is made out of red and white arsenic, and after being killed by the arsenic, is made alive again to bring forth other creatures, as vegetables and animals, 'from whence we may conclude that Gold is not only in the Earth for to be digged thence, and made into Coin and Plate'. There is an appendix on the education of children.
- 9107 **HELWIG** (Paul Iwan) Eine THEORIE des SCHÖNEN: MATHEMATISCH-PSYCHOLOGISCHE STUDIE, 8vo. boards, 2s Amsterdam, 1897

- 9109 **HELMHOLTZ** (Hermann Ludwig Ferdinand v.; F.R.S.) Über die ERHALTUNG der KRAFT, eine physikalische Abhandlung, vorgetragen in der Sitzung der physikalischen Gesellschaft zu Berlin am 23sten Juli 1847, erste Auflage, 8vo. sewn (VERY SCARCE), £1. 1s
Berlin, 1847

The scarce first edition of the work which embodies the author's investigations into the theory of the conservation of energy, whose origination he shares with J. R. v. Mayer, Joule, Lord Kelvin, and Clausius.

- 9110 ——— **HANDBUCH DER PHYSIOLOGISCHEN OPTIK**; with 11 plates, and 213 woodcuts, roy. 8vo. hf. German morocco, uncut, 18s 6d
Hamburg, 1867

FIRST EDITION of the author's most important work, the first systematic treatise applying physical laws to the study of the physiology of the eye, and equally valuable for the original discoveries and the historical investigations it contains.

- 9111 ——— Die LEHRE von den TONEMPFindUNGEN, als physiologische Grundlage für die THEORIE der MUSIK, 3. umgearbeitete Auflage; with 65 woodcuts, 8vo. hf. calf, 5s
Braunschweig, 1870

- 9112 ——— On the SENSATIONS of TONE as a PHYSIOLOGICAL BASIS for the THEORY of MUSIC, translated from the third German Ed., with additional Notes, and Appendix, by ALEXANDER J. ELLIS, F.R.S. [philologist], with 65 woodcuts, thick 8vo. cl., 10s 6d (p. £1. 16s)
1875

The original contributions by the translator extend to over 160 pages.

This standard work contains the author's numerous discoveries in physiological acoustics.

- 9113 ——— POPULAR LECTURES ON SCIENTIFIC SUBJECTS, translated by E. ATKINSON, with Introduction by JOHN TYNDALL, F.R.S., BOTH SERIES, first English Editions, with woodcuts, 2 vols. large post 8vo. cl., 8s (p. £1.)
1873-81

- 9114 ——— NEW UNIFORM EDITION, with woodcuts, 2 vols. large post 8vo. cl., 7s 6d (p. 15s)
1884

- 9115 ——— FIRST SERIES ONLY, with woodcuts, large post 8vo. cl., 3s 6d (p. 12s 6d)
1873

- 9116 ———: MCKENDRICK (John Gray) HERMANN LUDWIG HELMHOLTZ [with Bibliography], portrait, 8vo. cl., 2s
1899

- 9117 ———, PORTRAIT of, engraved on steel by CHARLES HENRY JEENS, PROOF BEFORE LETTERS, 3s
n. d.

- 9118 ——— THE SAME, on INDIA PAPER, signed by the engraver, 4s

- 9119 **HELMONT** (Jean Baptiste van) WORKS: containing his most Excellent PHILOSOPHY, PHYSICK, CHIRURGERY, ANATOMY, wherein the Philosophy of the Schools is examined, their Errors refuted, and the whole Body of Physick reformed and rectified; being a new Rise and Progress of Philosophy and Medicine for the Cure of Diseases, and Lengthening of Life, made English by J[OSEPH] C[ONSTABLE] sometime of M[AGDALLEN] H[ALL?], Oxon., with etched frontispiece, containing portrait and arms of J. B. and F. M. van Helmont, 3 vols. folio, hf. calf (slightly browned, and front. mounted); RARE, with auto. 'W. HUNTER' on title, and MS. notes in the same handwriting, £3. 3s
L. Lloyd, 1664-2

Vol II is entitled 'ORIASRIKE, or Physick Refined,' and v. III 'Opuscula Medica Inaudita.'

- 9120 ——— ANOTHER ISSUE, with frontispiece of portraits, in one vol. folio, original rough calf (front., title, and a few ll. mended, but a large copy), £2. 15s
1662

- 9121 ——— ANOTHER COPY, contemporary calf, newly rebaked (fine copy), £3. 3s

An earlier issue of the foregoing work, without the general title, and address 'To the English Reader'.

- 9122 ——— **ORTUS MEDICINÆ**, i. e. Initia Physicæ Inaudita, Progressus Medicinæ Novus, in Morborum Ultionem, ad Vitam Longam, edente FRANCISCO MERCURIO VAN HELMONT, cum ejus Præfatione; Editio nova, cum locupletiori Rerum et Verborum Indice, adauctior et exornatior; with engraved portrait of author and editor, thick sm. 4to. old calf, £1. 1s
Amst., Lud. Elzevirius, 1652

'He is regarded by some historians of chemistry as the greatest chemist who preceded Lavoisier. He was the first to point out the imperative necessity for employing the balance in chemistry, and by its means showed in many instances the indestructibility of matter in chemical changes. He was the first to coin the word *gas* (derived according to some from the Greek *χᾶος*, and according to others from the Dutch *geest*), applying it to elastic aeriform fluids. He was also the first to take the melting-point of ice and boiling-point of water as standards for the measurement of temperature. It is in his works that the term *saturation* is first employed to signify the combination of an acid with a base; and he was one of the earliest investigators of the chemistry of the fluids of the human body.'

- 9123 **HELSHAM** (Richard, M.D., Prof. Nat. Phil. Dublin; friend of Dean Swift) COURSE of LECTURES in NATURAL PHILOSOPHY, published by BRYAN ROBINSON, M.D., with 11 plates, 8vo. old calf, 4s 6d
1739

- 9124 ——— SECOND [LAST] EDITION, with 11 plates, 8vo. old calf, or, hf. calf, 6s
1743

The appendix contains original problems: 'Of the collision of Non Elastic and Elastic Bodies', etc. etc.

- 9125 **HELWING** (Georg Andreas) LITHOGRAPHIA ANGERBURGICA, sive LAPIDUM et FOSSILIIUM, in Districtu Angerburgensi et ejus Vicinia, ad III vel IV Milliarium Spatium, in Montibus, Agris, Arenofodinis et in primis circa Lacuum Littora et Fluviorum Ripas Consideratio; with view of Angerburg, and 10 other copperplates, sm. 4to. old calf (joints cracked), 10s 6d
Regiomonti [Königsberg], 1717

- 9126 **HEMENWAY** (Frank F.) INDICATOR PRACTICE, and Steam-Engine Economy, with 45 illustrations, post 8vo. cl., 4s 6d (p. 8s 6d nett)
New York, 1886

- 9127 **HEMMING** (George Wigram; Senior Wrangler; K.C.) BILLIARDS MATHEMATICALLY TREATED, with 2 plates, and diagrams, impl. 8vo. cl. (o. p.), 5s
1899

Of singularly little interest to the man about town.

- 9128 ——— ELEMENTARY TREATISE on the DIFFERENTIAL and INTEGRAL CALCULUS, 2nd [last] Edition, with Additions, diagrams, 8vo. cl. (cover slightly damaged), 4s
Cambridge, 1852

Based on the method of limits.

- 9129 [**HENDERSON** (John)] METEOROGRAPHY, or the PERPETUAL WEATHER ALMANAC, containing nearly Fifty of the Signs which occur before every Change of Weather, engraved and coloured from Nature, with 46 coloured plates, sq. 12mo. cl. (scarce), 10s 6d
Edin., 1841

The author here claims to have discovered how to predict correctly the weather one day, or at most one week, in advance by the state of the sky.

- 9131 **HEMMER** (Johann Jakob, S.J.) ANLEITUNG WETTERLEITER an allen Gattungen von GEBÄUDEN auf di [sic] sicherste Art ANZULEGEN; *with copperplate*, 8vo. *unbound* (rare), 15s *Manheim*, 1786
The author 'was most successful in spreading the knowledge of lightning conductors' (R. Anderson), and the first to point out the importance of earth connexion.

AN INTERESTING AUTOGRAPH COLLECTION:

- 9132 ——— METEOROLOGICAL CORRESPONDENCE with the ABATE GIUSEPPE CALANDRELLI, from 1780 to 1787, consisting of eleven autograph letters from the former, with eleven autograph copies of Calandrelli's answers, *with other MSS. and printed matter (as under)*, 1780-7
£4. 4s

A very interesting correspondence in connexion with the foundation of a meteorological observatory at Rome (to which Calandrelli had been appointed as observer) by the Palatine Meteorological Society.

Included are: 'Discorso del Ab. Paolo Frisi, nel Giornale di Pisa,' MS. on 12 pp.: 'Delle Influenze Meteorologiche della Luna: Difesa del Ab. Toaldo contro l'opuscolo del Ab. Frisi'; a Reply to the foregoing work; MS. on 32 pp.: 'Capita pitoria, quae in conficiendis Instrumentis nostris observamus,' MS. by Hemmer on 3 pp.: 'Questio ab Academia Scientiarum Theodoro-Palatina in annum 1783 proposita,' MS. on 12 pp.: 'Descrizione di un Nuovo Termometro ridotto a perfezione dal Sig. Giacomo Six, di Canterbury,' *with plate, etc.*, etc.

- 9133 **HENDERSON** (George Gerald; *Univ. Glasgow*), and Matthew Archibald PARKER; *Univ. Manitoba*: INTRODUCTION to ANALYTICAL CHEMISTRY, *with spectrum plate, and 2 diagrams*, cr. 8vo. *cl.*, 2s 6d (p. 5s) 1899

- 9134 **HENDERSON** (John, *Bengal Medical Establishment*) DISSERTATION on the BIT NOBEN, or FÆTID SALT of the HINDUS, the Sal Indus Antiquorum, commonly known in Hindostan by the Name of Khallia Neemuk; with Remarks on the Cherayta of the Hindoos, the Kuseeb Uzereereh of the Arabians, and the Calamus Aromaticus Antiquorum, *with copperplate*, 8vo. (pp. 40), *sewn* (rare), 10s 6d 1803

With interesting MS. note, signed F. WEBB, concerning pathological experiments with the medicine described.

- 9135 **HENDERSON** (John, *Municipal Technical School, Manchester*) PRACTICAL ELECTRICITY and MAGNETISM, *with 159 woodcuts*, cr. 8vo. *cl.*, 2s 6d (p. 6s 6d) 1898

- 9136 **HENDERSON** (Thomas; F.R.S., *first Astronomer Royal Scots*) On the PARALLAX of a CENTAURI, 4to. (pp. 8), *sewn, with inscr. to Sir Thomas Maclean, F.R.S.*, 3s 6d [*Edinburgh*], 1839

Important as containing the author's discovery of the first authentic case of annual parallax in a fixed star.

- 9137 ——— The PARALLAX of a CENTAURI, deduced from Mr. MACLEAR'S OBSERVATIONS at the Cape of Good Hope, in 1839 and 1840, 4to. (pp. 44), *sewn*, 2s 6d [*ib.*], 1842

- 9138 **HENLY** (William, F.R.S.) EXPERIMENTS and OBSERVATIONS in ELECTRICITY, with Postscript, containing a Variety of New Experiments and Observations, particularly an Enquiry into the CAUSE of the ELECTRICITY of BODIES, and the CONSTITUTION of the ELECTRIC MATTER ITSELF, with Notes tending to confirm and illustrate the Opinions advanced, *folding plate*, 4to. (pp. 63), *sewn* (rare), 10s 6d 1777

The author, a hreindraper by trade, was the inventor of a quadrant electrometer and the general discharger—facts unknown to his biographer in D. N. B.

- 9139 **HENNAH** (Richard, *pr.*) A SUCCINCT ACCOUNT of the LIME ROCKS of PLYMOUTH, *with 11 plates, illustrating some of the most remarkable of the Animal Remains found in them*, roy. 8vo. (?) LARGE PAPER; *hf. calf, with Sandhurst College bookplate and auto. of Adml. William Bedford* (1764?-1827), 6s 6d Plymouth [c. 1820]

- 9140 **HENNELL** (Henry, F.R.S., *Chemical Operator, Apothecaries' Hall*) On the MUTUAL ACTION of SULPHURIC ACID and ALCOHOL, and on the Nature of the Process by which ETHER is formed, 4to. (pp. 9), *sewn, with author's inscr. (scarce)*, 7s 6d 1828

This important memoir first made known the synthetic formation of alcohol from olefiant gas and sulphuric acid—a process made use of by Berthelot in 1855 to make alcohol from coal gas.

The author, whose biography is unaccountably excluded from D. N. B., was blown up in 1842 by one of his own bombs, prepared by him for use in the Afghan War.

- 9141 **HENRICI** (Olaus; F.R.S.) SKELETON STRUCTURES; especially in their Application to the Building of Steel and Iron Bridges, *with 4 folding plates (linen-mounted), and 18 diagrams; with 144 pp. of writing paper bound in*, 8vo. *hf. morocco gilt (o. p.)*, 5s (p. 16s in *cl.*) 1866

- 9142 ———, and G. C. TURNER: VECTORS and ROTORS, with Applications, *with 155 diagrams*, cr. 8vo. *cl.*, 2s 6d (p. 4s 6d) [1903]

- 9143 **HENRION** (Denis) L'USAGE du COMPAS de PROPORTION, quatrieme édition, renué, corrigée, & de beaucoup augmentée; *with woodcuts and diagrams*, 12mo. *old vellum*, £1. 1s 1631
Added is a CONTEMPORARY MANUSCRIPT entitled 'Declaration des Divisions faites sur les deux regles Pantometrique et leurs operations, par les propositions suivantes des present liuret,' *with tinted illustrations* (pp. 16).

- 9144 **HENRY Joseph**; *Director Smithsonian Institution*) CONTRIBUTIONS to ELECTRICITY and MAGNETISM: NO. I: DESCRIPTION of a GALVANIC BATTERY for producing ELECTRICITY of DIFFERENT DENSITIES, *with copperplate*, 4to. (pp. 6), *sewn, with author's inscr. as below*, Philadelphia, 1835

'To Edward Solly Esq. with the Respts. of the author.'

The first plunage battery ever devised, consisting of 88 cells arranged in sets of 11 each.

- 9145 ———: NO. II: On the INFLUENCE of a SPIRAL CONDUCTOR in INCREASING the INTENSITY of ELECTRICITY from a GALVANIC ARRANGEMENT of a SINGLE PAIR, 4to. (pp. 9), *sewn, with author's inscr. as below*, 8s 6d *ib.*, 1835

'To Edward Solly Esq. with the Respects of J. HENRY.'

Containing the author's discovery—Independently of Faraday—of magneto-electric induction. He was eponymized in electrical science to denote the unit of induction.

- 9146 ———, A MEMORIAL of, published by Order of Congress, *with steel portrait*, roy. 8vo. *cl.*, 8s 6d Washington, 1880

Containing notices of his meteorological work (including his inauguration of meteorological observations in the United States) by W. B. TAYLOR and PROF. SIMON NEWCOMB.

- 9147 **HENSMAANS** (P. J.) MÉMOIRE sur le PROPORTION NEMENT CHIMIQUE PESÉ et MESURÉ des CORPS; *with folding table*, 12mo. *sewn*, 4s Louvain, 1824

- 462 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9149 **HENRY** (William, M.D., F.R.S.) On the ACTION of FINELY DIVIDED PLATINUM on GASEOUS MIXTURES, and its Application to their Analysis, 4to. (pp. 26), *sewn, with inscr. to Thomas Allan, F.R.S.*, 4s 1824
- Following up Döbereiner's investigations on the peculiar properties of spongy platinum.
- 9150 ——— ADDITIONAL EXPERIMENTS on the MURIATIC and OXYMURIATIC ACIDS, 4to. (pp. 11), *sewn (name torn off title)*, 2s 1812
- 9151 ——— On the AÉRIFORM COMPOUNDS of CHARCOAL and HYDROGEN, with some additional EXPERIMENTS on the GASES from OIL and from COAL, 4to. (pp. 26), *sewn, with author's inscr.*, 3s 1821
- 9152 ——— ANALYSIS of Several Varieties of BRITISH and FOREIGN SALT (MURIATE of SODA) with a View to explain their Fitness for different Economical Purposes, 4to. (pp. 34), *sewn, with inscr. to Thomas Allan, F.R.S.*, 3s 6d 1810
- 9153 ——— ELEMENTS of EXPERIMENTAL CHEMISTRY; 6th Edition, greatly enlarged, with 9 plates by Lowry, 2 vols. 8vo. *old calf (joints cracked)*, 5s 1810
- 9154 ——— SEVENTH EDITION, greatly enlarged, with 9 plates by Lowry, 2 vols. 8vo. boards, *uncut*, 7s 6d 1815
- 9155 ——— TENTH EDITION, with all the recent Discoveries, 10 plates by Lowry, besides woodcuts, 2 vols. 8vo. *hf. calf (joint cracked)*, 8s 6d 1826
- 9156 ——— ELEVENTH EDITION, comprehending all recent Discoveries, with 10 plates, and woodcuts, 2 vols. 8vo. *cl.* (SCARCE), 15s 1829
- The LAST EDITION, enlarged and with Addenda, and first containing an account on bromine (discovered in 1826 by A. J. Balard) and its compounds. Once a much-esteemed text-book, it is still of value to the historian of chemistry for the accurate and precise information it contains of the achievements during one of the most fruitful periods in the science.
- 9157 ——— An EPITOME of CHEMISTRY, containing Directions for the Analysis of Mineral Waters; of Earths and Stones; of Ores of Metals, and Instructions for applying Chemical Tests and Reagents, etc., 2nd Edition, 12mo. *hf. brown morocco (nice copy)*, with the Beaufoy Library bookplate (scarce), 7s 6d 1801
- 9158 ——— FOURTH EDITION, much enlarged, with 8 plates, 8vo. boards, 7s 6d Edin., 1806
- 9159 ——— ANOTHER COPY, *old hf. calf gilt*, 8s 6d
- This work was afterwards republished in an enlarged form, as 'Elements of Experimental Chemistry'.
- 9160 ——— EXPERIMENTS on AMMONIA, and Account of a New Method of analysing it, by Combustion with Oxygen and other Gases, 4to. (pp. 20), *sewn, with inscr. to Thomas Allan, F.R.S.*, 5s 1809
- Dr. William Henry is perhaps best known for having ascertained (in the above paper) the true composition of ammonia, which had been heretofore taken as a chemical compound containing oxygen. He also established the fact that the amount of absorption of a gas or of a mixture of gases by a fluid is dependent on the pressure. He was one of the most cultivated members of the Manchester society of his time, and should please the age we live in for having chosen as his doctoral thesis the entrancing subject of Uric Acid!
- 9161 **HENSHAW** (Nathaniel, M.D., F.R.S.) AERO-CHALINOS: or a Register for the Air; of Fermentation; Chylification; Respiration; Sanguification; that often changing the Air, is a friend to Health: also a Discovery of a new Method of doing it, without removing from one place to another, by means of a DOMICIL, or AIR-CHAMBER, fitted to that Purpose; for the better Preservation of Health, and Cure of Diseases, after a New Method; 2nd Edition, 18mo, *fine copy in old sheep* (RARE), £1. 1s B. Tooke, 1677
- 'A curious little treatise. . . The second edition was printed by order of the Royal Society, having been prepared for the press by the author's elder brother, Thomas Henshaw. It was reviewed in the Philosophical Transactions (XII. 834-5) by Henry Oldenburg.'—D. N. B.
- 9162 **HEPWORTH** (Commander Melville Willis Campbell, R.N.R., F.R.A.S.) NOTES on MARITIME METEOROLOGY, with 7 folding charts, 8vo. *cl.*, 2s 1907
- 9163 **HERAPATH** (John; founder of 'Herapath's Railway Journal') MATHEMATICAL PHYSICS; or the Mathematical Principles of Natural Philosophy: with a Development of the Causes of Heat, Gaseous Elasticity, Gravitation, etc., with 4 folding plates, and 3 folding tables, 2 vols. 8vo. *cl.* (scarce), 10s 6d 1847
- A strikingly original treatise, chiefly based on the author's theory of gravitation, which was refused by the Royal Society, but published in the 'Annals of Philosophy.' He was invited by Lord Brougham to be corrector and editor of his mathematical papers, but after getting some way ended, as might have been foreseen, in a quarrel with his equally self-opinionated patron.
- 9164 **HERBERT** (Thomas Ernest) ELECTRICITY in its APPLICATION to TELEGRAPHY; third Edition, with 48 woodcuts, cr. 8vo. *cl.*, 1s 6d 1897
- 9165 ——— TELEGRAPHY: a detailed Exposition of the Telegraph System of the British Post Office, with 509 illustrations, thick cr. 8vo. *cl.*, 4s (p. 6s 6d net) 1906
- 9166 ——— The TELEPHONE SYSTEM of the BRITISH POST OFFICE, with 145 illustrations, cr. 8vo. *cl.*, 1s 6d 1898
- 9167 **HERBINIUS** (Johann) DISSERTATIONES de Admirandis MUNDI CATARACTIS SUPRA et SUBTERRANEIS, earumque Principio, ELEMENTORUM CIRCULATIONE, ubi eadem Occasione ÆSTUS MARIS REFLEXU Vera et Genuina CAUSA asseritur, necnon Terrestri ac Primigenio Paradiso, Locus Situsque verus in Palestina restituitur, in Tabula Chorographica ostenditur, et contra Utopios Indianos, Mesopotamios, aliosque asseritur; with engraved title, and numerous other fine engravings on copper (some folding), sm. 4to. *old calf gilt (back slightly damaged)*; with British Museum bookstamp (RARE), £1. 1s Amst., Jansson-Waesberg, 1678
- 'Ouvrage fort curieux, et qui a le plus contribué à étendre la réputation de Herbinus.'—Biogr. Gén. Herbinus was a zealous opponent of the Copernican theory.
- 9168 **HERMANN** (Robert Alfred, Fellow of Trinity) TREATISE on GEOMETRICAL OPTICS, with 107 diagrams, 8vo. *cl.*, 6s 6d (p. 10s net) Univ. Press, Cambridge, 1900
- 'Introducing a new method of determining the properties of a symmetrical optical instrument, in which the angle of divergence of a small pencil, rather than any coordinate of its origin, has been adopted as the leading feature.'—Preface.

- 9170 **HERING (Carl)** PRACTICAL DIRECTIONS for WINDING MAGNETS for DYNAMOS, *with diagrams*, cr. 8vo. *cl. (o. p.)*, 2s 1887
- 9171 **HERMANN (Jakob)** PHORONOMIA, sive de VIRIBUS et MOTIBUS CORPORUM SOLIDORUM et FLUIDORUM; *with engraved title by Wandelaar, and 12 folding plates*, 4to. *contemporary vellum*, 15s *Amstelædani*, 1716
- The author's most important work, treating of the statics of solid and fluid bodies analytically, and more especially of the brachistochrone in a resisting medium. It also contains a description of his thermometer, an improved form of Amontons' air thermometer, which is not affected by changes in the pressure of the air. He was a disciple of Jacques Bernoulli, and preceded Euler as professor of mathematics at St. Petersburg.
- 9172 **HERMBSTÄDT (Sigismund Friedrich; Univ. Berlin)** PHYSIKALISCH-CHEMISCHE VERSUCHE und BEOBSACHTUNGEN, BAND I, post 8vo. *sewn*, 2s *Berlin*, 1786
- 9173 ——— SYSTEMATISCHER GRUNDRISS der ALLGEMEINEN EXPERIMENTALCHEMIE, 2. umgearbeitete Auflage, 2 vols. 8vo. in 1, *old hf. calf*, 4s *ibidem*, 1800-1
- 9174 ——— DRITTE [NEUESTE] vermehrte AUFLAGE, 5 vols. 8vo. *hf. calf neat*, 8s 6d *Basel*, 1812-26
- 9175 **HERO Alexandrinus**: SPIRITALIUM LIBER, a FREDERICO COMMANDINO ex Græco, nuper in Latinum conversus; *with numerous woodcuts*, sm. 4to. *sound and tall copy in old vellum (RARE)*, £1. 5s *Urbini*, 1575
- FIRST EDITION of the first printed work of Hero of Alexandria, 'containing descriptions of about 100 small machines and mechanical toys, many of which are very ingenious, including an account of a small stationary steam-engine, which is of the form now known as Avery's patent. . . . There is also an account of a double forcing pump p to be used as a fire engine. . . . It is only recently that general attention has been directed to his discoveries, though Arago had alluded to them in his *éloge* on Watt.'—*W. W. R. Ball.*
- 9176 ——— EDITIO ALTERA; *with numerous woodcuts*, sm. 4to. *sewn (some corners water-stained)*, 12s *[Parisiis], Aeg. Gorbinus*, 1583
- 9177 ——— Gli ARTIFIZIOSI et CURIOSI MOTI SPIRITALI, tradotti da GIO. BATTISTA ALEOTTI; aggiuntovi dal medesimo IV Theoremi non men belli, et curiosi de' gli altri, et il Modo con che si fa artificiosamente salir un Canale d'Acqua viva, ò morta, in cima d'ogn' alta Torre; *with engraved title, and numerous woodcuts*, sm. 4to. *old vellum (blank corners of a few ll. mended, otherwise a sound and clean copy)*, RARE, £1. 1s *Ferrara, V. Baldini*, 1589
- 9178 ——— NUOVA EDIZIONE; *with engraved arms on title, and numerous woodcuts*, sm. 4to. *boards, or, old calf (sound copies)*, 15s *Bologna*, 1647
- Both the above editions include two original contributions by the translator ALEOTTI: 'Del Vacuo,' and 'Intorno al non poter essere alcun vacuo, nè poter l'Elemento dell' Aria star compresso.'
- 9179 ———, The PNEUMATICS of, from the original Greek, translated [by J. G. GREENWOOD], and edited by BENNET WOODCROFT, F.R.S., *printed by C. Whittingham, with engraved title, and numerous pretty woodcuts*, cr. 4to. *cl., uncut*, 10s 6d 1851
- None of the inventions described were, according to the editor, made by Hero himself, but are merely 'a compilation from the works of those who at that period were styled the 'ancient philosophers and mechanicians.'
- 9180 ——— De gli AUTOMATI, ovvero MACHINESE MOVENTI, Libri II, tradotti dal Greco da BERNARDINO BALDI, Abbate di Guastalla, prima edizione; *with engraved title, and numerous fine engravings on copper and wood*, sm. 4to. *old Italian vellum (title and a few ll. water-stained, otherwise a sound and tall copy)*; RARE, £1. 1s *Venetia, Girol. Porro*, 1589
- A translation of the *Ἀὐτόματα*, different from the first mentioned work known as *Πνευματικά*, and like it containing descriptions of machines and mechanical contrivances. The above edition is remarkable for its fine engravings. 'Bella e rara edizione.'—*Riccardi.*
- 9181 ——— La CHIROBALISTE: Restitution et Traduction par A. J. H. VINCENT; *with 4 folding plates*, 8vo. *sewn*, 3s 1866
- 9182 ———: LETRONNE (Jean Antoine, *de l'Institut*) RECHERCHES critiques, historiques, et géographiques, sur les FRAGMENTS d'HÉRON d'ALEXANDRIE, ou du SYSTÈME MÉTRIQUE EGYPTIEN; Ouvrage posthume, revu et mis en Rapport avec les principales Découvertes faites depuis, par A. J. H. VINCENT; *with folding plate and map, and 10 tables*, 4to. *sewn*, 10s 6d *Imprimerie Nationale*, 1851
- 9183 **HERO Mechanicus**: LIBER de MACHINIS BELLICIS, necnon Liber de GEODÆSIA à FRANCISCO BAROCIO Patrio Veneto Latinitate donati, multis Mendis expurgati, et Figuris, ac Scholiis illustrati; *with numerous large and fine woodcuts, chiefly of WAR ENGINES*, sm. 4to. *hf. bound (somewhat water-stained)*; VERY RARE, £1. 12s 6d *Venetis, F. Franciscus Senensis*, 1572
- 'Barissimo.'—*Riccardi.* 'Curieux et intéressant. . . On trouve dans sa géodésie la méthode ingénieuse de mesurer la surface d'un triangle rectiligne par la connoissance seule des trois côtés, sans rechercher la perpendiculaire.'—*Montucla.*
- 9184 **HERRICK (Albert Bledsoe)**, and Edward C. BOYNTON: AMERICAN ELECTRIC RAILWAY PRACTICE, *with 123 illustrations (including plates)*, 8vo. *cl., 7s 6d (p. 12s 6d nett)* *New York*, 1907
- 9185 **HERRING (Robert)** PAPER and PAPER MAKING, Ancient and Modern, with Introduction by GEORGE CROLY, pr., LL.D., 5 plates, and 25 samples, 8vo. *cl. (scarce)*, 7s 6d 1855
- 9186 **HERSCHEL (Alexander Stewart; F.R.S.)** On the SHOOTING STARS of 1866-7, and the probable Source of certain Luminous Meteors in the material Substance of the Zodiacal Light, 8vo. (pp. 15), *sewn*, 1s 6d 1867
- 9187 **HERSCHEL (Caroline Lucretia)** ACCOUNT of the DISCOVERY of a NEW COMET, with Additional Observations by SIR WILLIAM HERSCHEL, 4to. (pp. 4), *unbound*, 2s 6d 1795
- Encke's comet before its identification.
- 9188 ———, MEMOIR and CORRESPONDENCE of, by MRS. JOHN HERSCHEL, *with 2 fine steel portraits (Miss Herschel, æt. 92, and Sir William)*, and plate of the 40-foot Telescope, large post 8vo. *cl. (scarce)*, 10s 6d 1876
- The only biography of one of the most extraordinary characters in the history of science. Arrived in England to take over her brother Sir William's household, she spent her time between home duties and 'sweeping' the heavens, which resulted in her discovery of 3 comets between 1786 and 1797. For her Catalogue of Zones of Sir W. Herschel's Star Clusters and Nebulae she received the Gold Medal of the Astronomical Society.

JUST PUBLISHED AT £2. 10s NETT:

- 9190 **HERSCHEL** (Sir [Frederick] William, F.R.S.) SCIENTIFIC PAPERS, including EARLY PAPERS HITHERTO UNPUBLISHED, collected and edited under the Direction of the Royal Society and the Royal Astronomical Society, with Biographical Introduction compiled mainly from Unpublished Material, by J. L. E. DREYER, with 3 portraits, and other plates, 2 vols. roy. 4to. boards 1912
- 9191 — ACCOUNT OF THE DISCOVERY OF TWO SATELLITES revolving round the GEORGIAN PLANET [URANUS]: Stanhope (Charles third Earl, F.R.S.) REMARKS ON BRYDONE'S ACCOUNT of a remarkable THUNDER-STORM in SCOTLAND, folding plate—4to. (pp. 26), sewn, 4s 1787
Containing the discovery of two of the satellites of Uranus, here called the Georgian Planet, or Georgium Sidus—a complement to King George the Third which did not survive the strenuous Toryism of the age.
- 9192 — ACCOUNT of some PARTICULARS observed during the late ECLIPSE of the SUN, 4to. (pp. 4), unbound, 2s 1794
- 9193 — of THREE VOLCANOS in the MOON, 4to. (pp. 4), unbound, 2s 6d 1787
‘One of the author's few illusory observations.’—Miss Agnes M. Clerke.
- 9194 — CATALOGUE OF DOUBLE STARS, with folding plate, 4to. (pp. 87), sewn, 5s 1784
Herschel's second catalogue, containing 434 double stars.
- 9195 — CATALOGUE OF 1000 NEW NEBULÆ and CLUSTERS OF STARS: INVESTIGATION of the CAUSE of that INDISTINCTNESS of VISION which has been ascribed to the SMALLNESS of the OPTIC PENCIL—4to. (pp. 51), sewn, 4s 1786
- 9196 — CATALOGUE of a SECOND THOUSAND of NEW NEBULÆ and CLUSTERS of STARS, with a few Remarks on the Construction of the Heavens, 4to. (pp. 42), sewn, 7s 6d 1789
Added is: Attempt to explain a Difficulty in the Theory of Vision, depending on the different Refrangibility of Light, by NEVIL MASKELYNE, D.D., F.R.S. (pp. 9); and Experiments on the Congelation of Quicksilver in England, by RICHARD WALKER (pp. 13).
- 9197 — On the CONSTRUCTION of the HEAVENS, with folding plate, 4to. (pp. 54), sewn, 5s 1785
- 9198 — DESCRIPTION of a FORTY-FEET REFLECTING TELESCOPE, with 19 copperplates by Basire (some folding) of the great telescope and its constructional details, 4to. (pp. 63), sewn, 7s 6d 1795
The forty-feet reflecting telescope ‘proper’ was included in the Herschel grant of arms.
- 9199 — On the GEORGIAN PLANET [URANUS] and its SATELLITES, with folding plate, 4to. (pp. 15), sewn, 2s 6d 1788
The ‘Georgium Sidus’.
- 9200 — On the METHOD of OBSERVING the CHANGES that happen to the FIXED STARS; with some Remarks on the Stability of the Light of our Sun, with CATALOGUE of COMPARATIVE BRIGHTNESS for ascertaining the Permanency of the Lustre of Stars, 4to. (pp. 61), sewn, 5s 6d 1796
Added are: Mr. Jones's Computation of the Hyperbolic Logarithm of 10 improved, by JOHN HELLINS, pr., F.R.S. (pp. 7), 1796, and Manière élémentaire d'obtenir les Suites par lesquelles s'expriment les Quantités exponentielles et les Fonctions trigonométriques des Arcs circulaires, par SIMON L'HUIILLIER, F.R.S. (pp. 24), '96.
- 9201 — On the NATURE and CONSTRUCTION of the SUN and FIXED STARS, 4to. (pp. 27), sewn, 8s 6d 1794
‘His theory of the constitution of the sun as a dark, cool body, surrounded by a shell of lucid clouds floating in a transparent atmosphere, held its ground until past the middle of the XIXth Century.’—Miss Agnes M. Clerke.
Added is: Observations on the Theory of the Motion and Resistance of Fluids (Bakerian Lecture), by SAMUEL VINCE, pr., F.R.S., with 3 plates (pp. 21), and Croonian Lecture on Muscular Motion, by SIR EVERARD HOME, F.R.S., with plate (pp. 23).
- 9202 — On NEBULOUS STARS, properly so called, 4to. (pp. 18), sewn, 3s 1791
- 9203 — OBSERVATIONS on the PLANET VENUS, with plate, 4to. (pp. 19), sewn, 3s 1793
‘A pungent repudiation of Schröter's claim to the discovery of mountains in Venus.’—Miss Agnes M. Clerke.
- 9204 — OBSERVATIONS of a QUINTUPLE BELT on the PLANET SATURN, with plate, 4to. (pp. 5), sewn, 2s 1793
- 9205 — On the PERIODICAL STAR *a* HERCULIS; with Remarks tending to establish the ROTARY MOTION of the STARS on their AXES; with a SECOND CATALOGUE of the comparative BRIGHTNESS of the STARS, 4to. (pp. 31), sewn, 6s 1796
‘Herschel discovered and assigned a period of 60 days to the variation of *a* Herculis.’—Miss Agnes M. Clerke.
Added is: Observations on some Ancient Metallic Arms and Utensils, with Experiments to determine their Composition, by GEORGE PEARSON, M.D., F.R.S., with 5 folding plates (pp. 57).
- 9206 — On the RING of SATURN, and the ROTATION of the FIFTH SATELLITE upon its AXIS, with folding plate: ACCOUNT of a COMET—4to. (pp. 26), sewn, 3s 1791
- 9207 — On the ROTATION of the PLANET SATURN upon its AXIS, plate, 4to. (pp. 19), sewn, 3s 6d 1794
- 9208 — On the SATELLITES of the Planet SATURN, and the ROTATION of its RING on an AXIS, with large folding plate, 4to. (pp. 69), sewn, 8s 6d 1790
‘Containing the first determination of Saturn's rotation and polar compression.’—Miss Agnes M. Clerke.
Added is: On Spherical Motion, by CHARLES WILDBORE, pr., with plate (pp. 64); and On the Chronology of the Hindoos, by WILLIAM MARSDEN, F.R.S. (pp. 25).
- 9209 — v. BENNET, no. 6175 ante.
- 9210 **HERSCHEL** (Sir John Frederick William, F.R.S.; son of the above) On the ADVANTAGES to be Attained by a REVISION and RE-ARRANGEMENT of the CONSTELLATIONS, with especial Reference to those of the SOUTHERN HEMISPHERE, and on the Principles on which such Re-Arrangement ought to be conducted, with plate, 4to. (pp. 26), sewn, 5s 1841
- 9211 — On the CHEMICAL ACTION of the RAYS of the SOLAR SPECTRUM on PREPARATIONS of SILVER, and other Substances, both Metallic, and non-Metallic, and on some PHOTOGRAPHIC PROCESSES, with 2 plates, 4to. (pp. 59), sewn (scarce), 10s 6d 1840
This paper, which was awarded the Royal Society's gold medal, ‘announced the use as a fixing agent of hyposulphite of soda, the solvent power of which on the silver he had discovered in 1819; it originated the application to photographic prints of the terms ‘positive’ and ‘negative’, adverted to ‘lavender grey’ rays beyond the violet, and described experiments on the ‘chemical analysis of the solar spectrum,’ by which an important new field was thrown open to research.’—Miss Agnes M. Clerke.
- 9212 — ESSAY, entitled the YARD, the PENDULUM, and the METRE, considered in Reference to the Choice of a STANDARD of LENGTH, 8vo. (pp. 24), sewn, 2s 6d 1863

- 9214 **HERSCHEL** (Sir John Frederick William, F.R.S.; son of Sir William) COLLECTION of EXAMPLES of the APPLICATIONS of the CALCULUS of FINITE DIFFERENCES; also, Babbage (Charles, F.R.S.) EXAMPLES of the SOLUTIONS of FUNCTIONAL EQUATIONS, with plate—2 vols. 8vo. in 1, *calif*, 8s 6d
 Sir John Herschel's first publication in book-form, and 'one of the most charming mathematical works ever written'.—*Prof. Tait*. Cambridge, 1820
- 9215 — THE SAME, 2 v.: also, Peacock (George; Dean and restorer of Ely Cathedral, F.R.S.) COLLECTION of EXAMPLES of the APPLICATIONS of the DIFFERENTIAL and INTEGRAL CALCULUS, with 6 folding plates—3 vols. 8vo. in 1, *hf. calif* (one joint cracked); scarce, 12s 6d *ib.*, 1820
 The above three works formed the only publications of the Cambridge Analytical Society, and were instrumental in introducing the differential notation into England, where Newton's fluxional notation was exclusively used before.
- 9216 — ESSAYS from the EDINBURGH and QUARTERLY REVIEWS, with ADDRESSES and other Pieces, thick 8vo. *cl.*, uncut (cover slightly damaged); scarce, 7s 6d 1857
 Including reviews of Mary Somerville's 'Mechanism of the Heavens', Bowditch's translation of Laplace's 'Mécanique Céleste', and Dr. Whewell's 'On the Inductive Sciences', Humboldt's Kosmos, Gauss's Terrestrial Magnetism, Addresses to the R. Astronomical Soc., a memoir of F. Baily, F.R.S., Translations from the German of Schiller and Bürger, and original poetry.
- 9217 — FAMILIAR LECTURES on SCIENTIFIC SUBJECTS, with diagrams, thick post 8vo. *cl.*, 4s 1867
 'A delightful book'.—Miss Agnes M. Clerke. It contains lectures on earthquakes and volcanos, the sun, comets, weather and weather prophets, celestial measurings and weighings, and on light.
- 9218 [—] LIGHT (Encyclopædia Metropolitana), with 14 plates, 4to. boards, uncut, 7s 6d [1827]
 9219 — ANOTHER COPY, unbound, 6s 6d
 9220 [—] THE SAME, also, SOUND (ex eadem) with 20 plates, 2 vols. 4to. in 1, *cl.*, 9s 6d [1827-30]
 'This admirable treatise, besides including many original discoveries, gave European currency to the undulatory theory of light'.—Miss Agnes M. Clerke. It has never been re-issued in any form.
- 9221 — MANUAL of SCIENTIFIC ENQUIRY for the Use of H. M.'s NAVY, and Travellers in General, first edition, with woodcuts, and map, thick post 8vo. *hf. bound*, 3s 1849
 9222 — THIRD EDITION, superintended by ROBERT MAIN, pr., F.R.S., with woodcuts, and 2 maps, thick post 8vo. *cl.*, or, *calif*, 3s 6d 1859
 Containing contributions by Charles Darwin, Sir G. B. Airy, Dr. Whewell, Gen. Sabine, J. C. Prichard, M.D., Sir Richard Owen, Sir William Hooker, and others.
- 9223 — FIFTH EDITION [almost entirely rewritten], edited by SIR ROBERT S. BALL, F.R.S., with diagrams and maps, post 8vo. *cl.*, 2s 6d 1886
 9224 — METEOROLOGY, first edition, with 3 plates, and diagrams, post 8vo. *cl.*, 4s *Edin.*, 1861
 9225 — SECOND EDITION, with 3 plates, and diagrams, post 8vo. *cl.*, 3s 6d *ibidem*, 1862
 'He gave the earliest discussion of the influence on climate of the earth's orbital eccentricity'.—Miss Agnes M. Clerke. He also first suggested in this work a black bulb thermometer *in vacuo* for measuring solar radiation.
- 9226 — OUTLINES of ASTRONOMY, 5th Edition [enlarged], with 7 plates by Adlard, and numerous diagrams, 8vo. *calif gilt*, 4s 6d 1858
 This edition first contains an account of the methods by which the mass of the earth has been determined, the gyroscope, Foucault's pendulum experiments, etc. etc.
- 9227 — EIGHTH EDITION [enlarged], with 9 plates, and numerous diagrams, 8vo. *cl.*, 4s 1865
 9228 — NINTH EDITION [enlarged], with 9 plates, woodcuts, and numerous diagrams, 8vo. *cl.* (cover slightly damaged), 4s 1867
 9229 — TENTH [FINAL] EDITION [enlarged and revised], with 9 plates, woodcuts, and diagrams, 8vo. *cl.*, 6s 1869
 The last edition revised by the author.
- 9230 — ELEVENTH [LAST] EDITION [unaltered], with 9 plates, woodcuts, and diagrams, sq. 8vo. *cl.*, 6s 6d (p. 12s) 1871, or '8
 'Perhaps the most completely satisfactory general exposition of a science ever penned'.—Miss Agnes M. Clerke.
- 9231 — PHYSICAL ASTRONOMY, SOUND, and LIGHT (Encyclopædia Metropolitana), with 21 plates, 3 vols. 4to. in 1, *cl.*, 12s [1827-30]
 9232 — PRELIMINARY DISCOURSE on the STUDY of NATURAL PHILOSOPHY, with bust-portrait of Francis Bacon by Finden, fcap. 8vo. *cl.*, or, *calif*, 3s 6d 1830
 'An admirable comment on the *Novum Organum*'.—Dr. Whewell. 'It captivated readers of all classes by the quiet charm of its style, and the justice and breadth of its views'.—Miss Agnes M. Clerke.
- 9233 — On the REDUCTION of certain Classes of FUNCTIONAL EQUATIONS to EQUATIONS of FINITE DIFFERENCES, 4to. (pp. 11), *sewn*, 3s 6d Cambridge, 1820
 9234 — On certain REMARKABLE INSTANCES of DEVIATION from NEWTON'S SCALE in the TINTS developed by CRYSTALS, with one Axis of Double Refraction, on Exposure to Polarized Light, with plate, 4to. (pp. 21), *sewn*, 3s 6d [*ib.*], 1820
- 9235 — RESULTS of ASTRONOMICAL OBSERVATIONS during 1834-8 at the CAPE of GOOD HOPE: being the Completion of a Telescopic Survey of the whole Surface of the Visible Heavens, commenced in 1825, with vignette, and 17 folding and other plates, roy. 4to. new *hf. calif gilt* (front. wanting); VERY SCARCE, £1. 15s 1847
 The first great star-atlas of the northern hemisphere. 'Besides the catalogues of nebulae and double stars, it included profound discussions of various astronomical topics. He insisted in it on the connexion of sun-spots with the sun's rotation, and started the 'cyclonic theory' of their origin. He investigated graphically the distribution of nebulae; but fluctuated in his views as to their nature . . . Herschel stands almost alone in his attempt to grapple with the dynamical problems presented by star clusters, and his analysis of the Magellanic Clouds was decisive as to the status of nebulae'.—Miss Agnes M. Clerke.
- 9236 — On the ROTATION impressed by PLATES of ROCK CRYSTAL on the Planes of Polarization of the Rays of Light, as connected with certain Peculiarities in its Crystallization, 4to. (pp. 8), *sewn* (last l. missing), 2s [Cambridge], 1820
 'Herschel's discovery [in the above paper] of a correspondence between the crystallographical and optical peculiarities of quartz was designated by Lord Kelvin 'one of the most notable meeting-places between natural history and natural philosophy'.—D. N. B.
- 9237 [—] SOUND (Encyclopædia Metropolitana), with 6 plates comprising 174 figures, 4to. boards, or, *sewn*, 3s [1830]

- 466 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9239 **HERSCHEL** (Sir John Frederick William, F.R.S.; son of Sir William) The TELESCOPE (Encyclopædia Britannica), with 28 woodcuts, 4to. (pp. 29), boards, 4s [1859]
- 9240 ——— TREATISE ON ASTRONOMY, with vignette, 3 plates by Adlard, and diagrams, 12mo. cl., 3s 1833
- 9241 ——— NEW EDITION, with vignette, 3 plates, and diagrams, 12mo. h'. russica, 3s 1837
- 9242 ——— TRAITÉ D' ASTRONOMIE, traduit et augmenté d'un Chapitre sur l'Application de la Théorie des Chances à la Série des Orbites des Comètes, par A. COURNOT, 2^e Edition, with 3 plates, and diagrams, 12mo. hf. calf gilt, 3s 6d 1836
- 9243 ——— TRAITÉ de la LUMIÈRE, traduit avec Notes, par P. H. VERHULST et A. QUETELET; with 15 plates, 2 vols. 8vo. calf gilt (nice copy), 9s 1829-33
- This work, originally published in the *Encyclopædia Metropolitana*, has never been published in English in a separate form. 'This admirable treatise, translated into French by Quetelet, besides including many original discoveries, gave European currency to the undulatory theory of light.'—*Miss Agnes M. Clerke.*
- 9244 ——— TWO LETTERS to the Editor of the Athenæum, on a BRITISH MODULAR STANDARD OF LENGTH, 8vo. (p. 8), sewn, 2s 1863
- 9245 [———, and Charles BABBAGE, F.R.S.] MEMOIRS of the ANALYTICAL SOCIETY, 1813, roy. 4to. original wrappers, uncut (VERY SCARCE), £1. 5s Cambridge, 1813
- The only volume published of the Memoirs of the Cambridge Analytical Society, founded by the above two authors and Dean Peacock, to advocate 'the principles of pure *d*-ism as opposed to the *dot*-age of the university.' See Nos. 9214-15, *supra*.
- The above volume consists of an interesting preface (pp. i—xxii); on Continued Products (pp. 1-32); on Trigonometrical Series, with Notes (pp. 33-64); and on Equations of Differences, and their Application to the Determination of Functions from given Conditions (pp. 65-114). The preface and the first two contributions were by Babbage; the last by Sir John Herschel.
- 9246 ——— HOLOGRAPH LETTER, signed, addressed to FRANZ XAVER FREIHERR V. ZACH (Astronomer), dated Dec. 23, 1824, closely written on 4 pp. 4to. and illustrated with 2 diagrams, £1. 5s 1824
- An interesting letter, referring to his catalogue of double stars, and the Brinkley-Pond controversy, giving a description of Capt. Kater's 'collimator', etc.
- 9247 **HERTZ** (Heinrich Rudolf, Univ. Bonn) MISCELLANEOUS PAPERS, with Introduction by PHILIPP LENARD; Authorized Translation by D. E. JONES and G. A. SCHOTT, with portrait, folding plate, and 35 diagrams, 8vo. cl., 6s 6d (p. 10s nett) 1896
- 9248 ——— Die PRINZIPIEN der MECHANIK [herausgegeben von PHILIPP LENARD], mit einem Vorworte von HERMANN L. v. HELMHOLTZ, 8vo. buckram, 8s (p. M. 12. sewn) Leipzig, 1894
- 9249 ——— The PRINCIPLES of MECHANICS, presented in a New Form, with Introduction by H. v. HELMHOLTZ, translated by D. E. JONES and J. T. WALLEY, 8vo. cl., 6s 6d (p. 10s nett) 1899
- Based on Helmholtz's investigations, the above work discusses the various forms of energy, as well as the conditions of transmission from one form to another.
- 9250 ——— UNTERSUCHUNGEN ueber die AUSBREITUNG der ELEKTRISCHEN KRAFT; with 40 diagrams, 8vo. hf. calf, uncut, t. e. g., 5s Leipzig, 1892
- 9251 ——— ELECTRIC WAVES: Researches on the Propagation of Electric Action with Finite Velocity through Space: authorised English Translation by D. E. JONES, with Preface by LORD KELVIN, 40 illustrations, 8vo. cl., 6s (p. 10s nett) 1893
- Containing the author's investigations, by elaborating Clerk-Maxwell's theory, on the diffusion of electric forces now known as 'Hertzian waves', which plays such an important part in connexion with wireless telegraphy.
- 9252 **HERTZER** (Heinrich) MATHEMATISCHE TABELLEN, FORMELN und CONSTRUCTIONEN zum Gebrauch für Techniker; with 10 pp. of diagrams, 8vo. hf. roan, 2s 6d Berlin, 1864
- 9253 **HERZ** (Walter, Univ. Breslau) Über die LÖSUNGEN, 8vo. sewn, 1s Leipzig, 1903
- 9254 **HESSEL** (Johann Friedrich Christian) Die ANZAHL der PARALLELSTELLUNGEN, und jene der COINCIDENZSTELLUNGEN eines jeden denkbaren RAUMDINGES, u. s. w.; with folding table, 8vo. (p. 29), sewn, 1s 6d Cassel, 1853
- 9255 **HEUSINGER v. WALDEGG** (Edmund) HANDBUCH für SPECIELLE EISENBAHN-TECHNIK; BAND III. DER LOCOMOTIVBAU, 2. [neueste] vermehrte Auflage, bearbeitet von W. BASSON, W. BORK, A. v. BORRIES u. A. m.; with Atlas, comprising 74 folding plates, 2 vols. large impl. 8vo. hf. roan, 15s (p. M. 58) Leipzig, 1882
- Herr von Borries, with Mr. Wilson Worsdell and Mr. F. W. Webb of L. and N.W.R., was one of the pioneers of the compound locomotive.
- 9256 **HEUSLER** (Friedrich; Univ. Bonn) Die TERBENE, roy. 8vo. sewn, 3s (p. M. 5) Braunschweig, 1896
- 9257 **HEVELIUS** [recte HEWELCKE] (Johann; F.R.S.) SELENOGRAPHIA: sive LUNÆ DESCRIPTIO; atque accurata, tam Macularum ejus, quam Motuum Diversorum, aliorumque omnium Vicissitudinum, Phasiumque, TELESCOPII Ope deprehensarum, Delineatio; in quâ simul cæterorum omnium Planetarum nativa Facies . . . addita est, Lentes Expoliendi Nova Ratio, etc. etc.; with engraved title, beautiful portrait by J. Falck, and very numerous other fine copperplates, folio, old Italian white vellum extra (very slightly wormed, otherwise a FINE COPY); RARE, £2. 2s Gedani, 1647
- 'The earliest great work on the geography of the moon and the aspects of the planets.'—*Prof. Simon Newcomb.*
- It also contains his discovery of the libration of the moon in longitude, and is a work still in use.
- The first two chapters (pp. 1-31) contain a valuable account of the astronomical telescope and its manufacture.
- 'With Hevelius selenography may be considered to originate. He was the first to construct a satisfactory lunar map; the principal formations on it he designated by names derived from their supposed terrestrial analogies, the whole number so distinguished amounting to nearly 250. This map, though all the positions were laid down by estimation, is, considering the optical means at his disposal at this period, very accurate, and it remained for over 100 years the best map of the surface of the moon.'—*Neison.*
- 9258 **HEWITT** (W., Surgeon) ESSAY on the ENCROACHMENTS of the GERMAN OCEAN along the NORFOLK COAST, with a Design to arrest its further Depredations, with two lithographic views, 8vo. cl., 5s Norwich, 1844

- HEY** (William, F.R.S.; friend of Dr. Priestley) ACCOUNT of some LUMINOUS ARCHES—*v. BUGGE, no. 6596, ante.*
- 9260 **HIBBERT [-WARE]** (Samuel, M.D., F.R.S.E.; *historian of Manchester*) HISTORY of the EXTINCT VOLCANOS of the BASIN of NEUWIED, on the Lower Rhine, with 6 folding plates of views, woodcuts, and 2 coloured maps, 8vo. cl., uncut, 7s 6d
Edin., 1832
- 9261 **HICKS** (William Mitchinson, F.R.S.) ELEMENTARY DYNAMICS of PARTICLES and SOLIDS, with front., and numerous diagrams, post 8vo. cl., 3s (p. 6s 6d)
1890
- 9262 ——— ANOTHER COPY, cl., with interesting auto. letter from the author to F. J. Jervis-Smith, *pr., F.R.S., 3s 6d*
- 9263 ——— [FOURTH (AND LATEST) EDITION, with Corrections and Appendix, with front., and numerous diagrams, 8vo. cl., 3s 6d (p. 6s 6d)
1897
- 9264 **HIGGINS** (Bryan, M.D.) EXPERIMENTS and OBSERVATIONS relating to Acetous Acid, Fixable Air, Dense Inflammable Air, Oils, and Fuel; the Matter of Fire and Light, Metallic Reduction, Combustion, Fermentation, Putrefaction, Respiration, and other Subjects of CHEMICAL PHILOSOPHY, 8vo. nice copy in old calf (rare), 15s
1786
‘His best-known work, which appears also to have formed the subject of some of his lectures. He was more successful as a speculator than as an experimentalist, and many of his views are, for their time, remarkable for their acuteness and generalising character.’—*D. N. B.* All his experiments and views are still based on the phlogiston theory.
- 9265 ——— EXPERIMENTS and OBSERVATIONS made with the View of Improving the Art of composing and applying CALCAREOUS CEMENTS, and of preparing QUICKLIME: Theory of these Arts; and Specification of the AUTHOR'S cheap and durable CEMENT, for Building, Incrustation, or Stuccoing, and Artificial Stone, first edition, 8vo. boards, uncut, 12s
1780
- 9266 ——— [SECOND EDITION, revised], 8vo. hf. red morocco, t. e. g. (stamp on title), 10s 6d
1780
An account of the author's patented invention of a new and cheap cement. The work was translated into Italian. The second edition is unknown to bibliographers.
- 9267 [——] MINUTES of the SOCIETY for PHILOSOPHICAL EXPERIMENTS and CONVERSATIONS, with 4 folding copperplates, 8vo. sewn, uncut (RARE), 15s
1795-
- 9268 ——— ANOTHER COPY, old calf, 16s
An account of Dr. Higgins's lectures and experiments during 1794 before the Society, which included Earl Stanhope, F.-M. Conway, the Hon. Daines Barrington, Sir Frederick Eden, and Thomas Young, M.D., F.R.S., who acted as assistant experimenter. He charged Dr. Priestley with having plagiarised some of his experiments on air.
- 9269 ———: SYLLABUS of DR. HIGGINS'S COURSE of Philosophical, Pharmaceutical, and Technical CHEMISTRY, 8vo. (pp. 112), sewn, 7s 6d
[c. 1795]
Bryan Higgins was the inventor of the chemical harmonica, and the first to produce in a pure state fulminate of gold.
- 9270 **HIGGINS** (William; F.R.S., *nephew of the above*) ESSAY on the THEORY and PRACTICE of BLEACHING, wherein the Sulphuret of Lime is recommended as a Substitute for Pot-Ash, 8vo. (pp. 103), sewn, 8s 6d
1799
In the preface (pp. 32), which forms an interesting contribution to the phlogiston controversy, the author claims as his own two discoveries ascribed respectively to Fourcroy and Vauquelin.
- 9271 ——— EXPERIMENTS and OBSERVATIONS on the ATOMIC THEORY, and ELECTRICAL PHENOMENA, original Irish edition, 8vo. original boards, uncut (very scarce), £1. 1s
Dublin, 1814
‘To the Right Hon^{ble} the Earl of Chichester from the Author’.—*Inscr. on flyleaf.*
- 9272 ——— THE SAME, with the London Imprint, 8vo. original boards, uncut (sound copy), 14s
1814
‘An unworthy attack upon DALTON, in which Higgins set forth his superior claims to be considered the author of the atomic theory’.—*D. N. B.* Higgins's claim was supported by Sir Humphry Davy.
‘Higgins certainly expressed opinions which, on a superficial glance, appeared similar to those of Dalton, stating as he did that the smallest particles combine in simple numerical proportions to form chemical compounds. But these views were brought forward without any internal organic connection, and, moreover, they were not founded on experiment.’—*Prof. E. v. Meyer.*
- 9273 **HIGGINS** (William Mullinger, F.G.S.) MOSAICAL and MINERAL GEOLOGIES illustrated and compared, 8vo. hf. cl., or, cl., 4s
1833
- 9274 ——— RESEARCHES in the SOLAR REALM, with 4 tinted plates, and diagrams, fcap. 8vo. cl., 2s 6d
1852
- 9275 **HIGGS** (Paget) ELECTRIC LIGHT in its PRACTICAL APPLICATION, with 94 woodcuts, 8vo. cl., or, hf. calf, 2s
1879
Of historical interest.
- 9276 **HIGHTON** (Edward, C.E.) The ELECTRIC TELEGRAPH: its History and Progress, with woodcuts and diagrams, fcap. 8vo. cl. (scarce), 6s
1852
Historically interesting for illustrating various early apparatus and accessories. He incidentally mentions the interesting fact that the semaphore telegraph was still in use between Liverpool and Holyhead.
- 9277 ——— ANOTHER COPY; also, **HARRIS** (Sir William Snow, F.R.S.) RUDIMENTARY MAGNETISM, Parts I—III, first edition, with front., and 153 woodcuts—4 vols. fcap. 8vo. in 1, hf. morocco neat, 9s
1852-50-2
- 9278 ———, and Henry, *pr.; friend of Dr. Arnold and enemy of Dean Stanley*), SPECIFICATION of the PATENT granted to, for IMPROVEMENTS in ELECTRIC TELEGRAPHS, sealed Jan. 25, 1848, with 3 folding plates (soiled), 8vo. hf. calf, with author's inscr. (scarce), 7s 6d
[1848]
The author's scheme of ‘Telegraphy without Insulation’, which got the silver medal of the Society of Arts.
- 9279 **HILBERT** (David, *Univ. Göttingen*) The FOUNDATIONS of GEOMETRY, translated by E. J. TOWNSEND, with 52 diagrams, cr. 8vo. cl., with bookplate of Prof. H. W. Lloyd Tanner, F.R.S., 3s (p. 4s 6d nett)
Chicago, 1902
- 9280 **HILDEBRANDT** (Alfred Louis Heinrich) AIRSHIPS PAST and PRESENT, with Chapters on the Use of Balloons in Connexion with Meteorology, Photography, and the Carrier Pigeon, translated by W. H. STORY, with 222 illustrations, 8vo. cl., 6s (p. 10s 6d nett)
1908
- 9281 **HILL** (Arthur Croft, M.D.) REVERSIBILITY of ENZYME, or FERMENT, ACTION, 8vo. (pp. 21), sewn, 1s 6d
1903

- 9283 **HILL** (John, *Genl.*) ARITHMETICK both in THEORY and PRACTICE, made Plain and Easie, with Interest and Annuities, EXTRACTION of the Square and Cube Roots, the Tables and Construction of LOGARITHMS, Arithmetical and Geometrical Progression, etc. etc., third Edition, with several Algebraical Questions, and Preface by MR. HUMPHREY DITTON, sm. 8vo. *old calf (sound copy)*; rare, 15s 1721
- 9284 ——— ANOTHER COPY, *old hf. calf (joints broken)*, 12s
- 9285 ——— TENTH EDITION, accurately revised, corrected, and improved by E. HATTON, and others, 8vo. *old calf*, 7s 6d 1761
- 'A work of much celebrity. It seems to have owed its fame partly to a recommendation of Humphrey Ditton, praising it in the strongest terms. Perhaps at this time the only thing which would catch the eye are the table of logarithms, and the powers of 2 up to the 14th, very useful for laying up grains of corn on the squares of a chess-board, ruining people by horseshoe bargains, and other approved problems.—Prof. de Morgan, who possessed, however, only the 7th edition of 1745.
- 9286 **HILL** (John, *quack M.D.*; *self-styled 'Sir John'*) ESSAYS in NATURAL HISTORY and PHILOSOPHY, containing a Series of DISCOVERIES by the Assistance of MICROSCOPES, 8vo. *old calf gilt (nice copy)*, with *Calgarth Park bookplate of Dr. Richard Watson, F.R.S., absentee Bp. of Llandaff*, 8s 6d 1752
- Dr. Johnson in his conversation with George III. (*v. Boswell's Life*) justly ridiculed a statement of the author, that he could get great magnifications by looking at the same object simultaneously through two microscopes.
- 'For physic and farces, his equal there scarce is
His farces are physic, his physic a farce is.—David Garrick.
- 'He was very able and very eccentric' (*Prof. de Morgan*), and he successfully hoaxed the Royal Society.
- 9287 ——— HISTORY of the MATERIA MEDICA, containing the Descriptions of all the Substances used in Medicine; their Origin, their Characters when in Perfection, the Signs of their Decay, their CHEMICAL ANALYSIS, and their Virtues; and of the several Preparations from them now used in the Shops, thick 4to. *contemporary calf*, with *Chippendale bookplate of T. Unett*, pr., 8s 6d 1751
- 9288 ——— REVIEW of the WORKS of the ROYAL SOCIETY of LONDON; containing Animadversions of such of the Papers as deserve particular Observation; 2nd Edition, roy. 4to. *hf. mottled calf gilt, uncut (fine copy)*, with *bookplate of S. R. Maitland, pr., F.R.S., author of 'The Dark Ages'*, 12s 6d 1780
- 'Failing to obtain the requisite number of names for his nomination to the Royal Society, he attacked it in several satirical pamphlets, specially vituperating Folkes and Baker, his former patrons, and published *A Review of the Works of the Royal Society*, holding up to ridicule the 'Philosophical Transactions'.—D.N.B.
- 'This once well-known work is, in my judgment, the greatest compliment the Royal Society ever received. . . . Sir John Hill's book is droll and cutting satire.'—Prof. de Morgan.
- 9289 **HILL** (Karl Johan; *Univ. Lund*) INTRODUCTIO in ELEMENTAREM FUNCTIONUM ELIPTICARUM THEORIAM, sm. 4to. *boards (nice copy)*, 5s 1835
Lundæ
- 9290 **HIME** (Lieut.-Col. Henry William Lovett, R.A.) GUNPOWDER and AMMUNITION, 8vo. 1904
cl., 6s (p. 9s nett)
- 9291 ——— The OUTLINES of QUATERNIONS, with 46 diagrams, cr. 8vo. *cl. (o. p.)*, 8s 6d 1894
- 9292 **HIMLY** (August Friedrich Karl, *Univ. Göttingen*) De CAOUTCHOUK ejusque DISTILLATIONIS SICCAE PRODUCTIS et ex his de CAOUTCHINO, novo Corpore ex Hydrogenio et Carboneo composito; with *folding plate*, 8vo. *boards*, with INSCR. TO FARADAY (*see below*); scarce, 10s 6d 1835
Göttingæ
- 'Faraday institutionis Londinensis professori chemico hocce libellum omni, qua par est, observantia offert auctor.'—*Inscr. on styleof.* Does the author here foreshadow the production of synthetic india-rubber?
- 9293 **HIND** (John, *pr.*; *Sidney Sussex Coll., F.R.A.S.*) PRINCIPLES of the DIFFERENTIAL CALCULUS; with its Application to Curves and Curve Surfaces, 2nd [last] Edition, 8vo. *boards*, 3s 6d 1831
Cambridge
- 9294 **HIND** (John Russell, F.R.S., *discoverer of 'Iris' and 'Flora'*) The COMETS: a Descriptive Treatise, with the numerous Modern Discoveries, and Table of all the Calculated Comets, from the Earliest Ages, post 8vo. *hf. calf*, with *bookstamp of Dr. Dallinger, F.R.S.*, 5s 1852
- A valuable work, in which the author traced, *inter alia*, Halley's Comet back to 11 B.C. It was translated into German.
- 9295 ——— On the EXPECTED RETURN of the GREAT COMET of 1264 and 1556; with History of Former Appearances, and Ephemerides for its Re-discovery, 8vo. *sewn*, 3s 1848
- 9296 ——— INTRODUCTION to ASTRONOMY, with Astronomical Vocabulary; 3rd Edition, with 73 *woodcuts*, cr. 8vo. *cl.*, 2s 1863
- 9297 ——— PATH of the TOTAL PHASE of the SOLAR ECLIPSE, Dec. 21-22, 1870, consisting of 2 tables and *folding map*, 8vo. *sewn*, 1s 6d [1870]
- 9298 ——— SWEEPING-EPHEMERIDES for the COMET of 1556, roy. 8vo. (pp. 12), *sewn*, 1s [1857]
- 9299 **HINDE** (George Jennings, F.R.S., and T. C.) NEW SYSTEM of IRON and STEEL MAKING, with *front.*, 12mo. (pp. 31), *sewn*, 1s 6d n. d.
- 9300 **HINDENBURG** (Carl Friedrich; *Univ. Leipzig*) SAMMLUNG COMBINATORISCH-ANALYTISCHER ABHANDLUNGEN, I. SAMMLUNG, post 8vo. *hf. bound (rare)*, 10s 6d 1796
Leipzig
- The author was the inventor of combinatorial analysis. There is a full account of the work in Prof. Moritz Cantor's 'Vorlesungen über Geschichte der Mathematik', v. IV.
- 9301 **HINDS** (John Iredelle Dillard, *Univ. Nashville*) INORGANIC CHEMISTRY, with *coloured front.* and 66 *woodcuts*, 8vo. *cl.*, 5s (p. 12s 6d nett) 1902
New York
- 9302 **HINRICHS** (Gustav Detlef, M.D., *St. Louis Univ.*) The AMANA METEORITES of Feb. 12, 1875, with 16 plates and *fs.*, roy. 8vo. *sewn*, with *author's inscr.*, 1s 6d 1905
St. Louis, Mo.
- 9303 **HIPPOCRATES**: HIPPOCRATES CHYMICUS, seu Chimiae Hippocraticae Specimina V, a FRANCISCO JOSEPHO BURRHO [BORRI] recognita; accessit brevis Quaestio de CIRCULATIONE SANGUINIS, 48mo. *extra boards (very rare)*, 15s 1690
Colonix
- Prof. John Ferguson, in his 'Bibliotheca Chemica' (*v. I p. 118*), states that he has never seen a copy of the above work. It was also unknown to Foggendorf, Brunet, Graesse, and to Borri's biographer in *Biogr. Gén*

- 9306 **HINTON** (John William) STORY of the ELECTRIC ORGAN, with 2 portraits and 7 plates, sq. 8vo. cl., 3s (p. 5s nett) 1909
- 9307 **HIORNS** (Arthur H., Birmingham and Midland Inst.) IRON and STEEL MANUFACTURE, with 72 illustrations, 12mo. cl., 2s 1895
- 9308 ——— STEEL and IRON, for Advanced Students, with front. and 131 other illustrations, 12mo. cl., 5s 6d (p. 10s 6d) 1903
- 9309 **HIRD** (W. Benison, M.I.E.E.) ELEMENTARY DYNAMO DESIGN, with Numerical Examples, 128 illustrations, 8vo. cl., 5s (p. 7s 6d nett) 1908
- 9310 **HIRN** (Gustave Adolphe; Colmar) LA CINÉTIQUE MODERNE et le DYNAMISME de l'AVENIR : Réponse à diverses Critiques faites par M. CLAUSIUS; with 2 folding plates, roy. 4to. sewn, 3s 6d 1887
- 9311 ——— EXPOSITION ANALYTIQUE et EXPÉRIMENTALE de la THÉORIE MÉCANIQUE de la CHALEUR, 3^e [dernière] Edition, entièrement refondue; with woodcuts and diagrams, 2 vols. roy. 8vo. sewn, 11s (p. F. 24 nett) 1875-6
- 9312 ——— ANOTHER COPY, cl., 12s 6d
- 9313 ——— TOME SECOND; with diagrams, roy. 8vo. sewn, 4s 6d (p. F. 12 nett) 1876
The author discovered superheated steam, and laid the foundation of the theory of the mechanical equivalent of heat.
- 9314 ——— LA MUSIQUE et l'ACOUSTIQUE : Aperçu général sur leurs Rapports et leurs Dissemblances, roy. 8vo. sewn (o. p.), 3s 6d 1878
- 9315 ——— LES PANDYNAMOMÈTRES : Théorie et Application; with 2 folding plates, cr. 8vo. sewn, 1s 6d 1876
- 9316 ——— RECHERCHES EXPÉRIMENTALES sur la LIMITE de la VITESSE que prend un GAZ quand il passe d'une PRESSION à une autre plus faible; with folding plate, 8vo. sewn, 2s 1886
- 9317 ——— RECHERCHES EXPÉRIMENTALES sur la RELATION qui existe entre la RÉSIDENCE de l'AIR et sa TEMPÉRATURE : Conséquences Physiques et Philosophiques qui découlent de ces Expériences; with 4 plates, 4to. (pp. 91), sewn, 3s 6d Colmar, 1882
- 9318 **HIRSCH** (Meier) SAMMLUNG von BEISPIELEN, FORMELN und AUFGABEN aus der BUCHSTABEN-RECHNUNG und ALGEBRA, 7. Ausgabe, 8vo., hf. bound, 1s 6d Berlin, 1846
- 9319 ——— COLLECTION of EXAMPLES, FORMULÆ, and CALCULATIONS, on the LITERAL CALCULUS and ALGEBRA, translated by J. A. ROSS, pr., with 3 tables, 8vo. boards, with auto. of W. Spottis-woode, P.R.S., 3s 1827
- 9320 ——— INTEGRAL TABLES, or Collection of Integral Formulæ, translated [by J. A. ROSS, pr.], roy. 8vo., LARGE PAPER; calf gilt, 5s 1823
- 9321 **HIRST** (Thomas Archer; F.R.S., Prof. Physics, Univ. Coll., London) On the EXISTENCE of a MAGNETIC MEDIUM, 8vo. (pp. 7), sewn, 1s 6d 1855
- 9322 ——— INTRODUCTORY LECTURE to the COURSE on NATURAL PHILOSOPHY at Queenwood College, Hants., 8vo. (pp. 16), sewn, with inser. to Sir E. Frankland, F.R.S., 2s 1853
- 9323 ——— On RIPPLES, and their RELATION to the VELOCITIES of CURRENTS, 8vo. (pp. 30), sewn, with inser. to Sir E. Frankland, F.R.S., 3s 1861
- 9324 ——— Ueber CONJUGIRTE DIAMETER im DREIAXIGEN ELLIPSOID : Inaugural-Dissertation, 4to. (pp. 20), sewn, 3s 6d Marburg, 1852
- 9325 **HISCOX** (Gardner D.) COMPRESSED AIR: its Production, Uses, and Applications, comprising the PHYSICAL PROPERTIES of AIR from a Vacuum to its Liquid State, its Thermodynamics, Compression, Transmission, and Uses, with 545 illustrations, roy. 8vo. cl., 10s (p. £1.5s nett) 1902
Including an historical sketch, and a list of patents, 1875-1901.
- 9326 ——— GAS, GASOLINE, and OIL VAPOR ENGINES: their Theory and Power; Design, Construction, and Operation for Stationary, Marine, and Vehicle Motive Power, with Chapters on Horseless Vehicles, Electric Lighting, Marine Propulsion, etc., 2nd Edition, enlarged, with 270 illustrations, 8vo. cl., 5s 6d (p. 14s nett) New York, 1898
- 9327 ——— MECHANICAL MOVEMENTS, POWERS, DEVICES, and APPLIANCES, used in Constructive and Operative Machinery and the Mechanical Arts, with 1649 woodcuts, 8vo. cl., 6s (p. 12s 6d nett) 1900
- 9328 **HITCHCOCK** (Edward, D.D., President Amherst Coll.) The RELIGION of GEOLOGY and its CONNECTED SCIENCES, with coloured front., cr. 8vo. hf. calf gilt, 4s 1851
First English Edition of this well-known work.
- 9329 **HJÄRNE** [sic **HIERNE**] (Urban) ACTA et TENTAMINA CHEMICA HOLMIENSIA, h. e. Parascève, sive Præparatio ad Tentamina, in Regio Laboratorio Holmiensi peracta, ut et Compensiosa Manuductio ad Elementa et Principia Chemica rite investiganda [sic], cum Annotationibus J. GOTSCHALK WALLERII; with 3 folding plates, 2 vols. 8vo. in 1, contemporary calf extra (fine copy); RARE, £1. 1s Stockholm, 1753
'As early as 1686 Charles XI. of Sweden had recognized the value of analytical investigations, and had caused a technical laboratory to be built. Here, under Hjärne's superintendence, all sorts of natural products (such as ores and other minerals, soils, etc.) were examined, and researches instituted, with the object of rendering chemical products of practical use, and of applying in daily life the various results obtained'.—Prof. E. v. Meyer.
- 9330 **HOADLY** (Benjamin, M.D., F.R.S.; son of Bp. Hoadly), and Benjamin WILSON, F.R.S.: OBSERVATIONS on a SERIES of ELECTRICAL EXPERIMENTS, 4to. (pp. 76), sewn, uncut, 8s 6d T. Payne, 1756
- 9331 **HOARE** (Clement) PRACTICAL TREATISE on the CULTIVATION of the GRAPE VINE on OPEN WALLS; 3rd [last] Edition, with woodcuts, 8vo. cl., 5s 1841
'A valuable handbook'.—D. N. B.
The author was a vinegrower in Sussex, where the warm Southern slope of the downs has been celebrated for grapes and figs since Norman times, and had his vineyard at Sidlesham, near Chichester. He afterwards moved to Shirley near Southampton.

- 470 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9333 **HOBART** (Henry Metcalf, M.I.C.E.) The DESIGN of STATIC TRANSFORMERS, with front. and illustrations, 8vo. cl., 4s (p. 6s nett) 1911
- 9334 ——— The ELECTRIC PROPULSION of SHIPS, with 44 illustrations, 8vo. cl., 3s 6d (p. 5s nett) 1911
- 9335 ——— ELECTRIC TRAINS, with 88 diagrams (including plates), 8vo. cl., 4s (p. 6s nett) 1910
- 9336 ——— ELECTRICITY, with 115 diagrams (including folding plates), 8vo. cl., 4s (p. 6s nett) 1909
- 9337 **HOBBS** (Thomas, of Malmesbury) WORKS, both ENGLISH and LATIN, now first collected and edited by SIR WILLIAM MOLESWORTH, with INDEX VOLUME, steel portrait and plates, 16 vols. 8vo. cl., uncut (SCARCE), £4. 10s 1839-45
- 9338 ——— ANOTHER COPY, with the INDEX VOL., 16 vols., calf gilt (nice set). £5. 10s
The standard edition of the author's works, including all his numerous scientific tracts.
- 9339 ——— OPERA PHILOSOPHICA, quæ Latinè scripsit, OMNIA, antè quidem per Partes, nunc autem, post cognitatas omnium Objectiones, conjunctim et accuratius edita; with fine folding portrait et. 76 by W. FAITHORNE, numerous folding plates, and smaller engravings on copper, 2 vols. sm. 4to. sound copy in old calf, newly rebaked (RARE), £1. 5s Amstelodami, Joa. Blaeu [ad sphæram], 1668
The first collected edition, which had to be printed abroad, Hobbes having been forbidden to publish it at home. It contains Problemata Physica; Dialogi VI de emendatione Geometrie hodiernæ contra Wallisium; de Corpore; de Homine; de Cive; de Natura Aeris; de Principiis et Ratiocinatione Geometrarum; Leviathan. The portrait is often missing.
- 9340 ——— ELEMENTORUM PHILOSOPHIE SECTIO SECUNDA de HOMINE; with 8 copperplates, sm. 4to. contemporary white vellum, 7s 6d Londini, A. Crooke, 1658
'Containing a Latin translation of some chapters on optics from an unpublished treatise written by him in 1646.'—D. N. B.
- 9341 ——— A GARDEN of GEOMETRICAL ROSES; or some Propositions, being hitherto hid, are now made known, translated by VENTERUS MANDEY, with 2 plates and numerous other diagrams on copper and wood, 12mo. old calf, 8s 6d 1685
- 9342 ——— TRACTS, with portrait on copper (in DUPLICATE), plate, and diagrams, thick 12mo. boards (RARE), £1. 1s W. Crooke, 1681
Containing, with separate titles: Life in Latine partly by himself, finished by Dr. R [ICHARD] B [LACKBURNE], '81; His Considerations on his Reputation, Loyalty, Manners and Religion, '80; the Art of Rhetoric, '81; Dialogue of the Common-Laws of England; and Decameron Physiologicum: or Ten Dialogues of Natural Philosophy, '78.
'Hobbes in his De Corpore produced his solutions of some ancient puzzles, especially the squaring of the circle. . . John Wallis showed unsparingly the manifold absurdities of his solutions. . . In 1666 Hobbes once more took up the hopeless task of defending his own phantasies and attacking Wallis. Wallis published his last retort in 1672. Hobbes in 1674 again published some of his pretended solutions, and as late as 1678, at the age of ninety, fired his last shot in the Decameron Physiologicum.'—D. N. B.
- 9343 **HOBBS** (Eng.-Lt. Lionel M., R.N.) The THERMODYNAMIC PRINCIPLES of ENGINE DESIGN, with 57 diagrams, large cr. 8vo. cl., 3s (p. 4s 6d nett) 1907
- 9344 **HOBSON** (Ernest William, F.R.S.) On the INFINITE and the INFINITESIMAL in MATHEMATICAL ANALYSIS, 8vo. (pp. 23), sewn, 1s 6d 1902
- 9345 **HOCHHEIMER** (Carl Friedrich August) SAMMLUNG auserlesener ABHANDLUNGEN über die interessantesten Gegenstände der CHEMIE, aus dem Lateinischen übersetzt und mit Anmerkungen begleitet; 8vo. sewn, 8s 6d Leipzig, 1793
Containing theses by F. Dejean, F. A. Gallisch, N. Osenetskowsky, J. J. Michalowsky, C. G. Eschenbach, J. G. Leonhardi, F. Warnowski, F. H. Corvinus, and others.
- 9346 **HOCHSTETTER** (Ferdinand v.), and August **PETERMANN**; founder of 'Petermann's Mitteilungen': GEOLOGICAL and TOPOGRAPHICAL ATLAS of NEW ZEALAND, 6 coloured maps (2 folding), 4to. boards, 6s Auckland, 1864
- 9347 ——— The GEOLOGY of NEW ZEALAND: in Explanation of the Geographical and Topographical Atlas of New Zealand, trans. by C. F. FISCHER, 8vo. limp cl. (rare), 9s ibidem, 1864
- 9348 **HODDER** (James) HODDER'S ARITHMETICK; or that Necessary Art made most easie, being explained in a Way familiar to the Capacity of any that desire to learn in a little time; 13th Edition, revised, augmented, and above 1000 Faults amended, by HENRY MOSE, late Servant and Successor to the Author, with portrait, 18mo. original vellum wrapper, with flap (RARE), £1. 10s R. Chiswell, 1681
'A popular manual on which Cocker based his better known work. The two books are for the most part identical. Cocker's chief improvement is the new mode of division which Hodder did not give.'—D. N. B.
'Had this work given the new mode of division, it must have stood in the place of Cocker. . . It is one of the few English works of the century which have found their way into Heilbronner's list.'—Prof. de Morgan.
- 9349 **HODGE** (Paul R., C.E.) ANALYTICAL PRINCIPLES and PRACTICAL APPLICATION of the EXPANSIVE STEAM ENGINE, as employed in Pumping, Manufacturing, Steam Navigation, RAILWAY LOCOMOTION, etc., in which the Properties of Expansion are developed, and a Comparative View given of the Advantages to be obtained by the Adoption of Engines on this Principle, with 8 folding plates and woodcuts, 4to. hf. roan, uncut (scarce), 6s (p. £3. 3s) 1849
'A most useful work, which no one interested in steamers should be without.'—Allibone. The last three plates contain early types of locomotive engines.
- 9350 **HODGES** (James) CONSTRUCTION of the GREAT VICTORIA BRIDGE in CANADA, with 38 fine tinted lithographs, besides woodcuts, folio, cl., 12s 6d (p. £4. 14s 6d) 1860
This was Robert Stephenson's great tubular bridge at Montreal, which has now been superseded by a modern structure giving freer headway. Besides giving constructional details, the above plates also contain fine views of early Canadian scenery.
'The Victoria Railway Bridge (1854-9) over the St. Lawrence at Montreal, is tubular in design, like the Britannia Bridge. . . It is remarkable chiefly for its ice-breaking piers, which are constructed with large bows at the up-river end to resist the enormous pressure of ice in spring.'—D. K. Clark, M.I.C.E.
- 9351 **HODGKINSON** (Eaton, F.R.S.) EXPERIMENTAL RESEARCHES on the STRENGTH and other Properties of CAST IRON, with the Development of New Principles; Calculations deduced from them; and Inquiries applicable to Rigid and Tenacious Bodies generally, with 5 plates, and woodcuts, 8vo. hf. cl. (title stamped), 4s 6d 1846
- 9352 ——— ANOTHER COPY, hf. bound, 4s

- HODGSON (James, F.R.S.)** CATALOGUE of ECLIPSES of JUPITER'S SATELLITES for 1735—*v. HADLEY, No. 8777, ante.*
- 9354 ——— The DOCTRINE of FLUXIONS, founded on SIR ISAAC NEWTON'S METHOD, published by himself in his Tract upon the Quadrature of Curves, first edition, with numerous diagrams, 4to. *old calf gilt, newly rebounded (rare), £1. 1s* 1736
- 9355 ——— REIMPRESSION, with numerous diagrams, 4to. *old calf, 16s 6d* 1758
 'Introducing the true method of fluxions, most of the books that have hitherto appeared on that subject having in them little more than the name, the principles on which they have proceeded being the same with the differential calculus; so that by calling a differential a fluxion, and a second differential a second fluxion, etc., they have so confusedly jumbled the methods together, that people who have not been thoroughly acquainted with them, have been led into many mistakes.'—*Intr.*
- 9356 ——— INTRODUCTION to CHRONOLOGY: containing an ACCOUNT of TIME, also of the most remarkable CYCLES, EPOCH'S, ERA'S, PERIODS and MOVEABLE FEASTS, with brief Account of the several METHODS proposed for the Alteration of the Style, the REFORMING the CALENDAR, and fixing the True Time of the Celebration of EASTER, 8vo. *sewn, 6s* 1747
- 9357 **HODGSON (John Ernest, F.R.G.S.)** The DREDGING of GOLD PLACERS, with 18 plates, 8vo. *cl., 3s 6d (p. 5s nett)* 1911
- 9358 **HODSON (F.)**; BROAD LINES in SCIENCE TEACHING, edited by; with Introduction by M. E. SADLER, with plate, 8vo. *cl., 3s (p. 5s nett)* [1909]
- 9359 **HOEFER (Ferdinand)** HISTOIRE de l'ASTRONOMIE, depuis ses Origines jusqu'à nos Jours; with woodcuts, thick post 8vo. *sewn, 2s* 1873
- 9360 ——— ANOTHER COPY, *hf. cl., 2s 6d*
- 9361 ——— HISTOIRE de la CHIMIE, depuis les Temps les plus reculés jusqu'à notre Époque, 2 vols. 8vo. *sewn, 5s (p. F. 17)* 1842-3
- 9362 ——— HISTOIRE des MATHÉMATIQUES, depuis leurs Origines jusqu'au Commencement du XIX^e Siècle, 2^e Édition; with diagrams, thick post 8vo. *hf. cl., 2s 6d* 1879
- 9363 ——— HISTOIRE de la PHYSIQUE et de la CHIMIE, depuis les Temps les plus reculés jusqu'à nos Jours; with 33 woodcuts, post 8vo. *hf. cl. (o. p.), 4s* 1872
- 9364 **HOFF (Jacobus Hendrik van 't; F.R.S.)** ACHT VORTRÄGE über PHYSIKALISCHE CHEMIE; with 9 diagrams, 8vo. *sewn, 2s* Braunschweig, 1802
- 9365 **HÖFFLMAYR (Martin), und C. P. PRÜCKNER:** Die FABRIKATION des BLAUSALZES oder der krystallisirten Kalium-Eisen-Cyanürs im Grossen; with folding plate, 8vo. *sewn, 5s* Hof, 1837
- 9366 **HOFFMANN (Friedrich; Univ. Berlin)** UEBERSICHT der OROGRAPHISCHEN und GEOGNOSTISCHEN VERHÄLTNISSSE vom NORDWESTLICHEN DEUTSCHLAND; with 3 copperplates (2 folding and tinted), 2 vols. 8vo. in 1, *hf. calf (sound copy), 5s* Leipzig, 1830
- 9367 **HOFFMANN (Johann Josef Ignaz v.)** Der PYTHAGORISCHE LEHRSATZ, mit 32 theils bekannten, theils neuen Beweisen versehen, 2. mit [3] neuen Beweisen vermehrte Ausgabe; with 38 diagrams, 4to. *boards (scarce), 7s 6d* Mainz, 1821
 The most extensive collection of proofs ever published of Euclid I, 47.
- 9368 **HÖFLER (Alois; Univ. Vienna)** DIDAKTIK des MATHEMATISCHEN UNTERRICHTS; with 2 folding plates and 147 diagrams, roy. 8vo., *cl., 8s (p. M. 12)* Leipzig, 1910
- 9369 **HOFMANN (August Wilhelm v.; F.R.S.)** CHEMICAL INVESTIGATION of the ORGANIC BASES contained in COAL-GAS NAPHTHA, 8vo. (pp. 32), *sewn, uncut (scarce), 5s* 1844
- 9370 ——— On the COMBINING POWER of ATOMS, with woodcuts, 8vo. (pp. 30), *sewn, 4s 6d* 1865
 'Professor [M. H. N. Story] Maskelyne [F.R.S.] with the Author's kind regards.'—*Inscr. on cover.*
- 9371 ——— On the COMPOSITION of MESITIOLE, and some of its DERIVATIVES, 8vo. (pp. 12), *sewn, 3s* [c. 1848]
- 9372 ——— ZUR ERINNERUNG an VORANGEGANGENE FREUNDE: GESAMMELTE GEDÄCHTNISSEDREN; with portraits and fss., 3 vols. 8vo. *cl., with author's inscr. as below, 12s 6d (p. M. 23)* Braunschweig, 1888
 'Hrn. Dr. [Sir] M. Holtzmann mit freundschaftlichem Grusse des Verf.'—*Inscr. on flyleaf.*
 Including notices of Thomas Graham, Liebig, Heinrich Buff, H. v. Fehling, Friedrich Wöhler, J. B. A. Dumas, Q. Sella, Gustav Kirchhoff, A. Wurtz, and others.
 'Characterised by the loving care with which he enters into the life and works of the men whom he extols, besides being written in a most fascinating style.'—*Prof. E. v. Meyer.*
- 9373 ——— Sur la FORCE de COMBINAISON des ATOMES, traduit, avec Aperçu rapide de Philosophie Chimique, par l'ABBÉ F. N. R. MOIGNO; with 20 woodcuts, cr. 8vo. (pp. 67), *sewn, 2s 6d* 1866
- 9374 ——— INTRODUCTION to MODERN CHEMISTRY, Experimental and Theoretic, with 65 woodcuts, post 8vo. *cl. (scarce), 10s 6d* 1865
- 9375 ——— A THICK PAPER COPY, *cl., with author's inscr. as below, 15s*
 'B. T. Duppa Esq. [F.R.S.] in token of the Author's sincere regards and in memory of the gratifying evening of April 28 1865.'—*Inscr. on flyleaf.*
 A work which led to great reforms in the teaching of chemistry.
- 9376 ——— On MAUVE and MAGENTA, with 3 coloured specimens of silk, 8vo. (pp. 16), *unbound, with author's inscr. to Sir E. Frankland, F.R.S., 3s* 1862
- 9377 ——— NOTE on the ACTION of HEAT on VALERIC ACID; with some Remarks on the Formule of the Alcohol-Radicals, 8vo. (pp. 14), *sewn, 3s* [c. 1850]
- 9378 ——— RESEARCHES regarding the MOLECULAR CONSTITUTION of the VOLATILE ORGANIC BASES, 4to. (pp. 39), *sewn (scarce), 6s 6d* 1850
 Containing the author's important investigations on amine bases, which were of great importance in the establishment of Gerhardt's theory of types.
- 9379 ——— Ueber eine SICHERE REACTION auf BENZOL, 8vo. (pp. 6), *sewn, with MS. note by the author, 3s* [Leipzig, 1845]

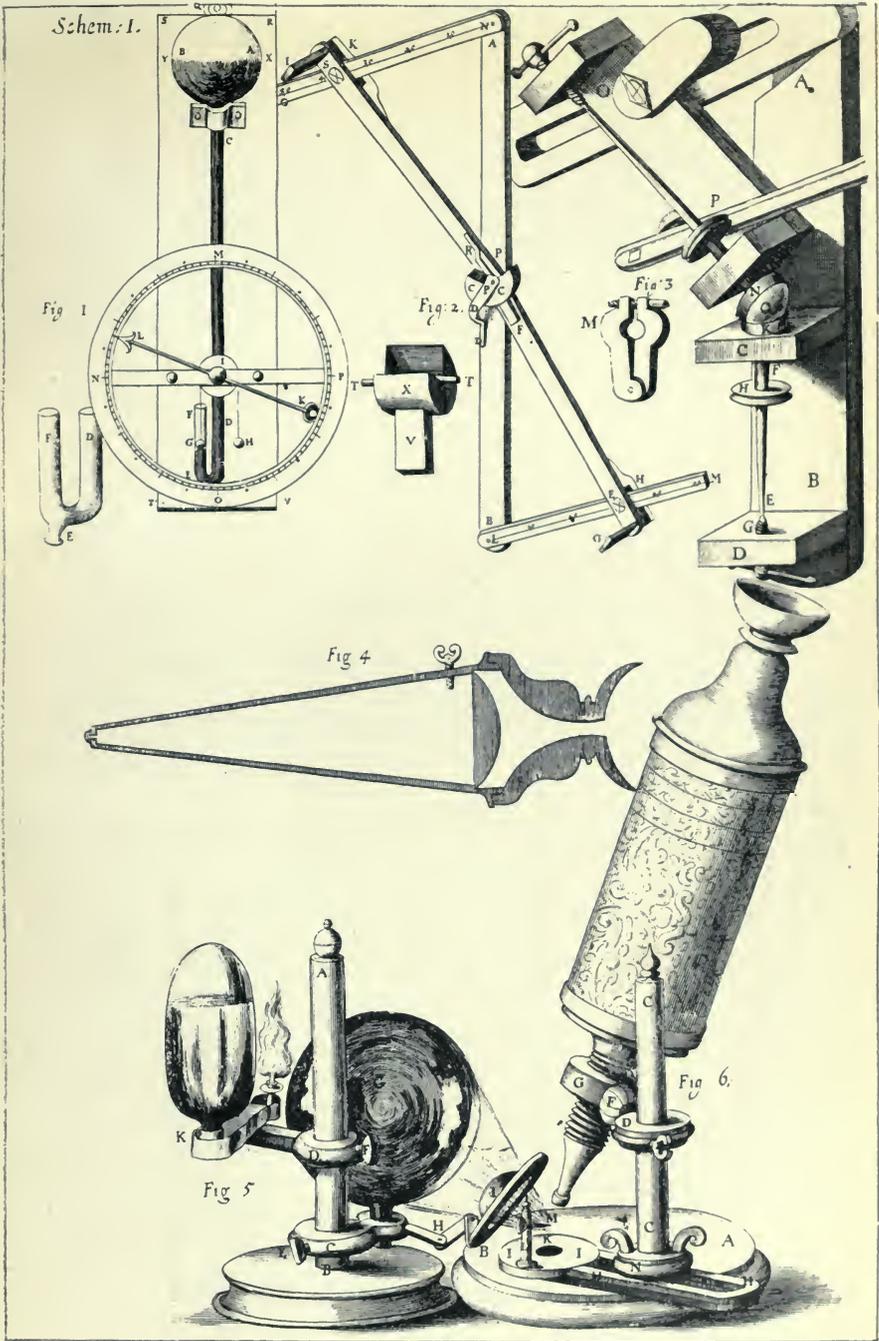
- 9382 **HOFMANN (August Wilhelm v.; F.R.S.)** RESEARCHES on the VOLATILE ORGANIC BASES, 5 parts 8vo. *sewn, pt. I with author's inscr.* (SCARGE), 12s 6d [1843-9]
 CONTENTS.—I. On the Action of Cyanogen on Aniline, Toluidine, and Cumidine. II. On the Action of Iodine on Aniline. III. Action of Chloride, Bromide, and Iodide of Cyanogen on Aniline. Melaniline, a New Conjugated Alkaloid: IV. Anilides. V. On the Action of Acids and Bases on Cyaniline.
 'His splendid work on aniline and its numerous derivatives, and on the addition products of this base (e.g. cyan-aniline) immensely enriched organic chemistry. These investigations resulted in the discovery of a wealth of new and striking facts, e.g. the observation of the influence exerted by halogens entering the aniline molecule on the chemical character of the resulting compounds.'—*Prof. E. v. Meyer.*
- 9383 ———, and Sir Edward FRANKLAND, F.R.S.: REPORT to the Metropolitan Board of Works on the DEODORIZATION of SEWAGE, 8vo. (pp. 16), *unbound*, 3s 1859
 This report formed the beginning of the fruitful bacteriological investigations of Sir E. Frankland.
- 9384 ———: VOLHARD (Jacob; *Univ. Halle*), and Emil FISCHER; *Univ. Berlin*: AUGUST WILHELM VON HOFMANN: ein Lebensbild, im Auftrage der Deutschen chemischen Gesellschaft verfasst; with 2 portraits, and other illustrations, 8vo. *handsomely bound in dark purple morocco gilt, silken linings and flyleaves*, 10s 6d *Berlin*, 1902
 The above copy belonged to Sir Maurice Holzmann, and contains a copy of a letter by him to Prof. J. Volhard, caused by a remark in the book by the latter, reflecting on the writer's ability as a chemical experimenter, and the reply to it by Prof. Volhard.
- 9385 ———: WILL (Wilhelm, *Univ. Berlin*) Zum GEDÄCHTNIS an A. W. v. HOFMANN: Trauerfeier der Universität am 22. Juni 1892, roy. 8vo. (pp. 17), *sewn, with author's inscr.*, 1s 6d [*Berlin*, 1892]
- 9386 **HOFMANN (Heinrich Oscar; Mass. Inst. Technology)** GOLD MILLING in the BLACK HILLS [of DAKOTA], with folding plate and 2 woodcuts, 8vo. *hf. calf neat*, 4s [Chicago, 1889]
 Bound up is: CATALOGUE of MINING MACHINERY by Messrs. Fraser and Chalmers, Chicago, copiously illustrated.
- 9387 ——— The METALLURGY of LEAD, and the DESILVERIZATION of BASE BULLION, 7th Impression: with 441 illustrations, including folding plates, 8vo. *cl.*, 16s 6d (p. £1. 5s nett) *New York*, 1904
- 9388 **HOFMANN (Carl)** PRACTICAL TREATISE on the MANUFACTURE of PAPER in all its Branches, with 5 folding plates, and 129 woodcuts, 4to. *cl.*, *uncut (name on title)*, 15s (p. £3. 13s 6d) *Philadelphia*, 1873
- 9389 **HOGG (Jabez; ophthalmic surgeon, F.L.S.)** The MICROSCOPE: its History, Construction, and Application; 6th Edition, with 8 coloured plates and 356 coloured woodcuts, thick cr. 8vo. *cl.*, 2s (p. 7s 6d) 1867
- 9390 ——— NEW [SEVENTH] EDITION [with Supplement], with 8 coloured plates, and 362 woodcuts, thick cr. 8vo. *cl.*, 2s 6d [1867]
- 9391 **HOGREWE (Johann Ludwig, königl. Grossbritt. Ingenieur-Capitain)** BESCHREIBUNG der in ENGLAND seit 1759 angelegten, und jetzt grösstentheils [sic] vollendeten SCHIFFBAREN KANÄLE, zur innern Gemeinschaft der vornehmsten Handelstädte, nebst einem Versuch einer GESCHICHTE der INLÄNDISCHEN SCHIFFFAHRT, und aller, bis jetzt, in- und ausserhalb Europa bekannten schiffbaren Kanäle; with vignette on title, and 10 folding copperplates, 4to. *contemporary mottled calf (fine copy); rare*, £1. 1s *Hannover*, 1780
 Published on the eve of the 'canal mania'. It contains full descriptions of the Bridgewater Canal, the Oxford-Lichfield, Trent-Mersey, Liverpool-Leeds, and Lincoln-Cambridge Canals.
- 9392 **HOLDEN (Col. Henry Capel Lofft; F.R.S.)**, DESCRIPTION of, and Instructions for WORKING, the CHRONOGRAPH of BOULENGÉ TYPE, as modified and improved by, and made by J. PITKIN, with 7 illustrations and folding plate, 8vo. *limp. cl.*, with *auto. letter from the author to F. J. Jervis-Smith, pr., F.R.S.*, 4s [c. 1892]
- 9393 **HOLDSWORTH (Israel)** WHITE'S EPHEMERES [sic] from 1801 to 1850; containing the Geocentric Longitudes and Latitudes of the Sun, Moon, and Planets, 12mo. *calf (rubbed)*, 3s 6d *Leeds*, 1850
- 9394 **HOLDSWORTH (Joseph)** GEOLOGY, MINERALS, MINES, and SOILS of IRELAND, in Reference to its Amelioration and Industrial Prosperity, with front. and vignette by Lizars, post 8vo. *cl.*, 3s 6d 1857
- 9395 **HOLLAND (James William, Jefferson Med. Coll., Philadelphia)** TEXT-BOOK of MEDICAL CHEMISTRY and TOXICOLOGY, with 8 coloured plates, and 108 woodcuts, thick 8vo. *cl.*, 7s 6d (p. 15s nett) *Philadelphia*, 1905
- 9396 [HOLLAND (John)] The HISTORY and DESCRIPTION of FOSSIL FUEL, the COLLIERIES, and COAL TRADE of GT. BRITAIN, by the Author of the 'Treatise on Manufactures in Metal', with 42 woodcuts, 8vo. *cl.*, *uncut*, 5s 6d 1835, or, '41
 With chapter on Foreign Coal Deposits and Coal Trade, Conversion and Products of Coal, and Probable Duration of our Coal. It is not mentioned among the author's works in D. N. B.
- 9397 [———] TREATISE on the PROGRESSIVE IMPROVEMENT and PRESENT STATE of the MANUFACTURES in METAL, with vignettes by Finden, and 300 woodcuts, 3 vols. fcap. 8vo. *hf. calf (nice copy)*, 6s 1831-4
- 9398 **HOLLANDUS (Johann Isaak)** SAMMLUNG unterschiedlicher bewährter CHYMISCHER SCHRIFTEN, namentlich: Opus Saturni, Opera Vegetabilia, Opus Minerale, Cabala, de Lapide Philosophico, nebst Tractat von den IRRGÄNGEN derer ALCHEMYSTEN, Auctoris Incerti, neue Auflage, mit Verzeichnüs derer wichtigsten Materien; with 16 copperplates, besides woodcuts, 8vo. *sewn, uncut (rare)*, 15s *Wien*, 1773
 Very little is known of this Dutch alchemist, who is supposed to have flourished at the end of the XIVth Century, and to have acquired great wealth in teaching his 'art'. According to Prof. H. Kopp he wrote more fully of the philosopher's stone than was the custom with the alchemists of the time.
 The above work includes also two works by Isaak Hollandus, the author's father, viz. Vegetabilia, and Opus Minerale.
- 9399 **HOLLEMAN (F. A.)** SPOORWEGREMME [CONTINUOUS BRAKES], with folding plate, 8vo. (pp. 23), *sewn*, 2s *z. p.*, 1891

- 9402 **HOLLEMAN** (Arnold Frederik, *Univ. Amsterdam*) TEXT-BOOK of INORGANIC CHEMISTRY, translated by HERMON C. COOPER, with 2 plates (1 coloured), and 84 woodcuts, 8vo. cl., 5s (p. 10s 6d nett) *New York*, 1902
- 9403 ——— TEXT-BOOK of ORGANIC CHEMISTRY, translated from the 2nd Dutch Edition by A. JAMIESON WALKER and OWEN E. MOTT, with 73 illustrations, 8vo. cl., 6s (p. 10s 6d nett) *ib.*, 1903 or, '6
- One of the best text-books on the subject.
- 9404 **HOLLIDAY** (Francis, *pr.*) INTRODUCTION to FLUXIONS, with 7 folding plates, 8vo. old calf, 6s 6d 1777
- Claiming to treat the subject by 'a plainer and more perspicuous method than has hitherto appeared.'
- 9405 **HOLLIDAY** (Thomas) COMPLETE TREATISE on PRACTICAL LAND-SURVEYING, etc., or, Railway Surveying, Artificial Work, Conic Sections, Gauging, etc. etc., with 20 copperplates and numerous woodcuts, 8vo. boards, 5s 1838
- 9406 **HOLLWAY** (John) On a NEW APPLICATION of RAPID OXIDATION, by which Sulphides are utilized for Fuel, with 2 folding plates, folio (pp. 37), sewn, 3s 1879
- 9407 **HOLMAN** (Silas W.) COMPUTATION RULES and LOGARITHMS, with Tables of other Useful Functions, roy. 8vo. cl. (o. p.), 5s *New York*, 1896
- 9408 **HOLMES** (—) MAGNETO ELECTRIC LIGHT as APPLICABLE to LIGHTHOUSES, with front. of the generator, 8vo. cl. (scarce), 10s 6d [c. 1863]
- Professor Holmes has practically established the fitness and sufficiency of the magneto-electric light for lighthouse purposes.—*Faraday*. It was first used at the South Foreland in 1858, and was the first application of the electric light in a lighthouse.
- Who was 'Professor Holmes'? He seems to have been a pioneer of practical frictional electricity in England, yet is not in any book of biographical reference.
- 9409 **HOLMES** (George C. V.) The STEAM ENGINE, with frontispiece and 212 woodcuts, thick cr. 8vo. cl., 2s 6d (p. 6s) 1887, or, '8
- 9410 **HOLMGREN** (Hjalmar) Sur l'INTÉGRATION de l'ÉQUATION DIFFÉRENTIELLE ($a_2 + b_2 x + c_2 x^2 \frac{d^2 y}{dx^2} + (a_1 + b_1 x) \frac{dy}{dx} + a_0 y = 0$, roy. 4to. (pp. 58), sewn, 2s 6d *Stockholm*, 1869
- 9411 **HOLTZAPFFEL** (Charles; M.I.C.E.) NEW SYSTEM of SCALES of EQUAL PARTS, applicable to various Purposes of ENGINEERING, etc., with folding plate of the Scales, 8vo. cl., with author's inscr. to, and bookplate of, Peter Mark Roget, F.R.S., 4s 1838
- 9412 ——— ANOTHER COPY, hf. calf, with author's inscr., 3s 6d
- The author's first work. At end is a Catalogue of Messrs. Holtzapffel & Co.'s Engines, Lathes, and Tools.
- 9413 ——— (—, and John Jacob) TURNING and MECHANICAL MANIPULATION: a Work of General Reference and Practical Instruction on the Lathe, and the various Mechanical Pursuits followed by Amateurs, with very numerous plates and woodcuts, 5 vols. 8vo. cl. (SCARCE), £3. 15s 1866-84
- CONTENTS:—I. Materials: their Differences, Choice, and Preparation; Various Modes of Working them, generally without Cutting Tools. II. The Principles of Construction, Action, and Application of Cutting Tools used by Hand, and of Machines derived from the Hand Tools. III. Abrasive and Miscellaneous Processes, which cannot be accomplished with Cutting Tools. IV. The Principles and Practice of Hand or Simple Turning. V. The Principles and Practice of Ornamental or Complex Turning.
- 9414 ——— VOLS. I—III ONLY, with hundreds of plates and woodcuts, 3 vols. 8vo. cl. (back of v. III torn), £1. 15s 1846-50
- The standard work on the subject. 'Holtzapffel throughout displays a masterly knowledge of technical art and of the scientific principles underlying it.'—*D. N. B.*
- 9415 **HOLZMÜLLER** (Gustav) EINFÜHRUNG in die THEORIE der ISOGONALEN VERWANDTSCHAFTEN und der CONFORMEN ABBILDUNGEN, mit Anwendungen auf mathematische Physik; with 26 plates, 8vo. sewn (o. p.), 8s 6d *Leipzig*, 1882
- 9416 ——— METHODISCHES LEHRBUCH der ELEMENTAR-MATHEMATIK (Bd. I 2. Auflage); with 512 illustrations, 3 vols. 8vo. cl., 4s (p. M. 8.20) *ibidem*, 1895-4-5
- 9417 **HOMASSEL** (M.; *chef des teintures de la manufacture des Gobelins*) COURS THÉORIQUE et PRATIQUE sur l'ART de la TEINTURE en Laine, Soie, Fil, Coton, Fabrique d'Indienne en Grand et Petit Teint; suivi de l'Art du Teinturier-Dégraisseur, du Blanchiment des Toiles, Fils, Coton, Chanvre, Lin, Gravures, etc., par l'Acide Muriatique Oxigéné; 3^{me} [dernière] Edition [par E. J. B. BOUILLON-LAGRANGE]; with plate, 8vo. calf gilt, g. e. (rare), 15s 1818
- 9418 **HOME** (Sir Everard, M.D., F.R.S.) CROONIAN LECTURE on MUSCULAR MOTION (1794)—v. No. 9201, ante.
- 9418 **HOME** (Francis, M.D., *Univ. Edin.*) EXPERIMENTS on BLEACHING, 8vo. sound copy in contemporary calf, with Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff (RARE), £1. 1s *Edin.*, 1756
- 'An essay to which a gold medal was awarded by the trustees for the improvement of manufactures in North Britain, and which was translated into French and German.'—*D. N. B.*
- 9419 **HOMER** (Henry, *rector of Birdingbury*) ENQUIRY into the MEANS of PRESERVING and IMPROVING the PUBLIC ROADS of this KINGDOM, with Observations on the probable Consequences of the present Plan, 8vo. sewn (rare), 10s 6d *Oxford*, S. Parker, 1767
- Macadam in his 'Remarks on the present System of Roadmaking' (pp. 11-12) quotes this work with approval. Homer's opinions on highways, the enclosure of waste-lands, and the value of inland navigation were far in advance of his time.'—*D. N. B.* He was the father of the classical scholar and friend of Dr. Parr.
- 9420 **HOGEWERFF** (J. A., U.S.N.) MAGNETIC OBSERVATIONS at the UNITED STATES NAVAL OBSERVATORY, 1888 and 1889, with 14 folding charts, 4to. cl., 5s *Washington*, 1890
- 9421 **HOGEWERFF** (S.) Ueber einige NEUE DERIVATE des MESITYLENS: Inaugural-Dissertation, 8vo. (pp. 48), sewn, 1s 6d *Göttingen*, 1868
- 9422 ———, en W. A. van Dorp: Over de INWERKING van ONDERBROMIGZUUR KALIUM op SUCCINPHENYLAMIDE, 8vo. (pp. 37), sewn, 1s 6d *Amsterdam*, 1890

- 9425 **HOLT** (Alfred, M.I.C.E.) REVIEW on the PROGRESS of STEAM SHIPPING during the last Quarter of a Century, edited by JAMES FORREST, with 3 illustrations, 8vo. *sewn*, 3s 1878
- 9426 **HOOD** (Charles, F.R.S.) PRACTICAL TREATISE on WARMING BUILDINGS by HOT WATER, on VENTILATION, etc. etc., with Inquiry into the Laws of Radiant and Conducted Heat, the Chemical Constitution of Coal, and the Combustion of Smoke; 2nd Edition, greatly enlarged, with woodcuts, 8vo. *cl.*, 3s 1844
- 9427 ——— THIRD EDITION, greatly enlarged, with 39 woodcuts, 8vo. *cl.*, 3s 6d 1855
- 9428 ——— FIFTH EDITION, greatly enlarged, with 64 woodcuts, 8vo. *hf. morocco*, 4s 6d 1879
- 9429 ——— SIXTH [LAST] EDITION, with 64 woodcuts, 8vo. *cl. (o. p.)*, 6s 6d (p. 12s 6d) 1885
- 9430 **HOOKE** (Robert, M.D., F.R.S., *Gresham Prof. Astronomy*) LECTURES de POTENTIA RESTITUTIVA, or of SPRING, explaining the Power of Springing Bodies, with some Collections, viz., a Description of Dr. Pappin's [*sic*] Wind-Fountain and Force Pump; Mr. Young's Observations concerning Natural Fountains; some other Considerations concerning that Subject; Capt. Sturmy's Remarks of a Subterraneous Cave and Cistern; Mr. G. T. Observations made on the Pike of Teneriff, 1674; some Reflections and Conjectures occasioned thereupon; a Relation of a late Eruption in the Isle of Palma, with 3 copperplates, and diagrams, sm. 4to. *old hf. calf (sound and large copy)*, with bookplate of Henry Thomas Ellicombe [Ellicombe], *pr.*, campanologist, and *auto.* of Prof. A. S. Herschel, F.R.S. (VERY RARE), £1. 10s John Martyn, 1678
- 'A very curious pamphlet, containing some remarkably close anticipations of modern theories.'—*Prof. Toti*. 'He expounded in it the true theory of elasticity [*ut tensio sic vis*] and (virtually) the kinetic hypothesis [now advanced to the rank of theory] of gases.'—*Miss Agnes M. Clerke*.
- 9431 ——— MICROGRAPHIA: or some Physiological Descriptions of Minute Bodies made by MAGNIFYING GLASSES, with Observations and Inquiries thereupon, with engraved arms of the Royal Society on title, and 38 fine copperplates (mostly folding), folio, *old calf* (VERY FINE AND TALL COPY), with *auto.* 'J. Finch' (? Sir John Finch, F.R.S., 1626-82) on title, and *old armorial bookplate* of E. S. & H. Lloyd (very rare), £4. 4s Jo. Martyn and Ja. Allestry, 1665
- 'A book full of ingenious ideas and singular anticipations. It contained the earliest investigation of the 'fantastical colours' of thin plates, with a quasi-explanation by interference, the first notice of the 'black spot' in soap-bubbles, and a theory of light, as 'a very short vibrative motion' transverse to straight lines of propagation through a 'homogeneous medium'. Heat was defined as 'a property of a body arising from the motion or agitation of its parts', and the real nature of combustion was pointed out in detail, eleven years before the publication of Mayow's similar discovery' (v. Nos. 1296-7, *ante*).—*Miss Agnes M. Clerke*.
- Besides being the first large work illustrating microscopical objects, all engraved by the author himself, it contains the invention of the compound microscope and of the wheel barometer, an explanation of the twinkling of the stars, important investigations on the refraction of light, and a passage first suggesting homogeneous immersion objectives for microscopes.
- 9432 ——— POSTHUMOUS WORKS, containing his Cutlerian Lectures, and other Discourses, read at the Royal Society, in which, I. The present Deficiency of Natural Philosophy is discoursed of, with the Methods of rendering it more certain and beneficial. II. The Nature, Motion and Effects of Light are treated of, particularly that of the Sun and Comets. III. An Hypothetical Explication of Memory . . . IV. An Hypothesis and Explanation of the Cause of Gravity, or Gravitation, Magnetism, etc. V. Discourses of Earthquakes, their Causes and Effects . . . VI. Lectures for improving Navigation and Astronomy, with the Descriptions of several new and useful Instruments and Contrivances . . . with the Author's LIFE . . . by RICHARD WALTER, F.R.S., with copperplates, folio, *large and sound copy in old panelled calf (joints mended)*; RARE, £2. 10s 1705
- In the above work the author 'inferred the action of a solar repellant force in producing the tails of comets; suggested the motion of the sun among the stars; and propounded correct notions as to the nature of fossils and the succession of living things on the earth.'—*D. N. B.*
- In the fourth essay he explains gravitation as a 'propagated pulse' of the ether. The fifth essay (pp. 277-450) is geologically of importance for first evolving the author's diluvial theory. A copious account of this discourse is contained in Sir Charles Lyell's 'Principles of Geology'.
- Waller's 'Life', which is partly autobiographical, is still the chief authority on the author's life.
- On p. 420 is the following curious MS. note, referring to the earthquake of July 23rd, 1690: 'This I observed, it was on a Saturday on 7 Afternoon, wa. I was talking wth. Queen Mary at Kensington, who thought yt. some of ye. house was fallen down, so strong was ye. shock. W. S.'
- 9433 **HOOPER** (Egbert G.) THE MANUAL OF BREWING: Scientific and Technical; 2nd Edition, with woodcuts, post 8vo. *cl.*, 3s (p. 7s 6d) 1882
- 9434 **HOOPER** (William, M.D.) RATIONAL RECREATIONS, in which the PRINCIPLES of NUMBERS and NATURAL PHILOSOPHY are clearly and copiously elucidated, by a Series of Easy, Entertaining, Interesting EXPERIMENTS, including those commonly performed with the CARDS, first edition, with 65 folding plates on copper, 4 vols. 8vo. *old calf*, 12s 1774
- 9435 ——— ANOTHER COPY, *old calf (some joints cracked)*, 10s 6d
- 9436 ——— THIRD EDITION, corrected, with 65 fine folding plates on copper, 4 vols. 8vo. *contemporary calf*, 12s 1787
- 9437 ——— FOURTH EDITION, corrected, with 65 folding plates on copper, 4 vols. 8vo. *old calf (some joints cracked)*, 10s 6d 1794
- 'Though this work is, in general, a compilation, some original experiments will be here found, and the whole, perhaps, will appear to be delivered with more perspicuity and concision, and digested in a manner more regular than has been hitherto attempted.'—*Advertisement*.
- 9438 **HOORWEG** (J. L.) Sur la PROPAGATION du SON, d'après la nouvelle Théorie des Gaz; with diagrams, 8vo. (pp. 47), *sewn*, 1s 6d [Utrecht, 1876]
- 9439 ——— TIEN VOORDRACHTEN over ELECTROTECHNIEK; with 30 woodcuts, 8vo. *cl.*, 2s 6d *ibidem*, 1895
- 9440 **HOOVER** (Herbert Clark) PRINCIPLES of MINING VALUATION, ORGANIZATION, and ADMINISTRATION: Copper, Gold, Lead, Silver, Tin, and Zinc, with 45 illustrations, roy. 8vo. *cl.*, 6s 6d (p. 10s 6d *nett*) New York, 1909
- 9441 **HOPKINS** (Evan, C.E.) On the CONNEXION of GEOLOGY with TERRESTRIAL MAGNETISM, with 24 plates, 8vo. *cl.*, 3s 6d 1844

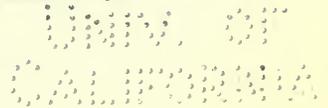
- 9443 **HOPKINS (George M.)** EXPERIMENTAL SCIENCE: Elementary, Practical, and Experimental Physics, *with front. and 672 woodcuts*, thick large 8vo. cl., 8s (p. 17s nett) [New York, 1890]
- 9444 **HOPKINS (William J.)** TELEPHONE LINES and their PROPERTIES, *with diagrams*, cr. 8vo. cl., 3s (p. 6s) 1893
- 9445 **HOPKINSON (Bertram; son of the following, F.R.S., M.I.C.E.)** VIBRATIONS of SYSTEMS having ONE DEGREE of FREEDOM, *with 12 diagrams*, 8vo. sewn, 2s Univ. Press, Cambridge, 1910
- 9446 **HOPKINSON (John, F.R.S.)** ELECTROSTATIC CAPACITY of GLASS, *with plate*, roy. 4to. (pp. 7), sewn, 2s 6d 1878
- 9447 ——— ON HIGH ELECTRICAL RESISTANCES, 8vo. (pp. 3), *unbound*, 1s 6d 1879
- 9448 ——— MAGNETIC and other PHYSICAL PROPERTIES of IRON at a HIGH TEMPERATURE, *with 9 plates (1 folding), and woodcuts*, 4to. (pp. 23), *sewn*, 3s 6d 1889
- Containing the results of valuable experiments for which he was awarded in 1890 a Royal Society's medal.
- 9449 ——— ORIGINAL PAPERS. VOL. I: TECHNICAL PAPERS, edited, with Memoir [and Appendix], by BERTRAM HOPKINSON; F.R.S., *with 2 portraits, and numerous diagrams*, 8vo. cl. (*cover stained*), 6s 6d (p. 10s 6d nett) Univ. Press, Cambridge, 1901
- Containing his important paper on the dynamo, giving the characteristic curves, his invention of group-flashing lights, etc. etc.
- 9450 ——— RESIDUAL CHARGE of the LEYDEN JAR. DIELECTRIC PROPERTIES of DIFFERENT GLASSES, roy. 4to. (pp. 28), *sewn*, 3s 1877
- 'A valuable series of experiments.'—*D. N. B.*
- 9451 **HOPKINSON (J.) and Co.:** The ENGINEER'S PRACTICAL GUIDE, and the WORKING of the STEAM ENGINE explained by the Use of the INDICATOR; 7th Edition, *with 49 diagrams*, 8vo. hf. bound, 3s 6d (p. 12s 6d) Huddersfield, 1875
- 9452 **HOPPE-SEYLER (Ernst Felix Immanuel; Univ. Strassburg)** PHYSIOLOGISCHE CHEMIE; *with numerous woodcuts*, 4 vols. 8vo. in 1, hf. red morocco (*scarce*), 15s (p. M. 25.40 sewn) Berlin, 1877-81
- INHALT:—I. Allgemeine Biologie; II. die Verdauung und Resorption der Nährstoffe; III. Blut, Respiration, Lymphe, Chylus; IV. die Organe des Thierkörpers und ihre Functionen, der Gesamtstoffwechsel der Thiere.
- 'Die physiologische und pathologische Chemie verdanken ihm eine grosse Reihe wichtiger und bahnbrechender Forschungen. Es seien besonders seine Untersuchungen über die Eigenschaften der Blutfarbstoffe und Eiweissstoffe, die Zusammensetzung der Protoplasmen, die Aktivierung des Sauerstoffs, die Gärungsprocesse u. a. hervorgehoben.'
- 9453 **[HOPPE (John, F.R.S., Prof. Philos. Univ. Coll. London)]** ACCOUNT of LORD BACON'S NOVUM ORGANON SCIENTIARUM, or, New Method of Studying the Sciences, 2 parts in 1 vol. 8vo. limp cl. (*scarce*), 5s [1827]
- 9454 ——— ANOTHER COPY, *sewn*, 4s
- The authorship was unknown to Halkett and Laing.
- 9455 **HOPTON (Arthur, astrologer)** A CONCORDANCY of YEARES; containing a new, easie, and most exact COMPUTATION of TIME, according to the English Account; also the USE of the English and Roman KALENDER, with briefe Notes, Rules and Tables, as well Mathematicall and Legal, as Vulgar, for each private Mans occasion, newly composed, digested, and augmented. *with fine woodcut border on title, and astrological woodcuts*, 12mo., black letter; *old calf, rebounded (some ll. stained, and title mounted)*; rare, with the l. of imprint at end, £1. 10s
- for the Company of Stationers, 1616
- One of the many astrological and prophetic almanacks of which the Stationers' Company long exercised an undignified monopoly, and whose revival now for the befooling of the ill-educated female rich would soon make it a wealthy rival of the Bond Street sand-diviners.
- Arthur Hopton the astrologer must not be confused with his contemporary Sir Arthur Hopton the diplomatist. The above work is dedicated to Sir Edward Coke, and includes a briefe discourse of the naturall causes of watery meteors, as snow, hail, raine, etc.; divers signes to prognosticate what weather is towards; certaine predictions of the weather in every Moneth, etc. etc. etc.
- 'This work is mentioned by the commentators on Shakespeare.'—*Allibone*. A copy of the above edition fetched £3. 10s at auction in 1903.
- 9456 ——— SPECULUM TOPOGRAPHICUM: or the TOPOGRAPHICAL GLASSE, containing the Use of the Topographall Glasse, Theodelitius, Plaine Table and Circumferentor, with many Rules of Geometry, Astronomy, Topography perspective, and Hydrography, partly printed in black letter, *with very numerous woodcuts (one folding) of topographical instruments, maps, and diagrams*, sm. 4to. *contemporary calf, newly rebounded (blank bottom margins water-stained, and a few wormed, otherwise A LARGE AND VERY SOUND COPY)*; VERY RARE, £3. 15s
- N. O. for Simon Waterson, 1611
- 'Containing many good practical rules in geometry, measurement of distances, heights, sun's altitude and parallax, and a table for calculating annuities.'—*D. N. B.*
- On page 3 is a map of the World, showing NORTH and SOUTH AMERICA and 'New Guiena.' The above copy also contains at end one leaf Ee, giving a duplicate illustration of the 'topographall glasse,' and the maker's name.
- Anthony à Wood mistakenly ascribes the above work to Sir Arthur Hopton, the Ambassador to Spain.
- 9457 **HORNBY (John)** TEXT-BOOK of GAS MANUFACTURE for Students, *with 8 folding plates, and 63 woodcuts*, cr. 8vo. cl., 2s (p. 5s) 1896
- 9458 ——— SIXTH [LATEST] EDITION, greatly enlarged and rewritten, *with 7 folding plates, and 140 other illustrations*, 8vo. cl., 5s (p. 7s 6d nett) 1911
- 9459 **HORNBY (Thomas)** DISSERTATION on LIME, and its Use and Abuse in Agriculture; embracing its Chemical Effects, and Observations on the Nature of Manures in General; 3rd Edition, 8vo. hf. calf, 4s 1821
- 9460 **HORNE (John, F.R.S.), and Jethro Justinian Harris TEALL, F.R.S.:** On BOROLANITE, *with 2 plates (1 coloured)*, roy. 4to. (pp. 16), *sewn*, 1s 6d Edin., 1892
- HORNER (Francis, M.P.)**—*v. nos.* 2889 and 7682, *ante*.
- 9461 **[HORNER (J. G.)]** HELICAL GEARS; a Practical Treatise, by a FOREMAN PATTERN-MAKER, *with over 100 woodcuts (including plates)*, post 8vo. cl., 3s (p. 7s 6d) 1893

- 476 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9464 [HORNOT (Antoine)] TRAITÉ des ODEURS, Suite du Traité de la Distillation, par M. Déjean, Distillateur, nouvelle Édition, 12mo. *old mottled calf gilt*, 10s 6d 1788
- 9465 [——] TRAITÉ RAISONNÉ de la DISTILLATION ; ou la Distillation réduite en Principes, avec un TRAITÉ des ODEURS, par M. DÉJEAN, Distillateur, 12mo. *old calf gilt (rare)*, 12s 6d 1753
First edition of a well-known work, which went through several editions.
- 9466 HORTON (Frank) On the DISCHARGE of NEGATIVE ELECTRICITY from HOT CALCIUM and from LIME, with 5 diagrams, roy. 4to. (pp. 22), *sewn*, 1s 6d 1907
- 9467 HORTON (Richard) THE COMPLETE MEASURER: the Measurement of Boards, Glass, Timber, and Stone, cr. 8vo. *cl.*, 2s 6d (p. 6s) 1862
- 9468 HOSKOLD (H. D., C.E.) THE ENGINEER'S VALUING ASSISTANT: a Practical Treatise on the Valuation of Collieries and other MINES ; with Rules, Formulæ, and Examples, Valuation Tables, etc. etc., with Introduction by PETER GRAY, 2nd Edition, 8vo. *cl.*, 5s (p. 7s 6d nett) 1905
- 9469 ——— PRACTICAL TREATISE ON MINING, LAND and RAILWAY SURVEYING, ENGINEERING, etc., containing the Errors of the Magnetic Needle; Practical Geometry and Trigonometry; with Description, Use, and Adjustments of the MINERS' new TRANSIT THEODOLITE, etc. etc., with 2 plates, 8 folding plans, and 74 woodcuts, roy. 8vo. *cl.*, 7s 6d (p. £1. 10s) 1863
- HOSPITALIER (Édouard, de l'Institut), An INTERESTING and VALUABLE COLLECTION on ELECTRICAL SCIENCE formed by, and consisting of SMALLER WORKS, BROCHURES, EXTRACTS from SCIENTIFIC PERIODICALS, MANUFACTURERS' CATALOGUES, MANUSCRIPTS, and his copious CORRESPONDENCE with Scientists and Electricians, chiefly in FRENCH and ENGLISH, all arranged, dated, and sorted by M. Hospitalier himself ; as under :—
- 9470 ACCUMULATEURS: THÉORIE. RÉSULTATS d'EXPÉRIENCES. APPAREILS ACCESSOIRES ; a very extensive Collection, including many LEGAL DOCUMENTS of Patent Cases, CORRESPONDENCE from and with the various Inventors, etc. etc., £5. 5s *a. d.*
- 9471 AÉRODYNAMIQUE: AÉRONAUTIQUE. ANÉMO-MOTEURS. MOULINS à VENT. RÉSISTANCE de l'AIR. ACOUSTIQUE. AIR LIQUIDE. LIQÉFACTION des GAZ. BASSES TEMPÉRATURES. APPAREILS FRIGORIFIQUES ; a large and interesting Collection, £3. 3s *a. d.*
- 9472 ARC ÉLECTRIQUE: LAMPES à ARC. LUMIÈRE ÉLECTRIQUE. ARC VOLTAÏQUE, REGULATEURS. FOYERS LUMINEUX ÉLECTRIQUES. CURIOSITÉS de la LAMPISTERIE ÉLECTRIQUE ; a very large and interesting collection, £4. 4s *a. d.*
- 9473 CHALEUR. THERMODYNAMIQUE: CONSTANTES THERMIQUES. MOTEURS THERMIQUES. THERMOMÉTRIE, PYROMÉTRIE, CALORIMÉTRIE. ENTROPIE ; a large and interesting collection, containing interesting Correspondence, and a manuscript 'Essai sur l'Analogie des Lois Thermiques et Électriques' by Hospitalier, £4. 4s *a. d.*
- 9474 COMPTEURS d'ÉLECTRICITÉ: GÉNÉRALITÉS, CLASSIFICATION. COMPTEURS pour la DISTRIBUTION d'ÉNERGIE ÉLECTRIQUE. COMPTEURS de QUANTITÉ d'ÉLECTRICITÉ (Compteurs Électrolytiques. Compteurs Mécaniques). COMPTEURS d'ÉNERGIE Électrique. MESURES ÉLECTRIQUES ; a large and very valuable Collection, containing a large amount of MS. and Official Matter, Correspondence with Inventors, etc., £8. 8s *a. d.*
- 9475 CONDUCTEURS et RÉSISTANCE d'ÉLECTRICITÉ: CONDUCTEURS, ISOLANTS, DIÉLECTRIQUES. CANALISATION de l'ÉNERGIE ÉLECTRIQUE ; a large and interesting Collection, £2. 2s *a. d.*
- 9476 ÉCLAIRAGE au GAZ: FABRICATION et ÉPURATION. Acétylène ; a large and very interesting Collection, containing much MS. matter and correspondence on the Welsbach Light, £3. 3s. *a. d.*
- 9477 GAZOGÈNES, THERMOGÈNES et VAPORIGÈNES: COMBUSTION, COMBUSTIBLES. SURCHAUFFEURS. ALUMINOTHERMIE. MOTEURS THERMIQUES. MOTEURS à VAPEUR. CONDENSATION. CHAUDIÈRES à VAPEUR ; a very large Collection, £3. 3s *a. d.*
- 9478 LOCOMOTION ÉLECTRIQUE: HISTORIQUE, CLASSIFICATION. EFFORTS de TRACTION. FREINAGE. TRAMWAYS. ACCUMOBILES ; a very extensive and important Collection, especially on Electric Tramways, £7. 7s *a. d.*
- 9479 ———: CHEMINS DE FER (Locomotive Autonome. Locomotive Heilmann). CHEMINS MOBILES. TELPHERAGE. TOUAGE. NAVIGATION ÉLECTRIQUE ; an extensive Collection, £1. 15s *a. d.*
- 9480 MAGNÉTISME: THÉORIES. AIMANTS PERMANENTS. MESURES MAGNÉTIQUES (Perméabilité. Induction. Hystérésis. Mesures des Flux. Champs Magnétiques). PROPRIÉTÉS MAGNÉTIQUES des FERS et des ACIERS, du NICKEL, BISMUTH, COBALT, etc. APPLICATIONS ÉLECTRO-MAGNÉTIQUES ; a very large collection, consisting mainly of Contributions to English Scientific Journals, £2. 12s 6d *a. d.*



No. 9431 (page 474).-

One of the most suggestive works in the history of science, containing inter alia the discovery of the compound microscope.



Speculum Topographicum :

OR THE

Topographicall Glaffe.

Containing

Topographicall Glaffe.

Theoric of the

Plaine Table, and
Circumferentor.

With many Rules of Geometry, Astronomy, Topogra-

phy, perspective, and Hydrography.

Newly set forth by Arthur Hopton Gentleman.

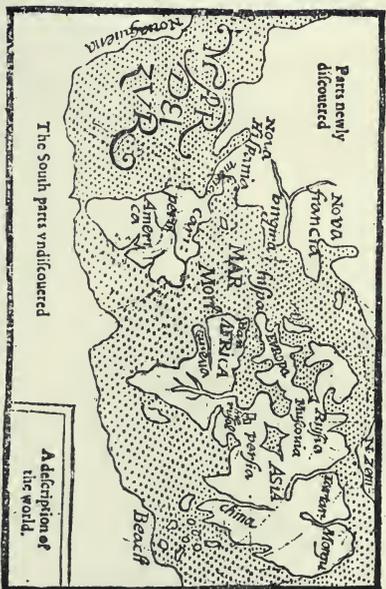


Printed at London by N. O. for Simon Waterson, dwelling at the
figue of the Crowne in Pauls Church-yard. 1611.

CHAP. I. The Topographicall Glaffe.

partes differing from Topography, because it respecteth but places
of note, and from Cosmography, because it hath no relation to
to the circles in the sphaere, onely describing the world by his,
rivers, and therfore Geography may serve best for a general de-
scription of particular places, rivers, &c. in the world.

A Demonstration of Geography.



As Asian faith, but may well gather that Cosmography is,
by the base estimatione of the world. It is therefore, a description
of the world, which both consist of the foure Elements, and also
of the Sunne, Moone, and all the other heaues both crati-
call and fixed, with all things else that be contained within the
compasses of the heaues.

First of all, it hath respect unto the circles, which are ima-
gined in the celestiall sphaere: and such like circles be appointed or
imagined upon the earth, also it both demonstretate the fire, fume,
tear, or commentation of places, the diuersity of climates, the
differences of daies and nights the foure quarters of the world,
the motion, rising, and setting of the Starres, both such as are

known

No. 9456 (page 475).

An account of surveying instruments, with an early map of America.

HOSPITALIER COLLECTION, *continued* :—

- 9482 **MÉCANIQUE APPLIQUÉE**: GÉNÉRALITÉS, QUESTIONS THÉORIQUES: ORGANES de MACHINES (Amortisseurs, Organes Mobiles). RÉGULATEURS. TRANSMISSIONS. UNIFICATION des FILETAGES. CINÉMATIQUE. ACCOUPLEMENTS. ROUEMENTS; a very large and interesting Collection, including much MS. Matter, £4. 4s *a. d.*
- 9483 **MESURES ÉLECTRIQUES**. DÉCISIONS LÉGALES. ÉTALONS. DÉCIMALISATION des UNITÉS de TEMPS. SYSTÈME MÉTRIQUE. DOCUMENTS relatifs à l'UNIFICATION. SUR l'UNIFICATION du LANGAGE et des NOTATIONS TECHNIQUES. CONGRÈS INTERNATIONAUX d'ÉLECTRICITÉ 1889. 1893. 1900. 1904; a very interesting and most extensive Collection, containing a large amount of MS. Matter, including M. Hospitalier's Correspondence, £5. 5s *a. d.*
- 9484 **TURBINES à VAPEUR**: GÉNÉRALITÉS: TURBO-DYNAMOS. TURBINE PARSONS. TURBINE CURTIS. TURBINE RATEAU; a large Collection, £1. 15s *a. d.*
- 9485 ——— DOMESTIC ELECTRICITY for AMATEURS, translated, with Additions, by C. J. WHARTON, with front. and 155 woodcuts, 8vo. cl. (o. p.), 3s (p. 6s) 1889
Containing descriptions of ingenious electric toys, most of which are now forgotten.
- 9486 ——— The MODERN APPLICATIONS of ELECTRICITY, translated and enlarged by JULIUS MAIER, with 2 plates, and 169 woodcuts, 8vo. cl., or, hf. morocco, 3s (p. 16s) 1882
- 9487 ——— SECOND [LAST] EDITION, with many Additions, with 429 woodcuts (including folding plates), 2 vols. 8vo. cl., 6s 6d (p. £1. 5s) 1883
- 9488 ——— POLYPHASED ALTERNATING CURRENTS [with Appendixes on the Lauffen-Frankfort Transmission], with 31 illustrations, cr. 8vo. hf. morocco, 2s 6d [1893]
- 9489 ——— LES PRINCIPALES APPLICATIONS de l'ÉLECTRICITÉ; with 4 plates, and 133 woodcuts, roy. 8vo. cl. extra, g. e., 3s 1881
- 9490 ——— TRAITÉ ÉLÉMENTAIRE de l'ÉNERGIE ÉLECTRIQUE, TOME I (seul paru): Définitions, Principes, Lois Générales, et Applications à la Mesure; with 258 woodcuts, large 8vo. hf. calf gilt, uncut, t. e. g., 6s (p. F. 12 sewn) 1890
- 9491 **HOTCHKISS SYSTEM** (The) of RAPID-FIRING GUNS: Descriptions and Illustrations of the Guns, Ammunition, Mounts and Carriages, as designed for the Naval and Military Services, with Firing Tables and Penetration Diagrams, as determined by Official Tests, with 34 plates (including fine phototypes), roy. 4to. hf. olive morocco neat, 15s privately printed, 1887
- 9492 **HOUDAILLE (Le Capitaine)** Sur une MÉTHODE d'ESSAI Scientifique et Pratique des Objectifs PHOTOGRAPHIQUES et des INSTRUMENTS d'OPTIQUE; with folding plate and 31 illustrations, roy. 8vo. sewn, 1s 6d 1894
- 9493 **HOUËL (Jules, Univ. Bordeaux)** THÉORIE ÉLÉMENTAIRE des QUANTITÉS COMPLEXES; with 83 diagrams, 2 v., '67-74: **Le Besgue (V. A.)** INTRODUCTION à la THÉORIE des NOMBRES, '62—3 vols. roy. 8vo. in 2, hf. calf gilt, with bookplate of Prof. H. W. Lloyd Tanner, F.R.S. (SCARCE), £1. 11s 6d 1862-74
- CONTENU de HOUËL: I. Algèbre des Quantités Complexes: II. Théorie des Fonctions Uniformes: III. Théorie des Fonctions Multiformes: IV. Applications Géométriques de la Théorie des Quantités Complexes. Éléments de la Théorie des Quaternions.
- 9494 **HOUGHTON (Thomas)** The GOLDEN TREASURY: or, the COMPLEAT MINOR [*sic*]; being Royal Institutions, or Proposals for Articles to Establish and Confirm LAWS, LIBERTIES, and CUSTOMS of SILVER and GOLD MINES, to all the King's Subjects, in such Parts of AFRICA and America, which are now, or shall be annexed to, and dependant on the Crown of England; with Rules, Laws and Methods of Mining, and Getting of PRECIOUS STONES; the Working and Making of Salt-Peter; and also, the Digging and Getting of Lead, Tin, Copper, and Quick Silver-Oars, 18mo. contemporary calf, neatly rebacked (somewhat browned); RARE, £1. 5s
printed for the Author, 1699
- 'Houghton is valuable for the laws relating to mines, and his explanation of the miners' terms, etc.—*Lowndes*.
- 9495 **HOULLEVIGUE (Louis, Univ. Marseilles)** The EVOLUTION of the SCIENCES, translated from the French, 8vo. cl., t. e. g., 4s (p. 6s 6d nett) 1909
- 9496 **HOUTEN (Willem van)** DE BALANS of WEEGSCHAAL; hare Wijze van Zamenstelling, Werking, Vermogen, Zuiverheid, en de Oorzaken van Onzuiverheid; with folding plate, feap. 8vo. sewn, 3s 6d [Rotterdam, 1827]
- 9497 **HOUZEAU (Jean Charles; Directeur de l'Observatoire de Bruxelles), et Albert LANCASTER, Bibliothécaire de cet Établissement**: BIBLIOGRAPHIE GÉNÉRALE de l'ASTRONOMIE, ou Catalogue méthodique des Ouvrages, des Mémoires, et des Observations astronomiques publiés depuis l'Origine de l'Imprimerie jusqu'en 1880; with chart, 2 very thick vols. impl. 8vo. newly bound in hf. green morocco gilt, cl. sides, uncut, t. e. g., WITH AUTHOR'S INSCRIPTION as below, £9. 9s *Bruxelles, 1887-9-2*
- 'A. Monsieur Jenatzky, Chef de division au Ministère de l'Agriculture, hommage des auteurs. J. C. HOUZEAU. A. LANCASTER.—*Inscr. on title of v. I, 1.*
- 9498 ——— TOME I^{ER}, 1^{RE} PARTIE (Ouvrages Historiques, Astrologie), et TOME IIND (Mémoires); with chart, 2 vols. impl. 8vo. in 3, hf. calf gilt, £7. 10s *ibidem, 1882-7*
- The most important bibliography on the subject, the second volume of which is now out of print and excessively scarce. It contains in Vol. I, 1, an interesting Introduction on the History of Astronomy by M. Houzeau (pp. 310), and a Bibliography of Astrology; in Vol. I, 2: Biographies et commerce épistolaire; ouvrages didactiques et généraux; Astronomie sphérique; Astronomie théorique; in Vol. II: Mémoires et Notices insérées dans les Collections académiques et les Revues. A proposed third part of vol. I, and vol. II, have never been published.
Pp. 1272-1310 of vol. I contain probably the best bibliography of books and old MSS. on dialling.

- 478 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9500 **HOUSTON** (Edwin James) DICTIONARY of ELECTRICAL WORDS, TERMS, and PHRASES, illustrated, sq. cr. 8vo. (pp. 656), *cl.*, 2s 6d (p. 10s 6d) *New York*, 1889
- 9501 —, and Arthur Edwin KENNELLY: ELECTRO-DYNAMIC MACHINERY for CONTINUOUS CURRENTS, with 232 illustrations, 8vo. *cl.*, 4s (p. 10s 6d nett) *ibidem*, 1899
- 9502 **HOVENDEN** (Frederick, F.L.S.) A STUDY of the PRINCIPLES of NATURE, with 51 plates and other illustrations, 8vo. *cl.*, 3s (p. 6s) 1909
- 9503 — WHAT is HEAT? a Peep into Nature's most Hidden Secrets, with 94 woodcuts, 8vo. *cl.*, 5s (p. 15s) 1894
- 9504 — WHAT is LIFE? or where are we? what are we? whence did we come? and whither do we go? 3rd Edition, with Appendix, illustrated, 8vo. *cl.*, 3s (p. 6s) 1909
- 9505 **HOW** (Henry; *King's Coll., Windsor, Nova Scotia*) On the ACTION of HALOGEN COMPOUNDS of ETHYL and AMYL on some VEGETABLE ALKALOIDS, 4to. (pp. 22), sewn, with *inscr.* to Sir E. Frankland, F.R.S., 3s *Edin.*, 1854
- 9506 — On the OCCURRENCE of NATRO-BORO-CALCITE with GLAUBER SALT in the GYPSUM of NOVA SCOTIA, 8vo. (pp. 8), sewn, 1s 6d *ib.*, 1857
- 9507 [HOWARD (Hon. Edward)] REMARKS on the NEW PHILOSOPHY of DES-CARTES, done by a GENTLEMAN, 4to. *old calf gilt*, 4s 1700
- 9508 **HOWARD** (John) TREATISE on SPHERICAL GEOMETRY, containing its Fundamental Properties; the Doctrine of its Loci; the MAXIMA and MINIMA of SPHERICAL LINES and AREAS: with Application, 7 folding plates, 8vo. *hf. calf (rare)*, 12s 6d *Newcastle-on-Tyne*, 1798
- The author was son of a private soldier in Fort George, and was a self-taught mathematician, while working as a cork-cutter, carpenter, and flax-dresser.
- 'His reputation as a mathematician rests mainly on the 'Treatise on Spherical Geometry.' When discussing some loci of spherical angles and triangles, and certain lines drawn on spherical and cylindrical surfaces, the author notes many analogies between the properties of lines meeting on the surface of the sphere and those drawn to meet a plane circle.'—D. N. B.
- 9509 **HOWARD** (John Eliot, F.R.S.; *quinologist*) EXAMINATION of the BELFAST ADDRESS of the BRITISH ASSOCIATION, 1874, from a Scientific Point of View, 8vo. sewn, 1s 6d 1875
- Directed against Prof. Tyndall (*v. No. 4971, ante*).
- 9510 **HOWARD** (Luke, F.R.S.; *friend of Goethe and John Dalton*) The CLIMATE of LONDON, deduced from Meteorological Observations made at different Places in the Neighbourhood of the Metropolis, first edition, with 6 plates (2 folding), and woodcuts, 2 vols. 8vo. boards, uncut (SCARCE), 10s 6d 1818-20
- 9511 — ANOTHER COPY, boards, uncut, with *inscr.* 'To Josiah Foster with the Author's kind Regard. Fifth Month 31. 1818' on title, 12s
- 9512 — SECOND [LAST] EDITION, much enlarged and improved, in which the Observations are continued to 1830, with 9 plates (2 folding), and numerous woodcuts, 3 vols. 8vo. *cl.* (SCARCE), 17s 6d 1833
- 'In 1806 Howard began to keep a meteorological register, and published the result of his observations in his 'Climate of London'. His instruments were, from a modern point of view, rude and insufficient; but for the early years of the century his are almost the only observations that have been preserved.'—D. N. B.
- 9513 — A CYCLE of EIGHTEEN YEARS in the SEASONS of Gt. BRITAIN; deduced from Meteorological Observations at Ackworth, Yorks., 1824-41; compared with others before made for a like Period (ending with 1823) in the Vicinity of London, with 5 plates, 8vo. *cl.*, 5s 6d 1842
- An elaboration of the author's theory, first mentioned in his 'Climate of London', in 1818, of 'alternate periods of 7 and 10 years, the former ascending, the latter descending in the scale of heat.' It was Giuseppe Toaldo (*v. Nos. 4868-9, ante*) who first suggested the 18 years' cycle.
- 9514 — ESSAY on the MODIFICATIONS of CLOUDS, 8vo. *cl.* (scarce), 6s 6d 1832
- 'This essay gave him a scientific fame. It applies the methods of Linnaeus to the varying forms of the clouds. The author defines their three chief modifications, which he names Cirrus, Cumulus, and Stratus, and four intermediate or compound modifications, the best known of which is the Nimbus or rain-cloud. These names have been generally adopted by meteorologists.'—Thomas Hodgkin, D.C.L.
- 9515 — PAPERS on METEOROLOGY, relating especially to the CLIMATE of BRITAIN, and to the VARIATIONS of the BAROMETER, with 9 charts, 2 parts in 1 vol. roy. 4to. *cl.*, 7s 6d 1854-50
- 9516 — SEVEN LECTURES on METEOROLOGY; 2nd Edition, carefully revised by the Author, with woodcuts, fcap. 8vo. *cl.*, uncut, with author's *inscr.*, 5s 1843
- 9517 **HOWE** (Herbert Alonzo; *Chamberlin Observatory, Denver, Colo.*) THREE APPROXIMATE SOLUTIONS of KEPLER'S PROBLEM, 8vo. (pp. 6), sewn, 1s 6d *s. l. aut a.*
- 9518 **HOWE** (Henry Marion, *Columbia Univ.*) The METALLURGY of STEEL, VOLUME I (all published); 2nd Edition, enlarged, with 2 folding plates, and 230 other illustrations, folio, *cl.* (o. p.), £1. 10s (p. £2. 2s nett) *New York* [1904]
- 'This is the recognized standard authority on the metallurgy of the Bessemer and crucible steel processes, and upon the properties of steel as far as they were known and understood at the time when this book was written. It will long remain a classic.'—B. Stoughton.
- 9519 **HOWLETT** (Samuel Burt) DIRECTIONS for using ANEROID and MERCURIAL BAROMETERS in determining ALTITUDES, with Table and Examples, *front.*, fcap. 8vo. (pp. 15), sewn, 2s 6d 1859
- 'He made improvements in the mountain barometer, and also invented an anemometer.'—D. N. B.
- 9520 **HOWORTH** (Sir Henry Hoyle; F.R.S.; *Conservative politician; "Quarterly" reviewer; historian of the Mongols*) The GLACIAL NIGHTMARE and the FLOOD: a Second Appeal to Common Sense from the Extravagance of some recent Geology, 2 vols. 8vo. *cl.*, 8s 6d (p. £1. 10s) 1893
- 9521 **HOYER** (Egbert v., *Munich*) LEHRBUCH der vergleichenden MECHANISCHEN TECHNOLOGIE; with 4 plates and 561 woodcuts, large 8vo. *hf. brown morocco*, 3s 6d (p. M. 20 sewn) *Wiesbaden*, 1878
- 9522 **HUBERT** (Herman) UTILISATION DIRECTE des GAZ de HAUTS-FOURNEAUX pour la Production de la Force Motrice, 8vo. (pp. 57), sewn, 1s 6d *St.-Etienne*, 1900

- 9524 **HUBBARD (T. O'B.)**, **J. H. LEDEBOER**, and **C. C. TURNER**: The AEROPLANE: an Elementary Text-Book of the Principles of Dynamic Flight, with 4 plates and 35 diagrams, post 8vo. *cl.*, 2s 1911
- 9525 [**HUDDART (Capt. Joseph; Indian Navy; F.R.S.; Elder Brother of Trinity House)**] REPORTS on WARM REGISTERED CORDAGE, manufactured by Messrs. Huddart & Co., Limehouse, 8vo. (pp. 29), *sewn*, 5s 1815
The accident of a cable parting had turned his attention to the faulty manufacture of rope, and he invented a method for the equal distribution of the strains on the yarns.—D. N. B.
- 9526 **HUDSON (John Rogers)** TABLES for CALCULATING the CUBIC CONTENTS of EXCAVATIONS and EMBANKMENTS, third [latest] Edition, with 9 diagrams, 8vo. *cl.*, 3s (p. 4s 6d nett) *New York*, 1902
- 9527 **HUDSON (Ronald William Henry Turnbull)** The ANALYTIC THEORY of DISPLACEMENTS, 8vo. (pp. 21), *sewn*, 1s 6d *New York*, 1903
The author had a brilliant mathematical career and became a Fellow of St. John's College, Cambridge, but was killed in rock-climbing in Wales in 1904 in his twenty-ninth year.
- 9528 **HUGGINS (Sir William, P.R.S., spectroscopic astronomer)** On COMETS, with front., etc., 8vo. (pp. 11), *sewn*, 1s 6d 1882
- 9529 ——— PRELIMINARY NOTE on the PHOTOGRAPHIC SPECTRUM of COMET *b* 1881, with plate, 8vo. (pp. 3), *unbound*, 1s 6d 1881
- 9530 [———] RESULTS of some OBSERVATIONS on the BRIGHT GRANULES of the SOLAR SURFACE, with the Nature of these Bodies, diagrams, 8vo. (pp. 6), *unbound*, with author's inser., 2s [c. 1867]
- 9531 ——— On the RESULTS of SPECTRUM ANALYSIS applied to HEAVENLY BODIES: a Discourse before the British Association, at Nottingham, Aug. 24, 1866, with Appendix, with 18 photographs, cr. 8vo. *cl.* (scarce), 6s 6d [1866]
One of the author's earliest accounts of his great astro-spectroscopic investigations, and of his discovery by spectrum analysis of the gaseous contents of nebulae.
- 9532 ——— ANALYSE SPECTRALE des CORPS CÉLESTES, traduite par l'ABBÉ F. N. M. MOIGNO; with 18 woodcuts, cr. 8vo. *sewn* (o. p.), 3s 6d 1866
- 9533 ——— The ROYAL SOCIETY, or, Science in the State and in the Schools, with 23 portraits and plates, besides vignettes, impl. 8vo. *cl.*, 3s [1906]
- 9534 ——— On the SPECTRUM of the GREAT NEBULA in the SWORD-HANDLE of ORION, 8vo. (pp. 4), *unbound*, 2s 1865
Sir William Huggins was probably the greatest of the honourable company of amateur astronomers; and his comradeship in wedlock and investigation with LADY HUGGINS shares a like lustre to that of M. and Mme. Curie.
- 9535 **HUGHES (Edward George, C.E.)** COMPREHENSIVE TABLES for the CALCULATION of EARTHWORK, as connected with Railways, Canals, Docks, Harbours, etc., giving the Quantities for Each Base and Slope at one View, with Practical Treatise on Earthwork in General [with APPENDIX], plate, oblong 4to. *cl.*, with auto. of George Rennie, F.R.S., 6s 6d (p. £1. 8s) 1846
Written with special reference to railway work.
- 9536 **HUGHES (John, C.E.)** On the PNEUMATIC METHOD adopted in constructing the FOUNDATIONS of the NEW BRIDGE across the MEDWAY at ROCHESTER, 4to. (pp. 17), *cl.*, with inser. to George Rennie, F.R.S., 3s 6d [c. 1852]
- 9537 **HUGHES (Samuel, C.E., F.G.S.)** TREATISE on GAS-WORKS, and the Practice of Manufacturing and Distributing Coal Gas, etc. etc., with 76 woodcuts: Tomlinson (Charles, F.R.S.) RUDIMENTARY TREATISE on WARMING and VENTILATION, with 87 woodcuts (o. p.)—2 vols. 12mo. in 1, *hf. morocco*, 4s 1853-50
- 9538 ——— TREATISE on WATERWORKS, with Description of the principal Geological Formations of England as Influencing Supplies of Water; 2nd Edition, with 31 woodcuts, 12mo. *hf. bound*, or *cl.* (o. p.), 3s 1872, '5, or, '82
- 9539 **HULL (Edward, F.R.S.)** THE COAL-FIELDS of GREAT BRITAIN: their History, Structure and Resources, with the Coal-Fields of our Indian and Colonial Empire, and of other Parts of the World; 4th Edition, revised, embodying the Royal Commission's Reports, with 2 plates, 13 maps (the large folding one in pocket), and diagrams, 8vo. *cl.*, 7s 6d (p. 16s) 1881
The standard work on the subject.
- 9540 ——— The GEOLOGY of the COUNTRY around CHELTENHAM, with 4 plates (1 coloured), and 14 woodcuts, roy. 8vo. *sewn*, 2s *Geol. Survey*, 1857
- 9541 ——— OBSERVATIONS on the GEOLOGY of the NILE VALLEY, etc. etc., 5 woodcuts, 8vo. (pp. 12), *sewn*, 1s 6d [1896]
- 9542 ——— The PHYSICAL GEOLOGY and GEOGRAPHY of IRELAND, with 2 coloured maps, and 26 woodcuts, cr. 8vo. *cl.*, 3s 6d (p. 7s) 1878
- 9543 ——— REMINISCENCES of a STRENUOUS LIFE, with portrait, 8vo. *cl.*, 3s (p. 4s 6d nett) 1910
Including much information of geological interest.
- 9544 ——— TREATISE on the BUILDING and ORNAMENTAL STONES of Gt. Britain and Foreign Countries, arranged according to their Geological Distribution and Mineral Character, 2 plates, 8vo. *cl.*, 4s 6d (p. 12s) 1872
- 9545 [**HUME (James)**] TRAITÉ de la TRIGONOMETRIE pour résoudre tous Triangles Rectilignes et Sphériques, avec les Demonstrations des deux celebres PROPOSITIONS du BARON DE MERCHISTON, non encores démontrées; with engraved arms of Robert Ker, first Earl of Ancrum, and numerous diagrams, 12mo. boards, £1. 1s 1636
Rare, and unknown to Poggenдорff, Brunet, Graesse, etc. It is interesting for containing propositions by JOHN NAPIER.
- 9546 **HUNÄUS (Georg Christian Konrad)** Die GEOMETRISCHEN INSTRUMENTE der gesammten praktischen Geometrie; with 290 woodcuts (including many folding plates), 8vo. *hf. morocco gilt*, 8s (p. M. 16 *sewn*) *Hannover*, 1864

- 9548 **HULLMANDEL** (Charles Joseph) The ART of DRAWING on STONE: giving a full Explanation of the various Styles, the different Methods, the Modes of Correcting, and the several Causes of Failure, first edition, with vignette on title, and 19 large and fine lithographs by the Author (2 on India paper), impl. 8vo. original boards, uncut (SCARCE), £1. 10s [1824]
- 9549 ——— REPRINT [without the Introduction], with 19 lithographs by the Author (2 on India paper), roy. 8vo. hf. roan (title stained, and plates slightly foxed), 15s 1833
The first English work on lithography, preceded only a few years before by the author's translation of Raoucourt's 'Manual of Lithography' (v. No. 8905, *ante*). Some of the lithographs are very fine, more especially a portrait after Rembrandt.
'Hullmandel's practice and study resulted in the discovery of a new mode of preparing the stones. . . . Among the many artists who availed themselves of his processes for the reproduction of their drawings were Stanfield, David Roberts, Haghe, Nash, and Cattermole. Among other improvements he made in the art were a graduated tint, the introduction of white in the high lights, and the use of the stump on the stone.'—*Cosmo Monkhouse*.
- 9550 **HUMBER** (William) COMPLETE TREATISE on CAST and WROUGHT IRON BRIDGE CONSTRUCTION, including Iron Foundations, Theoretical, Practical, and Descriptive, with numerous Examples, drawn to a Large Scale, with photographic view of Brunel's Albert Bridge at Saltash, and 15 plates (many folding), besides woodcuts; with Atlas, containing fine coloured lithograph of the Tapsee Viaduct, India, and 80 folding plates, 2 vols. impl. 4to. hf. morocco gilt, 15s (p. £6. 16s 6d) 1861
- 9551 ——— THIRD [AND LAST] EDITION, enlarged, with 115 large plates (including photographic view of raising the tubes of Saltash Bridge into position), besides diagrams, 2 vols. impl. 4to. hf. calf (2 joints cracked), 17s 6d (p. £6. 16s 6d) 1870
'Mr. Humber's stately volumes, lately issued—in which the most important bridges erected during the last five years, under the direction of the late Mr. Brunel, Sir W. Cubitt, Mr. Hawkshaw, Mr. Page, Mr. Fowler, Mr. Hemans, and others among our most eminent engineers—are drawn and specified in great detail.'—*Engineer*.
- 9552 ——— COMPREHENSIVE TREATISE on the WATER SUPPLY of CITIES and TOWNS, with numerous Specifications of existing Waterworks, with coloured front., 50 folding plates, and 254 woodcuts, thick impl. 4to. hf. morocco (rubbed, and title and some plates stamped); SCARCE, £1. 5s (p. £6. 6s) 1876
The most complete English treatise on the subject.
- 9553 **HUMBOLDT** (Friedrich Heinrich Alexander Freiherr v.; F.R.S.) ASIE CENTRALE: Recherches sur les Chaînes de Montagnes et la Climatologie Comparée, Tome 1^{er}: Systèmes de Montagnes et Phénomènes Volcaniques, 8vo. sewn, 2s 1843
- 9554 ——— ——— TOME III^e [MÉTÉOROLOGIE]; with folding map and tables, 8vo. sewn, 3s 6d 1843
- 9555 ——— KOSMOS; Entwurf einer physischen Weltbeschreibung, 5 vols. 8vo. tree-calf gilt (backs faded and a few joints cracked), 15s Stuttgart, 1845-62
ORIGINAL AND BEST EDITION. The above copy includes the supplementary volume (pp. 1297), published after the author's death, and edited by EDUARD BUSCHMANN, which contains the copious INDEX and is generally missing.
- 9556 ——— NEUE AUSGABE; with portrait, 4 vols. cr. 8vo. in 2, cl., with Dr. Emil Reich's bookplate, 4s (p. M. 6) *ibidem* [1889]
- 9557 ——— COSMOS: a Sketch of a Physical Description of the Universe, translated by E. C. OTTÉ, W. S. DALLAS, and B. H. PAUL, with steel portrait, 5 vols. cr. 8vo. cl., 7s 6d (p. 19s) 1848-65
- 9558 ——— ΚΟΣΜΟΣ: a General Survey of the Physical Phenomena of the Universe [translated by AUGUSTIN PRICHARD, M.D.], 2 vols. post 8vo. cl., uncut, 5s 1845-8
'One of the greatest scientific works ever published, exhibiting in most lucid arrangement many of the principal facts of the physical sciences and their relations to each other.'
- 9559 ——— NATUR- und REISEBILDER; from Personal Narrative of Travel and Aspects of Society, with Commentary, Scientific Glossary, and Notice, by C. A. BUCHHEIM, fcap. 8vo. cl. (o.p.), with inscr., 2s 6d 1875
- 9560 ——— PERSONAL NARRATIVE of TRAVELS to the EQUINOCTIAL REGIONS of the NEW CONTINENT, with AIMÉ BONPLAND, 1799-1804, translated by HELEN MARIA WILLIAMS, with plates and maps, 7 vols. 8vo. in 9, mottled calf (a few joints cracked), £1. 1s 1814-29
Including many valuable meteorological observations. Its translation by the versatile English female Girondist is interesting.
- 9561 ——— VERSUCHE über die GEREIZTE MUSKEL- und NERVENFASER, nebst VERMUTHUNGEN über den CHEMISCHEN PROCESS des LEBENS in der Thier- und Pflanzenwelt, Band I; with 8 copperplates, 8vo. boards, uncut, 4s Posen, 1797
- 9562 ——— EXPÉRIENCES sur le GALVANISME et en général sur l'IRRITATION des FIBRES MUSCULAIRES et NERVEUSES, Traduction [par GRAVEL], avec des Additions par J. F. N. JADELOT; with 8 copperplates, 8vo. sewn, 7s 6d Didot, 1799
'Ouvrage important, encore aujourd'hui souvent cité.'—*Biogr. Gén.*
- 9563 ———, et Louis Joseph GAY-LUSSAC: EXPÉRIENCES sur les MOYENS EUDIOMÉTRIQUES, et sur la Proportion des Principes Constitutans de l'Atmosphère, 4to. (pp. 40), sewn (RARE), 12s an 13 [1805]
A very important memoir, in which the authors *inter alia* first show that exactly two volumes of hydrogen unite with one volume of oxygen to form water.
- 9564 **HUMPHRYS** (Norton Henry, F.C.S.) The CHEMISTRY of ILLUMINATING GAS, 8vo. cl. 3s 6d 1891
- 9565 **HUNTER** (John, M.D., F.R.S.) OBSERVATIONS on the HEAT of WELLS and SPRINGS in JAMAICA, and on the TEMPERATURE of the EARTH below the SURFACE in different Climates, 4to. (pp. 13), sewn, 3s 1787
- 9566 **HURST** (George H., F.C.S.) SILK DYEING, PRINTING, and FINISHING, with 21 woodcuts, and 66 coloured patterns of dyed silks, cr. 8vo. cl., 4s (p. 7s 6d) 1892
- 9567 ——— SOAPS: a Practical Manual of the Manufacture of Domestic, Toilet, and other Soaps, 2nd Edition, with 66 illustrations, 8vo. cl., 8s 6d (p. 12s 6d nett) 1907

- 9569 **HUNT** (Robert, F.R.S.) **BRITISH MINING: the History, Discovery, Practical Development, and Future Prospects of Metalliferous Mines in the United Kingdom, with 231 illustrations**, thick cr. 4to. *cl.*, 18s (p. £2. 2s) 1884
 'Containing a mass of valuable results, e.g., of the Royal Commission of 1866, an historical sketch of mining, the geology of mineral deposits and formation of metalliferous veins, details of the operations of extracting ores, machinery and ventilation of mines, and the future prospects of British mining.'—*D. N. B.*
- 9570 ——— **PHOTOGRAPHY: a Treatise on the Chemical Changes produced by Solar Radiation, and the Production of Pictures from Nature by the DAGUERRETYPE, CALOTYPE, and other PHOTOGRAPHIC PROCESSES, with 2 plates and 52 woodcuts**, large post 8vo. *cl.* (scarce), with *auto. of Eyre Crowe (historian)*, 7s 6d 1851
- 9571 ——— **POPULAR TREATISE on the ART of PHOTOGRAPHY, including DAGUERRETYPE, and all the NEW METHODS of PRODUCING PICTURES by the Chemical Agency of LIGHT, first edition, with front. and 29 woodcuts**, 8vo. *sewn* (SCARCE), £1. 1s 1854
Glasgow, 1841
 First edition of the first work on photography printed in this country.
- 9572 ——— **RESEARCHES on LIGHT: the Phenomena connected with the Chemical and Molecular Changes produced by the Influence of the Solar Rays, embracing all the known PHOTOGRAPHIC PROCESSES, and NEW DISCOVERIES in the Art, coloured front., and woodcuts**, 8vo. *cl.*, 6s 1844
 'Another experimenter who tried to obtain the natural colours of objects by means of photography was Robert Hunt. These researches took place between 1840 and 1843, and the results were set forth in his work 'Researches on Light', published in 1844.'—*A. T. Story.*
- 9573 ——— **SECOND EDITION [greatly enlarged], with folding front., and woodcuts**, 8vo. *cl.* (scarce), 10s 6d 1854
 'Mainly a history of photography; but the 2nd edition (1854) contained a large number of original experiments and new 'analyses of the solar ray'.'—*D. N. B.*
- 9574 **HUNT** (Thomas Sterry, F.R.S.) **A NEW BASIS for CHEMISTRY: a Chemical Philosophy; with portrait (inserted)**, cr. 8vo. *cl.*, 5s (p. 10s) 1887
Boston [Mass.]
 'Showing that solution, fusion, volatilization, liquefaction, solidification, and crystallization—in a word, all change of state—belong to the domain of chemistry, and that, from a right consideration of these, some of the most obscure problems of the science become clear.'—*Preface.*
- 9575 ——— **THOUGHTS on SOLUTION and the CHEMICAL PROCESS**, 8vo. (pp. 5), *sewn, with inscr. to Sir E. Frankland, F.R.S.*, 3s [ib.], 1854
- 9576 **HURWITZ** (Adolf; Zürich) **GRUNDLAGEN einer INDEPENDENTEN THEORIE der ELLIPTISCHEN MODULFUNCTIONEN und Theorie der Multiplicator-Gleichungen erster Stufe**, 8vo. (pp. 72), *sewn*, 1s 6d 1881
Leipzig
- 9577 **HUTCHINSON** (Benjamin; Prebendary of Lincoln, F.R.S.) **ACCOUNT of a LUMINOUS ARCH [AURORA BOREALIS]**, plate, 1 leaf 4to., 1s 6d 1787
- 9578 ——— **CALENDAR of the WEATHER for 1781, with Discourse on the MOON'S INFLUENCE at common Lunations in general, and on the WINDS at the ECLIPSES in particular, founded on regular Observations taken at Kimbolton, Hunts**, 8vo. (pp. 48), *sewn (rare)*, 8s 6d 1782
- 9579 ——— **OBSERVATIONS on the DRYNESS of the YEAR 1788, 4to.** (pp. 3), *sewn*, 3s 6d 1789
 Together with 'Method of determining from the real Probabilities of Life, the Value of a contingent Reversion in which Three Lives are involved in the Survivorship,' by RICHARD PRICE, D.D., F.R.S. (pp. 15).
 The author is ignored in *D. N. B.*
- 9580 **HUTCHINSON** (Henry Neville, pr.) **The AUTOBIOGRAPHY of the EARTH: a Popular Account of Geological History, with 27 illustrations**, post 8vo. *cl.*, 3s 6d (p. 7s 6d) 1890
- 9581 **HUTCHINSON** (Graham) **TREATISE on the CAUSES and PRINCIPLES of METEOROLOGICAL PHENOMENA; also Two Essays: on Marsh Fever, and on the System of Equality proposed by MR. OWEN of New Lanark, for Ameliorating the Condition of Mankind, with plate and map**, thick 8vo. *cl.*, *uncut, with author's inscr. to the Meteorological Soc.* (scarce), 10s 6d 1835
Glasgow
- 9582 ——— **ANOTHER COPY, prize calf gilt, newly rebounded**, 12s
 Sir John Herschel specially quotes in his 'Meteorology' Hutchinson's account of thunderstorms in Jamaica.
- 9583 **HÜTTE: Des INGENIEURS TASCHENBUCH, herausg. vom akademischen Verein 'Hütte'**, 19. neu bearbeitete Auflage; with over 1600 illustrations, 2 vols. post 8vo. (pp. 2277), *cl.*, 8s (p. M. 16 nett) 1905
Berlin
- 9584 ——— **ACHTZEHNTE AUFLAGE: BAND II** (enthält Zivil-Ingenieurwissenschaften, Schiffbau, Eisenbahnwesen, Eisenhüttenkunde, Elektrotechnik und Gasfabrikation); with 493 illustrations, post 8vo. *brown limp roan, t. e. g.*, 3s 1902
ibidem
- 9585 **HUTTON** (Frederick Remsen, Columbia Univ.) **The GAS-ENGINE: a Treatise on the Internal-Combustion Engine using Gas, Gasoline, Kerosine, or other Hydrocarbons as Source of Energy, with 243 illustrations**, 8vo. *cl.*, 10s (p. £1. 1s nett) 1903
New York
- 9586 ——— **The MECHANICAL ENGINEERING of POWER PLANTS; 2nd Edition, revised, with 512 illustrations**, 8vo. *cl.*, 10s (p. £1. 1s nett) 1906
ibidem
- 9587 **HUTTON** (James, M.D.; geologist) **DISSERTATIONS on different Subjects in NATURAL PHILOSOPHY**, 4to. *old calf (fine tall copy)*; RARE, £1. 1s 1792
Edin.
- 9588 ——— **ANOTHER COPY, cl., 18s 6d
 Containing the 'Meteorological Dissertations on Rain and Wind', one of his most important works, wherein he ascribes the formation of rain to the mingling of two strata of air of different temperatures and the subsequent condensation of the mixture; a remark in it also contains the first suggestion of the dry-and-wet-bulb hygrometer. There are also papers on phlogiston, and the laws of matter and motion.
 There is no copy of this important work in the Royal Meteorological Society's Library Catalogue (1891).**
- 9589 **HUTTON** (Walter S.) **The PRACTICAL ENGINEER'S HAND-BOOK, comprising a Treatise on Modern Engines and Boilers, and containing a large Collection of Rules and Practical Data, etc. etc.**, 4th Edition, with Additions, *front. and 371 illustrations*, thick 8vo. *cl.*, 7s 6d (p. £1. 5s) 1892
- 9590 **HUTTON** (William; F.R.S.) **NOTES on the NEW RED SANDSTONE of the County of DURHAM, below the Magnesian Limestone, with 2 woodcuts**, 4to. (pp. 17), *sewn, with inscr. to Thomas Allan, F.R.S.*, 2s 6d 1830
Newcastle

- 482 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9592 **HUTTON** (Charles, F.R.S.) The COMPENDIOUS MEASURER: a Brief, yet Comprehensive, Treatise on Mensuration, and Practical Geometry, with Introduction to Arithmetic; 2nd Edition, enlarged, with diagrams, 12mo. *old sheep* (back damaged), 4s 1790
- 9593 — FIFTH EDITION, enlarged, with diagrams, 12mo. *old sheep* (binding broken), with auto. and bookplate of Dr. P. M. Roget, F.R.S., 4s 1803
- 9594 — COURSE OF MATHEMATICS, for the Royal Military Academy, Woolwich, 12th Edition, continued and amended by OLINTHUS GILBERT GREGORY, LL.D., with considerable Additions by THOMAS STEPHENS DAVIES, F.R.S. (v. II 11th Ed.), with diagrams, 2 vols. 8vo. *hf. calf*, 4s 1841-37
- 9595 — ANOTHER COPY, 2 vols. *hf. calf extra*; with SOLUTIONS of the Principal Questions, forming a GENERAL KEY, by S. T. DAVIES, F.R.S., with diagrams; *hf. cl.*—3 vols., 10s 1841-3-40
- 9596 — NEW EDITION, entirely re-modelled, and adapted to the Course of Instruction in the Royal Military Academy, by WILLIAM RUTHERFORD, F.R.S., with numerous diagrams (a few *ll. soiled*), with Key by JAMES HICKIE, 2 vols. 8vo. *cl.*, 7s 6d 1841-9
- 9597 — MATHEMATICAL and PHILOSOPHICAL DICTIONARY, with Historical Account and MEMOIRS of AUTHORS Ancient and Modern, first edition, with 37 copperplates, and numerous woodcuts and diagrams, 2 vols. 4to. *old calf gilt*, 8s 6d 1796-5
- 9598 — ANOTHER COPY, *calf*, or, *hf. calf* (joints cracked), 6s 6d
- 9599 — SECOND [LAST] EDITION, with numerous Additions and Improvements, with 41 copperplates and numerous diagrams, 2 vols. 4to. in 1, *old hf. calf gilt*; or, *russia gilt* (back mended), 14s 1815
- 9600 — ANOTHER COPY, 2 vols. 4to. *old calf gilt*, newly and neatly rebacked, 16s 6d
The first mathematical dictionary in English, and still especially valuable for the biographical information it contains.
- 9601 — MATHEMATICAL TABLES, containing COMMON, HYPERBOLIC, and LOGISTIC LOGARITHMS, with other Tables, and a large and original HISTORY of the DISCOVERIES and Writings relating to those Subjects, etc. etc., first edition, roy. 8vo. *old calf gilt*, newly rebacked (Rares), 12s 6d 1785
‘With introduction, still valued as an interesting and learned history of logarithmic work. Hutton deprecates the theory [q. v. ante] of Napier’s originality as the inventor of logarithms. He suggested the plan of the great work on logarithms which was afterwards compiled by his friend, Baron Maseres [v. No. 2877, ante].’—D. N. B.
- 9602 — FOURTH EDITION, roy. 8vo. *old tree-calf* (sound copy), 8s 6d 1804
- 9603 — FIFTH EDITION, roy. 8vo. boards, uncut, or, *hf. calf*, 6s 6d 1811
All the foregoing editions contain the valuable paper on the history of logarithms, which was left out in the later ones.
- 9604 — EIGHTH EDITION, with Seven Additional Tables of Trigonometrical Formulæ, by OLINTHUS GILBERT GREGORY, LL.D., roy. 8vo. *calf*, or, *hf. calf*, 6s 6d 1838
- 9605 — NEW EDITION, roy. 8vo. *cl.*, 7s 6d 1860
- 9606 — THE PRINCIPLES OF BRIDGES: MATHEMATICAL DEMONSTRATIONS of the PROPERTIES of ARCHES, the Thickness of Piers, the Force of the Water against them, etc., with Practical Observations and Directions, first edition, with folding table and diagrams, 8vo. *new hf. calf* (rare), 12s 6d
Newcastle, 1772
Written on the occasion of Newcastle Bridge being injured by a flood. It is valuable for establishing the mathematical principle of the law of arches.
- 9607 — RECREATIONS in MATHEMATICS and NATURAL PHILOSOPHY, first composed by M. OZANAM, lately recomposed, and greatly enlarged, by M. MONTUCLA, and now translated, with many Additions and Observations, first edition, with nearly 100 copperplates (some foxed), 4 vols. 8vo. *new buckram* (scarce), £1. 1s 1803
- 9608 — NEW [LAST] EDITION, with numerous Additions, by EDWARD RIDDLE, F.R.A.S., with over 400 woodcuts and diagrams, thick 8vo. *cl.*, uncut, 8s 6d 1840, or, ‘4
- 9609 — TRACTS, MATHEMATICAL and PHILOSOPHICAL, VOL. I (all pub.), with 4 folding plates, besides diagrams, 4to. *sewn*, uncut (rare), 10s 6d 1786
This work is different from the ‘Tracts’ published in 1812 (q. v. infra), and was unknown to D. N. B. It includes dissertations on the infinite series, on the binomial theorem, ‘New Experiments in Artillery’, etc.
- 9610 — TRACTS on MATHEMATICAL and PHILOSOPHICAL SUBJECTS, including the THEORY of BRIDGES, and EXPERIMENTS on the FORCE of GUNPOWDER, with fine portrait by C. Turner, plates, and diagrams, 3 vols. 8vo. boards, uncut, 10s 1812
- 9611 — ANOTHER COPY, *calf gilt*, with auto. and bookplate of Sir John Francis Davis, 12s 6d
- 9612 — TREATISE on MENSURATION, both in Theory and Practice, first edition, with plate and arms on copper, and numerous woodcuts and diagrams by THOMAS BEWICK, thick 4to. contemporary *hf. calf* (tall copy), 15s
Newcastle-on-Tyne, 1770
- 9613 — ANOTHER COPY, with numerous MS. additions, including illustrations, in a very neat hand, *old calf* (joints cracked, and one l. mended), 12s 6d
‘This work, which is now become very rare, was originally published in numbers and by subscription. It was commenced in 1768, and completed in 1770. Beilby engraved the ‘Percy Arms’, also the copperplate at p. 600. The diagrams were Thomas Bewick’s first attempt at wood engraving, and in one at p. 42 he has introduced his favourite subject—the steeple of St. Nicholas Church, Newcastle.’—Thomas Hugo, pr.
- 9614 — FOURTH EDITION, with many Additions, plate, and numerous diagrams, thick 8vo. *sheep* (joints cracked), 3s 6d 1812
The author, who became one of the foremost mathematicians of his time, and the value of whose work in computing the earth’s density was acknowledged by Laplace, began life as a hewer in Long Benton Colliery near Newcastle-on-Tyne. ‘All his books were of a professional and practical character, and are invariable clear and accurate.’—D. N. B.
- 9615 **HUTTON** (William R., Chief Engineer) The WASHINGTON BRIDGE over the HARLEM RIVER, at 181st Street, NEW YORK: a Description of its Construction, with 63 plates (many folding), 4to. *cl.*, with author’s inscr., 10s 6d (p. £2. 2s)
New York [1891]

- 9617 **HUXLEY** (Thomas Henry, F.R.S.) OBSERVATIONS on the STRUCTURE of GLACIER ICE, 8vo. (pp. 20), *sewn*, 2s 1857
- 9618 ——— PHYSIOGRAPHY: an Introduction to the Study of Nature, **first edition**, with 5 coloured plates, and 122 woodcuts, cr. 8vo. *cl.*, 3s (p. 7s 6d) 1877
- 9619 ———, PORTRAIT of, engraved on steel by CHARLES HENRY JEENS, 4s n. d.
- 9620 ——— THE SAME, PROOF BEFORE LETTERS, 6s
- 9621 ——— THE SAME, on INDIA PAPER, 8s

9622 **HUYGENS** [*Latine* **HUGENIUS**] (Christiaan; F.R.S.) ŒUVRES COMPLÈTES, publiées par la SOCIÉTÉ HOLLANDAISE DES SCIENCES; printed on handmade paper, with 4 portraits, 50 plates and *fs.*, and numerous other illustrations, 12 thick vols. 4to. parchment cover, uncut, £10. 10s (p. F. 390 nett) La Haye, 1888-1910

CONTENU :—Tomes I à X : Correspondance de 1633 à 1695 ; Tomes XI et XII : Travaux Mathématiques, 1654-56.

A national memorial to one of the greatest of Dutchmen, and the indispensable edition of his Works for any great scientific library.

9623 ——— OPERA VARIA [cum Vita sua, ex Recensione G. J. 's GRAVESANDE]; with engraved portrait by F. Ottens, and 56 plates, 2 vols. 4to. in 1, *sound copy in old calf*, 16s 6d *Lugduni Batavorum*, 1724
Including Horologium Oscillatorium; Theoremata de Quadratura Hyperboles, Ellipsis et Circuli; de Circuli Magnitudine Inventa; de Circuli et Hyberbolæ Quadratura, etc. etc.

9624 ——— EADEM; necnon, OPERA RELIQUA [edente G. J. 's GRAVESANDE]; with 58 copperplates, 2 v., *Amst.*, '28—4 vols. 4to. *hf. calf gilt*, £1. 12s 6d 1724-8

9625 ——— OPUSCULA POSTUMA, quæ continent DIOPTRICAM, COMMENTARIOS de VITRIS FIGURANDIS, DISSERTATIONEM de CORONA et PARHELIIS, TRACTATUM de MOTU et de VI CENTRIFUGA, DESCRIPTIONEM AUTOMATI PLANETARII [ex Recensione BURCHERI de VOLDER et BERNHARDI FULLENI]; with 24 fine copperplates (many folding), and numerous diagrams, sm. 4to. contemporary calf (RARE), 18s 6d *Lugd. Bat.*, 1703

FIRST EDITION of the author's posthumous works, afterwards republished by J. W. 's Gravesande as *Opera Reliqua*, and comprising Huygens's important optical works.

'In his Posthumous Works, 1703, he shewed how from the focal lengths of the component lenses the magnifying power of a telescope could be determined; and explained some of the phenomena connected with haloes and parhelia.'—*W. W. R. Ball.*

9626 ——— De CIRCULI MAGNITUDE INVENTA, accedunt eiusdem Problematum quorundam illustrationum Constructiones, editio princeps; with numerous diagrams, sm. 4to. *sewn* (large and sound copy); RARE, £1. 5s *ib.*, *Joh. et Dan. Elzevier*, 1654

9627 ——— EXERCITATIONES MATHEMATICÆ et PHILOSOPHICÆ, ex MSS. in Bibliotheca Academiae *Lugd. Bat.* servatis edidit PETRUS JOANNES UYLENBROEK; with 4 folding plates and *fs.*, 2 vols. 4to. *sewn*, uncut (scarce), 12s 6d *Hagæ Comitum*, 1833

Containing Huygens's scientific correspondence with Leibniz, the Marquis de l'Hospital, de Vaumeste, Fatio de Duillier, etc. etc.

BROOK TAYLOR'S COPY:

9628 ——— HOROLOGIUM OSCILLATORIUM, sive de MOTU PENDULORUM ad Horologia aptato Demonstrationes Geometricæ, editio princeps; with woodcuts and numerous diagrams, folio, new boards (a few slight wormholes and water-stains on margin, but a TALL AND SOUND COPY); with auto. of Brook Taylor, F.R.S., inventor of the calculus of finite differences, on title (VERY RARE), £4. 4s *Parisiis*, F. Muguet, Regis typographus, 1673

'A work that ranks second only to Newton's *Principia* and constitutes historically a necessary introduction to it. The book opens with a description of pendulum clocks, of which Huygens is the inventor. Then follows a treatment of accelerated motion of bodies falling free, or sliding on inclined planes, or on given curves—culminating in the brilliant discovery that the cycloid is a tautochronous curve. To the theory of curves he added the important theory of 'evolutes.' . . . In Huygens's assumption that the common centre of gravity of a group of bodies, oscillating about a horizontal axis, rises to its original height, but no higher, is expressed for the first time one of the most beautiful principles of dynamics, afterwards called the principle of the conservation of *vis viva*. The 13 theorems at the end relate to the theory of centrifugal force in circular motion. This theory aided Newton in discovering the law of gravitation.'—*Prof. Cajori.*

'This work contains the first attempt to apply dynamics to bodies of finite size and not merely to particles.'—*W. W. R. Ball.*

9629 ——— ΚΟΣΜΟΘΕΩΡΟΣ, sive de TERRIS CÆLESTIBUS, earumque Ornatu, CONJECTURÆ, ad Constantinum Hugenum, Fratrem; Gulielmo III. Magnæ Britannicæ Regis, a Secretis; editio princeps; with 5 folding plates, and plate IV in duplicate, sm. 4to. old white vellum (binding slightly damaged); RARE, £1. 1s *Hagæ-Com.*, 1698

9630 ——— EDITIO ALTERA; with 5 plates, sm. 4to. old *hf. vellum* (FINE COPY), 15s *ib.*, 1699
Published posthumously. It contains the author's views on the plurality of worlds, and the first attempt at stellar photometry by comparing the light of the Sun with that of Sirius.

9631 ——— The CELESTIAL WORLDS DISCOVER'D; or, Conjectures concerning the Inhabitants, Plants and Productions of the Worlds in the Planets, with 5 folding plates, large 12mo. fine copy in contemporary panelled calf (rare), 15s *T. Child*, 1698

9632 ——— ANOTHER COPY, old calf (back slightly damaged), 12s

9633 ——— SECOND EDITION, corrected and enlarged, with 5 folding plates, 12mo. old mottled calf, newly rebacked (FINE COPY), 12s 1722

9634 ——— ANOTHER COPY, unbound (plate 4 wanting), 5s

9635 **HYDRO-MECHANICS**, The THEORY and PRACTICE of: Lectures at the Institution of Civil Engineers, with 6 folding plates and maps and 23 woodcuts, 8vo. *hf. calf neat* (o. p.), 10s 6d 1835

9636 ——— ANOTHER COPY, *sewn*, 8s 6d

Containing Physiography, by SIR JOHN EVANS; Water-Supply, by WILLIAM POLE, F.R.S.; Water-Motors, by W. C. UNWIN, F.R.S.; Inland Navigation in Europe, by SIR C. A. HARTLEY; Tides and Coast Works, by THOMAS STEVENSON; and Forms of Ships, by SIR E. J. REED, F.R.S.

9637 **HYSLOP** (Jonathan, C.E.) COLLIERY MANAGEMENT, 2nd [last] Edition, with front. and 2 folding charts, also Atlas, containing 17 folding plates—2 vols. 8vo. *cl.* (o. p.), 6s (p. £1. 5s) 1876

- 9639 **HYMERS** (John, D.D., *Rector of Brandesburton, F.R.S.; founder of Hymers College, Hull*) THE ELEMENTS of the THEORY of ASTRONOMY, 2nd Edition, revised, with 4 plates, 8vo. *calf antique, uncut, t. e. g., 4s 6d*
- 9640 ——— ANOTHER COPY, *hf. calf (one joint cracked), 3s*
- 9641 ——— TREATISE on ANALYTICAL GEOMETRY of THREE DIMENSIONS; containing the Theory of Curve Surfaces, and of Curves of Double Curvature; 2nd Edition, with 6 plates: COLLECTION of EXAMPLES on the INTEGRAL CALCULUS, in which every Operation of each Example is completely effected; by a MEMBER of the UNIVERSITY—2 vols. 8vo. in 1, *calf gilt, 5s 6d* *ibidem*, 1836-35
- 9642 ——— THIRD [LAST] EDITION, altered and revised, with 6 plates, 8vo. *hf. cl., 4s* *ib.*, 1848
- 9643 ——— TREATISE on DIFFERENTIAL EQUATIONS, and on the CALCULUS of FINITE DIFFERENCES, with plate, 8vo. boards, 3s *ib.*, 1839
- 9644 ——— SECOND EDITION, enlarged, with plate, 8vo. cl., 5s 1858
- 9644 ——— TREATISE on [PLANE and SPHERICAL] TRIGONOMETRY, and on Trigonometrical Tables and Logarithms, with select Problems and their Solutions; 2nd Edition, enlarged, with 3 plates—2 vols. 8vo. in 1, boards, 3s 6d Cambridge, 1841
- 9645 ——— FOURTH EDITION, with 2 plates, 8vo. *hf. calf gilt (nice copy), 5s* 1858
- 'Hymers was not a mere mathematician. He travelled largely on the Continent, and was well read in Classical authors. His books exhibit much acquaintance with the progress of mathematics on the Continent. He bequeathed all his property to the Mayor and Corporation of Hull as a foundation for a Grammar School 'to train intelligence in whatever rank it may be found amongst the population of the town and port'. An obscurity in the wording of the will rendered the bequest invalid, but his heir-at-law spontaneously offered the Corporation £40,000, to fulfil Hymers's purpose.'—D. N. B.
- v. GREGORY, Nos. 8665-8667, *ante*.
- 9646 **IBBETSON** (John Holt) SPECIMENS in ECCENTRIC CIRCULAR TURNING; with Practical Instructions for producing Corresponding Pieces in the Art, 3rd Edition, with considerable Additions, with 8 copperplates, and numerous full-page and other woodcuts, 8vo. cl., uncut, 7s 6d [c. 1830]
- 9647 ——— ANOTHER COPY, *cl. (wanting first 2 copperplates), 3s 6d*
- 'The present edition gives a description of the identical slide-rest and chuck with which all the specimens I have ever worked out in pure simple and compound eccentric turning were actually executed and engraved.'—Intro.
- 9648 **IBBETSON** (William John, F.R.A.S.) ELEMENTARY TREATISE on the MATHEMATICAL THEORY of PERFECTLY ELASTIC SOLIDS, with short Account of VISCOUS FLUIDS, with 65 illustrations, 8vo. cl. (cover slightly damaged), 9s (p. £1. 1s) 1887
- 9649 **IGI** (Raffaello) IMPIEGHI PERIODICI rendite AMMORTIMENTI, roy. 8vo. *sewn, with author's inser., 2s 6d* Sansevero, 1894
- 9650 **IMHOOFF** (Jean Jaques, d'Arau) L'ART de TENIR les LIVRES en PARTIES DOUBLES, ou la Science de faire Ecriture, de toutes les Négociations qui se font, soit en Banque, soit en Marchandises, 4to. *hf. calf (rare), 12s 6d* Vevey, chez l'auteur, 1786
- 9651 **IMSON** (John; printer) TREATISE on the MECHANICAL POWERS of the Lever, the Wheel and Axle, the Pulley, the Screw, the Wedge, and the Inclined Plane, with useful Improvements in Mill-Work, Bevel Gear, Friction, etc., 2nd Edition, with 2 folding copperplates, 8vo. (pp. 37), *sewn, 3s* 1794
- 9652 **INDIA RUBBER**, LECTURES on: the Official Account of the PROCEEDINGS of the CONFERENCE in Connexion with the International RUBBER and Allied Trades EXHIBITION, London, Sept., 1908, edited by D. SPENCE, F.I.C, 3 plates and diagrams, roy. 8vo. cl., 6s 6d (p. 10s 6d nett) [1909]
- 9653 **INDUSTRIE MINÉRALE**, STATISTIQUE de l', et des APPAREILS à VAPEUR, en FRANCE et en ALGÉRIE, pour le Année 1882. Résumé des Travaux Statistiques de l'Administration des Mines en 1883, avec Appendice, concernant la STATISTIQUE MINÉRALE INTERNATIONALE; with map and diagrams, 4to. *sewn, 5s* Imprimerie Nationale, 1883
- 9654 **INGEGNERE** (Angelo, sive Angiolo) CONTRA l'ALCHIMIA e gli ALCHIMISTI PALINODIA dell' ARGONAUTICA, con la stessa Argonautica, dichiarata da copiose Postille del proprio Autore; with arms on title, sm. 4to. *sewn (rare), 15s* Napoli, 1606
- This work was unknown to the author's biographer in *Biographie Générale*, who only quotes (imperfectly) the title on the authority of Quadrio.
- 9655 **INGENIEURS (KONINKLIJK NEDERLANDSCH INSTITUUT van)**, WERKEN van het; from the beginning in 1843 to 1908, viz., ALGEMEEN VERSLAG en NATULEN, 1848-99/1900 to 1894 in 47 vols. *hf. calf, and the rest sewn*; VERHANDELINGEN, 1848-99/1908 to 1894 in 38 vols. *hf. calf, and the rest sewn*; UITTREKSELS uit Tijdschriften 1848-67, 15 vols. *hf. calf*; REGISTER, 1847-94; RÉPERTOIRE des CARTES; CATALOGUS der Boekery, met Supplementen; with numerous plates and other illustrations, 100 vols. 8vo. and 4to. *hf. calf gilt*, and numerous parts, *sewn (a few parts and vols. wanting)*; FINE LIBRARY SET, £8. 8s 's Gravenhage, 1848-1908
- The foremost Dutch periodical publication on engineering, dealing more especially with canal and river work. The earlier volumes are out of print and scarce.

A COMPLETE SET OF THE JOURNAL TO DATE:

- 9656 **IRON and STEEL INSTITUTE**, JOURNAL of the, from its beginning in 1871 to 1910, 78 v.: NAME INDEX, vv. 1-50 (1869-96), '98: GENERAL INDEX, vv. 36-58 (1890-1900), 1902: SPECIAL VOLUME (The Iron and Steel Institute in America in 1890), n. d.: SUPPLEMENT to v. LXV (Relations between the Effects of Stresses slowly applied, by Pierre Breuil), '04: CARNEGIE SCHOLARSHIP MEMOIRS, ed. by G. C. Lloyd, 2 v., '09-10: LIBRARY CATALOGUE, with very numerous plates, portraits, etc.—in all 11 vols. 8vo. *hf. calf, and 74 vols. cl. (FINE LIBRARY SET)*; VERY SCARCE, COMPLETE AS ABOVE, £24. 1871-1910
- Complete sets as the above are extremely difficult to find.

DIE GALVANOPLASTIK,

ODER

DAS VERFAHREN COHARENTES KUPFER IN PLATTEN
ODER NACH SONST GEBEBENEN FORMEN, UNMITTEL-
BAR AUS KUPFERAUFLÖSUNGEN, AUF GALVANISCHEN
WEGE ZU PRODUCIREN.

NACH DEM AUF BEFEHL DES GOUVERNEMENTS IN RUSSISCHER SPRACHE
BEKANNT GEMACHTEN ORIGINALE.

VON
Dr. M. E. JACOB,

Kolleg. Russ. Hofrath und Mitglied der Kaiserlichen Academie der Wissenschaften zu
St. Petersburg

Mit einer Kupfertafel.

St. PETERSBURG,

Eggers et Co (in Commission bei F. A. Herbig in Berlin).

1840.

— 57 —

cellan, Schiefer, Gyps, Wachs, Schwefel, Stearin, Siegel-
lack, Holz u. s. w., in Platten oder sonst künstlerisch geformt,
als Original oder Modell gebrauchen. Sie werden vorher mit
dünnen Metallblättern, Folien oder äusserst zarten Metall-
Graphit- oder Kohlenpulvern bedeckt, welche um die Züge
nicht abzustumpfen, keine messbare Dicke haben dürfen.
Es versteht sich von selbst, dass diese Folien oder Pulver
nur aus solchen Metallen bestehen dürfen, welche nach
dem obigen, die Kupfersalze nicht schon für sich auf chemi-
schen Wege zersetzen. Man findet solche Pulver, theils
im Handel, theils kann man sie sich leicht selbst bereiten;
so z. B. erhält man ein äusserst zartes Kupferpulver durch
Fällung aus der salpetersauren Kupferlösung vermittelst
Eisen. Den Metallpulvern ist übrigens der feinst geschlemmte
Graphit deshalb vorzuziehen, weil dieser sich auf den Ober-
flächen feiner vertheilt und besser auf ihnen haftet. Man
kann denselben mit Wasser zu einem dicken Brei anrüh-
ren und damit das Modell bestreichen. Wenn der Ueber-
zug vollkommen trocken geworden, wird das Ueberflüssige
durch einen Pinsel oder eine weiche Bürste entfernt. Oft
haftet der Graphit auch ohne dass man ihn vorher nass
aufträgt, wenn man ihn mit einem Pinsel anreibt; der vor-
her ein wenig mit Oel befeuchtet worden ist.

Besteht das Modell aus Gyps, so muss dasselbe so vor-
bereitet werden, dass es der Nässe auf längere Zeit wider-
stehen kann. Dieses geschieht am besten, indem man den

No. 9709-10 (page 487).
The invention of electrotyping.



No. 10096 (page 504).

Portrait of Johann Kepler.



- 9658 **IDRAULICI (OPUSCOLI)** di MARIO LORGNA, PIETRO ZULIANI, FRANCESCO FOCACCI, ANTONIO TADINI, ISIDORO BERNAREGGI e GIANBATISTA MASETTI; *with 12 folding plates*, 4to. *sewn*, 6s 6d
Bologna, 1824
- 9659 **INCANDESCENT GAS LIGHT COMPANY, Ltd.**, v. the DE MARE INCANDESCENT GAS LIGHT SYSTEM, Ltd., in the High Court of Justice (Q.B. Division) before MR. JUSTICE WILLS (without a Jury): TRANSCRIPT of the SHORTHAND NOTES, March 9th to April 18th, 1896. thick 4to, *hf. calf*, 8s 6d
1896
Valuable as a contribution to the history of incandescent lighting. It contains a very clear statement of the case for plaintiffs by Mr. Fletcher (now Lord) Moulton, F.R.S.
- 9660 **INDUSTRIAL ARTS (The)**: HISTORICAL SKETCHES, *with front.*, and numerous pretty woodcuts, large cr. 8vo. *hf. calf gilt (title stamped)*, 2s 6d
[1876]
- 9661 **INDUSTRIEL (L')**: JOURNAL destiné à répandre les Connaissances Utiles à l'INDUSTRIE générale, ainsi que les DÉCOUVERTES et les PERFECTIONNEMENTS dont elle est journellement l'Objet; *with 17 folding plates*, 8vo. *hf. roan (title wanting)*, 4s 6d
1826
Containing a copious description of HENRY MAUDSLAY'S first marine engine, which was used afterwards, in a modified form, in the *Great Western* s.s.
- 9662 **INGALLS (Walter Renton)** The METALLURGY of ZINC and CADMIUM, *with 408 illustrations (including plates)*, 8vo. *cl.*, 14s (£1. 5s nett)
New York, 1903
- 9663 ——— PRODUCTION and PROPERTIES of ZINC; the Occurrence and Distribution of Zinc Ore, the Commercial and Technical Conditions affecting the Production of Spelter, and its Chemical and Physical Properties and Uses, with Historical and Statistical Review of the Industry, *with 66 illustrations (including plates)*, 8vo. *cl.*, 7s 6d (p. 12s 6d nett)
ibidem, 1902
- 9664 **INGENHOUSZ (Jan, F.R.S.)** VERMISCHTE SCHRIFTEN PHYSISCH-MEDICINISCHEN INHALTS, uibersetzt von NICOLAUS CARL MOLITOR, 2. mit ganz neuen Abhandlungen vermehrte Auflage; *with 5 copperplates (1 coloured)*, 2 vols. 8vo. *sound copy in old calf (pp. 11-14 of Intro. in MS.)*, 8s 6d
Wien, 1784
Ingenhousz, who spent his later years in England, was the first to employ glass plates in the construction of electric machines. He also made important researches into the thermal conductivity of different metals, and was the first to introduce carbon dioxide into medical use.
- 9665 ——— EXPÉRIENCES sur les VÉGÉTAUX, spécialement sur la PROPRIÉTÉ qu'ils possèdent à un haut degré, soit d'AMÉLIORER l'AIR quand ils sont au Soleil, soit de le corrompre la Nuit, ou lorsqu'ils sont à l'Ombre, avec une Méthode nouvelle de juger du Degré de Salubrité de l'Atmosphère, traduit de l'Anglois, par l'Auteur; *with copperplate*, 8vo. *old calf (a few pp. slightly acid-stained)*; RARE, 16s 6d
1780
The author's chief work, containing his great discovery that plants give off oxygen in the sunshine, and carbon dioxide in the shade.
- 9666 ——— VERSUCHE mit PFLANZEN, hauptsächlich über die Eigenschaft, welche sie in einem hohen Grade besitzen, die Luft im Sonnenlichte zu reinigen, und in der Nacht und im Schatten zu verderben, nebst einer neuen Methode, den Grad der Reinheit und Heilsamkeit der atmosphärischen Luft zu prüfen, übersetzt von JOHANN ANDREAS SCHERER, verbesserte und vermehrte Auflage; *with plate*, 3 vols. 8vo. *old calf (rare)*, 10s 6d
Wien, 1786-90
'On doit à Ingenhousz l'emploi des plateaux de verre dans la construction des machines électriques, dont Ramsden s'était attribué l'invention. Il a fait aussi recherches sur la différence de vitesse avec laquelle la chaleur se propage dans des métaux différents, et confirma les expériences de Thomas Percival sur la nutrition des plantes; enfin il a démontré que les végétaux vivants, exposés à la lumière, émettent de l'oxygène, tandis qu'à l'ombre ils exhalent de l'acide carbonique.'—*Biogr. Gén.*
- 9667 **INGLE (Herbert, F.I.C.)** MANUAL of AGRICULTURAL CHEMISTRY, *with woodcuts*, 8vo. *cl.*, 4s (p. 7s 6d nett)
1902
- 9668 **INNES (Robert T. A.; F.R.A.S., Transvaal Observatory)**, TABLES to FACILITATE the APPLICATION of GAUSS'S METHOD of COMPUTING SECULAR VARIATIONS, 8vo. (pp. 8), *sewn*, 1s
[1894]
- 9669 **INSTITUTE of ACTUARIES'** TEXT BOOK of the PRINCIPLES of INTEREST, Life Annuities, and Assurances, and their practical Application; PART I: INTEREST (including Annuities-Certain), by WILLIAM SUTTON, 8vo. *hf. roan (binding damaged)*, 5s
1882
- 9670 ——— of **CHEMISTRY (The)** of GREAT BRITAIN and IRELAND: PROCEEDINGS, from 1903 to 1911, 30 parts 8vo. *sewn (wanting 1904, part 2 and 1911, part 1)*, 12s (p. £1. 10s nett)
1903-11
- 9671 **INSTITUTION (Royal)**, NOTICES of the PROCEEDINGS of the Meetings of the Members of the, with ABSTRACTS of the DISCOURSES at the Evening Meetings, complete from the beginning in 1851 to 1892, *with plates and other illustrations*, 13 vols. 8vo. *cl. (SCARCE)*, £2. 2s
1851-92
- 9672 **INSTITUTIONS (The)** of MATHEMATICAL EXPERIMENTS, in three Parts. 1. The Constitutions, Power, and Effects of the Planets and Stars. 2. The Method of Mathematical Physicke. 3. The Resolutions of Astrological Questions, extracted from the Experiments and Observations of GUIDO, BONATUS, HALY, ABENRAGEL, CLAUDIUS, DARIOT, GANIVETUS, and many others, large 12mo. *contemporary sheep, rebounded in calf (RARE)*, £1. 1s
Andrew Crooke, 1643
Very rare, and unknown to Lowndes and Watt. It contains 'Tables of the Houses for the Latitude of 51°.'
- 9673 **INTERMÉDIAIRE des MATHÉMATIENS (L')**, dirigé par CHARLES ANGE LAISANT et EMILE LEMOINE; complete from the beginning in 1894 to 1899; *with diagrams*, 6 vols. 8vo., vv. 1-2 *hf. maroon calf gilt*, and vv. 3-6 *hf. brown calf*, £1. 1s
1894-9
- 9674 **INWOOD (William)** TABLES for the PURCHASING of ESTATES, etc. etc., Renewing of Leases, and Valuing Reversionary Estates, also the Five Tables of Compound Interest, and an Extension of SMART'S TABLES; 17th Edition, with considerable Additions by FEDOR THOMAN, fcap. 8vo. *cl.*, 3s
1859
- 9675 **IREDELL (J. S.)** NOTES on MAGNETISM and ELECTRICITY, with Introduction to Telephony and Telegraphy, 51 woodcuts, cr. 8vo. *cl.*, 2s (p. 3s 6d nett)
1903

- 486 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9677 **IRISH ACADEMY (Royal)**, PROCEEDINGS of the, complete from their beginning in 1836 to 1872 (Second Series, v. I), with numerous plates, 11 vols. 8vo. cl., uncut (SCARCE), £5. 5s
Dublin, 18[36]41-72
- 9678 ————, TRANSACTIONS of the, from 1837 (vol. 18) to 1886 (vol. 28); but wanting v. 23); with numerous plates, 15 vols. 4to. cl. (SCARCE), £8. 8s
ibidem, 1838-86
- Both the above publications contain important original contributions on the exact sciences by THOMAS ANDREWS, JAMES APJOHN, M.D., SIR WILLIAM ROWAN HAMILTON, SIR ROBERT KANE, HUMPHREY LLOYD, D.D., JAMES McCULLAGH, F.F.R.S., etc. etc. etc.
- 9679 **IRON and STEEL INSTITUTE**, JOURNAL of the, from 1880 to 1909, No. 1 (Vols. 17-79), 63 v.: NAME INDEX, v. 1-50 (1869-96), '98: GENERAL INDEX, v. 36-58 (1890-1900), 1902: SPECIAL VOLUME (The Iron and Steel Institute in America in 1890), n. d.: SUPPLEMENT to v. LXV (Relations between the Effects of Stresses slowly applied, by PIERRE BREUIL), '04: CARNEGIE SCHOLARSHIP MEMOIRS, V. J, ed. by G. C. LLOYD, '09: LIBRARY CATALOGUE, with very numerous plates, portraits, etc.—in all 70 vols. 8vo. cl. (FRESH SET), £12. 12s (p. £52. 12s) 1880-1909
- 9680 ——— ANOTHER SET, from 1884 to 1911, No. 1 (Vols. 25-83), 59 v.: NAME INDEX, v. 1-50 (1869-96), '98: GENERAL INDEX, v. 36-58 (1890-1900), 1902: SUBJECT and NAME INDEX to v. 59-83 (1901-10), '11: SPECIAL VOLUME (The Iron and Steel Institute in America in 1890), n. d.: SUPPLEMENT to v. LXV (Relations between the Effects of Stresses slowly applied, by PIERRE BREUIL), '04: CARNEGIE SCHOLARSHIP MEMOIRS, v. I—II, edited by G. C. LLOYD, 2 v., '09-10: LIBRARY CATALOGUE, with very numerous plates, portraits, etc.—in all 67 vols. 8vo. cl. (fresh set), £10. 10s (p. £52.) 1884-1911
- One of the earliest and most important publications on the metallurgy of iron, containing valuable original contributions by the leading metallurgists of the time. The second Index Volume contains a 'History of the Development of the Institute' by BENNETT H. BROUGH, with 16 portraits of past presidents.
- 'This periodical contains not only many original articles of great value, but also an almost complete collection of abstracts of the literature of iron and steel that is published anywhere, classified under headings for convenient reference. Anyone beginning the study of any branch of iron and steel metallurgy should commence with this journal, as soon as the text-books have been consulted.'—B. Stoughton.
- 9681 **IRVING (Alexander)** DISSOCIATION and CONTACT-ACTION, 8vo. (pp. 8), sewn, 1s [1887]
- 9682 **ISAAC (Florence)** On the SPONTANEOUS CRYSTALLISATION and the MELTING and FREEZING POINT CURVES of MIXTURES of TWO SUBSTANCES which form Mixed Crystals and possess a Minimum or Eutectic Freezing Point: MIXTURES of AZOBENZENE and BENZYLANILINE, with diagrams, roy. 8vo. (pp. 26), sewn, 1s 6d 1910
- 9683 ——— The TEMPERATURES of SPONTANEOUS CRYSTALLISATION of MIXED SOLUTIONS, and their Determination by Means of the Index of Refraction: Mixtures of Solutions of Sodium Nitrate and Lead Nitrate, with 4 diagrams, 8vo. (pp. 28), sewn, 1s 6d 1908
- 9684 **ISHERWOOD (Benjamin Franklin, U.S.N.)** ENGINEERING PRECEDENTS for STEAM MACHINERY: the Performances of Steamships, EXPERIMENTS with PROPELLING INSTRUMENTS, CONDENSERS, BOILERS, etc., with Analyses, the whole being Original Matter, with front. and 5 folding tables, 8vo. cl., with auto. of George Kennie, F.R.S., 6s 6d New York, 18:9
- Including British Gun-Boats in China, British Despatch Screw Steamer 'Lynx,' Screw Steamers 'Sydney,' 'Ireland,' and 'Scotland,' British War Screw Steamship 'Conflict,' etc.
- 9685 **IWANOW (Alexander)** HILFSTAFELN zur BERECHNUNG ANGENÄHERTER BAHNEN der KLEINEN PLANETEN vom HECUBA-TYPUS; sm. folio (pp. 53), sewn, 3s St. Petersburg, 1899
- 9686 **IZARN (Joseph)** MANUEL du GALVANISME, ou Description et Usage des divers APPAREILS GALVANIQUES employés jusqu'à ce Jour, tant pour les Recherches Physiques et Chimiques, que pour les Applications Médicales; with 6 folding plates, 8vo. sewn, uncut, 6s 6d 1804
- A painstaking account of all that was then known of galvanic electricity, including an interesting sketch of the researches of Sulzer, Cotugno, and Galvani.
- 9687 **JACK (Richard, Teacher of Mathematicks, Edin.)** ELEMENTS of CONIC SECTIONS, demonstrating the principal Properties of the Parabola, Ellipse, and Hyperbola, with 9 folding plates, 8vo. old calf, 5s Edin., 1742
- 9688 **JACKSON (Lt.-Col. Basil, H. E. I. C. Coll., Addiscombe)** COURSE of MILITARY SURVEYING, including Sketching in the Field, Plan Drawing, Levelling, Military Reconnaissance, etc. etc. etc., with particular Description of the SURVEYING INSTRUMENTS, and the Methods of using them, with 18 plates and numerous diagrams, 8vo. cl. (name cut off title), 4s 1838
- 9689 ——— FIFTH EDITION [enlarged], with 19 plates, 8vo. cl., 5s 6d (p. 14s) 1860
- The preface of this edition contains interesting information regarding the author's share in the Waterloo Campaign, and his survey of the river Dyle, which he supposes to have been used by Marshal Blücher in his retreat to Wavres. He served at St. Helena during Napoleon's captivity, and then got a professorship at Addiscombe, which he held till 1857. He died in 1889 aged ninety-four.
- 9690 **JACKSON (Charles Thomas, M.D., F.G.S.)** REPORT on the ALBERT COAL MINE [NEW BRUNSWICK, CANADA], with folding lithograph, woodcuts, and map, 8vo. (pp. 48), sewn, 3s [Boston, Mass., 1851]
- Independently of his fame as a geologist, the author was the first to discover the anæsthetic property of ether.
- 9691 **JACKSON (Dugald Caleb; Mass. Inst. Technology, and John Price)** ELEMENTARY BOOK on ELECTRICITY and MAGNETISM, and their Applications, with 353 illustrations, sq. cr. 8vo. hf. calf, 4s (p. 7s 6d nett) New York, 1902
- 9692 **JACKSON (George, accountant)** The CHECK JOURNAL, on the Principle of DOUBLE ENTRY, 23rd Edition, 8vo. cl., 3s (p. 5s nett) 1901

- 9694 **JACKSON** ([Col. Julian, *hic*] J. R.; *Bengal Artillery; Russian General Staff; F.R.S.*) MINERALS and their USES, in a Series of Letters to a Lady, with coloured front., fcap. 8vo. *cl.*, 3s 1849
- 9695 **JACKSON** (Lewis d'Aguilar, C.E.) ACCENTED FOUR-FIGURE LOGARITHMS, and other Tables. *Svo. cl.*, 4s (p. 9s) 1881
- 9696 ——— AID to SURVEY-PRACTICE, for Reference in Surveying, Levelling and Setting-out; and in Route-Surveys of Travellers by Land and Sea, with 21 plates, and 42 woodcuts, thick large cr. *Svo. cl.*, 4s (p. 12s 6d) 1880
- 9697 ——— HYDRAULIC MANUAL, PART I: Working Tables and Explanatory Text; PART II: Hydraulic Statistics and Indian Meteorological Statistics, 2 vols. 8vo. in 1, *cl.*, 8s (p. £1. 8s) 1875
- 9698 ——— FOURTH [LATEST] EDITION, rewritten and enlarged, thick large cr. 8vo. *cl.*, 7s 6d (p. 16s) 1883
- This edition does not contain the Hydraulic Statistics and Indian Meteorological Statistics.
- 9699 ——— MODERN METROLOGY: a MANUAL of the METRICAL UNITS and SYSTEMS of the present Century, with Appendix of a proposed ENGLISH SYSTEM, with front., large cr. 8vo. *cl.*, 5s (p. 12s 6d) 1882
- 9700 ——— SIMPLIFIED WEIGHTS and MEASURES, on a Natural System applicable to most Civilized Nations, 8vo. *cl.* (o. p.), 2s 6d 1876
- 9701 ——— STATISTICS of HYDRAULIC WORKS and HYDROLOGY of ENGLAND, CANADA, EGYPT, and INDIA, large 8vo. *cl.* (o. p.), 8s 6d (p. £1. 11s 6d) 1835
- 9702 **JACOB** (Arthur, *Bombay Irrigation Service*) On the DESIGNING and CONSTRUCTION of STORAGE RESERVOIRS, with 4 folding plates. *Svo. boards* (o. p.), 3s 6d 1867
- A well-written work by a member of the well-known Indian Army family.
- 9703 **JACOB** (C., *École Polytechnique*) APPLICATION de l'ALGÈBRE à la GÉOMÉTRIE, suivie de la Discussion des Courbes d'un Degré supérieur au Second; with 13 folding plates, 8vo. *hf.* French morocco neat, 3s 6d 1854
- 9704 **JACOB** (William, F.R.S.) HISTORICAL INQUIRY into the PRODUCTION and CONSUMPTION of the PRECIOUS METALS, 2 vols. 8vo. *hf. calf* (scarce), 9s 1831
- Perhaps the best work on the subject.—McCulloch.
- 9705 **JACOB** (William Stephen, F.R.A.S.) MAGNETICAL OBSERVATIONS at the H.E.I. Co.'s OBSERVATORY at MADRAS, 1851-5, roy. 4to. *cl.*, 5s Madras, 1834
- By the brother of the redoubtable General John Jacob, the pacifier of Sind. He was an able and indefatigable observer, and did much to advance astronomy in India.
- 9706 **JACOBI** (Karl Gustav Jacob; F.R.S.) CANON ARITHMETICUS, sive Tabulæ quibus exhibentur pro singulis Numeris Primis vel Primorum Potestatibus infra 1000 Numeri ad datos Indices et Indices ad datos Numeros pertinentes, 4to. boards, uncut, with bookplate of Prof. Lloyd Tanner, F.R.S. (scarce), 18s 6d Berolini, 1839
- 9707 ——— ANOTHER COPY, sewn, uncut, 17s 6d
- 9708 ——— VORLESUNGEN über DYNAMIK, nebst FÜNF HINTERLASSENEN ABHANDLUNGEN desselben, herausgegeben von A. CLEBSCH, 4to. boards (SCARCE), £1. 1s *ibidem*, 1866
- Including 'Probleme der Mechanik in welchen eine Kräftefunction existirt, und über die Theorie der Störungen'; 'Über die vollständigen Lösungen einer partiellen Differentialgleichung erster Ordnung'; 'Über die Integration der partiellen Differentialgleichungen erster Ordnung zwischen vier Variablen'; 'De Equationum Differentialium Isoperimetricarum Transformationibus,' etc. etc.; 'De Equationum Differentialium Systemate non Normali ad Formam Normalem revocando.'
- 9709 **JACOBI** (Moritz Hermann v.; brother of the foregoing) Die GALVANOPLASTIK, oder das Verfahren cohärentes KUPFER in PLATTEN oder nach sonst gegebenen Formen, unmittelbar aus Kupferauflösungen, auf galvanischem Wege zu produciren, nach dem auf Befehl des Gouvernements in russischer Sprache bekannt gemachten Originale; with folding copperplate, 8vo. (pp. 71), sewn (VERY SCARCE), £1. 10s St. Petersburg, 1840
- 9710 ——— ANOTHER COPY, sewn (wanting plate and last 4 ll.), 5s
- This important work contains an account of the author's invention (based on the researches of John Frederic Daniell, F.R.S.) of electrotyping.
- 9711 ———, and Heinrich Friedrich Emil LENZ: Ueber die GESETZE der ELECTROMAGNETE, II.—III. Abtheilung; with 2 folding plates, 4to. (pp. 24), sewn (scarce), 7s 6d *ibidem*, 1843
- Lenz and Jacobi suggested that the magnetism of an electromagnet was proportional to the current and to the number of turns of wire in the coil.—Prof. Silvanus Thompson, F.R.S.
- 9712 **JACOBSON** (Paul), and F. HÖNIGSBERGER: Ueber das METAOXYAZOBENZOL und die CONSTITUTION der PARAOXYAZOKÖRPER, roy. 8vo. (pp. 31), sewn, 1s Berlin, 1903
- 9713 **JACQUEMIN** (Georges) Les FERMENTATIONS RATIONNELLES (Vins, Cidres, Hydromels, Alcools); with 17 portraits and plates (some coloured), and numerous other illustrations, thick impl. 8vo. *cl.*, 7s 6d (p. F. 15 nett) Malzéville, 1900
- 9714 **JACQUEROD** (Adrien), et Stefan BOGDAN: DÉTERMINATION du POIDS ATOMIQUE de l'AZOTE par l'Analyse en Volume du Protoxyde d'Azote, roy. 8vo. (pp. 21), sewn, 1s 6d Genève, 1905
- 9715 **JACQUIN** (Nikolaus Joseph Freiherr v.) ANFANGSGRÜNDE der MEDICINISCH-PRACTISCHEN CHYMIE, zum Gebrauche seiner Vorlesungen, 2. Auflage, 8vo. sewn, 6s 6d Wien, 1785
- The author made important contributions to botanical science. The genus *Jacquinia* of the order Sapotaceæ was named after him by Linnæus.
- 9716 **JAEGER** (Frans Maurits) The CRYSTAL FORM of HALOGEN DERIVATIVES of OPEN-CHAIN HYDROCARBONS with Reference to the BARLOW-POPE THEORY of STRUCTURE, 8vo. (pp. 8), sewn, 1s 1908
- 9717 **JAGO** (William, F.I.C.) INORGANIC CHEMISTRY, Theoretical and Practical; 5th Edition, with spectrum plate, and 78 woodcuts, post 8vo. *cl.*, 2s (p. 4s 6d) 1895
- 9718 ——— MANUAL of FORENSIC CHEMISTRY, dealing especially with CHEMICAL EVIDENCE; based on Lectures at University College, London, cr. 8vo. *cl.*, 2s 6d (p. 5s) 1909

- 488 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9720 **JAGO** (James; F.R.S.) OCULAR SPECTRES and STRUCTURES as MUTUAL EXPONENTS. EUSTACHIAN TUBE, why opened in DEGLUTITION, with 14 illustrations, 8vo. cl., 4s 1856
The first part treats of optical defects of the human eye.
- 9721 **JAHN** (Gustav Adolph) TAFELN der QUADRAT- und KUBIKWURZELN aller ZAHLEN von 1 bis 25500, der QUADRATZAHLEN von 1 bis 27000 und der KUBIKZAHLEN von 1 bis 24000, nebst einigen anderen Wurzel- und Potenztafeln, impl. 8vo. sewn, with auto. of Prof. Lloyd Tanner, F.R.S., 3s 6d Leipzig [c. 1845]
- 9722 **JAHRBUCH** der CHEMIE: Bericht über die wichtigsten Fortschritte der reinen und angewandten Chemie, herausgegeben von RICHARD MEYER, I—XIX. JAHRGANG; mit GENERAL-REGISTER zu Bd. I—X; with numerous illustrations, 20 vols. roy. 8vo. original hf. morocco, £7. (p. M. 324) Braunschweig, 1891-1909
- 9723 ——— ANOTHER SET, COMPLETE to 1905 (Vols. I—XV), with GENERAL-REGISTER to vv. I—X, 16 vols. roy. 8vo. original hf. morocco, £4. 15s (p. M. 248) ib., 1891-1905
- 9724 ——— über die FORTSCHRITTE der MATHEMATIK, im Verein mit anderen Mathematikern herausgegeben von CARL OHRTMANN, FELIX MÜLLER, ALBERT WANGERN, X. BAND. JAHRGANG 1878, 8vo. hf. calf gilt, 6s (p. M. 16 sewn) Berlin, 1880
- 9725 ——— BAND XXIV. JAHRGANG 1892, thick 8vo. hf. calf gilt, 12s (p. M. 32 sewn) ibidem, 1895
- 9726 ——— BAND XXXIX. JAHRGANG 1908, thick 8vo. in 3 parts, sewn, £1. 1s (p. M. 40.50) ib., 1911
- 9727 ——— für ÖKONOMISCHE CHEMIE und verwandte Fächer, herausgegeben von WILIBALD ARTUS, I. JAHRGANG, 8vo. sewn, 3s Leipzig, 1847
- 9728 ——— der königlich PREUSSISCHEN GEOLOGISCHEN LANDESANSTALT und BERGAKADEMIE zu BERLIN für 1882; with 23 plates and map (many folding and coloured), besides woodcuts, impl. 8vo. hf. cl., 5s 6d (p. M. 20) Berlin, 1883
- 9729 **JAHRESBERICHT**, 1864-6, dem COMITÉ der NICOLAI-HAUPTSTERNWARTE abgestattet vom Director der Sternwarte [OTTO WILHELM V. STRUVE], aus dem Russischen übersetzt, 3 vols. roy. 8vo. sewn, 3s 6d St. Petersburg, 1864
- 9730 ——— über die FORTSCHRITTE der CHEMIE und verwandter Theile anderer Wissenschaften, begründet von JUSTUS FREIHERR V. LIEBIG und HERMANN KOPP; complete from the beginning in 1847 to 1891, also 1892 parts 1-6, 1893 pts. 1, 2, 4, and 1896 pts. 1 and 2—52 v., and 11 parts: Register, 1847-91, 5 v.—together 57 vols. 8vo. hf. green morocco, and 11 parts, sewn, £22. Giessen, 1847—Braunschweig, '96
- 9731 ——— ANOTHER SET, complete from the beginning in 1847 to 1891, also 1892 parts 1—3, and 1896 pts. 1 and 2—52 v. and 5 parts: REGISTER, 1847-86, 5 v.—together 57 vols. and 5 parts 8vo. all vv. to 1888 v. 1 in hf. calf, and the rest in parts as issued, £18. 18s 1847-96
- 9732 ——— ANOTHER SERIES, from 1855 to 1887, '89, and '91 (pt. 1), 40 v.: REGISTER, 1847-76, 3 v.—43 vols. 8vo. hf. calf (SOUND SERIES); £12. 12s 1855-91
Forming the continuation of BERZELIUS'S 'JAHRESBERICHT' (v. No. 9734, infra).
- 9733 ——— über die FORTSCHRITTE der CHEMISCHEN TECHNOLOGIE, für Fabrikanten, Hütten- und Forstleute, Cameralisten und Pharmaceuten, herausgegeben von JOHANNES RUDOLPH WAGNER und FERDINAND FISCHER; complete from its beginning in 1855 to 1906, 52 v.: REGISTER, vv. 1-10, and 31-40, 2 v.—54 vols. 8vo., with many thousand woodcuts; hf. calf (some v. newly bound); SCARCE, £17. 17s Leipzig, 1856-1906
- 9734 ——— über die FORTSCHRITTE der PHYSISCHEN WISSENSCHAFTEN von JACOB BERZELIUS, aus dem Schwedischen übersetzt von C. G. GMELIN; from its beginning in 1822 to 1840, 19 vols. 8vo. in 7, marbled boards (SCARCE), £4. 4s Tübingen, 1822-40
'These reports, which were edited by Berzelius, are unique, and are absolutely indispensable to any one who desires to make a detailed study of the progress of chemistry during these years.'—Prof. E. v. Meyer.
- 9735 **JALLABERT** (Jean, F.R.S.) EXPÉRIENCES sur l'ÉLECTRICITÉ, avec quelques Conjectures sur la CAUSE de ses EFFETS; with folding plates, and folding table, 12mo. old calf (RARE), 10s 6d 1749
'Ce fut en 1748 qu'il fit connaître au public ses longs et précieux travaux sur l'électricité. C'est un modèle de méthode en ce genre.'—Desgenettes. The above work was first published in Geneva in 1748, and is here reprinted, with a long letter by F. BOISSIER DE SAUVAGES. The numerous experiments include an interesting account of the cure of a man's paralysed arm by the electric spark.
- 9736 **JAMES** (Alfred, F.G.S.) CYANIDE PRACTICE, with 11 plates and numerous other illustrations, cr. 4to. cl. (cover stained), 7s 6d (p. 15s nett) New York [1902]
- 9737 ——— SECOND EDITION, with 11 plates and other illustrations, cr. 4to. cl., 9s ib. [1902]
- 9738 **JAMES** (William; original projector of the Liverpool and Manchester Railway, and William Henry): THE TWO JAMES'S and the TWO STEPHENSONS; or, the EARLIEST HISTORY OF PASSENGER TRANSIT ON RAILWAYS, by E. M. S. P., cr. 8vo. cl. (VERY SCARCE), 15s 1861
Intended as an antidote to Smiles's 'Life of George Stephenson', and of great interest in connexion with early railway engineering. William James not only made the earliest survey of the Liverpool and Manchester, but elaborated schemes for a general English railway system in 1820, and from London to Rochester, Shoreham, and Portsmouth in 1823, utilising the old Surrey Iron Railway of 1801. After being a very wealthy man he became bankrupt and was imprisoned in the Bench, and his son William Henry died a pensioner at Dulwich College in 1873.
'It appears to be based on family papers' (D. N. B.), and claims for W. H. James against George Stephenson the invention of the tubular boiler; but this really seems to have been the water-tube boiler.

- 9740 **JAMES (Lt.-Gen. Sir Henry, R.E., F.R.S.; Ordnance Survey)** INSTRUCTIONS for TAKING METEOROLOGICAL OBSERVATIONS, with TABLES for their CORRECTION, and Notes on Meteorological Phenomena, with 20 fine plates of Meteorological Instruments, etc., and charts (many folding or coloured), roy. Svo. cl. (scarce), 9s
1860, or, '1
Including copious descriptions of the meteorological instruments then in use.
- 9741 **JAMESON (Francis J.)** The PRINCIPLES of the SOLUTION of SENATE-HOUSE 'RIDERS', exemplified by the Solution of those proposed in the earlier Parts of the Examinations of 1848-51, with 2 plates, 8vo. cl., 3s 6d
Cambridge, 1851
- 9742 **JAMESON (Robert, F.R.S.)** TREATISE on the EXTERNAL CHARACTERS of MINERALS, 2nd Edition [enlarged], with 7 folding plates, 8vo. contemporary brown calf gilt, 6s 6d
Edin., 1816
Including 'Tabular View of the different Generic and Subordinate special External Characters of Minerals' (pp. 51).
- 9743 ——— SYSTEM of MINERALOGY, 2nd Edition [enlarged], with 13 folding plates, 3 vols. 8vo. old hf. calf (a few joints cracked), 8s 6d
ibidem, 1816
- 9744 ——— ANOTHER COPY, 3 vols., contemporary scored calf, 10s 6d
- 9745 ——— THIRD EDITION, [enlarged], with 12 folding plates, 3 vols. 8vo. contemporary hf. calf, 12s 6d
ib., 1820
'The arrangement followed is that of Werner, somewhat modified.'—*Preface*.
The author studied at Freiberg under Werner, founded the 'Wernerian Natural History Society', and was the first great exponent in Britain of Werner's geological tenets (D. N. B.).
- 9746 **JAMIESON (Alexander, LL.D.)** TREATISE on the CONSTRUCTION of MAPS, with Appendix and copious Notes, 20 plates, 8vo. boards, or, hf. bound, 3s
1814
- 9747 **JAMIESON (Andrew, M.I.C.E.)** ELEMENTARY MANUAL of MAGNETISM and ELECTRICITY, 3rd Ed., with numerous woodcuts, cr. 8vo. cl., 2s
1894
- 9748 ——— ELEMENTARY MANUAL on STEAM and the STEAM ENGINE; 3rd Edition, with numerous woodcuts, cr. 8vo. cl., 2s
1892
- 9749 ——— TEXT-BOOK of STEAM and STEAM ENGINES; 3rd Edition, with coloured front., and numerous other plates and woodcuts, cr. 8vo. cl., 3s (p. 7s 6d)
1888
- 9750 ——— FIFTH EDITION, with coloured front., and numerous other plates and woodcuts, large cr. 8vo. cl., 3s 6d (p. 7s 6d)
1890
- 9751 ——— ANOTHER COPY, cl. (wormed and binding soiled), 2s 6d
- 9752 ——— FIFTEENTH EDITION, including TURBINES and BOILERS, with 11 plates and over 400 other illustrations, thick large cr. 8vo. (pp. 842), cl., 5s 6d (p. 10s 6d)
1906
- 9753 **JAMIN (Jules Célestin, de l'Institut)** COURS de PHYSIQUE de l'École Polytechnique; 3^e Edition, augmentée et entièrement refondue par J. C. JAMIN et E. BOUTY; with 14 folding plates (2 coloured), and over 1200 woodcuts, 4 vols. 8vo. hf. morocco neat, or, hf. calf gilt, 12s 6d (p. F. 67 nett sewn)
1882-3
- 9754 ——— QUATRIÈME [DERNIÈRE] ÉDITION, augmentée et entièrement refondue par EDMOND BOUTY; with 14 folding plates (2 coloured), and 1887 woodcuts, 4 vols. in 5, cl., uncut, t. e. g.; Suppléments I^{er} à III^e, par E. BOUTY; with 2 plates and 193 woodcuts, 3 vols. sewn—8 vols. 8vo. in 9, £2. 10s (p. F. 87 nett sewn)
1885-1906
The standard French work on physics.
- 9755 **JAMISON (Alpha Pierce, Purdue Univ.)** ADVANCED MECHANICAL DRAWING, with 123 illustrations, 8vo. cl., 5s (p. 8s 6d nett)
New York, 1905
- 9756 **JANE (Fred T.)** ALL the WORLD'S AIR-SHIPS (Flying Annual), with special Chapter on AERIAL ENGINEERING by CHARLES DE GRAVE SELLS, M.I.C.E., with hundreds of illustrations, oblong folio, cl., 7s 6d (p. £1. 1s nett)
1909
- 9757 **JANNETTAZ (Édouard)** Note sur la MATIÈRE COLORANTE des Calcaires Noirs des Pyrénées, 8vo. (pp. 20), sewn, 1s 6d
1892
- 9758 ——— NOTICE sur les TRAVAUX SCIENTIFIQUES de [par lui-même]; illustrated, 4to. (pp. 57), sewn, 2s 6d
1892
- 9759 ——— Les ROCHES: Description de leurs Éléments, Méthode de Détermination; with 39 diagrams, 12mo. cl., 2s
1874
- 9760 ——— Les ROCHES et leurs ÉLÉMENTS MINÉRALOGIQUES: Descriptions, Analyses Microscopiques, Structures, Gisements, 4^e [dernière] Édition, revue et augmentée; with 28 plates (20 coloured), 2 coloured folding maps, and 322 other illustrations, thick 8vo. sewn, 4s 6d (p. F. 8 nett)
1910
- 9761 **JANVIER (Antide, horloger du Roi)** MANUEL CHRONOMÉTRIQUE, ou Précis de ce qui concerne le Temps, ses Divisions, ses Mesures, leurs Usages, etc.; with front., and 5 folding plates, fcap. 8vo. hf. calf (rare), 8s 6d
F. Didot, 1821
One of the earliest short treatises on the subject, and of well-known excellence. It includes an interesting chapter on the Progress of Horology during the XVIIIth Century.
- 9762 ——— Des RÉVOLUTIONS des CORPS CÉLESTES par le MÉCANISME des ROUAGES; with 9 fine copperplates (8 folding), showing complex mechanical contrivances, 4to. hf. green morocco gilt (fine apud eundem), 1812
Chiefly a description of the author's planetarium on the geocentric system, which, for its mechanical ingenuity, gained the praise of Delambre. Added is: Notice des principaux Ouvrages composés par A. Janvier [par Delambre (pp. 8)].
- 9763 **JAPP (Alexander Hay; friend of E. L. Stevenson)** INDUSTRIAL CURIOSITIES; with full-page and other woodcuts, cr. 8vo. cl., 2s 6d
1880
- 9764 **JARRIANT (B.)** ÉTUDE sur les PARATONNERRES: des Paratonnerres à Longues Tiges et leurs Avantages; with 13 plates, 8vo. (pp. 51), sewn, 2s 6d
1884
- 9765 **JEFFCOCK (Parkin)** CIVIL and MINING ENGINEER: a MEMOIR, by his Brother JOHN THOMAS JEFFCOCK, pr., F.S.A., with portrait and 3 plates, cr. 8vo. cl. (scarce), 5s
1867
The author was killed by a secondary explosion while bravely directing the rescue-work in the burning pit, at the great disaster at the Oaks Colliery near Barnsley in 1866, whither he had hastened as a volunteer from his home at Duffield near Derby. He had already behaved with like bravery at a flooded pit at Clay Cross in 1861. He made two examinations and reports on the coalfield of the Mosel near Saarbrück in 1863 and 1864.

- 9767 **JAUMANN** (*Gustav, Brünn*) Die GRUNDLAGEN der BEWEGUNGSLEHRE, von einem modernen Standpunkte aus; with 124 woodcuts, 8vo. sewn. 6s 6d (p. M. 11) Leipzig, 1905
- 9768 **JEANS** (*George, pr., Pembroke Coll., Oxon.*) PRACTICAL ASTRONOMY for the UNLEARNED [with Astronomical and Optical Terms], illustrated, post 8vo. cl., 2s 6d 1856
- 9769 **JEANS** (*H. W., F.R.A.S.*) HANDBOOK for the STARS: Rules for finding the Names and Positions of all the Stars of the First and Second Magnitude, 2nd Edition, with diagrams, roy. 8vo. cl., with auto. of *Edward Whymper*, 2s 6d 1848
- 9770 ——— THIRD EDITION [enlarged], roy. 8vo. cl., 3s 1868
- 9771 **JEANS** (*James Hopwood; Stokes Lecturer, Cantab.; F.R.S.*) ELEMENTARY TREATISE on THEORETICAL MECHANICS, with 156 diagrams, 8vo. buckram, 5s 6d (p. 10s 6d) Boston [Mass., 1906]
- 9772 **JEANS** (*James Stephen, Sec. Brit. Iron Trade Assn.*) STEEL: its History, Manufacture, Properties, and Uses, with 24 plates (mostly folding), and 186 woodcuts, very thick 8vo. cl., £1. 1s 1880

This important work, the first of its kind, is now out of print and VERY SCARCE.

- 9773 **JEFFCOTT** (*Henry Homan; Roy. Coll. Science, Ireland*) NOTES on SCREW THREADS, with diagrams, 8vo. (pp. 42), sewn, 1s 6d 1907
- 9774 **JEFFREYS** (*Julius, F.R.S., F.G.S.; inventor of the respirator*), CONFUTATIVE BIOGRAPHICAL NOTICE of, by LT.-COL. E. JEFFREYS, Bengal Army, with woodcuts, 8vo. (pp. 38), sewn (scarce), 5s 1855

The 'confutation' was of a lecturer at the Royal Institution, who had used the opportunity of a Friday Evening lecture there to charge Jeffreys with plagiarising the invention of the respirator, and on other occasions was in the habit of defaming him.

The pamphlet, by the inventor's brother, is the fullest account of the author, and includes a complete list of his patents on warming and ventilation, boat-lowering gear and various appliances for ships, etc. etc.

- 9775 **JELINEK** (*Carl*) ANLEITUNG zur ANSTELLUNG METEOROLOGISCHER BEOBACHTUNGEN und Sammlung von Hilfstafeln, mit besonderer Rücksicht auf die meteorologischen Stationen in Oesterreich und Ungarn; with 17 woodcuts of meteorological instruments, roy. 8vo. hf. calf, 4s 6d Wien, 1869
- 9776 ——— BAHNBESTIMMUNG des von DE VICO am 24. Jänner 1846 entdeckten COMETEN; 4to. (pp. 21), sewn, 2s 6d Prag, 1848
- 9777 ——— Ueber den TÄGLICHEN GANG der vorzüglichsten METEOROLOGISCHEN ELEMENTE aus den stündlichen Beobachtungen der PRAGER STERNWARTE abgeleitet; with 6 folding charts, folio, hf. calf, 6s 6d Wien, 1850
- 9778 **JELLETT** (*John Hewitt, D.D., Provost T. C. D., P.R.I.A.*) ELEMENTARY TREATISE on the CALCULUS of VARIATIONS, with folding plate, 8vo. cl., uncut (cover slightly damaged); VERY SCARCE, £1. 10s Dublin, 1850
- 'This valuable work constitutes the only complete treatise on the calculus of variations in the English language . . . We strongly recommend the student to master this important volume.'—*Tollhunter's History of the Calculus of Variations.*
- 'The first really complete presentation of Lagrange's idea is that of Jellett.'—*Prof. E. Mach.*
- 9779 ——— v. CARMICHAEL, No. 6736, ante.
- 9779 ——— On the PROPERTIES of INEXTENSIBLE SURFACES, 4to. (pp. 35), sewn, with author's inser., 5s *ibidem*, 1853

Not mentioned in the very inadequate biography of the author in *D. N. B.*

- 9780 ——— TREATISE on the THEORY of FRICTION, with 30 illustrations, 8vo. cl. (scarce), 10s 6d *ib.*, 1872
- The only extant treatise in English on the theory of friction, considered as a part of rational mechanics. 'Some of the principles contained in the present treatise are believed to be here enunciated for the first time.'—*Preface.* These include the theory of spinning tops, afterwards completed by Lord Kelvin.

Dr. Jellett was not only one of the ablest mathematicians of his time in Ireland (which is far from being brought out in his memoir in *D. N. B.*), but as a priest was a devoted servant of the Irish Church throughout the crisis of Disestablishment.

- 9781 **JENNINGS** (*David; Independent Minister, Wapping*) INTRODUCTION to the USE of the GLOBES and the ORRERY, 3rd Edition, with 5 plates, 8vo. old calf (joints cracked), 4s 1766
- With appendix 'attempting to explain the account of the first and fourth days' work of Creation in the first chapter of Genesis'.

- 9782 **JENNY** (*Karl*) FESTIGKEITS-VERSUCHE und die dabei verwendeten MASCHINEN und APPARATE an der k. Technischen Hochschule in Wien, I. ABTHEILUNG: DRAHTMATERIALIEN, EISENBLECHE, SCHMIED-, WALZEISEN und STAHLBLECHE; with 6 folding-plates (linen-mounted), and 17 woodcuts, roy. 4to. hf. morocco neat, 6s (p. M. 12 unbound) Wien, 1878

- 9783 **JENSEN** (*Gerard J. G., C.E.*), BY-LAWS as to HOUSE DRAINAGE and SANITARY FITTINGS made by the LONDON COUNTY COUNCIL, annotated by, and another, woodcuts and map, post 8vo. cl., 2s 1901

- 9784 ——— CAST-IRON HOUSE DRAINAGE, with especial Reference to the Drainage of Town Houses, 185 woodcuts, cr. 8vo. cl., 3s (p. 4s 6d nett) 1908

- 9785 **JENYNS** [later **BLOMEFIELD**] (*Leonard, pr.*) OBSERVATIONS in METEOROLOGY, relating to Temperature, the Winds, Atmosphere, Weather Changes, etc., post 8vo. cl., 2s 6d (p. 10s 6d) 1858
- Including a chapter on 'Weather Prognostications' (pp. 34).

- 9786 **JERNINGHAM** (*Commr. Arthur William, R.N.*) REMARKS on the Means of directing the FIRE of SHIPS' BROADSIDES, with a proposed Method of Controlling and Delivering a SIMULTANEOUS CONVERGING FIRE, with coloured plates (10 folding), and map, roy. 8vo. cl., with author's inser. (SCARCE), 15s 1851

This seems to be an anticipation of Vice-Adml. Sir Percy Scott's fire-controlling apparatus.

- 9787 **JERVIS** (*Col. Henry Jervis-White, R.A., M.P.*) Our ENGINES of WAR, and how we got to make them, with numerous pretty woodcuts, chiefly from old illustrations (one folding), large post 8vo. cl. (scarce), with author's inser., 6s 1859

A good historical sketch, illustrating especially the gradual evolution of firearms.

- 9783 **JETTEL** (*Wladimir*) Die ZUNDWAAREN-FABRICATION nach dem heutigen Standpunkte; with 78 woodcuts, roy. 8vo. sewn, 6s (p. M. 10) Wien, 1897

- 9790 **JENKIN (Henry Charles Fleeming, F.R.S.) BRIDGES**: an Elementary Treatise on their CONSTRUCTION and HISTORY (from Ency. Brit.), with 2 plates and 133 woodcuts, 4to. cl., 2s 6d
Edin., 1776 [sic, recte 1876]
- 9791 ——— ELECTRICITY and MAGNETISM, first edition, with 174 woodcuts and diagrams, cr. 8vo. cl., 2s 1873
- 9792 ——— SEVENTH [FINAL] EDITION; with 177 woodcuts and diagrams, cr. 8vo. cl., 2s 1883
 *Marking a new departure in the exposition of electricity, as the first text-book containing a systematic application of the quantitative methods inaugurated by the British Association Committee on Electrical Standards.—*Lord Kelvin*.
 The 6th was the last edition revised by the author, and the 7th is a reprint.
- 9793 ——— FOUR LECTURES ON ELECTRICAL MEASUREMENTS, at the Royal Engineer Establishment, Chatham, written by CAPT. R. H. STOTHERD, R.E., and corrected by the Lecturer, with 19 woodcuts, 8vo. (pp. 74), hf. bound (very scarce), 8s 6d [1867]
- 9794 ——— PAPERS LITERARY, SCIENTIFIC, etc., edited by [SIR] SIDNEY COLVIN and [SIR] JAMES ALFRED EWING, F.R.S., with MEMOIR (pp. 170) by ROBERT LOUIS STEVENSON, with portraits, plates, and numerous diagrams, 2 vols. 8vo. cl., uncut (scarce), £1. 1s 1887
 Much valued not only for the biography by R. L. STEVENSON, but also for the high scientific value of the papers themselves. It includes a 'Note on the Contributions of Fleeming Jenkin to Electrical and Engineering Science', by LORD KELVIN, as well as the author's Papers on 'Telpherage', 'Submarine Telegraphy, etc. etc.', and a List of his Patents.
 'In practical engineering thoroughness and soundness marked all Jenkin's work. His determinative work in electricity is of the highest value, while his varied originality as an inventor is testified by his 35 British patents, and by his scientific papers.'—*G. T. Bellamy*.
- 9795 ———: REPORTS of the COMMITTEE on ELECTRICAL STANDARDS appointed by the BRITISH ASSOCIATION, revised by WILLIAM THOMSON [LORD KELVIN], J. CLERK MAXWELL, and FLEMING JENKIN, F.R.S., with the latter's REPORT on UNITS of ELECTRICAL RESISTANCE, and his CANTOR LECTURES [on SUBMARINE TELEGRAPHY], 7 folding plates, and diagrams, 8vo. cl. (very scarce), 17s 6d 1873
 'The experimental work of first making practical standards, founded on the absolute system, which led to the unit now known as the British Association ohm, was chiefly performed by Clerk Maxwell and Jenkin. The realisation of the great practical benefit which has resulted from the experimental and scientific work of the Committee is certainly due to Jenkin's zeal and perseverance as secretary, and as editor of the Collected Reports . . . The volume of Reports included Jenkin's Cantor Lecture 'On Submarine Telegraphy', through which the practical applications of the scientific principles . . . became part of general knowledge in the engineering profession.'—*Lord Kelvin*.
- 9796 **JERRARD (George Birch) ESSAY on the RESOLUTION of EQUATIONS**, 8vo. sewn, 3s 6d 1859
- 9797 ——— On a METHOD of TRANSFORMING EQUATIONS by Means of SYMMETRIC FUNCTIONS, 8vo. (pp. 10), sewn, 2s 1853
- 9798 ——— REFLECTIONS on the RESOLUTION of ALGEBRAIC EQUATIONS of the FIFTH DEGREE, 8vo. (pp. 30), sewn, 2s 6d 1845
 The author's work was especially important in connexion with the solution of quintic equations, 'which he reduced to the trinomial form by an extension of the method of Tschirnhausen' (*Prof. Cajori*).
- 9799 **JESSOP (William), and Robert MYLNE; F.R.S.:** [THREE] REPORTS of the ENGINEERS appointed by the COMMISSIONERS of the NAVIGATION of the Rivers THAMES and ISIS, to Survey the State of the said Navigation from LECHLADE to DAYS LOCK [and WHITCHURCH]; with Orders of the Commissioners on the said Reports, and Account of the TOLLS payable on the said Navigation from Cricklade to Stanes, with folding map, 3 vols. 8vo. in 1, old hf. calf, 8s 1791—*Oxford*, 1791
 Undertaken for the barge traffic on the Upper Thames in connexion with the Thames and Severn Canal. At this time the river was full of weirs, over which the barges were got by means of flashes, for which in dry weather they often had to wait for days at a time.
- 9800 **JEVONS (William Stanley, F.R.S.) The COAL QUESTION: an Inquiry concerning the Progress of the Nation, and the PROBABLE EXHAUSTION of our COAL-MINES**; 2nd Edition, revised, with frontispiece, 8vo. cl., with auto. of E. Whymper, 4s 6d (p. 10s 6d) 1866
- 9801 ——— THIRD [LAST] EDITION, edited by A. W. FLUX, with 2 plates, 8vo. cl., 7s (p. 10s nett) 1906
 'He argued that within a century the want of coal would seriously check our material progress . . . J. S. Mill referred to the book as being almost exhaustive of its subject, and as having proved unanswerable in its conclusions.'—*D. N. B.*
- 9802 ——— On the INVERSE, or INDUCTIVE, LOGICAL PROBLEM, 8vo. (pp. 12), sewn, 1s 6d 1872
- 9803 ——— The PRINCIPLES of SCIENCE: a Treatise on Logic and Scientific Method; LIBRARY EDITION, with front. of the Logical Machine, 2 vols. 8vo. cl., uncut (o. p.), 12s 6d (p. £1. 5s) 1874
- 9804 ——— NEW EDITION, printed in smaller type, with front., post 8vo. cl., 6s 6d (p. 12s 6d) 1877, or '83
 His most important work, with illustrations derived from almost every branch of science, wherein 'he developed his theory of logic and scientific method, and of its applications beyond and, so to speak, above the sphere of physical science alone. It proved more stimulative to mathematicians than to metaphysicians.'—*D. N. B.*
 'W. S. Jevons in his *Principles of Science* founds induction upon the theory of inverse probability.'—*Prof. Cajori*.
- 9805 ——— PURE LOGIC, or the Logic of Quality apart from Quantity, with Remarks on Boole's System, and on the Relation of Logic and Mathematics, first edition, post 8vo. cl., with author's inser. to HERBERT SPENCER (as below), and the latter's bookstamp, 10s 6d 1864
 'Herbert Spencer Esq. from the Writer. Manchester Jan. 1866.'—*Inscr. on flyleaf*.
 Founded on Boole's 'Laws of Thought' (*q. v. ante*), but divested of the latter's mathematical dress, 'which, to say the least, is not essential to it.'—*Preface*.
- 9806 ——— STUDIES in DEDUCTIVE LOGIC: a Manual for Students, with front. of ancient logical diagrams, cr. 8vo. cl., 3s 6d (p. 6s) 1880
- 9807 ——— ANOTHER COPY, cl., with HERBERT SPENCER'S bookstamp, 4s
- 9808 **JOBARD (J. B. A. M.) Les NOUVELLES INVENTIONS aux EXPOSITIONS UNIVERSELLES**; with woodcuts, 2 vols. 8vo. in 4 parts, sewn, 3s 6d Bruxelles, 1857-8
- 9809 **JOHN (Johann Friedrich; Univ. Berlin) CHEMISCHES LABORATORIUM, oder ANWEISUNG zur CHEMISCHEN ANALYSE der NATURALIEN, nebst Darstellung der nöthigsten Reagenzien, mit Vorrede von MARTIN HEINRICH KLAPROTH**; with 2 plates, 8vo. sewn, 5s Berlin, 1808

- 9811 **JOHNSON** (Alfred Challice, R.N.) BRIEF AND SIMPLE METHODS of FINDING the LATITUDE and LONGITUDE by SINGLE and DOUBLE ALTITUDES, also new TIME and AZIMUTH METHODS, with diagram, roy. 8vo. cl., 1s 6d 1894
- 9812 ——— How to FIND the LONGITUDE simultaneously with LATITUDE at Noon and at other Times, how to deduce by Inspection from Two Chronometers both Latitude and Longitude, etc. etc., with Azimuth Table, 3rd Edition, 8vo. (pp. 24), *sewn*, 3s 1867
- 9813 **JOHNSON** (Alfred Edward, F.I.C.) THE ANALYST'S LABORATORY COMPANION: a Collection of Tables and Data; 2nd Edition, enlarged, post 8vo. cl., 2s (p. 5s) 1897
- 9814 **JOHNSON** (George Lindsay, M.D., F.R.C.S.) CONTRIBUTIONS to the COMPARATIVE ANATOMY of the MAMMALIAN EYE, chiefly based on OPHTHALMOSCOPIC EXAMINATION [Philosophical Transactions, B, vol. 194], with 30 highly magnified plates (MOSTLY FINELY COLOURED), drawn by ARTHUR W. HEAD, F.Z.S., from the author's direct observations from living animals, roy. 4to. *sewn*, 15s 1901
- * Notwithstanding an extensive literature, a comprehensive comparative anatomy of the mammalian eye still remains unwritten. Microscopical examination is a tedious process, the procuring of absolutely fresh material is by no means easy, and, after all, fresh material is only to be found in the living eye. No amount of fixation or staining will recover what the delicate internal parts lose within a short time after death. It is here that the ophthalmoscope supplies a reliable and most valuable method of research.—*Author*. He is referring to the most remarkable and extensive observations taken by himself, mostly at the Zoological Gardens, under the most unusual and sometimes dangerous conditions—the application of the ophthalmoscope close to the eye while the drawing was made, which in the case of *sc.* the larger *feltide* may be mildly described as a ticklish proceeding, but which never had any untoward consequences.
- 9815 ——— PHOTOGRAPHIC OPTICS and COLOUR PHOTOGRAPHY, including the Camera, Kinematograph, Optical Lantern, and the Theory and Practice of Image Formation, with 14 plates (5 coloured), and 170 woodcuts, 8vo. cl., 4s (p. 7s 6d) 1909
- The author is the inventor of the macula sensitometer and various other optical instruments of precision.
- 9816 **JOHNSON** (George Stillingfleet) ON POTASSIUM TRIODIDE, 8vo. (pp. 5), *sewn*, 1s 1877
- 9817 **JOHNSON** (J. C. F., F.G.S.) GETTING GOLD: A Practical Treatise for Prospectors, Miners, and Students; with 50 woodcuts and diagrams, large cr. 8vo. cl., 2s 1897
- 9818 **JOHNSON** (James and John Henry) THE PATENTEE'S MANUAL: the Law and Practice of Patents for Inventions; with the Statutes, Rules, and Foreign and Colonial Patent Laws, International Convention and Protocol, 5th Edition, 8vo. cl., 3s (p. 10s 6d) 1884
- 9819 ——— SIXTH [LAST] EDITION, enlarged, 8vo. cl., 4s 6d (p. 10s 6d) 1890
- 9820 **JOHNSON** (John, surveyor): JOHNSONS ARITHMETICK in two Books: the first of Vulgar Arithmetic, with easie Rules to work all the first four Parts of Arithmetick, in whole Numbers and Fractions; the second of Decimall Arithmetick, whereby all Fractional Operations are wrought in whole Numbers in Merchants Accounts, without Reduction, with the perfect working of Interests and Annuities; 6th Edition, with Additional Tables, 16mo. *contemporary calf (blank bottom corner of title torn off)*; RARE, £1. 5s T. N. for J. Sweeting, 1655
- * In his decimal fractions Johnson has the rudest form of notation; for he generally writes the places of decimals over the figures, thus:—
1.2.3.4.5.
146.03317 would be 146/03317.
- Otherwise his system is tolerably complete.—*Prof. de Morgan*.
- 9821 **JOHNSON** (John Butler, Univ. Wisconsin) THEORY and PRACTICE of SURVEYING; 15th Edition, enlarged, with 151 illustrations (including plates), 8vo. cl., 7s (p. 17s 6d nett) *New York*, 1900
- 9822 **JOHNSON** (Lewis Jerome, Harvard Univ.) STATICS by ALGEBRAIC and GRAPHIC METHODS, with 5 folding plates, and 42 woodcuts, 8vo. cl., 4s 6d (p. 8s 6d nett) *New York*, 1903
- 9823 **JOHNSON** (Manuel John, F.R.S., P.R.A.S.) A CATALOGUE of 606 PRINCIPAL FIXED STARS in the SOUTHERN HEMISPHERE: deduced from Observations at the Observatory, St. Helena, from November, 1829 to April, 1833, 4to. (pp. 83), *sewn*, 6s 1835
- * This important catalogue was, besides the Madras catalogues, the only source for exact places of the fixed stars situated beyond the reach of the observatories of Europe.—*Miss Agnes M. Clerke*. It was awarded the Royal Astronomical Society's gold medal.
- 9824 **JOHNSON** (Thomas, Magdalene Coll., Cantab.) QUESTIONES PHILOSOPHICÆ, in justi SYSTEMATIS ORDINEM dispositæ, EDITIO II., multò auctior et ad Usus Philosophicos accommodatior; subjeitur Appendix de Legibus Disputandi, 12mo. *old calf (joints cracked)*, 6s *Cantabrigiæ*, 1735
- Including astronomy, physics, and chemistry, one of the questions in the latter being, 'Aurum arte chemica ex quibusvis aliis metallis confici possit?'
- 9825 **JOHNSON** (W. E., King's Coll., Cantab.) TREATISE ON TRIGONOMETRY, with diagrams, cr. 8vo. cl., 4s (p. 8s 6d) 1889
- With final chapter on the interpretation of $\sqrt{-1}$, as an introduction to the study of quaternions.
- 9826 **JOHNSON** (William, M.I.M.E.) THE IMPERIAL CYCLOPEDIA of MACHINERY: Plans, Sections, and Elevations of Stationary, Marine, and Locomotive Engines, Spinning Machinery, Grinding Mills, Tools, etc. etc., with Essay on the Steam Engine, and HISTORY of the RAILWAYS of GREAT BRITAIN, with fine bust portrait of James Watt by J. Le Conte, about 100 plates (mostly folding), and numerous woodcuts and diagrams, 2 vols. folio, *hf. calf (rubbed)*, 10s 6d *Glasgow* [1856]
- 9827 ——— THE PRACTICAL DRAUGHTMAN'S BOOK of INDUSTRIAL DESIGN, founded on the work of ARMENGAUD and AMOUROUX, with additional Plates; 2nd Edition, with 55 double plates, besides numerous woodcuts and diagrams, 4to. *hf. calf (rubbed)*, 4s 6d (p. £1. 8s 6d) 1860
- 9828 **JOHNSON** (William Woolsey, U.S.N. Academy, Annapolis, Md.) CURVE TRACING in CARTESIAN COORDINATES, with 54 diagrams, cr. 8vo. cl., with auto. of, and MS. problems by, F. J. Jervis-Smith, pr., F.R.S. (scarce), 6s 6d 1855
- 9829 ——— SECOND EDITION [unchanged], with 54 diagrams, cr. 8vo. cl., 5s 1858

- 9831 **JOHNSON** (William Woolsey, *U.S.N. Academy, Annapolis, Md.*) TREATISE on ORDINARY and PARTIAL DIFFERENTIAL EQUATIONS, 8vo. *cl.* (*scarce*), 15s 1839
 Containing a development of the theta functions.
 'A geometrical theory of singular solutions [of differential equations] resembling the one used by Cayley was previously employed by W. W. Johnson.—*Prof. Cajori.*
- 9832 **JOHNSTON** [the elder] (Alexander Keith) The PHYSICAL ATLAS: a Series of Maps and Notes illustrating the Geographical Distribution of Natural Phenomena, based on the 'Physikalischer Atlas' of H. BERGHAUS, with the Co-operation of SIR DAVID BREWSTER, J. D. and EDWARD FORBES, F.R.S., and others, with *thirty fine and large folding plates and maps (many COLOURED)*, and the 5 ADDITIONAL MAPS (*and the corresponding Text*) issued with the 2nd Ed. of 1854, ADDED, impl. folio, *hf. morocco, g. e.*, 17s 6d (p. £12. 12s) Edin., 1848-54
 A beautifully executed work, and 'the first physical atlas ever published in England: dedicated to Humboldt, at whose suggestion it had been undertaken.'—*D.N.B.*
- 9833 **JOHNSTON** (James Finlay Weir, F.R.S.) CHEMICAL TABLES, exhibiting the Present State of our Knowledge in regard to the Chemical and Physical Properties of Simple and Compound Bodies, PART I [all pub.]: INORGANIC BODIES, roy. 4to. *sewn, with inscr. to Richard Phillips, F.R.S.*, 6s Edin., 1836
- 9834 ——— THE CHEMISTRY of COMMON LIFE, new [2nd] Edition, revised and brought down to date by GEORGE HENRY LEWES, with 113 *pretty woodcuts*, 2 vols. post 8vo. *cl.*, 3s 6d *ib.*, 1859
- 9835 ——— NEW [3rd AND LAST] EDITION, brought down to date by SIR ARTHUR HERBERT CHURCH, F.R.S., with 102 *woodcuts, and maps*, thick cr. 8vo. *cl.*, 5s *ib.*, 1879
 'His last and best work.'—*D.N.B.*
- 9836 ——— ELEMENTS of AGRICULTURAL CHEMISTRY and GEOLOGY, 12th Edition, by SIR CHARLES ALEXANDER CAMERON, C.B., with *woodcuts*, post 8vo. *cl.*, 3s 6d 1881
 'Johnston successfully sought to give recent scientific discovery a practical application to agriculture and manufactures. Most of his numerous writings attained great popularity.'—*D.N.B.*
- 9837 ——— EXPERIMENTAL AGRICULTURE: the Results of Past, and Suggestions for Future Experiments in Scientific and Practical Agriculture, 8vo. *cl.*, 4s Edin., 1849
- 9838 ——— On a NEW EQUIATOMIC COMPOUND of BICYANIDE with BINOXIDE of MERCURY, and on the CONSTITUTION of the RESINS, roy. 4to. (pp. 25), *sewn, with inscr. to Richard Phillips, F.R.S.*, 4s 1839
- 9839 ——— On PARACYANOGEN and the PARACYANIC ACID, roy. 4to. (pp. 17), *sewn, with inscr. to R. Phillips, and MS. notes by the latter*, 4s Edin., 1837
 The author discovered iodide of gold and its salts.
- 9840 **JOHNSTON** (John), Alexander Charles CUMMING, and James WALKER, F.R.S.: The AFFINITY CONSTANTS of AMPHOTERIC ELECTROLYTES, impl. 8vo. (pp. 68), *sewn*, 2s 1906
- 9841 **JOHNSTONE** (John) SYSTEMATIC TREATISE on the THEORY and PRACTICE of DRAINING LAND, etc. according to the most approved Methods; and adapted to the various Situations and Soils of England and Scotland . . . with Appendix of Hints and Directions for the Culture and Improvement of Bog, Moss, Moor, etc. after being drained; 3rd Edition, enlarged, with 23 *coloured plates (some folding)*, 4to. boards, *uncut, with inscr. to the 4th Earl of Fife*, 10s 6d Edin., 1834
 The account of Joseph Elkington's system of draining, 'which was at one time held in such esteem, that a Parliamentary grant of £1000, was passed for the purchase of his secret. Johnstone was deputed to publish the secret to the world' (*Allibone*).
- 9842 **JOLY** (Charles Jasper; T.C.D.; F.R.S.; *Royal Astronomer of Ireland*) The INTERPRETATION of a QUATERNION as a POINT SYMBOL, impl. 4to. (pp. 16), *sewn*, 1s 6d Dublin, 1902
 Dr. Joly was the greatest quaternionist of his time, and brought out, with great additions, a new edition of Sir William Hamilton's work.
- 9843 **JOLY** (John, T.C.D.; F.R.S.; *Commissioner of Irish Lights*) EXPÉRIENCES sur la DÉNUDATION, par DISSOLUTION dans l'Eau Douce et dans l'EAU de MER, roy. 8vo. (pp. 11), *sewn, with author's inscr.*, 1s 6d 1901
- 9844 ——— On an IMPROVED METHOD of IDENTIFYING CRYSTALS in ROCK SECTIONS by the Use of BIREFRINGENCE, 2 *illustrations*, 8vo. (pp. 10), *sewn*, 1s Dublin, 1901
- 9845 ——— INCANDESCENT ELECTRIC FURNACES, with *illustration*, 8vo. (pp. 3), *sewn*, 1s *ib.*, 1901
- 9846 ——— Du MÉCANISME INTIME de la SÉDIMENTATION, roy. 8vo. (pp. 19), *sewn*, 1s 1901
- 9847 ——— MÉMOIRE sur l'ORDRE de FORMATION des SILICATES dans les Roches Ignées; with 3 *diagrams*, roy. 8vo. (pp. 23), *sewn*, 1s 6d 1901
- 9848 **JONAS** (Peter, *Supervisor of Excise*) The GENUINE ART of GAUGING made Easy and Familiar: the Principle Methods actually practised by the Officers of H.M.'s Revenue of Excise and Customs, also the Established Rules for finding the Areas and Contents of Stills, of Wash Backs by Ordinates, of Coppers, Cisterns, Casks, etc., with the Method of ascertaining the Strength of Spiritous Liquors by the Hydrometer, etc. etc. etc., with *woodcuts*, 8vo. *nice copy in contemporary tree-calf gilt*, 7s 6d 1806
- 9849 **JONES** (Bernard E.) HARDENING and TEMPERING STEEL, with 42 *illustrations*, cr. 8vo. *cl.*, 1s 6d 1911
- 9850 **JONES** (David, *actuary*) On the VALUE of ANNUITIES and REVERSIONARY PAYMENTS, with numerous Tables, 2 vols. 8vo. *hf. calf (rubbed)*; *scarce*, 15s 1843
- 9851 ——— ANOTHER COPY, *tree-calf*, 17s 6d
- 9852 ——— REPRINT, to which is added, a TREATISE on PROBABILITY, by SIR WILLIAM LUBBOCK, F.R.S., and J. E. DRINKWATER BETHUNE, 2 vols. 8vo. *cl.*, £1. 1s 1844
 'An able and scientific treatise.'—*McCulloch*.
 'The notation at present commonly used is due to David Jones, whose work was the first that contained an extensive series of commutation tables.'—*T. P. Sprague*.
 'Lubbock's is an excellent elementary treatise. . . . A binder's blunder caused this work to be often attributed to De Morgan, despite his frequent disclaimers. . . . Lubbock was foremost amongst English mathematicians in adopting Laplace's doctrine of probability.'—*Miss Agnes M. Clerke*.

- 494 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9354 JONES (Chapman, F.C.S.) INTRODUCTION to the SCIENCE and PRACTICE of PHOTOGRAPHY ; 2nd Edition, enlarged, with 46 diagrams, cr. 8vo. cl., 1s 6d 1891
- 9355 JONES (D. E.) EXAMPLES in PHYSICS, 2nd Edition, enlarged, with 18 diagrams, fcap. 8vo. cl., 1s 6d 1893
- 9356 JONES (E.) REVIEW of FACTS and OBSERVATIONS, made by Naturalists, Botanists, Historians, and Travellers, on the Properties and Productions of the SUGAR MAPLE TREE, the Process of Extracting its Sap, CONVERTING it into SUGAR, etc. etc., 8vo. (pp. 72), *sewn (scarce)*, 6s 6d 1832
- 9357 JONES (Edward Thomas) ENGLISH SYSTEM of BOOK-KEEPING, by SINGLE or DOUBLE ENTRY, in which it is IMPOSSIBLE for an ERROR of the most Trifling Amount to be Passed Unnoticed, 4to. *old calf (rare)*, 12s 6d Bristol, 1796
The author claims to have invented a new system of book-keeping, which is described in the above work. Added is a 'license' to practise it, numbered and filled up by the author.
- 9358 JONES (Harry Clary, Johns Hopkins Univ.) THE ATOMIC WEIGHT of RADIUM and the PERIODIC SYSTEM, 8vo. (pp. 5), *sewn*, 1s [Baltimore, 1905]
- 9359 ——— Über die BESTIMMUNG des GEFRIERPUNKTES von VERDÜNNTEN LÖSUNGEN einiger Säuren, Alkalien, Salze und organischen Verbindungen ; with 4 diagrams, 8vo. (pp. 34), *sewn*, with *inscr. to Sir E. Thorpe*, 1s 6d Leipzig, 1893
- 9360 ——— The DISSOCIATION of COMPOUNDS in WATER as measured by the Lowering of the Freezing-Point, and some Investigations with Organic Compounds, with 6 folding plates, 8vo. (pp. 33), *sewn*, with *inscr. to Sir E. Thorpe*, 2s 1893
- 9361 ——— The INTRODUCTION of PHYSICAL CHEMICAL CONCEPTIONS in the EARLY STAGES of TEACHING CHEMISTRY, roy. 8vo. (pp. 16), *sewn*, 1s 6d [New York, 1912]
- 9362 ——— The NATURE of SOLUTION, with 6 plates, 8vo. (pp. 22), *sewn*, 1s 6d [Philadelphia], 1912
- 9363 ——— The PRESENT STATUS of the SOLVATE THEORY, roy. 8vo. (pp. 57), *sewn*, 2s [Baltimore, 1909]
- 9364 ——— The THEORY of ELECTROLYTIC DISSOCIATION, and some of its Applications, with 9 illustrations, 8vo. cl., 4s 6d (p. 7s nett) New York, 1900
- 9365 ———, and John A. ANDERSON: THE ABSORPTION SPECTRA of NEODYMIUM CHLORIDE and PRASEODYMIUM CHLORIDE in Water, Methyl and Ethyl Alcohol, and their Mixtures, 6 plates, roy. 8vo. (pp. 22), *sewn*, 1s 6d [Philadelphia], 1908
- 9366 ——— The ABSORPTION SPECTRA of SOLUTIONS of a Number of SALTS in Water, in certain non-Aqueous Solvents, and in Mixtures of these Solvents with Water, with 25 plates, roy. 8vo. (pp. 94), *sewn*, 2s 6d [Baltimore], 1909
- 9367 ———, and H. P. BASSETT: THE APPROXIMATE COMPOSITION of the HYDRATES formed by certain Electrolytes in Aqueous Solutions at different Concentrations, 11 diagrams, roy. 8vo. (pp. 53), *sewn*, 1s 6d [ib.], 1905
- 9368 ——— DETERMINATION of the RELATIVE VELOCITIES of the IONS of SILVER NITRATE in Mixtures of the Alcohols and Water, and on the Conductivity of such Mixtures, 2 plates and 5 diagrams, roy. 8vo. (pp. 37), *sewn*, 1s 6d [ib.], 1904
- 9369 ———, and Eugene C. BINGHAM: THE CONDUCTIVITY and VISCOSITY of SOLUTIONS of certain SALTS in Mixtures of Acetone with Methyl Alcohol, with ETHYL ALCOHOL, and WATER, 22 diagrams, roy. 8vo. (pp. 74), *sewn*, 2s [ib.], 1905
- 9370 ———, and Charles G. CARROLL: A STUDY of the CONDUCTIVITIES of certain ELECTROLYTES in Water, Methyl and Ethyl Alcohols, and their MIXTURES. Relation between CONDUCTIVITY and VISCOSITY, 7 diagrams, roy. 8vo. (pp. 63), *sewn*, 2s [ib.], 1904
- 9371 ———, and C. A. JACOBSON: THE CONDUCTIVITY and IONIZATION of ELECTROLYTES in Aqueous Solutions as conditioned by Temperature, Dilution, and Hydrolysis, 5 diagrams, roy. 8vo. (pp. 56), *sewn*, 2s [ib.], 1908
- 9372 ———, and James Newton PEARCE: DISSOCIATION as MEASURED by FREEZING-POINT LOWERING and by CONDUCTIVITY—bearing on the Hydrate Theory. The APPROXIMATE COMPOSITION of the HYDRATES formed by a Number of Electrolytes, 10 diagrams, roy. 8vo. (pp. 61), *sewn*, 2s [ib.], 1907
- 9373 ———, and Charles M. STINE: THE EFFECT of one SALT on the HYDRATING POWER of another present in the same Solution, 21 diagrams, roy. 8vo. (pp. 90), *sewn*, 2s [ib.], 1908
- 9374 ———, and W. W. STRONG: THE ABSORPTION SPECTRA of certain SALTS of COBALT, ERBIUM, NEODYMIUM, and URANIUM, as affected by Temperature and by Chemical Reagents, with 24 plates, 2 parts roy. 8vo. (pp. 83), *sewn*, 3s 6d [ib.], 1911
- 9375 ——— The ABSORPTION SPECTRA of comparatively RARE SALTS. The SPECTRO-PHOTOGRAPHY of certain CHEMICAL REACTIONS, and the EFFECT of HIGH TEMPERATURE on the ABSORPTION SPECTRA of NON-AQUEOUS SOLUTIONS, 24 plates, roy. 8vo. (pp. 179), *sewn*, 3s [ib.], 1912
- 9376 ——— The ABSORPTION SPECTRA of various SALTS in SOLUTION, and the EFFECTS of TEMPERATURE on such SPECTRA, 23 plates, roy. 8vo. (pp. 128), *sewn*, 3s [ib.], 1910
- 9377 ——— SELECTIVE OXIDATION, roy. 8vo. (pp. 3), *sewn*, 1s [ib.], 1910
- 9378 ———, and Horace S. UHLER: THE ABSORPTION SPECTRA of certain SALTS in AQUEOUS SOLUTION as affected by the Presence of certain other Salts with large hydrating Power, with 21 plates, roy. 8vo. (pp. 119), *sewn*, 3s [ib.], 1907
- 9379 ——— The ABSORPTION SPECTRA of certain SALTS in NON-AQUEOUS SOLUTIONS, as affected by the Addition of Water, 14 plates, roy. 8vo. (pp. 31), *sewn*, 2s [ib.], 1907
- 9380 ———, and Augustus P. WEST: STUDY of the TEMPERATURE COEFFICIENTS of CONDUCTIVITY in AQUEOUS SOLUTIONS and on the EFFECT of TEMPERATURE on DISSOCIATION, roy. 8vo. (pp. 66), *sewn*, 2s [ib.], 1905

- 9882 **JONES** (Edwin Godden, M.D.) ANALYSE des EAUX MINÉRALES de SPA, avec des Observations sur leurs Propriétés Médicinales, précédée de quelques Notices Topographiques, etc. etc.; with fine view of Spa, 8vo. sewn (scarce), 6s
Liège, 1816
- 9883 **JONES** (Forrest Robert, Worcester Polytechnic Inst.) MACHINE DESIGN: PART I. Kinematics of Machinery, 2nd Edition; PART II. Form, Strength, and Proportions of Parts, with 312 illustrations, 2 vols. 8vo. cl., 8s (p. 19s nett)
New York, 1900-1899
- 9884 ——— PART I ONLY: KINEMATICS of MACHINERY; 3rd Edition, revised, with 134 illustrations, 8vo. cl., 3s 6d (p. 6s 6d nett)
ibidem, 1902
- 9885 **JONES** (Francis, F.R.S.E.) On the ACTION of ALKALIES on GLASS and on PARAFFIN, with 2 illustrations, 8vo. (pp. 18), sewn, with inscr. and auto. letter to Sir Edward Thorpe, F.R.S., 2s
Manchester, 1902
- 9886 **JONES** (Jenkin, actuary to the National Mercantile Life Assurance Soc.) SERIES of TABLES of ANNUITIES and ASSURANCES calculated from a NEW RATE of MORTALITY amongst Assured Lives, with Examples illustrative of their Construction and Application, etc. etc., 8vo. cl., with author's inscr. (scarce), 8s 6d
1843
- 9887 **JONES** (John Viriamu; F.R.S.; first Vice-Chancellor of the University of Wales) On the CALCULATION of the COEFFICIENT of MUTUAL INDUCTION of a CIRCLE and a COAXIAL HELIX, and of the ELECTROMAGNETIC FORCE between a HELICAL CURRENT and a UNIFORM COAXIAL CIRCULAR CYLINDRICAL CURRENT SHEET, 8vo. (pp. 14), sewn, with the author's inscr., 1s 6d 1897
- 9888 ——— On the DETERMINATION of the SPECIFIC RESISTANCE of MERCURY in ABSOLUTE MEASURE, with 3 folding plates, roy. 4to. (pp. 42), sewn, with inscr. to Prof. Lloyd Tanner, F.R.S., 3s
1891
- It is not generally known that the author's second Christian name is not Welsh, but was the mellifluous Polynesian pronunciation of Williams, he having been named after John Williams, the martyr of Eromanga.
- 9889 **JONES** (Llewellyn), and Frederic I. SCARD, F.I.C.: The MANUFACTURE of CANE SUGAR, with coloured front. and 243 other illustrations (many full-page or folding), 8vo. buckram, 7s 6d (p. 12s 6d nett)
1909
- 9890 **JONES** (Capt. Robert) ARTIFICIAL FIRE-WORKS, improved to the Modern Practice, from the minutest to the highest Branches; 2nd Edition, with many new and beautiful Fire-Works, etc., with 5 folding plates containing 57 illustrations, sm. 8vo. old calf (joints cracked), 8s
1766
- 9891 ——— [THIRD, *hic*] SECOND EDITION, with MR. MULLER'S Fireworks for Sea and Land Service, etc. etc., with 11 folding plates, 8vo. old calf (joints broken), 10s
1776
- 9892 ——— ANOTHER COPY, old calf (sound copy), 12s 6d
- 9893 **JONES** (Thomas Wharton, F.R.S.) The WISDOM and BENEFICENCE of the ALMIGHTY as displayed in the SENSE of VISION (Actonian Prize Treatise, 1851), with front. by Adlard, and numerous woodcuts, fcap. 8vo. cl., 3s 6d
1851
- 9894 **JONES** (William; F.R.S., friend of Newton) SYNOPSIS PALMARIORUM MATHESIOS: or a New Introduction to the Mathematics, containing the Principles of Arithmetic and Geometry Demonstrated, in a Short and Easie Method, with their Application . . . as, Resolving of Equations, Infinite Series, Making the Logarithms, etc. etc. etc., with 2 plates and numerous diagrams, sm. 8vo. contemporary calf (one joint cracked, otherwise a sound copy); RARE, 12s 6d 1706
- 'A masterly abstract of all that had been done in mathematical analysis. It . . . discusses conic sections, perspective, the laws of motion, and the theory of 'gunnery.' . . . The work attracted the notice of Sir Isaac Newton and Halley.'—D. N. B. The author already uses in it π as symbol for the incommensurable number 3¹⁴¹⁵⁹.
- 9895 **JONES** (William; Vicar of Nayland; F.R.S.) ESSAY on the FIRST PRINCIPLES of NATURAL PHILOSOPHY, with 3 plates (2 folding), 4to. hf. calf (binding broken), with stamp and label of Henry Bickersteth, Lord Langdale, M.R., 8s 6d
Clarendon Printing-house, Oxford, 1762
- Consisting of: I. The Mechanism of Nature; II. Attraction and Gravity considered at large; III. Of a Vacuum in the Heavens, and between the parts of Bodies, with the Physical Causes of Cohesion and Repulsion; IV. The Judgment of Antiquity and Modern Authors on the System of Nature. The author 'follows the Hutchinsonian theories' (Canon Overton).
- Jones of Nayland was one of the most eminent links between the Churchmanship of the Non-Jurors and that of the Catholic Revival, and the above work has particular interest as showing his interest in science, which he maintained all his life. The first chapter, with an incidental aphorism from St. Thomas Aquinas, is a spirited defence of the right of the ordinary man to think as freely in matters of science as that exercised by the man of science to do so in matters of religion.
- 9896 **JONES** (William, mathematical instrument maker) The DESCRIPTION and Use of a New PORTABLE ORRERY, on a most simple Construction, representing the Motions and Phænomena of the Planetary System, but more particularly of the Earth and Moon, round the Sun, with short Account of the Solar, or the true System of the World; 2nd Edition, with Account of the newly discovered Planet, called the GEORGIVM SIDUS [URANUS], with folding copperplate, 8vo. (pp. 36), sewn, 7s 6d
1784
- 9897 ——— THIRD EDITION, with Account of the Georgium Sidus, and the Return of the Comet whose Appearance is shortly to be expected, with 2 folding copperplates, 8vo. (pp. 43), sewn, 7s 6d
1787
- 9898 ——— FOURTH EDITION, with Account of the new Planet and other recent Discoveries by DR. HERSCHELL [*sic*], the probable Causes why the Comet did not return as lately expected, etc., with 2 folding copperplates, 8vo. (pp. 43), sewn, 7s
1794
- All the above editions contain long lists of scientific instruments made by the author.
- 9899 ——— FIFTH EDITION, containing the most recent Discoveries by Dr. Herschel, etc., and the Description of large and more complete Portable Orrery, with 3 folding copperplates, 8vo. (pp. 50), sewn, 6s 6d
1799

'William Jones received some instruction from Benjamin Martin, and gave lessons in astronomy and mathematics. He was intimate with Priestley, Hutton, Maskelyne, and other well-known men of science, and was a fellow of the Astronomical Society.'—D. N. B.

- 496 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9900 JONES (Thomas, M.I.M.E.), and T. Gilbert JONES: MACHINE DRAWING, with 40 plates and numerous illustrations, 4to. cl., 2s
Manchester, 1893
- 9901 JONES (William, M.D., proprietor of the Royal Adelaide Gallery) POPULAR SKETCH OF THE various proposed SYSTEMS OF ATMOSPHERIC RAILWAY, demonstrating the Applicability of the Mechanical Properties of the Atmosphere as a Motive Power, with 14 woodcuts, 16mo. cl., uncut (scarce), 7s 6d
1845
A naïf and amusing work advocating PILEBROW's system (v. 3635 ante) against that of Clegg and Samuda, which so unfortunately captivated Brunel. A Commons' Select Committee actually made a report benevolent to the atmospheric system in 1845. The idea of power transmission from a central power-house had thenceforward to wait till it became a possibility by electricity.
- 9902 JONSTON [*sive* JOHNSTONE] (John) THAUMATOGRAPHIA NATURALIS, in X Classes distincta, in quibus Admiranda Cœli, Elementorum, METEORUM, etc., editio princeps, 18mo.
old English calf (binding damaged); rare, 15s
Amsterdami, G. Blæu, 1632
The author was grandson of a Nithsdale borderer who had wandered off to Poland.
'He graduated at St. Andrews, studied at St. Andrews, Cambridge, and Leyden, and was in London during 1630, when he wrote the greater part of his first important work, *Thaummatographia*.'—D. N. B.
- 9903 JORDAN (Camille) COURS D'ANALYSE DE L'ÉCOLE POLYTECHNIQUE, Tome III^e (Calcul intégral: Equations différentielles); with diagrams, 8vo. hf. calf, uncut, t. e. g., with auto. and bookplate of Prof. Lloyd Tanner, F.R.S., 6s (p. F. 17 sewn)
1887
- 9904 ——— TRAITÉ des SUBSTITUTIONS et des ÉQUATIONS ALGÈBRIQUES; 4to. buckram, uncut (VERY SCARCE), with bookplate of Prof. Lloyd Tanner, F.R.S., £3. 17s 6d
1870
A classic on the theory of substitutions, which was created by E. GALOIS (v. No. 8341 ante).
- 9905 JORDAN (Samson) Sur la FABRICATION des FONTES de MANGANÈSE et sur la VOLATILITÉ du MANGANÈSE, 4to. (pp. 4), with author's inser., 2s
[1878]
- 9906 JORDAN (William Leighton) The ELEMENTS; an Investigation of the FORCES which determine the Position and Movements of the OCEAN and ATMOSPHERE, Vol. II (Tidal Oscillations in Latitude, Oscillations of the Barometer, etc. etc.), impl. 8vo. cl. (o. p.), 4s
1867
In this work the author formulates a curious theory of counter-attraction 'which does not supplant the Newtonian theory of centripetal and centrifugal forces, but simply defines the nature of the latter force: maintaining that the former is attraction proceeding from solar gravitation, and the latter attraction proceeding from astral gravitation.'—*Preface*.
- 9907 ——— ESSAYS in ILLUSTRATION of the ACTION of ASTRAL GRAVITATION in NATURAL PHENOMENA, with front., 2 folding tables, and 33 diagrams, 8vo. cl., 4s (p. 9s)
1900
- 9908 ——— REMARKS on the RECENT OCEANIC EXPLORATIONS, and the CURRENT-CREATING ACTION of VIS-INERTLE in the OCEAN, with 6 plates, 8vo. cl. (o. p.), 3s
1877
- 9909 JÖRGENSEN (S. M.) Zur GESCHICHTE des KRYOLITHS und der KRYOLITH-INDUSTRIE; with 2 illustrations, 8vo. (pp. 8), sewn, with author's inser., 1s
[Wien, 1909]
- 9910 JOUBERT (J.) ELEMENTARY TREATISE on ELECTRICITY and MAGNETISM—v. FOSTER (G. C.), Nos. 8046-7 ante.
- 9910 JOURNAL of SCIENCE (The) and the ARTS, edited at the ROYAL INSTITUTION of GREAT BRITAIN [by WILLIAM THOMAS BRANDE, F.R.S.], from its beginning in 1816 to its conclusion in 1830, viz., I. SERIES, vols. 1-22, '16-26; II. SERIES, vols. 1-5 and 7, '27-30, with numerous fine copperplates by Basire, etc., and woodcuts, 28 vols. 8vo. hf. calf, or, rough calf (SCARCE), £4. 4s
1816-30
- 9911 ——— FIRST SERIES ONLY, 22 vols. 8vo. hf. calf (binding damaged), £2. 2s
1816-27
- 9912 ——— ANOTHER SET, from 1822 to its conclusion in 1830, viz., I. SERIES, vols. 14-22, '22-6; II. SERIES, vols. 1-7, '27-30; and INDEX to vv. 1-20, with numerous plates, 17 vols. 8vo. hf. van, as good as new, £2. 10s
1822-30
This rare publication was followed and concluded by the 'Journal of the Royal Institution', of which 5 numbers only were ever published, and preceded the 'London and Edinburgh Philosophical Journal.' Vols. 7-30 are entitled 'Quarterly Journal of Literature, Science, and the Arts.'
It contains important contributions by the Editor, Sir Humphry Davy, Charles Babbage, John Frederic Daniell, Sir Everard Home, Richard Phillips, etc. and especially about 30 PAPERS by MICHAEL FARADAY, whose first contribution to science, 'An Analysis of Caustic Lime from Tuscany', it also includes.
- 9913 JOURNAL des MINES, ou RECUEIL de MÉMOIRES sur l'Exploitation des Mines, et sur les Sciences et Arts qui s'y rapportent, par COQUEBERT-MONTBRET, HAÛY, VAUQUELIN, BAILLET, HÉRON DE VILLEFOSSE, BROCHANT, COLLET-DESCOSTILS, et TREMERY; complete from its beginning in 1794 to its conclusion in 1815; with numerous copperplates, 38 v.: Annales des Mines [*Suite de l'Ouvrage précédent*], Tomcs 1 à 3, 5 à 13 (1816-26); 2^e SÉRIE, Tomes 1. 4 à 8 (1827-30), et TABLE ANALYTIQUE; with numerous copperplates, 19 v.—in all 57 vols. 8vo. contemporary calf gilt (RARE), £15. 15s 1794-1830
- 9914 ——— de la SOCIÉTÉ des SCIENCES PHYSIQUES et CHIMIQUES, et des ARTS AGRICOLES et INDUSTRIELS en FRANCE, sous la Direction de JULIA de FONTENELLE, Tomes II à IV, 3 vols. 8vo. sewn, 5s
1834-6
- 9915 ——— für die REINE und ANGEWANDTE MATHEMATIK, als Fortsetzung des von A. L. CRELLE gegründeten Journals herausgegeben von C. W. BORCHARDT; original impression, from 1839 to 1870 (Band 56-71), 16 vols. 4to. in 8, hf. calf, £4. 4s (p. M. 192 sewn)
Berlin, 1859-70
- 9916 JOYCE (Jeremiah) SCIENTIFIC DIALOGUES, for the Instruction and Entertainment of Young People, explaining the first Principles of Natural and Experimental Philosophy; new Edition, with front. by Cleghorn of the Birmingham Railway, and 185 woodcuts, post 8vo. cl., 3s 6d
1840
The author was a Unitarian minister and tutor to Lord Stanhope's sons at Chavening, whence he was sent to the Tower with Horne Tooke on a charge of High Treason, and suffered 23 weeks' imprisonment without trial.
- 9917 JOYCE (Samuel, M.I.E.E.) EXAMPLES in ELECTRICAL ENGINEERING, [2nd Edition], with 39 diagrams, cr. 8vo. cl., 2s 6d (p. 5s)
1903

- 9919 **JOULE (James Prescott, F.R.S.)** SCIENTIFIC PAPERS, published by the Physical Society of London, *with fine portrait by Jeens, plates, and woodcuts*, 2 vols. 8vo. cl., £1. 2s 6d (p. £1. 12s nett) *Physical Soc., 1884-7*
Including the author's important papers on thermo-electricity, and his propounding the law of the conservation of energy through his determination of the mechanical equivalent of heat. His name is well-known in electrical science as the unit of thermo-electricity, and by *Joule's Law*, giving the algebraic formula for determining it.
- 9920 — On the **AIR ENGINE**, roy. 4to. (pp. 16), *sewn (plate wanting)*, 4s 6d 1851
This paper contains Joule's invention of a fuel-saving hot-air engine which allows of greater ranges of temperature than are obtainable in the steam engine. It includes an additional note (pp. 3) by LORD KELVIN: 'Synthetical Investigation of the Duty of a Perfect Thermo-Dynamic Engine founded on the Expansions and Condensations of a Fluid,' etc. etc.
- 9921 — On the **CHANGES OF TEMPERATURE** produced by the **RAREFACTION and CONDENSATION of AIR**, *with 6 woodcuts*, 8vo. (pp. 15), *sewn*, 6s 6s 1845
'Describing a determination made by observing the heat produced by compressing air and the energy requisite for the compression; the result was 798 foot lbs. In this paper he obtained the important result necessary to justify his procedure that 'no change of temperature occurs when air is allowed to expand in such a way as not to develop mechanical power'.—*R. T. Glazebrook, F.R.S.*
'Containing the first definite development of the dynamical theory of matter and heat.'—*Prof. Osborne Reynolds, F.R.S.*
- 9922 — On the **EXISTENCE of an EQUIVALENT RELATION** between **HEAT** and the **ORDINARY FORMS of MECHANICAL POWER**, 8vo. (pp. 3), *unbound*, 2s 6d 1845
- 9923 — On the **HEAT ABSORBED** in **CHEMICAL DECOMPOSITIONS** (2 Letters to the 'Philosophical Magazine'), 8vo. (pp. 4), *unbound*, 1s 6d 1856
- 9924 — On the **MECHANICAL EQUIVALENT of HEAT**, as determined by the Heat evolved by the **Friction of Fluids**, 8vo. (pp. 4), *unbound*, 4s 6d [1847]
The original form of this important memoir, afterwards enlarged in the one described below.
- 9925 — On the **MECHANICAL EQUIVALENT of HEAT**, *with plate*, 4to. (pp. 22), *sewn* (VERY SCARCE), 15s [1850]
One of the author's most important papers, giving the results of his experiments on the production of heat by friction, which made him one of the originators of the theory of the conservation of energy. 'The introduction to the paper contains a very fair account of the labours of others in the same field. A long series of observations, conducted with the utmost care, leads to the result that 'the quantity of heat capable of increasing the temperature of a pound of water (weighed in vacuo, and taken at between 55° and 60° F) by 1° F requires for its evolution the expenditure of a mechanical force represented by a fall of 772 lbs. through the space of one foot.' For nearly 30 years this result of Joule's stood alone as the one satisfactory determination of a physical constant.'—*R. T. Glazebrook, F.R.S.*
- 9926 — On a **NEW METHOD** for ascertaining the **SPECIFIC HEAT of BODIES**, 8vo. (pp. 17), *sewn*, 3s 6d *Manchester*, 1846
- 9927 — **NOTE** on the **EMPLOYMENT of ELECTRICAL CURRENTS** for ascertaining the **Specific Heat of Bodies**, 8vo. (pp. 2), *unbound*, 1s 6d [*ibidem*, 1847]
- 9928 — On **SHOOTING STARS**, 8vo. (pp. 3), *unbound*, 1s 6d 1848
'Mentioning for the first time his now accepted explanation of shooting stars.'—*Prof. Osborne Reynolds, F.R.S.*
- 9929 — On the **THEORETICAL VELOCITY of SOUND**, 8vo. (pp. 2), *unbound*, 3s 1847
'Bringing up Newton's theoretical value from 943 to 1095 feet per second.'—*R. T. Glazebrook, F.R.S.*
- 9930 —, and **Lyon [Lord] PLAYFAIR, F.R.S.**: **RESEARCHES on ATOMIC VOLUME and SPECIFIC GRAVITY. SERIES III.** On the **MAXIMUM DENSITY of WATER**, 8vo. (pp. 7), *unbound*, 3s [1846]
Giving 39°10' F. as the degree when water reaches its maximum density.
- 9931 —, **MEMOIR of, by OSBORNE REYNOLDS, F.R.S.**, *with fine engraved portrait by Manesse after G. Patten, A.R.A.*, 8vo. cl., 5s *Manchester*, 1892
The only large biography on Joule hitherto issued, and mainly an account of his scientific achievements.
— *v. STURGEON'S ANNALS of ELECTRICITY, post.*
- 9932 **JOWETT (Hooper Albert Dickinson; D.Sc.; F.C.S.; Burroughs, Wellcome & Co.)** The **CHARACTERS and METHODS of ASSAY of the OFFICIAL HYPOPHOSPHITES**, cr. 8vo. (pp. 20), *sewn*, 1s [1898]
- 9933 — The **CONSTITUTION of EPINEPHRINE**, 8vo. (pp. 6), *sewn*, 1s [1904]
- 9934 — The **CONSTITUTION of PILOCARPINE**, 5 parts 8vo. (pp. 81), *sewn*, 2s [1900-5]
- 9935 — A **NEW GLUCOSIDE** from **WILLOW BARK**, 8vo. (pp. 6), *sewn*, 1s [1900]
- 9936 — A **NEW SYNTHESIS of α -ETHYLTRICARBALLYLIC ACID**, 8vo. (pp. 6), *sewn*, 1s [1901]
- 9937 — **PILOCARPINE** and the **ALKALOIDS of JABORANDI LEAVES**, 8vo. (pp. 26), *sewn*, 1s 6d [1900]
- 9938 — **PREPARATION and PROPERTIES of 1:4:5—TRIMETHYLGLYOXALINE**, 8vo. (pp. 5), *sewn*, 1s [1905]
- 9939 — **SOME NEW GOLD SALTS of HYOSCINE, HYOSCYAMINE, and ATROPINE**, 8vo. (pp. 4), *sewn*, 1s [1897]
- 9940 —, and **C. R. MARSHALL, M.D.**: The **CHEMISTRY and PHARMACOLOGY of JABORANDI ALKALOIDS, etc.**, *with diagrams*, cr. 8vo. (pp. 13), *sewn*, 1s [1900]
- 9941 —, and **Charles Eddy POTTER**: The **CONSTITUENTS of COMMERCIAL CHRYSAROBIN**, 8vo. (pp. 11), *sewn*, 1s [1902]
- 9942 — The **CONSTITUTION of CHRYSOPHANIC ACID** and of **EMODIN**, 8vo. (pp. 8), *sewn*, 1s [1903]
- 9943 — **VARIATIONS in the OCCURRENCE of SALICIN and SALINIGRIN** in different **WILLOW and POPLAR BARKS**, 8vo. (pp. 11), *sewn*, 1s [1902]
- 9944 **JUDE (Alexander)** The **THEORY of the STEAM TURBINE: a Treatise on the Principles of its Construction**, with **Historical Notes** on its Development, 3 *folding plates*, and 252 *other illustrations*, sq. 8vo. cl., 8s 6d (p. 15s nett) 1906
- 9945 **JUDE (R. H., Rutherford Coll.)** **PHYSICS, Experimental and Theoretical, VOL. I.** (all pub.): **MECHANICS, HYDROSTATICS, PNEUMATICS, HEAT, and ACOUSTICS**, partly from the French (third Edition) of **HENRI GOSSIN**, with numerous Examples and Exercises, with **ANSWERS**, 388 *illustrations*, roy. 8vo. cl., 8s (p. 12s 6d nett) 1899

- 498 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 9947 **JUAN** [y **SANTACILIA**] (**Don Jorge**; F.R.S.) EXAMEN MARITIMO THEÓRICO PRÁCTICO, ò TRATADO de MECHANICA aplicado á la CONSTRUCCION, CONOCIMIENTO y MANEJO de los NAVIOS y demas Embarcaciones, primera edicion; with 14 folding plates, 2 vols. sm. 4to. *old vellum* (RARE), £1. 5s
Madrid, 1771
‘Ouvrage estimé.—*Brunet*. ‘En 1753 le commandement des gardes marines et l’inspection générale des chantiers de construction furent confiés á don [Jorge] Juan. . . La marine espagnole était tombée au dernier rang; elle fut l’objet de tous ses soins; il s’appliqua á la relever: tous les bñtiments qu’il fit lancer étaient remarquables par leur solidité et leur vitesse.’—*Biogr. Gén.*
- 9948 ——— EXAMEN MARITIME, THÉORIQUE et PRATIQUE, ou TRAITÉ de MÉCHANIQUE, appliqué á la CONSTRUCTION et á la MANŒUVRE des VAISSEUX et autres Bñtiments, traduit, avec des ADDITIONS, par P. LEVÊQUE; with 14 folding copperplates, 2 vols. 4to. *sound copy in contemporary tree-calf gilt* (RARE), £1. 15s
Nantes, 1783
‘L’ouvrage le meilleur, le plus savant et le plus complet qu’il y ait sur la construction et la manœuvre. . . Il y a peu d’ouvrages aussi importants pour la marine.’—*Lalande*.
- 9949 ———, et **Antonio de ULLOA**, F.R.S.: VOYAGE HISTORIQUE de L’AMÉRIQUE MERIDIONALE, qui contient une HISTOIRE des YNCAS du PEROU, et les OBSERVATIONS ASTRONOMIQUES et PHYSIQUES faites pour déterminer la FIGURE, et la GRANDEUR de la TERRE; with 2 fronts, and 45 copperplates by *Folkema, etc.* (mostly folding), 2 vols. 4to. *old calf gilt (joints cracked)*, with bookplate of **Henry B. H. Beaufoy, F.R.S.** (RARE), £1. 10s
Amsterdam, 1752
An indispensable supplement to the works of La Condamine (v. Nos. 2340-50, ante) and Bouguer (No. 6363, ante) in whose expedition the authors took part.
‘Ce fut á don Jorge Juan que l’on dut de pouvoir calculer la hauteur des montagnes au moyen du baromètre.’—*Biogr. Gén.*
- 9950 **JUDD** (**John Wesley**, F.R.S.) VOLCANOES: what they are, and what they teach, with 11 plates, and 85 woodcuts, cr. 8vo. cl., 2s (p. 5s)
1881, or ‘8
- 9951 **JUGEL** (**Johann Gottfried**; *rosicrucian*) FREYENTDECKTE EXPERIMENTAL-CHYMIE, oder Versuch den Grund natürlicher GEHEIMNISSE durch die Anatomie und Zerlegungskunst, in dem astralischen, animalischen, vegetabilischen und mineralischen Reiche, durch systematische Grundsätze, Lehrsätze, Beweise, Gegensätze, Gegenbeweise, Anmerkungen, Versuche, Erfahrungen, und darauf folgende Schlüsse, nebst dem deutlichen Naturbegriffe de METALLISCHEN GENERATION durch eine lange Untersuchung vorzustellen; with front. with portrait, 8vo. *old hf. calf* (RARE), with numerous contemporary MS. notes, 12s 6d
Leipzig, 1766
‘In diesem Buche versichert Jugel u. A. den Stein der Weisen selbst in Händen gehabt zu haben, wie auch dass er einmal von dem Silber ausgehend zu der Darstellung eines weissen Glases gelangt sei, welches von 100 Theilen Silber einen Theil in Gold verwandelt habe.’—*H. Kopp*, who gives a long account of the author and his works in *Die Alchemie*, II., pp. 253-7.
- 9952 **JUKES** (**Joseph Beete**, F.R.S.) LETTERS and EXTRACTS from ADDRESSES and OCCASIONAL WRITINGS, edited, with Memorial Notes, by his SISTER [C. A. BROWNE], with steel portrait, thick large post 8vo. cl. (o. p.), 5s (p. 12s)
1871
- 9953 ——— The SCHOOL MANUAL of GEOLOGY, 5th [last] Edition, by A. J. JUKES-BROWNE, F.G.S., with numerous woodcuts and diagrams, fcap. 8vo. cl., 2s (p. 4s 6d)
1890
- 9954 ——— The STUDENT’S MANUAL of GEOLOGY, 3RD [LAST] EDITION, re-cast and in great part re-written, edited by SIR ARCHIBALD GEIKIE, P.R.S., with front. and 213 woodcuts, thick large post 8vo. cl. (o. p.), 6s (p. 12s 6d)
Edin., 1872
- 9955 **JUKES-BROWNE** (**Alfred John**, F.R.S.; *Geological Survey*) The STUDENT’S HANDBOOK of HISTORICAL GEOLOGY, with front. and 131 woodcuts, cr. 8vo. cl. (o. p.), 3s (p. 6s)
1886
- 9956 ——— The STUDENT’S HANDBOOK of PHYSICAL GEOLOGY, 2nd [last] Edition, revised, with 2 plates, and 214 woodcuts, thick cr. 8vo. cl. (o. p.), 4s 6d (p. 7s 6d)
1892
- 9957 ——— The STUDENT’S HANDBOOK of STRATIGRAPHICAL GEOLOGY, 2nd Edition [greatly enlarged and partly rewritten], with 210 diagrams, figures of fossils, and maps, large cr. 8vo. cl., 8s 6d (p. 12s nett)
1912
- 9958 **JULIUS** (**Frederik Hendrik**) BEREKENING van de LOOPBAAN der KOMEET 1863 VI.; with folding chart, 8vo. (pp. 37), sewn, with inser. to *J. R. Hind, F.R.S.*, 2s
Utrecht, 1867
- 9959 **JULIUS** (**V. A.**) BESCHOUWINGEN over de GRONDSLAGEN der NATUURKUNDE, roy. 8vo. sewn, 2s
Breda, 1880
- 9960 **JULIUS** (**Willem Hendrik, Utrecht**) ANOMALOUS REFRACTION PHENOMENA investigated with the SPECTROHELIOGRAPH, plate, roy. 8vo. (pp. 11), sewn, 1s 6d
[Chicago, 1903]
The author introduced the principle of anomalous dispersion into astrophysics.
- 9961 **JUNKER** (**F.**) Die SYMMETRISCHEN FUNCTIONEN und die RELATIONEN zwischen den ELEMENTARFUNCTIONEN derselben, roy. 8vo. (pp. 84), sewn, 2s
[Leipzig, 1894]
- 9962 **JURIN** (**James, M.D.**, F.R.S.) DISSERTATIONES PHYSICO-MATHEMATICÆ, partim antea editæ in Actis Philosophicis Londinensibus, jam auctiores et emendatiores, partim nunc primum impressæ; with 3 copperplates, 8vo. *old vellum, uncut* (rare), 12s 6d
Londini, 1732
The above copy belonged to RICHARD WATSON, F.R.S. (1737-1816), the absentee Bp. of Llandaff, and sometime Professor of Chemistry at Cambridge, and contains copious MS. notes by him, as well as his Calgarth Park booklabel.
It contains the account of the author’s experiments on the ascent and suspension of water in capillary tubes, his papers on the motion of running water (criticised by P. A. Michelotti), on the measure of the force of bodies in motion, and his experiments on the specific gravity of human blood and on the power of the heart, ‘both good attempts to convert physiology into an exact science’ (D. N. B).
- 9963 [———] GEOMETRY NO FRIEND to INFIDELITY: or a DEFENCE of SIR ISAAC NEWTON and the British Mathematicians, in a Letter to the AUTHOR of the ANALYST, wherein is examined how far the Conduct of such Divines as intermix the Interest of Religion with their private Disputes and Passions, and allow neither Learning nor Reason to those they differ from, is of Honour or Service to Christianity, etc. etc., by PHILALETES CANTABRIGIENSIS, 8vo. sewn, 6s
1734
A reply to Ep. Berkeley’s *Analyst* (v. Nos. 6141-5 ante), but ‘which failed to remove all the objections’ (Prof. Cajori). The true interpretation of ‘infinitimals’ was given more than 100 years later by Weierstrass.
Prof. M. Cantor mistakenly attributes the authorship to Conyers Middleton and Robert Smith.

- 9965 **JULIEN (Alexis Anastay ; Columbia School of Mines ; F. Roy. Micros. Soc.)** On the FISSURE INCLUSIONS in the FIBROLITIC GNEISS of NEW ROCHELLE, N.Y., *with plate*, roy. 8vo. (pp. 15), *sewn*, 1s 6d [New York], 1879
- 9966 ——— On SPODUMENE and its ALTERATIONS, from the GRANITE VEINS of HAMPSHIRE CO., MASS., *with plate*, roy. 8vo. (pp. 37), *sewn*, 2s [ibidem], 1879
- 9967 **JULLIEN (Adolphe ; Chemin de Fer d'Orléans)** NOTES diverses sur les CHEMINS de FER, en ANGLETERRE, en BELGIQUE, et en FRANCE, 8vo. (pp. 80), *sewn*, 7s 6d 1845
- 9968 **JULLIEN (Charles Édouard), et Oscar VALÉRIO, ingénieurs ;** NOTICE sur un NOUVEAU SYSTEME de CHEMINS de FER ATMOSPHÉRIQUES inventé par ; *with large folding plate*, 8vo. (pp. 8), *sewn (scarce)*, 8s 6d 1845
The system proposed differs materially from those then in vogue, and is claimed by the inventors as greatly superior to Clegg and Samuda's.
- 9969 **JULLIEN (Michel Marie, s.j.)** PROBLÈMES de MÉCANIQUE RATIONNELLE, disposés pour servir d'Applications aux Principes enseignés dans les Cours ; *with numerous woodcuts*, 2 vols. 8vo. *sewn*, 9s 1855
- 9970 ——— ANOTHER COPY, *hf. morocco gilt (nice copy)*, 12s
- 9971 ——— DEUXIÈME [DERNIÈRE] ÉDITION [augmentée] ; *with numerous woodcuts*, 2 vols. 8vo. *sewn (scarce)*, 18s 6d 1866-7
- 9972 ——— ANOTHER COPY, *hf. gilt gilt*, £1. 1s
- 9973 **JÜPTNER von Jonstorff (Hanns Freiherr)** PRAKTISCHES HANDBUCH für EISENHÜTTEN-CHEMIKER ; *with 2 plates, and 75 woodcuts*, 8vo. cl., 4s (p. M. 7.20 unbound) Wien [1885]
- 9974 **KAHLBAUM (Georg W. A.)** Aus der VORGESCHICHTE der SPECTRALANALYSE, 8vo. (pp. 48), *sewn*, 1s Basel, 1888
- 9975 **KAHLENBERG (Louis)** The ACTION of SOLUTIONS on the SENSE of TASTE, roy. 8vo. (pp. 31), *sewn*, 1s 6d Madison, 1898
- 9976 ———, **Arthur A. KOCH, and Roy D. HALL :** The THEORY of ELECTROLYTIC DISSOCIATION as viewed in the Light of Facts recently ascertained, *with diagrams*, roy. 8vo. (pp. 56), *sewn*, 2s ib., 1901
- 9977 **KAISER (P. J.)** Eenige ONDERZOEKINGEN betreffende TIJDMETERS, naar Aanleiding van den Aankoop in 1887, ten behoeve der Nederlandsche Marine ; *with 13 plates*, folio (pp. 37), *sewn (o. p.)*, 3s 6d Leiden, 1887
- 9978 ——— ETUDE de la MARCHÉ de la PENDULE ASTRONOMIQUE HOHWI No. 20, et du CHRONOMETRE KNOBLICH No. 1700, sm. folio (pp. 16), *sewn*, 2s 6d Harlem, 1868
- 9979 ——— THEORIE en BESCHRIJVING der thans bij de NEDERLANDSCHE MARINE in Gebruik zijnde ZEEVAARTKUNDIGE WERKTUIGEN ; *with 18 plates (mostly folding and finely COLOURED), besides numerous diagrams*, 2 vols. impl. 4to. *sewn*, 17s 6d Leiden, 1880-3
Inhoud :—I. Kompassen, benevens enkele andere werktuigen. II. Reflexie-instrumenten, artificieele Horizonnen.
- 9980 **KALAKOUTSKY (General Nicholas, Russian Artillery)** INVESTIGATIONS into the INTERNAL STRESSES in CAST IRON and STEEL, *with 42 illustrations*, 4to. cl., *with inscr. to Sir F. J. Bramwell. F.R.S.*, 4s 1888
- 9981 **KAMMERER (Otto, Charlottenburg)** Die TECHNIK der LASTENFÖRDERUNG EINST und JETZT : die Entwicklung der Hebe Maschinen und ihr Einfluss auf Wirtschaftsleben und Kulturgeschichte ; *with 175 illustrations*, roy. 8vo. cl., 5s 6d (p. M. 8) München, 1907
- 9982 **K. MTZ (Ludwig Friedrich, Univ. Halle)** LEHRBUCH der EXPERIMENTALPHYSIK ; *with 3 folding plates*, 8vo. *hf. calf*, 3s Halle, 1839
- 9983 ——— LEHRBUCH der METEOROLOGIE ; *with 8 folding plates and maps*, 3 vols. 8vo. *old hf. calf gilt (scarce)*, 10s 6d ibidem, 1831-6
The first German work exclusively devoted to meteorology. It contains many original investigations, and is still of value. It is often quoted in Sir John Herschel's 'Meteorology.'
- 9984 ——— COMPLETE COURSE of METEOROLOGY, with Notes by C. MARTINS, and Appendix, containing the Graphic Representation of the Numerical Tables, by L. LALANNE, translated, with Notes and Additions, by C. V. WALKER, *with coloured front., and 15 plates (several folding)*, thick post 8vo. cl. (scarce), 7s 6d 1845
- 9985 ——— UNTERSUCHUNGEN über die EXPANSIVKRAFT der DÄMPFE nach den bisherigen Beobachtungen ; *with 5 folding tables*, 8vo. boards, *with auto. of F. Baskforth*, 6s Halle, 1826
Scarce and unknown to Poggendorff and Heller.
- 9986 ——— VORLESUNGEN über METEOROLOGIE ; *with 6 plates*, 8vo. boards, 5s ibidem, 1840
- 9987 **KANE (Sir Robert John, T.C.D. ; M.D., F.R.S., P.R.I.A.)** On the COMPOSITION of CERTAIN ESSENTIAL OILS, 4to. (pp. 14), *sewn, with inscr. to Richard Phillips, F.R.S.*, 4s Dublin, 1838
- 9988 ——— ELEMENTS of CHEMISTRY, including the most recent Discoveries and Applications of the Science to Medicine and Pharmacy, and to the Arts ; 2nd Edition, *with 230 woodcuts*, thick 8vo. (pp. 1069), cl. (damaged), 5s (p. £1. 4s) ibidem, 1849
'The work was introduced by Faraday into the Woolwich course, and was used in America.'—D. N. B.
- 9989 ——— RESEARCHES on the NATURE and CONSTITUTION of the COMPOUNDS of AMMONIA, 4to. (pp. 90), *sewn, with inscr. to Richard Phillips, F.R.S., and numerous MS. NOTES by the latter*, 8s 6d ib., 1839
This paper was awarded the gold medal of the Royal Irish Academy.
- 9990 **KANSAS**, The UNIVERSITY GEOLOGICAL SURVEY of, conducted by ERASMUS HAWORTH, and Assistants, *with numerous plates and maps (many folding)*, 5 vols. roy. 8vo. cl., £1. 1s Topeka, 1896
- 9991 **KAPPERS (Johannes Ariëns)** ONDERZOEKINGEN over OXYDATIE (Academisch Proefschrift), 8vo. boards, 2s 6d Groningen, 1872
- 9992 **KARSTEN (Gustav), Friedrich HARMS, und Georg WEYER :** EINLEITUNG in die PHYSIK ; *with 87 woodcuts*, thick roy. 8vo. *sewn*, 2s 6d (p. M. 8. 20) Leipzig, 1869

- 9994 **KANT** (**Immanuel**) GEDANKEN von der wahren SCHÄTZUNG der LEBENDIGEN KRÄFTE und BEURTHEILUNG der BEWEISE deren sich Herr von LEIBNITZ und andere Mechaniker in dieser Streitsache bedienst haben, nebst einigen vorhergehenden Betrachtungen, welche die Kraft der Körper überhaupt betreffen; *with 2 folding plates*, 8vo. *sewn* (*rare*), 12s 6d Königsberg, 1746
FIRST EDITION OF THE PHILOSOPHER'S FIRST PUBLICATION, issued in his 23rd year, and chiefly interesting for showing his strong individuality.
- 9995 ——— METAPHYSISCHE ANFANGSGRÜNDE der NATURWISSENSCHAFT, neueste Auflage, 8vo. boards, 6s Frankfurt, 1794
Not only important as closely connected with the author's philosophical theory, it is also the first connected attempt at laying a philosophical basis for natural science.
- 9996 ——— PHYSISCHE GEOGRAPHIE, auf Verlangen des Verfassers aus seiner HS. herausgegeben und zum Theil bearbeitet von FRIEDRICH THEODOR RINK, 2 vols. 8vo. in 1, *contemporary tree-calf*, 9s Königsberg, 1802
- 9997 ——— ZWEITEDURCHAUSUMGEARBEITETE AUFLAGE, 2 vols. 8vo. in 4, boards, 12s Hamburg, o. J.—1817
The work containing the philosopher's meteorological theories.
- 9998 **KAPP** (**Gisbert**, *Univ. Birmingham*) ELECTRIC TRANSMISSION OF ENERGY: its Transformation, Subdivision, and Distribution, new Edition revised, *with plates and woodcuts*, post 8vo. cl., 2s (p. 7s 6d) 1890, or '1
Washington, 1909
- 10000 ——— Der APEX der SONNENBEWEGUNG, die CONSTANTE der PRÆCESSION und die CORRECTIONEN der EIGENBEWEGUNGEN in DECLINATION von AUWERS-BRADLEY, 4to. (pp. 18), *sewn*. [Kiel], 1901
2s
- 10001 ——— BESTIMMUNG von PARALLAXEN durch REGISTRIR-BEOBACHTUNGEN am MERIDIANKREISE, 4to. boards, *with author's inser.*, 5s Haag [1888]
- 10002 **KAPTEIJN** (**W.**; *Utrecht*) NOUVELLE MÉTHODE pour l'INTÉGRATION de l'EQUATION DIFFÉRENTIELLE $(\frac{du}{dz})^2 = G^2 (u-a)(u-\beta)(u-\gamma)(u-\delta)$, 4to. (pp. 28), *sewn*, 2s 6d [1891]
- 10003 ——— RECHERCHES sur les FONCTIONS de FOURIER-BESSEL, 4to. (pp. 32), *sewn*, 2s 6d 1893
- 10004 **KAST** (**Hermann**), and **Friedrich ROSE**: About the COMPOSITION of the MIXTURE of GASES forming in MINERAL OIL LAMPS and the FLASH POINT of MINERAL OIL, *with folding table*, 8vo. (pp. 15), *sewn*, 1s 6d [1896]
- 10005 **KASTNER** (**Carl Wilhelm Gottlob**; *Univ. Halle*) EINLEITUNG in die NEUERE CHEMIE, 8vo. *hf. calf*, 3s 6d Halle, 1814
Including an interesting 'Chronologische Uebersicht der Geschichte der Chemie' (pp. 174).
- 10006 **KÄSTNER** (**Abraham Gotthelf**; F.R.S.; *Univ. Göttingen, teacher of Gauss*) ANFANGSGRÜNDE der ANALYSIS ENDLICHER GRÖSSEN, 1. Auflage; *with 4 plates*, sm. 8vo. boards, *uncut*, 2s 6d Göttingen, 1760
- 10007 ——— GESCHICHTE der MATHEMATIK, seit der Wiederherstellung der Wissenschaften bis an das Ende des XVIII. Jahrhunderts, 4 vols. 8vo. *extra boards*, r. e. (*fine copy*), 10s 6d *ibidem*, 1796-1800
A work still valued, though rather a bibliography than a history of mathematics.
- 10008 ——— VOLS. III AND IV only, 2 vols. 8vo. boards, 3s 6d *ib.*, 1799-1800
Vol. IV contains mechanics, optics, and astronomy.
- 10009 ——— MATHEMATISCHE ANFANGSGRÜNDE; *with numerous plates*, 4 vols. 12mo. in 10, *contemporary hf. calf* (*sound copies*), 12s 6d *ibidem*, 1790-1801
INHALT:—I. Arithmetik, Geometrie, Trigonometrie, und Perspectiv, 4 v., 1790-1801: II. Angewandte Mathematik, 2 v., '92: III. Analysis, 2 v., '94-9: IV. Höhere Mechanik, 2 v., '93-7.
Prof. S. Günther (in Cantor's *Vorlesungen*) speaks of 'die wirklich hohe Bedeutung dieser Reihe stufenweise aufsteigender Lehrbücher . . . welche in der Didaktik des XVIII. Jahrhunderts die bis dahin fast des Monopoles der Alleinherrschaft sich erfreuenden C. von Wolfs ablösten.'
- 10010 **KATER** (**Captain Henry**, *62nd Foot*; F.R.S.) NAUTICAL ASTRONOMY (Encyclopaedia Metropolitana), *with 2 plates*, 4to. (pp. 40), boards, 3s [1822]
- 10011 ———, and **Dionysius LARDNER**, *pr.*, F.R.S.: TREATISE ON MECHANICS, first edition, *with vignette by Finden, and numerous steel plates by Adlard*, fcap. 8vo. cl., 3s 6d 1830
- 10012 ——— NEW EDITION [unchanged], *with vignette and steel plates*, fcap. 8vo. *hf. calf neat*, 4s 1837
The chapter on balances and pendulums, written by Capt. Kater, is of special importance, as it includes the author's important investigations and discoveries on the subject, e.g. his Balauca and Compensation Pendulum.
Captain Kater's scientific career began with his share in the triangulation of the Malabar and Coromandel coasts in 1802. He afterwards prepared standard measures for the Russian Government, and thenceforward pursued astronomy, and also devoted much time to pendulum experiments by the adoption of the 'knife-edge', and produced a seconds-pendulum of extraordinary delicacy, which served in the establishment of our present national system of standard weights and measures.
- 10013 **KAUFMANN** [*latine* **MERCATOR**] (**Nikolaus**; F.R.S.) INSTITUTIONES ASTRONOMICÆ de Motu Astrorum communi et proprio, secundum Hypotheses Veterum et Recentiorum præcipuas; deque Hypotheson ex Observatis Constructione, cum TABULIS TYCHONIANIS et RUDOLPHINIS, etc. etc.; *with diagrams*, 12mo. *old calf* (*sound copy*), 10s 6d Londini, 1676
Kaufmann was one of the earliest members of the Royal Society, and contributed to its Transactions.
- 10014 **KEATINGE** (**Lt.-Col. Maurice Bagenal St. Leger**, M.P.) EIDOMETRIA; or Optic Mensuration, and (Corollary) Perspective, *with 4 plates*: PRINCIPLES OF PERSPECTIVE; with Sketch of some Irish Antiquities; and a few Thoughts on Rustic Embellishment and the Picturesque, *with 10 plates*—2 vols. oblong folio in 1, boards (*name cut off title*), 7s 6d 1812
- 10015 **KECKERMANN** (**Bartholomæus**) SYSTEMA COMPENDIOSUM totius MATHEMATICÆ, hoc est, GEOMETRIÆ, OPTICÆ, ASTRONOMIÆ et GEOGRAPHIÆ; accesserunt COMMENTATIO NAUTICA et Index; *with 6 folding plates, and diagrams*, thick 12mo. *sound copy in contemporary English calf*, 8s 6d Oxonii, 1661

- 10017 **KECK** (Wilhelm) VORTRÄGE ÜBER ELASTICITÄTS-LEHRE, als Grundlage für die Festigkeits-Berechnung der Bauwerke; with 300 diagrams, roy. 8vo. *hf. German calf*, 5s (p. M. 11. 50)
Hannover, 1893
- 10018 **KEER** (P.) GALVANISCHE AFSCHIEDING VAN METALEN; with woodcuts, post 8vo. *sewn*, 2s
Haarlem, 1855
- 10019 **KEESOM** (W. H.) ISOTHERMALS of MIXTURES of OXYGEN and CARBON DIOXIDE, 2 plates, roy. 8vo. (pp. 79), *sewn*, 1s 6d
Leiden, 1903
- 10020 **KEESS** (Stephan Edler v.) DARSTELLUNG des FABRIKS- und GEWERBSWESENES in seinem gegenwärtigen Zustande, vorzüglich in technischer, mercantilischer und statistischer Beziehung, 2. vermehrte Ausgabe, 3 vols. 8vo. *hf. calf*, 5s
Wien, 1824
- KEILL** (John, M.D., F.R.S.; *Savilian Prof. Astronomy, Oxon.*; detractor of Leibniz)
COMMERCIIUM EPISTOLICUM—v. NEWTONIANA, post.
- 10021 ——— EXAMINATION of DR. BURNET'S THEORY of the EARTH, with Remarks on MR. WHISTON'S NEW THEORY of the Earth, etc.; 2nd Edition, with 13 copperplates, 8vo. boards, uncut, 7s 6d
Oxford, 1734
Disproving Burnet's and Whiston's hypotheses, and refuting Descartes's theory of 'vortices'. The author applies in this work Huygens's theorem of centrifugal force to explain the figure of the earth. This edition contains a 'Dissertation on the Different Figures of the Celestial Bodies, with a Summary Exposition of the Cartesian and Newtonian Systems,' by MAUPERTUIS, then staying in England.
- 10022 ——— INTRODUCTIO ad VERAM ASTRONOMIAM, seu Lectiones Astronomicæ habitæ in Schola Astronomica Academiæ Oxoniensis, editio princeps; with 2 lunar maps by M. Burghers, woodcuts, and diagrams, 8vo. *old calf*, newly rebounded (*fine copy*), 8s 6d
ibidem, e Theatro Sheldoniano, 1718
- 10023 ——— ANOTHER COPY, *contemporary calf*, with NUMEROUS MS. NOTES BY RICHARD WATSON, F.R.S. (1737-1816), *absentee Bp. of Llandaff*, and his Calgarth Park booklabel, 12s 6d
- 10024 ——— EDITIO SECUNDA, multo auctior et emendatior; with 2 plates, and numerous woodcuts and diagrams, 8vo. *old calf* (*joints cracked*), 5s
Londini, 1721
- 10025 ——— ANOTHER COPY, *contemporary panelled calf* (*nice copy*), 6s
- 10026 ——— INTRODUCTION to the TRUE ASTRONOMY: or Astronomical Lectures read in the Astronomical School of the University of Oxford, 2nd Ed., with 27 copperplates and 2 lunar maps, 8vo. *old calf gilt*, 5s
1730
- 10027 ——— SIXTH EDITION, corrected, with 26 copperplates and 2 lunar maps, 8vo. *sound and clean copy in old rough calf*, 5s
1769
'Consisting of his Savilian lectures, and giving a sketch of the history of astronomy. He reprinted it in English with many emendations at the request of the Duchess of Chandos.'—D. N. B.
- 10028 ——— INTRODUCTIO ad VERAM PHYSICAM: seu Lectiones Physicæ habitæ in Schola Naturalis Philosophiæ Academiæ Oxoniensis, quibus accedunt Theorematum Hugenianorum de Vi Centrifugæ et Motu Circulari Demonstrationes, Editio IV.; with woodcuts and numerous diagrams, 8vo. *old calf*, with Bp. Watson's Calgarth Park booklabel, 6s
Londini, 1719
- 10029 ——— EDITIO SEXTA, ab aliarum Editionum Mendis purgata; with 12 copperplates, large 8vo. boards, uncut, with auto. and Calgarth Park booklabel of Bp. WATSON, 7s 6d
Cantabrigiæ, 1741
- 10030 ——— INTRODUCTION to NATURAL PHILOSOPHY: or Philosophical Lectures read in 1700, with Demonstrations of Huygens's Theorems, concerning the Centrifugal Force and Circular Motion, trans. from the Latin; 3rd Edition, with woodcuts and diagrams, 8vo. *old calf*, 5s
1733
'It was considered his best performance, and generally welcomed as an excellent introduction to Newton's Principia.'—D. N. B.
- 10031 ——— TRIGONOMETRIÆ PLANÆ et SPHÆRICÆ ELEMENTA; with 4 folding plates, 8vo. *sewn*, 3s
Oxonii, 1806
——— v. EUCLIDIS ELEMENTA, Nos. 1211-12, 1221, and 7628-9, ante.
- 10032 **KEIR** (James, F.R.S.) EXPERIMENTS on the CONGELATION of VITRIOLIC ACID: Beddoes (Thomas, M.D.) ACCOUNT of some NEW EXPERIMENTS on the PRODUCTION of ARTIFICIAL COLD: Bennet (Abraham, pr., F.R.S.) ACCOUNT of a DOUBLER of ELECTRICITY, or a Machine by which the least Conceivable Quantity of Positive or Negative Electricity may be continually doubled, till it becomes perceptible by common Electrometers, or visible in Sparks, with folding plate, 4to. (pp. 30), *sewn*, 10s 6d
1787
Bennet's memoir contains his discovery of the principle of doubling in electricity, afterwards utilised by Nicholson in his 'revolving doubler.'
- 10033 [(KEIR W.)] SUMMONS of WAKENING; or the EVIL TENDENCY and DANGER of SPECULATIVE PHILOSOPHY, exemplified in MR. LESLIE'S INQUIRY into the NATURE of HEAT and MR. MALTHUS'S ESSAY on POPULATION, with a Prospectus of an Inquiry into the Origin of Government and Law, with 2 folding plates, 8vo. *contemporary hf. calf gilt* (*fresh copy*); RARE, 15s
Hawick, 1807
Directed against Sir John Leslie (v. Nos. 2563-4, ante) and Malthus, 'whose works have a distinct tendency to destroy the fear of God in the minds of men, and to overturn both the established religion and government of this kingdom' (p. 3).
The above copy belonged to Richard Watson, F.R.S. (1737-1816), the absentee Bp. of Llandaff, who has added the author's name on title. The authorship was unknown to Halkett and Laing.
- 10034 **KELLAND** (Philip, pr., F.R.S., *Prof. Math., Edin. Univ.*) THEORY of HEAT, 8vo. boards, 2s
Cambridge, 1837
- 10035 ———, and Peter Guthrie TAIT; F.R.S.E.: INTRODUCTION to QUATERNIONS, with numerous Examples, diagrams, post 8vo. *cl.*, 2s 6d (p. 7s 6d)
1873
- 10036 ——— SECOND EDITION, with diagrams, post 8vo. *cl.*, 3s 6d (p. 7s 6d)
1882
The author, who was a member of Queen's Coll., Cantab., Senior Wrangler in 1834, and the teacher of James Clerk Maxwell, was the first Englishman with a wholly English education who was admitted to a chair in the University of Edinburgh, and was one of the founders of the Life Association of Scotland.

- 10033 **KEISER** (Edward Harrison; *Washington Univ., St. Louis*) On the COMBUSTION of WEIGHED QUANTITIES of HYDROGEN, and the ATOMIC WEIGHT of OXYGEN, with 3 diagrams, roy 8vo. (pp. 13), *sewn*, 1s 6d *Baltimore*, 1888
- 10039 **KEITH** (George Skene; *Minister of Tulliallan*) TRACTS on WEIGHTS, MEASURES and COINS, viz. I. Synopsis of a System of Equalization of Weights and Measures of Gt. Britain. II. Comparison of various Pendulums, etc. III. Observations on the Equalization of Coins. IV. New Method of finding . . . the Center of Oscillation in a Pendulum, etc. etc., 4to. (pp. 20), *sewn*, with *inser. to Nevil Maskelyne, pr.*, F.R.S. (rare), 8s 6d 1791
- 'He strongly supported the adoption of the seconds pendulum as a standard [of measures]. His plan was laid before a committee of Parliament in 1790 by Sir John Riggs Miller, m.p. Sir Joseph Banks expressed a high opinion of Keith's [above] pamphlet.—D.N.B. As became a Highland minister, he conducted a long series of experiments in distillation, for which the House of Commons voted him five hundred pounds, and was an authority on the Malt Tax.
- 10040 **KEITH** (Thomas; *teacher of geography to Princess Charlotte*) INTRODUCTION to the THEORY and PRACTICE of PLANE and SPHERICAL TRIGONOMETRY, and the STEREOGRAPHIC PROJECTION of the SPHERE, including the THEORY of NAVIGATION, 4th Edition, improved, with 5 plates, and diagrams, 8vo. *hf. calf gilt*, 4s 6d 1820
- 10041 ——— EIGHTH EDITION, corrected and improved by SAMUEL MAYNARD, with 5 plates and numerous diagrams, 8vo. *cl.*, 5s 1845
- 10042 **KEKULÉ** (Friedrich August v.; F.R.S.) LEHRBUCH der ORGANISCHEN CHEMIE, fortgesetzt unter Mitwirkung von R. ANSCHÜTZ, G. SCHULTZ und W. LA COSTE, BAND I-III und BAND IV LIEFERUNG I (soweit erschienen); with woodcuts, 2 vols. roy 8vo. *hf. calf neat*, and 5 parts, *sewn* (partly o. p.), 12s 6d (p. M. 55 *sewn*) Erlangen, 1867—Stuttgart, '87
- 10043 ——— BAND I and II; with woodcuts, 2 vols. roy 8vo. *hf. calf* (o. p.), 5s Erlangen, 1861-6
- 10044 ——— ANOTHER COPY, v. I *hf. calf gilt*, and v. II *sewn*, 4s
- Prof. Kekulé was one of the founders of the 'structure theory' (on which the above work is based), whose greatest triumph was the discovery of the constitution of the 'aromatic compounds' by Kekulé himself, but which shortly afterwards had to give way to Frankland's theory of valency.
- 'By his *Lehrbuch der organischen Chemie*, in which he endeavoured to work out the typical view and subsequently the structural doctrine to their logical conclusions, he had exercised an immense influence on the chemists of his time.—*Prof. E. v. Meyer*.
- 10045 ———: MEMORIAL LECTURE, by FRANCIS ROBERT JAPP, F.R.S., with portrait, 8vo. (pp. 42), *sewn*, with author's inscription, 1s 6d 1898
- 10046 **KELLER** (Emil) Der KÜNSTLICHE VOGELFLUG: Theorie und Praxis; with 22 plates and other illustrations, 8vo. *sewn*, 2s (p. F. 4.25) Zürich [1911]
- 10047 **KELLY** (Patrick, *Master of Finsbury Square Academy*) PRACTICAL INTRODUCTION to SPHERICS and NAUTICAL ASTRONOMY, containing, among other Original Matter, the DISCOVERY of a PROJECTION for CLEARING the LUNAR DISTANCES, in Order to find the LONGITUDE at SEA; with a New Method of Calculating this important Problem, first edition, with 13 copperplates (7 folding), containing 52 diagrams, roy. 8vo. *old calf*, newly rebaked (title stamped and 1 plate mounted); RARE, 12s 6d 1796
- Part II contains a selection of the chief propositions in nautical astronomy. The author long kept a successful private school, 'The Mercantile School,' in Finsbury Square, and was acquainted with Dr. Maskelyne, Sir John Herschel, and Dr. Hutton.
- 10048 **KELLY** (William) TABLES for determining the CUBICAL CONTENTS of EARTHWORK, in the Construction of Railways and Common Roads, whether in Level Ground or Side Cutting, printed on yellow paper, with 2 plates, 8vo. *cl.*, 5s *Dublin*, 1847
- 10049 **KELSEY** (William Richards, A.I.E.E.) PHYSICAL DETERMINATIONS: Laboratory Instructions for the Determination of Physical Quantities, with numerous diagrams, cr. 8vo. *cl.*, 2s 6d [1901]
- 10050 **KEMMIS** (Capt. William) TREATISE on MILITARY CARRIAGES, and other Manufactures of the Royal Carriage Department, with 27 plates, and numerous woodcuts, roy. 8vo. *hf. maroon morocco neat*, 4s 1874
- Including naval gun mountings.
- 10051 **KEMP** (George, M.D.) DESCRIPTION of certain DRY PROCESSES in PHOTOGRAPHY, with Plans useful to the Scientific Traveller and Missionary, cr. 8vo. (pp. 84), *sewn*, 3s 1863
- 10052 **KEMP** (James Furman, *Columbia Univ.*) The ORE DEPOSITS of the UNITED STATES, with 67 illustrations, 8vo. *cl.*, 8s (p. 18s nett) *New York*, 1893
- 10053 **KEMP** (T. Lindley, M.D.) The PHASIS of MATTER: an OUTLINE of the DISCOVERIES and APPLICATIONS of MODERN CHEMISTRY, with folding map and 148 woodcuts, 2 vols. cr. 8vo. *cl.* (cover damaged), 4s 1855
- 10054 **KEMPE** (Sir Alfred Bray; *Chancellor of the Diocese of London*; F.R.S.) HOW to DRAW a STRAIGHT LINE: a Lecture on LINKAGES, with 34 woodcuts, post 8vo. *cl.* (scarce), with booklabel and MS. notes and sketches by F. J. Jervis-Smith, pr., F.R.S., 6s 6d 1877
- The discovery of drawing straight lines by means of the link-motion was made by PEACUCELLIER, and is here much enlarged by the author. The above is the fullest work on the subject.
- Sir Alfred Kempe can not only draw a straight line, but occasionally do so at right angles to the judgments of his predecessor Dr. Tristram, to the no small devotional gain of the churches of the Diocese of London.
- 10055 **KEMPE** (Harry Robert, G.P.O.; M.I.C.E.) HANDBOOK of ELECTRICAL TESTING; 4th Edition [enlarged], with folding table (linen-mounted), and 159 woodcuts, thick cr. 8vo. *hf. morocco*, or, *hf. calf neat*, 4s 6d (p. 16s in *cl.*) 1887
- 10056 [KENDALL (Francis)] DESCRIPTIVE CATALOGUE of the MINERALS and FOSSIL ORGANIC REMAINS of SCARBOROUGH and its Vicinity, with coloured front., and 6 plates (some coloured), 8vo. *hf. calf* (slightly soiled); scarce, 6s *Scarborough*, 1816
- 10057 **KENNGOTT** (Johann Gustav Adolf; *Univ. Zürich*) Die MINERALE der SCHWEIZ nach ihren Eigenschaften und Fundorten ausführlich beschrieben; with 78 woodcuts, 12mo. *sewn*, 3s (p. M. 5.25) *Leipzig*, 1866

- 10059 **KELVIN** (Sir William Thomson, Lord, P.R.S.) ATLANTIC TELEGRAPH CABLE: Address before the Royal Society of Edinburgh, Dec. 18th, 1865, with other Documents, *woodcuts*, 8vo. (pp. 31), *sewn (scarce)*, 7s 6d 1866
- 10060 ——— BALTIMORE LECTURES ON MOLECULAR DYNAMICS and the WAVE THEORY of LIGHT, founded on A. S. HATHAWAY'S Stenographic Report of Twenty Lectures in Johns Hopkins University, Baltimore, Oct., 1884, with Twelve Appendixes on allied Subjects; with INDEX, *numerous diagrams*, thick 8vo. *buckram*, t. e. g., 10s 6d (p. 15s nett) 1504—*Univ. Press, Cambridge*, '05
- 10061 ——— DÉMONSTRATION d'un THÉORÈME d'ANALYSE, 4to. (pp. 11), *sewn*, 3s 1845
An important memoir, which was afterwards republished in an enlarged form in the 'Cambridge and Dublin Mathematical Journal'.
- 10062 ——— ELASTICITY and HEAT, being Articles contributed to the Encyclopædia Britannica, *illustrated*, 4to. (pp. 67), *cl.*, 4s *Edin.*, 1880
- 10063 ——— ELASTICITY ONLY, *illustrated*, 4to. (pp. 30), *cl.*, 2s 6d *ib.*, 1878
- 10064 ——— ON the ELECTRIC-DYNAMIC QUALITIES of METALS, *with plate*, and 58 *woodcuts*, 4to. (pp. 103), *sewn*, 4s 1856
- 10065 ——— EXTRAIT d'une LETTRE à M. LIOUVILLE, 4to. (pp. 4), *sewn*, 1s 6d 1845
- 10066 ——— MATHEMATICAL and PHYSICAL PAPERS, collected from different Scientific Periodicals, from May, 1841, to the present Time, *with numerous plates (many folding)*, besides many *woodcuts*, 6 vols. 8vo. *cl.*, £3. 10s (p. £4. 17s) *Univ. Press, Cambridge*, 1882-1911
CONTENTS:—I. Papers mainly from 1841 to 1853: II. — mainly from April, 1853 to Feb., 1856: III. Elasticity, Heat, Electro-Magnetism: IV. Hydrodynamics and general Dynamics: V. Thermodynamics, Cosmical and Geological Physics, Molecular and Crystalline Theory, Electro-dynamics: VI. Voltaic Theory, Radioactivity, Electrons, Navigation and Tides, Miscellaneous.
- 10067 ——— VOLUMES I TO III ONLY, *with 24 plates*, and *numerous woodcuts*, 3 vols. 8vo. *cl.*, £1. 11s 6d (p. £2. 11s) *a. e., ib.*, 1882-90
- 10068 ——— The MOLECULAR TACTICS of a CRYSTAL (Robert Boyle Lecture, 1893), *with 20 illustrations*, 8vo. *sewn*, 2s 6d *Clarendon Press, Oxford*, 1894
- 10069 ——— NOTE sur les LOIS ÉLÉMENTAIRES de l'ÉLECTRICITÉ STATIQUE, 4to. (pp. 13), *sewn*, 2s 6d 1845
- 10070 ——— NOTE sur la THÉORIE de l'ATTRACTION, 4to. (pp. 6), *sewn*, 2s 6d 1844
Written during the author's undergraduate days at Peterhouse. It is dated Glasgow, Dec. 15, 1843.
- 10071 ——— POPULAR LECTURES and ADDRESSES, *with numerous woodcuts*, 3 vols. cr. 8vo. *cl.* (SCARCE), £1. 1s 1891-4
CONTENTS:—I. Constitution of Matter, 2nd Ed., with Additions, '91: II. Geology and General Physics, '94: III. Navigational Affairs, '91.
- 10072 ——— ANOTHER COPY, 3 vols. *cl.* (*fresh copy*), *with AUTHOR'S INSCRIPTION*, £1. 5s
'To Lord Napier and Ettrick with kind regards. KELVIN. Dec. 2, 1896.'—*Inscr. on flyleaf of v. I.*
- 10073 ——— VOLUME II: GEOLOGY and GENERAL PHYSICS, *with folding plate and woodcuts*, thick cr. 8vo. *cl.*, 4s (p. 7s 6d) 1894
- 10074 ——— REPRINT of PAPERS on ELECTROSTATICS and MAGNETISM, *with 3 plates (2 folding)*, and *numerous woodcuts*, thick 8vo. *cl.*, 10s 6d 1872
- 10075 ——— SECOND [LATEST] EDITION [slightly enlarged], *with 3 plates and numerous woodcuts*, 8vo. *cl.*, *uncut (scarce)*, 15s 1884
- 10076 ———, and Peter Guthrie TAIT, F.R.S.E.: ELEMENTS of NATURAL PHILOSOPHY, PART I (all pub.), *with numerous diagrams*, 8vo. *cl.*, 3s (p. 9s) *Clarendon Press, Oxford*, 1873
- 10077 ——— SECOND [LAST] EDITION [revised by WILLIAM BURNSIDE, F.R.S., with INDEX], *with numerous diagrams*, 8vo. *cl.*, 4s 6d (p. 9s) *Univ. Press, Cambridge*, 1879
- 10078 ——— TREATISE ON NATURAL PHILOSOPHY, Vol. I [all published], *with diagrams*, thick 8vo. *cl.*, 9s (p. £1. 5s) *Clarendon Press, Oxford*, 1867
- 10079 ——— NEW [LAST] EDITION [revised by SIR G. H. DARWIN, F.R.S., with INDEX], *illustrated*, 2 vols. 8vo. *cl.*, £1. (p. £1. 14s) *Univ. Press, Cambridge*, 1879-83
'A work which, though never completed, has had an incalculable influence on the progress of physical science.'
The above issue is preferable to that of 1890-5, which is merely a stereotype reprint of the former.
- 10080 ——— VOLUME I ONLY, *with diagrams*, 8vo. *cl.*, 8s 6d (p. 16s) *a. e., ib.*, 1879
- 10081 ——— HANDBUCH der THEORETISCHEN PHYSIK, autorisierte deutsche Übersetzung von H. v. HELMHOLTZ and G. WERTHEIM, I. Band, I. Theil; *with diagrams*, 8vo. *buckram*, *with Dr. Emil Reich's bookplate*, 4s *Braunschweig*, 1871
- 10082 ———: THOMPSON (Silvanus Phillips, F.R.S.) The LIFE of WILLIAM THOMSON, BARON KELVIN of LARGS, *with 16 portraits and plates (including photogravures)*, besides *text-illustrations*, 2 vols. 8vo. *cl.*, *uncut*, t. e. g., 15s (p. £1. 10s nett) 1910
Likely to remain the standard biography. At end is a complete bibliography of Lord Kelvin's works and contributions to the Publications of Learned Societies, etc., and a List of his Patents.
- 10083 ———: LORD KELVIN'S EARLY HOME: the Recollections of his Sister, Mrs. Elizabeth King, with some Family Letters and Supplementary Chapter by the Editor, ELIZABETH THOMSON KING, *with 23 portraits and plates*, 8vo. *cl.*, 4s 6d (p. 8s 6d nett) 1909
- 10084 ———: GRAY (Andrew, F.R.S.) LORD KELVIN: an Account of his Scientific Life and Work, *with 2 portraits*, and *view*, cr. 8vo. *cl.*, 2s 1908
——— v. JENKIN, Nos. 2144 and 9795, and NEWTON, No. 3266, *ante*.
- 10085 **KENNELLY** (Arthur Edwin, *Harvard Univ.*) The APPLICATION of HYPERBOLIC FUNCTIONS to ELECTRICAL ENGINEERING PROBLEMS, *with diagrams*, 8vo. *cl.*, 4s (p. 6s nett) 1912
- 10086 ——— WIRELESS TELEGRAPHY and WIRELESS TELEPHONY: an Elementary Treatise [2nd Edition, enlarged], *with 84 illustrations*, cr. 8vo. *cl.*, 3s 1909

- 10089 **KENNEDY** (Sir Alexander Blackie William, F.R.S.) *The MECHANICS of MACHINERY, with numerous illustrations, thick post 8vo. cl., with author's inser., and auto. of F. J. Jervis-Smith, pr., F.R.S., 5s (p. 12s 6d)* 1886

One of the best English textbooks on the subject.

- 10090 ——— **RIVETED JOINTS** (Report on Experiments on Double-Riveted LAP and BUTT JOINTS, Series XI-XIII, and Abstract of Results of Experiments on Riveted Joints, with their Application to Practical Work, with 3 plates, 8vo. (pp. 94), *sewn, 4s* 1885

- 10091 ——— **RESULTS of EXPERIMENTS on RIVETED JOINTS** made for the Institution of Mechanical Engineers [with Appendixes by R. H. TWEDDELL, etc.], 10 plates, 8vo. (pp. 164), *sewn, 6s* 1881

Added is: 'On Riveting, with special Reference to Ship-Work', by BARON CLAUZEL (pp. 37).

- 10092 ——— **The USE and EQUIPMENT of ENGINEERING LABORATORIES, with Abstract of the Discussion, edited by JAMES FORREST, with a folding plate and 40 woodcuts, 8vo. *sewn, with author's inser., and auto. of F. J. Jervis-Smith, pr., F.R.S., 5s*** 1887

- 10093 **KENNEDY** (Rankin) **ELECTRICAL INSTALLATIONS of ELECTRICAL LIGHT, POWER, TRACTION, and INDUSTRIAL ELECTRICAL MACHINERY, with hundreds of illustrations (including many plates), 5 vols. sq. roy. 8vo. cl., 17s 6d (p. £1. 17s 6d nett)** [c. 1910]

- 10094 ——— **MODERN ENGINES and POWER GENERATORS: a Practical Work on Prime Movers and the Transmission of Power: Steam, Electric, Water, and Hot Air, with many hundred plates, diagrams, and illustrations, 6 vols. cr. 4to. cl., £1. 5s (p. £2. 14s nett)** [c. 1910]

- 10095 **KENWARD** (James, lighthouse engineer) **SHIP LIGHTS and COLLISIONS, 8vo. (pp. 16), *sewn, with auto. letter from the author, 2s*** Birmingham, 1893

- 10096 **KEPLER** (Johann) **OPERA OMNIA, edidit [Notasque adjecit] CHRISTIANUS FRISCH; with portrait, 3 plates, fs. letter, and numerous diagrams, 8 vols. roy. 8vo. in 9, hf. purple calf extra, cl. sides, t. e. g. (FINE SET), with bookplate of DR. EMIL REICH, £3. 15s (p. M. 114 sewn)**

Francofurti ad Mœnum, 1858-71

The only complete edition of Kepler's works ever published.

- 10097 ——— **DIOPTRICE, seu Demonstratio eorum que visui et visibilibus propter Conspicilla non ita pridem inventa accidunt. Præmissæ EPISTOLÆ GALILÆI de iis, item Examen Præfationis JO. PENÆ Galli in Optica Euclidis, de Usu Optices in Philosophia, editio princeps; with numerous diagrams, Augustæ Vindelicorum, 1611: Ad VITELLIONEM PARALIPOMENA, quibus ASTRONOMIÆ PARS OPTICA traditur; potissimum de Artificioſa Observatione et Æſtimatione Diametrorum Deliquiorumque; Solis et Lunæ, cum Exemplis Insignium Eclipsium, etc. etc., TRACTATUM LUCULENTUM de MODO VISIONIS, et HUMORUM OCULI USU, contra Opticos et Anatomicos, editio princeps; with diagrams and folding tables, Francofurti, '04—2 vols. sm. 4to. in 1, LARGE and SOUND COPIES in old white vellum (but the second work browned as usual); VERY RARE, £3. 15s** 1611-04

The second work, which is hardly less important than the *Dioptrice*, contains the first correct physiological explanation of the defects of sight, with a theory of vision, the first suggestion of the undulatory theory of light, an approximately correct formula of refraction (pointing out the relation between the sine of incident and refracted rays), the first announcement of one of the principal axioms of photometry, his method of calculating eclipses, still in use, etc. etc.

In a short chapter on conics inserted in his *Paralipomena*, published in 1604, he lays down what has been called the principle of continuity, and gives as an example the statement that a parabola is at once the limiting case of an ellipse and of a hyperbola; he illustrates the same doctrine by reference to the foci of conics (the word *focus* was introduced by him); and he also explains that parallel lines should be regarded as meeting at infinity. He introduced the use of the eccentric angle in discussing properties of the ellipse.—*W. W. R. Ball.*

- 10098 ——— **DIOPTRICE: seu Demonstratio eorum que visui et visibilibus propter Conspicilla non ita pridem inventa accidunt. Præmissæ EPISTOLÆ GALILÆI de iis, que post Editionem Nuncii Siderei, Ope Perspicilla, nova et admiranda in Cælo deprehensa sunt; item Examen Præfationis JO. PENÆ Galli in Optica Euclidis, de usu Optices in Philosophia; with woodcuts and diagrams, sm. 8vo. *sewn, 8s 6d*** Londini, Jac. Fleisher, 1653

The first edition printed in England.

This is next to his 'Astronomia Nova' and 'Harmonices Mundi' Kepler's most important work, and contains the first account of his INVENTION of the ASTRONOMICAL TELESCOPE, consisting of two convex lenses, as opposed to Galileo's telescope of one concave and one convex lens; and also the first attempt at giving a theory of the telescope.

L'anteur emploie le premier la règle approximative de la proportionnalité de l'angle de réfraction à l'angle d'incidence pour étudier les propriétés des lentilles plano sphériques, et il donne des formules, encore usitées aujourd'hui pour calculer, les distances des foyers de semblables lentilles.—*Biogr. Gén.*

- 10099 ——— **EPITOME ASTRONOMIÆ COPERNICANÆ, usitatâ Formâ Questionum et Responſionum conscripta; in VII Libros digesta, quorum III hi priores sunt de DOCTRINA SPHERICÂ, editio princeps; with woodcuts and diagrams, 12mo. old boards (corner of title and first l. defective, and partly water-stained); RARE, 15s** Lentii ad Danubium, 1618

The first edition contains only the first 3 Books. It was the first work dividing the science into spherical and theoretical astronomy.

- 10100 ——— **HARMONICES MUNDI Libri V, quorum I. Geometricus, II. Architectonicus, III. Harmonicus, IV. Metaphysicus, Psychologicus et Astrologicus, V. Astronomicus et Metaphysicus, Appendix habet Comparationem huius Operis cum Harmonices CL. PTOLEMÆI Libro III. cumque ROBERTI DE FLUCTIBUS [ROBERT FLUDD, M.D.] Speculationibus Harmonicis, etc., editio princeps; with plates, woodcuts, and diagrams, sm. folio, contemporary vellum (back of binding slightly damaged and browned as usual, otherwise a SOUND and TALL COPY); VERY RARE, £3. 10s** *ibidem*, 1619

- 10101 ——— **ANOTHER COPY, old limp vellum (blank corner of title and last l. defective, and corner of a number of ll. water-stained, otherwise an unusually clean and tall copy), £3. 3s**

ORIGINAL EDITION of Kepler's second great work ('his chief work'—*W. W. R. Ball*), containing for the first time his 'third law': The square of a planet's periodic time is proportional to the cube of its mean distance from the sun. As is well known, his three laws formed the groundwork of Newton's discoveries, and are the starting point of modern astronomy.

It is dedicated to James I. The passage 'fidei defensor inter Christi fideles' is inked in the second copy.

- 10103 **KEPLER (Johann)** PRO SUO OPERE HARMONICES MUNDI APOLOGIA adversus DEMONSTRATIONEM ANALYTICAM ROBERTI DE FLUCTIBUS Medici Oxoniensis, in qua ille se dicit respondere ad Appendicem dicti Operis; with large woodcut device on title, folio, *hf. morocco neat* (2 ll. *water-stained on margin, otherwise a FINE AND TALL COPY*); VERY RARE, £1. 5s *Frankfurti*, 1622
A reply to the Oxford Rosicrucian: Robert Fludd's attack in his *Veritatis Proseculum* (1621), which was provoked by Kepler's own criticism in the appendix to the *Harmonice Mundi*.
- 10104 ——— **TABULÆ RUDOLPHINÆ**, quibus Astronomiæ Scientiæ, Temporum Longinquitate collapsæ Restauratio continetur, a . . . TYCHONE ex . . . BRAHEORUM Familia oriundo Equite, primum Anno concepta et destinata A.C. MDLXIV: exinde Observationibus Siderum accuratissimis . . . serio affectata, etc. etc. etc.; with fine engraved front, containing portraits of Copernicus, Tycho Brahe, etc., and diagrams, folio, *old limp vellum (some ll. browned, otherwise a sound and large copy)*; RARE, £1. 1s *Ulma*, 1627
The value of these tables appears from the fact that they ranked for a century as the best aid to astronomy. Appended are tables of logarithms and of refractions, together with Tycho's catalogue of 777 stars, enlarged by Kepler to 1005.—*Miss Agnes M. Clerke*.
"Ce sont de toutes les anciennes tables astronomiques celles qui reposent sur les plus solides fondemens, et il est encore des cas où elles s'écartent peu des phénomènes."—*Montucla*.
See MORIN, *post*, for a revised edition of the Rudolphine Tables.
- 10105 ———: KEPLER'S TRAUM von MOND [mit Einleitung und zahlreichen Noten] von LUDWIG GÜNTHER; with portrait, *fs. title of the original edition*, 2 plates, and 24 other illustrations, roy. 8vo. buckram, t. e. g., with Dr. Emil Reich's bookplate, 5s (p. M. 8 sewn) *Leipzig*, 1898
This work was largely used by Huygens in his *Cosmotheoros*.
- 10106 ———: EPISTOLÆ ad JOANNEM KEPLERUM Mathematicum Cesareum scriptæ; insertis ad easdem RESPONSIONIBUS KEPLERIANIS, quotquot hactenus reperiiri potuerunt; Opus Novum, quo recondita Keplerianæ Doctrinæ Capita dilucide explicantur, et Historia Literaria in Universum mirifice illustratur, nunc primum cum Præfatione de MERITIS GERMANORUM in MATHESIS, Introductione in Historiam Literariam Sæculorum XVI. et XVII. et JO. KEPLERII VITA, Jussu et Auspiciis Caroli VI. Romanor. Imperat. S.A.P.F.V.P.P. ex MSS. editum [à MICHAËLE GOTTLIEB HANSCHIO]; with engraved vignettes, arms, and 8 plates, roy. folio, *sound copy in old white vellum, with bookplate of Lord Eliock*, £1. 12s 6d *[Lipsic.]* 1718
This was the only volume ever published by Hansch, who bought the whole of Kepler's MSS. for 100 florins, and received 4000 florins from the Emperor Charles VI. for editing the above volume. A proposed second volume was never published, as no further funds were forthcoming from the Emperor.
Hansch afterwards sold the collection in Frankfort for 823 florins, where it was discovered by v. Murr, and purchased, at Euler's instigation, by the Empress Catherine of Russia for 2000 roubles. Frisch's edition is based on it.
- 10107 ———: BREITSCHWERT (J. Ludwig C. Freiherr v.) JOHANN KEPLER'S LEBEN und WIRKEN, nach neuerlich aufgefundenen Manuscripten bearbeitet, sm. 8vo. boards, uncut, with bookplate of Prof. Lloyd Tanner, F.R.S., 3s *Stuttgart*, 1831
- 10108 ———: [BREWSTER (Sir David, F.R.S.)] LIFE of KEPLER [with Bibliography], woodcuts, 4to. (pp. 54), sewn, 4s 6d *n. d.*
- 10109 ———: SMALL (Robert, D.D., F.R.S.E.) ACCOUNT of the ASTRONOMICAL DISCOVERIES of KEPLER: including an historical Review of the Systems which had successively prevailed before his Time, with 11 plates, 8vo. calf (back damaged), 4s *1804*
- 10110 KERCKHOFF (Pieter Jan van, Groningen) Een BLIK op den TEGENWOORDIGEN TOESTAND der SCHEIKUNDE, roy. 8vo. sewn, 1s 6d *Groningen*, 1858
- 10111 KERGER (Martin, M.D.) De FERMENTATIONE Liber Physico-Medicus, cui de INSEPARABILITATE FORMARUM MATERIALIUM et VITA singularia sunt innexa, omnia perpetuis Experimentis firmata, sm. 4to. (pp. 276), *old vellum (browned, but large copy)*; RARE, 15s *Wittebergæ*, 1663
An iatro-chemical treatise of considerable interest, dealing not only with fermentation proper, but also treating of the supposed fermentative processes of the human body, *i.e.* fevers and tumours. It was unknown to Poggendorf, and other bibliographers.
- 10112 KERIGAN (Lieut. Thomas, R.N., F.R.S.) THE COMPLETE MATHEMATICAL and GENERAL NAVIGATION TABLES; with copious TREATISES on NAVIGATION, NAUTICAL ASTRONOMY, Plane and Spherical TRIGONOMETRY, DIALLING, GUNNERY, etc.; new Edition, adapted to the Nautical Almanac, with folding front, and numerous diagrams, 2 thick vols. roy. 8vo. cl., with auto. of J. H. Speke (African explorer), 10s 6d (p. £1. 7s) *1845*
- 10113 ——— PRACTICAL TREATISE on the ECLIPSES of the SUN and MOON, and the Deflection of the Moon and Planets; explaining their Calculation by Simple and Direct Methods, with Remarks on the ANOMALIES of the PRESENT THEORY of the TIDES; the Superior Attraction of the Sun over that of the Moon at the Surface of the Earth, etc. etc., roy. 8vo. cl., uncut, 5s *1844*
Lieut. Kerigan was elected to the Royal Society at a time when his proposers must have known that his immediate object was to put F.R.S. on the titlepage of a work (*supra*) against the tides.—*Prof. de Morgan*.
- 10114 KERL (Georg Heinrich Bruno, Bergakademie, Berlin) THE ASSAYER'S MANUAL: an Abridged Treatise on the Docimastic Examination of Ores, and Furnace and other Artificial Products; translated by WILLIAM T. BRANNT, and edited by WILLIAM H. WAHL, with 65 illustrations, 8vo. cl., 5s (p. 12s 6d) *Philadelphia*, 1883
- 10115 ——— BESCHREIBUNG der OBERHARZER HÜTTENPROZESSE in ihrem ganzen Umfange, mit Berücksichtigung anderer metallurgischer Prozesse im Allgemeinen; with 4 folding plates, and 8 folding tables, 8vo. *hf. cl.*, 3s 6d *Clausthal*, 1852
- 10116 [KERN (Johann Gottlieb)] BERICHT vom BERGBAU; with 18 copperplates, comprising about 100 figures, 4to. *hf. bound (binding damaged)*; RARE, 12s *Leipzig*, 1772
Interesting as describing and illustrating very fully the methods of mining in vogue in Germany—more especially at Freiberg in Saxony—in the middle of the XVIIIth Century.
- 10117 KERP (Heinrich, Bonn) Die ERDKUNDLICHEN RAUMVORSTELLUNGEN; with 33 diagrams, 8vo. sewn, 2s (p. M. 3.60) *Berlin*, 1899
- 10118 ——— Die LANDSCHAFTEN EUROPAS; with 4 plates, 8vo. sewn, 2s 6d (p. M. 5) *Trier*, 1900

- 506 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10120 **KERPELY** (Anton Ritter v.) Die ANLAGE und EINRICHTUNG der EISENSCHMELZWERKE (Hohofen-Anlagen); with woodcuts, 8vo., and **Atlas**, containing 114 folding plates, roy. 4to.— 2 vols. hf. calf gilt, cl. sides, uncut, t. c. g. (FINE COPY), £2. 15s (p. M. 115 sewn) Leipzig, 1884
- 10121 **KERR** (Eugene Wycliff; *Univ. Louisiana*) POWER and POWER TRANSMISSION, with 264 illustrations, 8vo. cl. (o. p.), 6s New York, 1902
- 10122 **KERR** (George L., M.I.M.E.) ELEMENTARY COAL-MINING, with 200 woodcuts, cr. 8vo., cl., 2s 1902
- 10123 **KERR** (Washington Caruthers), and **George B. HANNA**: ORES of NORTH CAROLINA, with numerous plates and woodcuts, and large coloured map, 8vo. sewn, 3s 6d Raleigh, 1893
- 10124 **KERSHAW** (John Baker Cannington, F.I.C.) Die ELEKTROLYTISCHE CHLORATINDUSTRIE, übertragen von MAX HUTI, mit Anhang der wichtigsten PATENTE; with 39 illustrations, and 3 tables, roy. 8vo. sewn, 3s 6d (p. M. 6) Halle a. S., 1902
- 10125 **KETCHUM** (Milo Smith, *Univ. Colorado*) The DESIGN of HIGHWAY BRIDGES, and the Calculation of Stresses in Bridge Trusses, with 303 illustrations (some folding), large 8vo. cl., 10s 6d (p. 16s nett) New York, 1908
- 10126 **KEYNES** (John Neville; *Registrary Univ. Cantab.*) STUDIES and EXERCISES in FORMAL LOGIC; third Edition, enlarged, 8vo. cl., uncut, 5s (p. 12s) 1894
- 10127 **KIDD** (John, M.D.; F.R.S., *Prof. Chemistry, Oxon.*) OUTLINES of MINERALOGY, 2 vols. 8vo. boards, uncut (rare), 6s Oxford, 1809
- 10128 **KILLING** (Wilhelm, *Univ. Münster*), und **H. HOVESTADT**: HANDBUCH des MATHEMATISCHEN UNTERRICHTS, BAND I [GEOMETRIE]; with 32 diagrams, roy. 8vo. cl., 6s 6d (p. M. 10) Leipzig, 1910
- 10129 **KIMBER** (Thomas) MATHEMATICAL COURSE for the UNIVERSITY of LONDON, with the whole Series of MATHEMATICAL PAPERS, 1833-65, enlarged Edition; with diagrams, 8vo. cl., 2s (p. 10s 6d) 1865
- 10130 ——— FOURTH EDITION, enlarged [to 1878], with **Key**, 2 vols. 8vo. in 4 parts, cl., 4s 6d (p. £1. 4s) 1883-1-0
- 10131 **KINAHAN** (Gerard Henry, M.R.I.A.) HANDY BOOK of ROCK NAMES: a Guide to Practical Geology, fcap. 8vo. cl., 2s (p. 4s) 1873
- 10132 ——— VALLEYS, and their Relation to Fissures, Fractures, and Faults, with 7 plates and maps, post 8vo. cl., 4s 6d (p. 10s 6d) 1875
- 10133 **KINCKHUYSEN** (Gerard) ALGEBRA ofte STEL-KONST, beschreven tot dienst van de Leerlingen; with diagram on title, sm. 4to. sewn, uncut, 10s 6d Haerlem, 1661
- Newton meant to publish a new edition of this work in 1671, in which his parallelogram was to appear for the first time, but his intention was never carried out.
- 10134 [———] Het GHEBRUYCK des QUADRANTS, zijnde seer nut voor veel Personen, ende vermake- lijk voor alle Liefhebbers, ghevoegt eenighe vermaeckelijcke Questien, by de welke de Antwoorden ghestelt zijn; with fine engraving of the Quadrant on title, sm. 4to. (pp. 20), unbound (rare), 10s 6d *ibidem*, 1643
- 10135 **KINEALY** (John Henry, *Washington Univ., St. Louis*) CENTRIFUGAL FANS: a Theoretical and Practical Treatise on Fans for Moving Air in large quantities at comparatively low Pressures, with 33 illustrations, fcap. 8vo. limp leather, 10s (p. £1. 1s nett) New York, 1905
- 10136 **KING** (Arthur Scott; *Pasadena Observatory*; F.R.A.S.) An ELECTRIC FURNACE for SPECTROSCOPIC INVESTIGATIONS, with Results for the Spectra of Titanium and Vanadium, 3 plates, impl. 8vo. (pp. 15), sewn, 1s 6d [Washington], 1908
- 10137 ——— The RELATIVE INTENSITIES of the CALCIUM LINES H, K, and λ 4226 in the ELECTRIC FURNACE, with FURTHER STUDY, 3 plates, 2 parts impl. 8vo. (pp. 17), sewn, 2s [ib.], 1908-9
- 10138 ——— The RELATIVE INTENSITIES of the YELLOW, ORANGE, and RED LINES of CALCIUM in ELECTRIC FURNACE SPECTRA, with plate, impl. 8vo. (pp. 8), sewn, 1s [ib.], 1909
- 10139 ——— On the SEPARATION in the MAGNETIC FIELD of some Lines occurring as DOUBLETS and TRIPLETS in SUN-SPOT SPECTRA, with plate, impl. 8vo. (pp. 8), sewn, 1s [ib.], 1909
- 10140 ——— The ZEEMAN EFFECT for TITANIUM, with 2 plates, impl. 8vo. (pp. 13), sewn, 1s 6d [ib.], 1909
- 10141 **KING** (Franklin Hiram, *Univ. Wisconsin*) TEXT-BOOK of the PHYSICS of AGRICULTURE, 3rd Edition, with 276 illustrations, cr. 8vo. cl., 4s 6d *apud auctorem, Madison*, 1904
- 10142 **KING** (James Wilson, *Chief Engineer, U.S.N.*) REPORT on EUROPEAN SHIPS of WAR and their ARMAMENT, Naval Administration, and Economy, Marine Constructions, Torpedo Warfare, Dock-Yards, etc. etc., 2nd Edition, enlarged, with 41 plates, 8vo. cl., with author's inscr., 6s 6d Washington, 1878
- 10143 **KING** (Joseph, *Liverpool*) INTEREST TABLES, enlarged and improved, calculated at 5%, from £1. to £10,000., from 1 to 365 Days, with Tables for Calculating Commissions, etc. etc., 4th Edition, enlarged, thick roy. 8vo. boards, uncut, 6s Liverpool, 1804
- 10144 **KING** (William, *Prof. Geol., King's Coll., Galway*), and **Thomas H. ROWNEY**: An OLD CHAPTER of the GEOLOGICAL RECORD, with a NEW INTERPRETATION: or Rock Metamorphism and its resultant Imitations of Organisms, with annotated History of the Controversy on the so-called 'Eozoon Canadense', 9 coloured plates, 8vo. cl., 5s (p. 10s 6d) 1881
- 10145 **KING** (William H., U.S.N.) LESSONS and PRACTICAL NOTES on STEAM, the STEAM ENGINE, PROPELLERS, etc. etc.; revised by CHIEF-ENGR. J. W. KING, U.S.N., 19th [last] Edition, enlarged, with numerous woodcuts, 8vo. cl., 3s 6d (p. 10s 6d) New York, 1875
- 10146 **KLEFFEL** (L. G.) HANDBUCH der PRACTISCHEN PHOTOGRAPHIE, nebst ausführlicher Abhandlung über STEREOSKOPIE und PANOTYPIC, 4. umgearbeitete Auflage; with woodcuts, 8vo. hf. calf, 3s 6d Leipzig, 1863

AD VITELLIONEM
PARALIPOMENA,

Quibus

ASTRONOMIÆ PARSOPTICA TRADITVR;

Poissimum

DE ARTIFICIOSA OBSERVATIONE.

NE ET ESTIMATIONE DIAMETRORYM

deliquorumq; Solis & Lunæ.

CFM EXEMPLIS IN SIGILLVM ECLIPSIYVM.

Habes hoc libro, Lector, inter alia multa noua.*

Tractatum luculentum de modo visionis, & humorum oculi;

q;us, contra Opticos & Anatomicos,

AVTHORE
IOANNE KEPLERO, S. C. M.*
Mathematico.

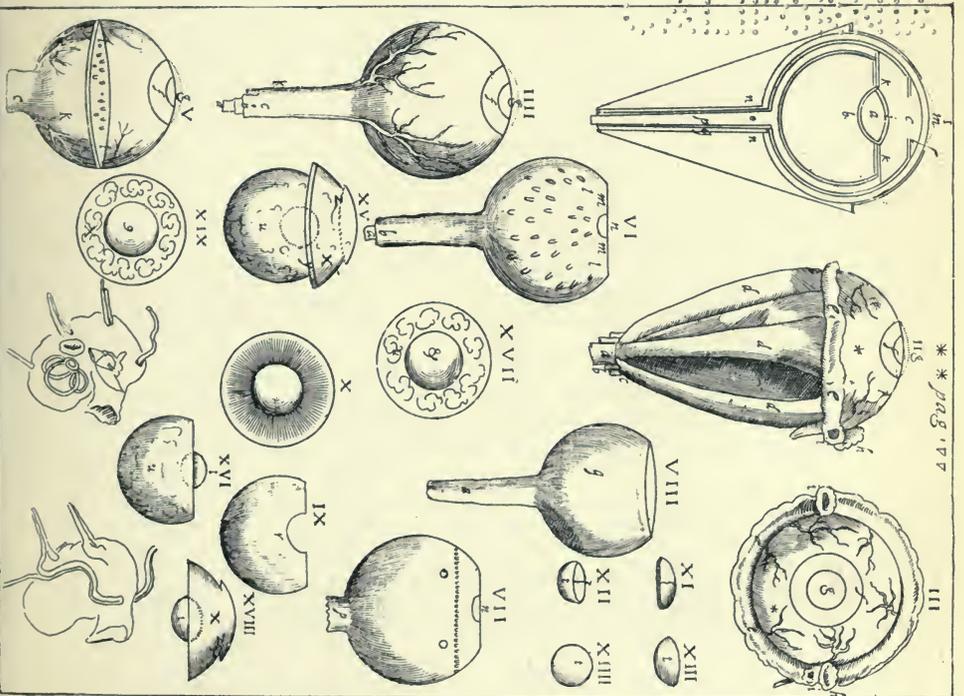


FRANCOPRTI,

Apud Claudium Marnum & Heredes Ioannis Aubrii

Anno M. DC. IY.

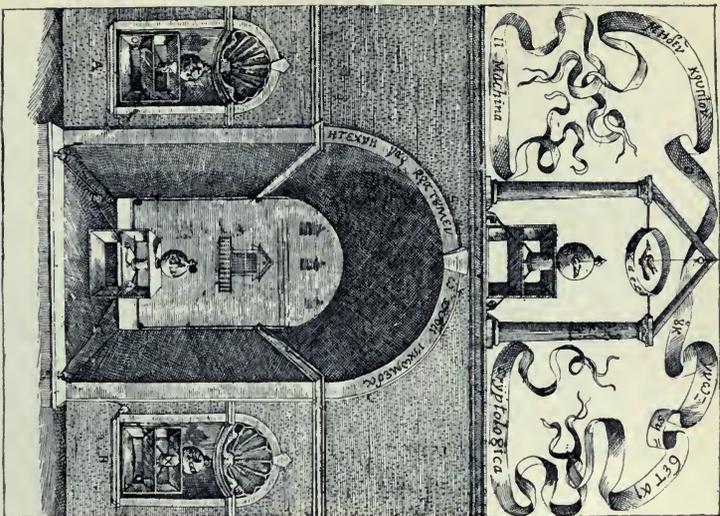
Cum Præuilegio S. C. Cæsaræ.



No. 10097 (page 504).

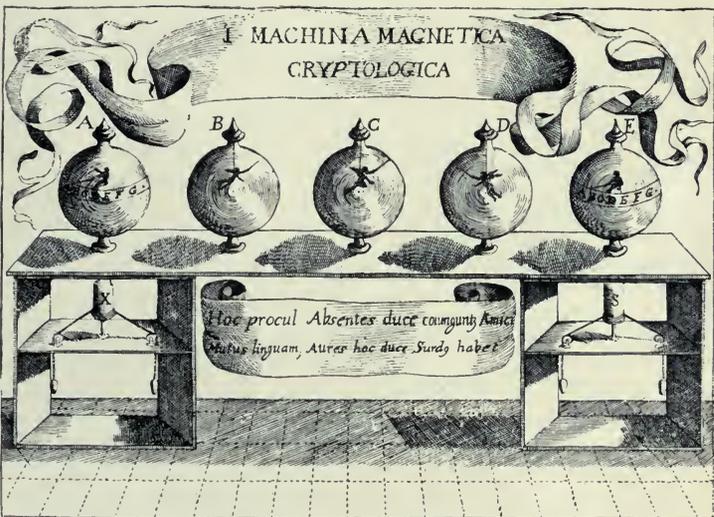
An important work on physiological optics.

Cylindrorum alteruter, alterutro operante *ϕψωαδγβζηθ*, solli debet, ne Magnetice fiatque motum invehat, aut colubet. Tertio, ut omnia incrementa impediantur, in vigetis motiones silentia, tollantur. His observatis, videlicet predictum omnino incundam, & plenum admirationis.



Verum cum non omnes tanta magnetum copia abundent, vel huiusmodi artificium conficere possint; hic aliam methodum docuimus, qua duobus valis distincta *ϕψωαδγβζηθ* quibuslibet duobus locis assumpsit exerceri possit. Maneant igitur
B b
vada

vada A, & E, primum videlicet & vltimum, in conchulis quibuscumque ductis, ea ratione, qua in precedentibus docuimus, instructa; horum vero cylindrica arte constituantur, ut utroque vna & eadem chorda circumagatur; Vt si cylin-



drus S, vna cum magne circumducatur, circumducatur & eodem tempore cylindrus X cum magne fito; & e contra; Chorda vero per occultos partium m.atus deducta, ne mysterium pateat, ad vnamque cylindrum deueniat. Quod si itaque quisquam constitutus in Camera A loqui vult, amico constituto in Ca-

mera

- 10148 **KINGSBURY** (Benjamin, razor-maker) TREATISE ON RAZORS; in which the Weight, Shape, and Temper of a Razor, the Means of Keeping it in Order, and the Manner of Using it, are particularly considered, 5th Edition, 8vo. *sewn (rare)*, 10s 6d 1806
Probably the only work on the subject ever written, from the date of the flint-rasps of the Stone Age to that of the latest American contrivance for those who cannot hold a razor.
- 10149 **KINGZETT** (Charles Thomas, F.C.S.) ANIMAL CHEMISTRY, on the Relations of Chemistry to Physiology and Pathology, thick 8vo. *cl. (o.p.)*, 5s (p. 18s) 1878
A careful digest of everything then known of physiological chemistry.
- 10150 ——— THE HISTORY, PRODUCTS, and PROCESSES of the ALKALI TRADE, including the most recent Improvements, with 5 plates and 18 woodcuts, 8vo. *cl. (o.p.)*, 4s 1877
With interesting historical chapters.
- 10151 ——— NATURE'S HYGIENE: the CHEMISTRY and HYGIENE of the EUCALYPTUS and the PINE, 2nd Edition, 8vo. *cl. (o.p.)*, 3s 6d 1884
- 10152 ——— PRECISE INVESTIGATION of some MICRO-ORGANISMS and SOLUBLE FERMENTS: their Chemical History and Relation to Disease, also the Disinfecting Value of 'Sanitas' Fluids, 8vo. (pp. 31), *sewn*, 1s 6d 1885
- 10153 **KIPPING** (Frederic Stanley; F.R.S.) ω—BROMOCAMPHORIC ACID, 8vo. (pp. 6), *sewn*, with author's *inscr.*, 1s 1896
- 10154 ——— α—HYDRINDONE and its Derivatives, Part I, 8vo. (pp. 24), *sewn*, 1s 1894
- 10155 ——— On the SYNTHETICAL FORMATION of CLOSED CARBON CHAINS in the AROMATIC SERIES; with the Formation of Anhydrides, 8vo. (pp. 43), *sewn*, with *auto. letter from Prof. J. E. Reynolds to Sir E. Thorpe on this brochure*, 2s 6d Manchester, 1887
- 10156 ———, and William Jackson POPE, F.R.S.: π—HALOGEN DERIVATIVES of CAMPHOR, with 5 illustrations, 8vo. (pp. 28), *sewn*, 1s 6d 1895
- 10157 ———, and O. F. RUSSELL: PARAHEPTOTOLUENE and its DERIVATIVES, 8vo. (pp. 7), *sewn*, 1s 1895
- 10158 **KIPPING** (Robert, sailmaker) THE ELEMENTS of SAILMAKING: a complete Treatise on Cutting-Out Sails as practised in the Royal Navy, and according to the most approved Methods in the Merchant Service, with Draughting, and the Centre of Effort of the Sails; 2nd Edition, enlarged, with 17 plates, 8vo. *cl.*, 6s 1851
- 10159 **KIRBY** (Joshua) DR. BROOK TAYLOR'S METHOD of PERSPECTIVE made easy, both in Theory and Practice; 2nd Edition, with 51 copperplates, mostly by the author, 4to. *old calf (rubbed)*, with bookplate of Prof. W. A. Copinger, bibliographer, 5s Ipswich, 1755
- 10160 **KIRBY** (Thomas) ESSAY ON CRITICISM, in the Course of which the THEORY of LIGHT, and the GRAVITY of the EARTH, are PARTICULARLY CONSIDERED, 8vo. (pp. 40), *sewn (rare)*, 10s 6d 1757
This paradoxer escaped Professor de Morgan. According to the author 'light is a reflexion from all opaque bodies,' while 'day-light may be called a whiteness caused by the sun,' and the tides the result of 'a repulsive power of the moon.'
- 10161 **KIRCHER** (Athanasius, S.J.; Collegii Gregoriani) ARS MAGNA LUCIS et UMBRÆ, quibus admirande Lucis et Umræ in Mundo, atque ad Universa Natura, Vires, Effectusque uti Nova, ita varia novorum reconditorumque Speciminum Exhibitione, ad varios Mortalium Usus, panduntur, Editio altera, priori multò auctior; with fine portrait of Johann Friedrich Graf Waldstein, large Jesuit horoscope, and numerous plates and woodcuts, etc., thick roy. folio, *old calf gilt (joint slightly cracked, also some ll. browned, otherwise a VERY SOUND COPY)*; RARE, £2. 2s Amstelodami, 1671
One of that naïf but wonderful man Father Kircher's most important works, containing descriptions of a number of ingenious inventions. He is in this work the first to mention fluorescence, and in the above second edition gives a copious description of the magic lantern and the speaking trumpet, the invention of which has been ascribed to him.
- 10162 ——— ITER EXTATICUM CÆLESTE, quo Mundi Opificium, id est, Cœlestis Expansi, Siderumque tam Errantium, quam Fixorum Natura, Vires, Proprietates, singulorumque Compositio et Structura . . . Novâ Hypothesi exponitur ad Veritatem. . . hac II^a Editione Præclusionibus et Scholiis illustratum . . . necnon à Mendis, que in I^{am} Romanam Editionem irreperant, expurgatum à GASPARE SCHOTTO, S. J.; accessit ejusdem Auctoris Iter Extaticum Terrestre, et Synopsis Mundi Subterranei; with engraved title (including PORTRAIT), engraved arms on rev. of printed title, and 12 copperplates, thick 4to. *old vellum (somewhat browned as usual, otherwise a very sound copy)*; RARE, £1. 5s Herbipoli, 1660
'This work, which is important for the history of astronomy, is perhaps the most curious of Kircher's publications. The discussion whether the water, which the author asserts to be in the planet Venus, may be used for baptism [which would have tickled Father Tyrell, *ejusdem Societatis*], and some other extraordinary things of a similar nature, have rendered the possession of the book interesting to collectors.'—*Libri Catalogue*. Needless to say, the author rejects the Copernican system, but adopts that of Tycho Brahe.
- 10163 ——— MAGNES, sive de Arte Magnetica Opus Tripartitum, quo Universa MAGNETIS NATURA, eiusque in omnibus Scientiis et Artibus USUS, NOVA METHODO explicatur; ac præterea e Viribus quoque et prodigiis Effectibus Magnetarum, aliarumque abditarum Naturæ Motuum in Elementis, Lapidibus, Plantis, Animalibus, elucescentium, multa hucusque incognita Naturæ Arcana per . . . Experimenta recluduntur, EDITIO III. [ET ULTIMA], ab ipso Authore recognita, emendataque, ac multis NOVORUM EXPERIMENTORUM Problematis aucta; with engraved title, vignette, and very numerous fine engravings on copper and wood, folio, *contemporary calf gilt (back slightly damaged, and a few ll. mended, but a sound and clean copy)*, with bookplate and stamp 'Bibliotheca Suchtelen'; VERY RARE, £2. 10s Romæ, 1654
Last and most complete edition of one of the most interesting works of Kircher's wonderful and all-embracing scientific genius (or at least industry), and most valuable as a storehouse of all that was known of the magnet at the time of its publication. It contains moreover several original observations, i.e., the influence of volcanic eruptions on the magnetic needle, numerous experiments, including one ascertaining the carrying power of magnets (now being used in practice for lifting the heaviest castings), the first use of the term 'electro-magnetism,' and a table of places with their declination.

- 10164 **KIRCHER** (Athanasius, S.J., *Collegii Gregoriani*) ARS MAGNA SCIENDI, qua nova et universali Methodo per Artificiofum Combinationum Contextum de OMNI RE proposita plurimis et prope Infinitis Rationibus disputari, omniumque Summaria quædam Cognitio comparari potest; editio princeps; with 2 engraved titles, plates and woodcuts, 2 vols. large folio in 1, *old parchment (somewhat foxed, but sound copy)*; RARE, £1. 5s
Amstelodami, 1659
- 10165 ——— MUNDUS SUBTERRANEUS, quo Divinum Subterrestris Mundi Opificium, mira Ergasteriorum Nature in eo Distributio, Verbo παντάμωρον Protei Regnum, editio princeps; with engraved titles, and numerous fine copperplates and woodcuts, 2 vols. large folio in 1, *old calf, rebounded* (RARE), £1. 10s
ibidem, 1665
- 10166 ——— EDITIO TERTIA [ET OPTIMA], recognita, et prioribus emendatior: tum ab Auctore Romæ submissis variis Observationibus novisque Figuris auctior; with engraved titles, fine portrait (often wanting), numerous plates and woodcuts, 2 vols. large folio in 1, *sound and tall copy in old calf, rebounded* (RARE), £2. 5s
ibidem, 1678
- 10167 ——— ANOTHER COPY, 2 vols. *old white vellum (without the portrait, and somewhat browned)*, £1. 15s
Including geology, mineralogy, mining, and metallurgy.
'Cet ouvrage contient la relation d'un grand nombre de faits fabuleux ou controuvés, tels que des récits sur les géants, les dragons et autres animaux chimériques. L'auteur y annonce aussi qu'il possède le secret de faire revivre dans leurs forme primitive les cendres d'une plante, résultat qu'il pouvait sembler obtenir au moyen des miroirs convenablement disposés. Le chapitre concernant la transmutation des métaux a été réimprimé dans la *Bibliotheca Chimica* de Manget.'—*Biogr. Gén.*
'Dans son *Mundus subterraneus* il fait une rude guerre aux alchimistes, ce qui lui attira de nombreux ennemis parmi les adeptes.'—*Hoefer*.
- 10168 ——— MUSURGA UNIVERSALIS, sive Ars Magna Consoni et Dissoni quæ Universa Sonorum Doctrina et Philosophia, Musiceque tam Theoricæ, quam Practicæ Scientia, summa Varietate traditur, admirandæ Consoni et Dissoni in Mundo, adeoque Universæ Naturæ Vires Effectusque, uti nova, ita peregrina Variorum Speciminum Exhibitione ad singulares Usus . . . aperiantur et demonstrantur, editio princeps; with engraved title, fine portrait of Leopold Wilhelm, Archduke of Austria, and 23 fine copperplates, besides numerous woodcuts, diagrams, and music, 2 vols. folio, *contemporary Italian vellum (somewhat browned as usual, but a VERY SOUND COPY)*; VERY RARE, £3. 15s
Romæ, 1650
FIRST AND BEST EDITION of perhaps the rarest of Father Kircher's innumerable writings, and much valued for containing full descriptions and illustrations of contemporary musical instruments, which include also the first description of the æolian harp. It contains moreover a copious account of the theory of sound and its applications.
'Le 5^e livre est un traité de composition extrait des meilleurs ouvrages sur cette matière qui existaient au temps où Kircher écrivait. Il y rapporte quelques morceaux d'artistes célèbres de cette époque, qu'on ne trouve point ailleurs . . . Kircher traite aussi de l'écho, de ses causes, de la construction de quelques instruments mécaniques, et de certains automates chantants ou jouant des instruments.'—*Fétis*.
- 10169 ———: PHYSIOLOGIA KIRCHERIANA EXPERIMENTALIS, qua summa Argumentorum Multitudine et Varietate Naturalium Rerum Scientia per Experimenta Physica, Mathematica, Medica, Chymica, Musica, Magnetica, Mechanica comprobatur atque stabilitur, quam ex vastis Operibus P. ATHANASII KIRCHERI extraxit, et in hunc Ordinem per Classes redegit IOANNES STEPHANUS KESTLERUS; with engraved title (soiled and slightly defective), and numerous engravings on copper and wood, roy. folio, *unbound* (RARE), £1. 1s
Amstelodami, 1680
- 10170 ———: The VULCANO'S: or, Burning and Fire-vomiting Mountains Famous in the World, with their Remarkables, collected for the most part out of KIRCHER'S SUBTERRANEOUS WORLD, and expos'd to more general view in English, upon the late Wonderful and Prodigious ERUPTIONS of ÆTNA, with fine engraved folding front. by W. Sherwin (front. slightly mended): A TRUE and EXACT RELATION of the late PRODIGIOUS EARTHQUAKE and ERUPTION of MOUNT ÆTNA, or Monte-Gibello; as it came in a Letter written to His Majesty from Naples by the Right Hon. the EARLE of WINCHILSEA, His Majesty's late Ambassador at Constantinople, who in his Return from thence, visiting Catania in the Island of Sicily, was an EYEWITNESS of that DREADFUL SPECTACLE. Together with a more particular Narrative of the same, as it is collected out of several Relations sent from Catania (*wanting front.*)—2 vols. sm. 4to. in 1, *hf. roan (rubbed)*; with booklabel of Edward Hailstone (VERY RARE), £1. 15s
1669
'Kircher is said to have examined the interior of Mount Vesuvius suspended by a rope.'—*Libri Catalogue*.
Father Kircher was one of the foremost scientists of Germany during the XVIIth Century, and although his works do not contain many new discoveries, they are invaluable for giving an encyclopedic view of the sciences treated as they were known in his time. For the historian of physical science they are indispensable.
- 10171 **KIRKBY** (John, pr.; *Gibbon's tutor*) ARITHMETICAL INSTITUTIONS, containing a Complete System of ARITHMETIC NATURAL, LOGARITHMICAL, and ALGEBRAICAL in all their Branches . . . after an Easy and Familiar Manner, with many curious and useful Improvements never before made publick, 4to. *sound copy in old calf*, 8s 6d
1725
- 10172 **KITTREDGE** (A. O.) The METAL WORKER: ESSAYS by various Authors on HOUSE HEATING by Steam, Hot Water, and Hot Air, with Introduction and Tabular Comparisons; 2nd Edition, with select Letters of Criticism from the 'Metal Worker', and Chapter on Proportioning Radiating Surfaces by JOHN J. HOGAN, numerous illustrations, roy. 8vo. cl., 5s (p. 12s 6d) *New York*, 1892
- 10173 **KLAPROTH** (Martin Heinrich; F.R.S.) ANALYTICAL ESSAYS towards promoting the CHEMICAL KNOWLEDGE of MINERAL SUBSTANCES, translated from the German, thick 8vo. boards, *uncut* (RARE), 14s
1801
- 10174 ——— ANOTHER COPY, *old calf*, 12s 6d
'Klaproth's researches in analytical chemistry were rightly looked upon at that time as patterns for the younger generation of chemists. They aimed at establishing the composition of minerals by means of improved analytical methods, and thereby laying the foundation for a chemical classification of them. His observations were so exact as to result in the discovery of various elements and earths, viz. uranium, titanium, and zirconia, while at the same time he corrected and amplified results which had been arrived at by others on many new substances.'—*Prof. E. v. Meyer*.
- 10175 ———, und Friedrich Benjamin WOLFF: CHEMISCHES WÖRTERBUCH, 5 vols. sm. 8vo. *old hf. calf*, 7s 6d
Berlin, 1807-10

10177 **KIRCHHOFF** (Gustav Robert; F.R.S.) GESAMMELTE ABHANDLUNGEN; with *fine steel portrait and 2 plates* (1 coloured), 8vo. *hf. morocco neat, uncut*, 10s 6d (p. M. 15 sewn) Leipzig, 1882

Containing in a collected form the author's contributions to scientific journals, chiefly on electricity and magnetism, and optics. The latter include his memorable papers on spectrum analysis.

10178 ——— UNTERSUCHUNGEN über das SONNENSPECTRUM und die SPECTREN der CHEMISCHEN ELEMENTE; original edition, with 5 *fine lithographic plates* (4 folding), 2 vols. 4to. boards (VERY SCARCE), £1. 1s Berlin, 1861-3

10179 ——— DASSELBE (I. Teil 3. und vermehrter Abdruck mit Vorwort); with 5 plates (4 folding), 2 vols. 4to. boards, with *auto. of Prof. N. Story-Maskelyne, F.R.S.*, 15s ib., 1866-3

A classic of the exact sciences, which first contains the complete statement of the principle on which spectrum-analysis is based.

10180 ——— RESEARCHES on the SOLAR SPECTRUM, and the SPECTRA of the CHEMICAL ELEMENTS, translated with the Author's Sanction from the Transactions of the Berlin Academy by [SIR] HENRY E. ROSCOE [F.R.S.], with 3 *lithographic plates* (2 coloured), 4to. boards (SCARCE), 12s 6d Cambridge, 1862

A translation of the first part, the only one ever done into English.

'While spectrum analysis, as a terrestrial science, was due equally to Kirchhoff and Bunsen, its celestial applications belong to Kirchhoff alone. Kirchhoff's explanation of the Fraunhofer lines was epoch-making'.—Prof. F. Cajori.

10181 ———, und Robert Wilhelm v. BUNSEN, F.R.S.: CHEMISCHE ANALYSE durch SPECTRAL-BEOBACHTUNGEN; with *woodcut*, 8vo. (pp. 32), sewn, 2s Wien, o. J.

10182 **KIRKALDY** (David): ILLUSTRATIONS of his SYSTEM of MECHANICAL TESTING, as originated and carried on by him, comprising a large Selection of Tabulated Results, shewing the Strength and other Properties of Materials used in Construction, with Historical Sketch, *portrait*, 25 plates, and numerous woodcuts, 4to. cl., 18s 6d (p. £4. 4s nett) 1891

Pp. 265-302 contain a very interesting biographical sketch, including a full account of the author's controversy with the Steel Committee of the Institution of Civil Engineers, and the jealousy and opposition aroused by the Kirkaldy system of mechanical testing, of which he was the originator.

10183 [——] PRELIMINARY EXPERIMENTS on the Mechanical and other PROPERTIES of STEEL: EXPERIMENTS on the Mechanical and other PROPERTIES of STEEL, made at H.M. DOCKYARD, WOODWICH, with 3 *folding plates*, and numerous diagrams—2 vols. folio in 1, cl., 6s 1868-70

10184 ——— RESULTS of an EXPERIMENTAL ENQUIRY into the COMPARATIVE TENSILE STRENGTH and other Properties of various Kinds of WROUGHT-IRON and STEEL, with 16 *folding plates*, 8vo. cl. (cover damaged, and name cut off title), 5s (p. 18s) Glasgow, 1862

10185 ——— SECOND EDITION, with 16 *folding plates*, 8vo. cl., 6s 6d ibidem, 1863-6

10186 ——— ANOTHER COPY, with the plates *linen-mounted*, 8vo. *hf. calf*, 7s

'An excellent digest of information on crystalline and fibrous iron is contained in Kirkaldy's [above] valuable work'.—Dr. Percy, F.R.S.

10187 ——— RESULTS of an EXPERIMENTAL ENQUIRY into the MECHANICAL PROPERTIES of STEEL of DIFFERENT DEGREES of HARDNESS, and under Various Conditions, manufactured by Christian Aspelin, Westanfors and Fagersta Works, Sweden, with 4 *folding plates*, and *woodcuts*, 4to. cl. (name cut out of title), 5s (p. 12s 6d) 1873

10188 **KIRKMAN** (Marshall Monroe) THE SCIENCE of RAILWAYS, VOLS. I, III, V-VII, IX-X, enlarged Ed., with *portrait*, plates, and numerous other illustrations, 7 vols. cr. 8vo. *hf. red roan*, 15s New York, 1903

CONTENTS:—I. Railway Equipment: III. Financing, Constructing and Maintaining: V. Passenger, Baggage, Express and Mail Service: VI. Freight Business and Affairs: VII. Disbursements of Railways: IX. Fiscal Affairs, Collection of Revenue: X. General Fiscal and other Affairs.

10189 **KITCHINER** (William, M.D.; *gastronomist*) THE ECONOMY of the EYES: plain Rules to judge exactly when, and what SPECTACLES are best calculated for the Eyes; with Observations on OPERA GLASSES and Theatres; and Account of the PANCRATIC MAGNIFIER for Double Stars, and Day Telescopes, with *folding front.*, and plate of *pancratic draw-tube*, fcap. 8vo. boards, uncut (scarce), 8s 6d 1824

Interesting for giving an account of the author's invention of the pancratic draw-tube, which is still in use with terrestrial telescopes.

10190 **KLATT** (Virgil), und Philipp LENARD: Ueber die PHOSPHORESCENZEN des KUPFERS, WISMUTHS und MANGANS in den ERDALKALISULFIDEN; with plate, 8vo. (pp. 18), sewn, 1s Leipzig, 1889

KLEIN (Felix; F.R.S., *Univ. Göttingen*) CONFÉRENCES sur les MATHÉMATIQUES—v. HALPHEN, No. 8841, ante.

10191 ——— Ueber NORMIRUNG der LINEAREN DIFFERENTIALGLEICHUNGEN ZWEITER ORDNUNG, roy. 8vo. (pp. 9), sewn, 1s [Leipzig, 1890]

10192 ——— Ueber REALITÄTSVERHÄLTNISSE bei der einem beliebigen Geschlechte zugehörigen NORMALCURVE der ϕ , roy. 8vo. (pp. 29), sewn, 1s 6d [ibidem, 1892]

10193 ——— Zur THEORIE der ABEL'SCHEN FUNCTIONEN, 2 parts roy. 8vo. (pp. 18), sewn, 1s [Göttingen, 1889]

10194 ——— Zur THEORIE der HYPERELLIPTISCHEN FUNCTIONEN beliebig vieler Argumente, roy. 8vo. (pp. 7), sewn, 1s [ibidem, 1887]

10195 ———, und Arnold SOMMERFELD: Über die THEORIE des KREISELS [Heft I und II]; with 65 diagrams, 2 vols. roy. 8vo. in 1, cl., with bookplate of Prof. Lloyd Tanner, F.R.S., 10s 6d (p. M. 15.60 unbound) Leipzig, 1897-8

10196 **KLEIN** (Karl; *Univ. Berlin*), und C. TRECHMANN: KRYSTALLOGRAPHISCHE UNTERSUCHUNG AMIDARTIGER DERIVATE des HYDROXYLAMINS; with plate, post 8vo. (pp. 35), sewn, 2s [ibidem, 1877]



P. S. LAPLACE.

No. 10500-2 (page 523).

Portrait of Laplace.

- 10223 **KLÜGEL** (Georg Simon; *Univ. Halle*) ANALYTISCHE DIOPTRIK. I. ALLGEMEINE THEORIE der OPTISCHEN WERKZEUGE, II. BESONDERE THEORIE und vortheilhafteste Einrichtung aller Gattungen von FERNRÖHREN, SPIEGELTELESKOPEN, und MIKROSKOPEN; with 4 folding plates, 4to. sewn, 8s 6d
 Interesting as an early work on mathematical optics. Pp. 298-300 treat of 'Mikroskope mit achromatischen Objectiven.' The pre-Abbe treatment of lens-systems is merely of historical interest.
- 10224 ——— MATHEMATISCHES WÖRTERBUCH oder Erklärung der Begriffe, Lehrsätze, Aufgaben und Methoden der Mathematik, mit den nöthigen Beweisen und literarischen Nachrichten, in alphabetischer Ordnung, mit Supplement von J. A. GRUNERT; with numerous folding plates, 7 thick vols. 8vo. contemporary half calf gilt, £1. 5s
abidem, 1803-36
- 10225 **KNAPP** (Friedrich C. [recte Ludwig]) Die NÄHRUNGSMITTEL in ihren CHEMISCHEN und TECHNISCHEN BEZIEHUNGEN; with 27 woodcuts, 8vo. sewn, 1s 6d
 Braunschweig, 1848
- 10226 ——— CHEMICAL TECHNOLOGY; or, Chemistry applied to the Arts and to Manufactures, edited with numerous Notes and Additions by EDMUND RONALDS and THOMAS RICHARDSON, F.R.S., with 10 folding plates and 555 other illustrations, 3 vols. 8vo. cl., 5s (p. £3. 19s) 1848-51
- 10227 **KNIGHT'S** GUIDE to the ARRANGEMENT and CONSTRUCTION of WORKHOUSE BUILDINGS, with Notes and Diagrams of the Requirements and Recommendations of the Local Government Board, with 11 plates, roy. 8vo. cl., 3s 6d 1889
- 10228 **KNIGHT** (Cameron) THE MECHANICIAN: a Treatise on the CONSTRUCTION and MANIPULATION of TOOLS, etc. etc. etc., 2nd [final] Edition, with 96 plates comprising 1147 illustrations, 4to. cl., 7s 6d (p. 18s) 1879
- 10229 **KNIGHT** (Edward Henry) PRACTICAL DICTIONARY of MECHANICS, including the History of Inventions, Technological Vocabulary, etc., with Supplement, with Index References to Technical Journals, 1876-80, 131 plates and 9,944 woodcuts, 4 thick vols. impl. 8vo. cl., £1. 1s (p. £4. 4s) [1877-84]
- 10230 **KNIGHT** (John Henry) LIGHT MOTOR-CARS and VOITURETTES, with 57 illustrations, cr. 8vo. cl., 2s 1902
- 10231 **KNIGHT** (Thomas Andrew, F.R.S.; brother of Richard Payne Knight, F.S.A.) TREATISE on the CULTURE of the APPLE and PEAR, and on the MANUFACTURE of CIDER and PERRY, with Appendix and Postscript, 4th [last] Edition, sm. 8vo. boards, uncut (scarce), 12s 1813
- 10232 ——— ANOTHER COPY, hf. calf (joints cracked), with bookplate of Henry B. H. Beaufoy, F.R.S., 10s 6d
- 'Knight raised new varieties of apples, cherries, strawberries, plums, pears, etc. etc., many of which bear his name; and a genus of Proteaceæ was called *Knightsia* by Robert Brown. Though he will always be associated with certain purely physiological experiments, such as those on the influence of gravitation on direction of growth, his main object was always utilitarian. His chief independent works were 'A Treatise on the Culture of the Apple and Pear', and 'Pomona Herefordiensis'.—D. N. B.
- 10233 **NOBEL** (Edward Ball, P.R.A.S.) On the ASTRONOMICAL OBSERVATIONS recorded in the 'NIHONGI', the ANCIENT CHRONICLE of JAPAN, 8vo. (pp. 8), sewn, 1s 6d 1905
- 10234 ——— On a CATALOGUE of STARS in the CALENDARIUM of MOHAMMAD AL ACHSASI AL MOUAKKET, 8vo. (pp. 10), sewn, 1s 6d 1895
- 10235 ——— On some ORIGINAL UNPUBLISHED OBSERVATIONS of the COMET of 1652, 8vo. (pp. 5), sewn, 1s 1897
- 10236 ——— SUGGESTED EXPLANATION of the ANCIENT JEWISH CALENDAR DATES in the ARAMAIC PAPYRI, 8vo. (pp. 12), sewn, 1s 6d 1908
- 10237 **KNOLL** (Friedrich) UNTERHALTENDE NATURWUNDER: Acolus-Höhlen, Donnerdämpfe, entzündbares Gewässer, wunderbare Salze u. s. w.; mit dem ZWEYTEN THEIL: klingende und brüllende Höhlen, brennende und feuerspeinde Höhlen, Feuer-Typhon oder Flammen-Wirbel u. s. w., mit Anmerkungen und Biographie von JOHANN CHRISTIAN WIEGLEB—2 vols. cr. 8vo. sewn, 6s 6d
 Erfurt, 1786-8
- 10238 **KNOP** (Adolph) MOLEKULARCONSTITUTION und WACHSTHUM der KRYPALLE; with 48 woodcuts, 8vo. (pp. 96), sewn, 2s
 Leipzig, 1867
- 10239 ——— STUDIEN über STOFFWANDLUNGEN im MINERALREICHE, besonders in Kalk- und Amphiboloid-Gesteinen, 8vo. sewn (plates wanting), 2s
 ib., 1873
- 10240 **KNOP** (Johann A. Ludwig Wilhelm) HANDBUCH der CHEMISCHEN METHODEN, 8vo. cl., with auto. of B. F. Duppa, F.R.S., 3s (p. M. 9 sewn)
 Leipzig, 1859
- 10241 **KNOTT** (Cargill Gilston, F.R.S.E.) THE NEW SEISMOLOGY, roy. 8vo. (pp. 13), sewn, 1s
 [Edin., 1899]
- 10242 **KNOWLES** (Sir Francis Charles, F.R.S.) On the ARCHIMEDEAN SCREW-PROPELLER, or Helix, of Maximum Work, with Abstract of the Discussion on the Paper, edited by JAMES FORREST, 11 diagrams, 8vo. (pp. 49), sewn, 2s 6d 1871
- 10243 **KNOX** (Charles Edwin, M.E.E.) ELECTRIC LIGHT WIRING, with 119 illustrations, including folding and other plates, roy. 8vo. cl., 5s (p. 8s 6d net)
 New York, 1907
- 10244 **KNOX** (Rt. Hon. George, F.R.S.; Lord Chancellor of Ireland) On BITUMEN in STONES, 4to. (pp. 12), sewn, 3s 1823
- 10245 ——— EXPERIMENTS and OBSERVATIONS on the NEWRY PITCH-STONE, and its PRODUCTS, and on the FORMATION of PUMICE, 4to. (pp. 25), sewn, with inscr. to Thomas Allen, F.R.S., 4s 1822
- 10246 **KOBOLD** (Hermann, Kieler Sternwarte) Der BAU des FIXSTERNSYSTEMS, mit besonderer Berücksichtigung der PHOTOMETRISCHEN RESULTATE; with 3 folding plates and 19 smaller illustrations, 8vo. sewn, 4s (p. M. 6.50)
 Braunschweig, 1906
- 10247 **KOENE** (Corneille Jean) LEÇON sur la CONSTITUTION des SELS, donnée à l'Université de Bruxelles, roy. 8vo. (pp. 7), sewn, 1s 6d
 Bruxelles, 1854

- 10249 **KÖBEL** (Jacob, *Stadtschreiber zu Oppenheim*) GEOMETRIE. Von KÜNSTLICHEM FELDMESSEN vnd ABSEHEN | Allerhand Höhe | Fleche | Ebne | Weitte vnd Breyte: Als Thürn | Kirchen | Bäu | Bäum | Felder vnd Ecker ꝛc. Mit fast wercklich vnd künstlich zubereytem Jacob Stab | Philosophischen Spiegel | Schatten | vñ Messrutten . . . Dabei | von bereytung | verstand vnd vilfaltigem nützlichen GEBRAUCH des QUADRANTEN; *with very numerous well-executed woodcuts by* JOST AMMAN, sm. 4to. *sewn* (one l. very slightly defective, otherwise a VERY SOUND AND CLEAN COPY); VERY RARE, £1. 15s *Frankfurt am Meyn, Christian Engenolffs Erben, 1563*
 'This work on land-surveying and the use of the quadrant is far rarer than his Arithmetic [or his ASTROLABI DECLARATIO, No. 2320 ante]. In it he makes use of Arabic numerals.'—*Libri Catalogus*. The work is much valued for its fine wood-engravings by JOST AMMAN.
- 10250 **KOBELL** (Franz v.; *Univ. Munich*) GRUNDZÜGE der MINERALOGIE; *with 4 folding plates*: TAFELN zur BESTIMMUNG der MINERALIEN mittelst einfacher chemischer Versuche auf trockenem und nassem Wege, 3. vermehrte Auflage—2 vols. 8vo. in 1, *hf. morocco neat*, 4s 6d
Nürnberg, 1838—München, '38
 The author enlarged the system of Berzelius, classifying minerals according to their chemical composition.
- 10251 ——— INSTRUCTIONS for the DISCRIMINATION of MINERALS, by SIMPLE CHEMICAL EXPERIMENTS, translated by R. C. CAMPBELL, *with woodcuts*, 8vo. (pp. 46), unbound, 3s *Glasgow, 1841*
- 10252 **KOENIG** (Friedrich) und die ERFINdung der SCHNELLPRESSE: ein biographisches Denkmal, von THEODOR GOEBEL; *with fine portrait, 4 plates, fs. letter, and 22 woodcuts, folio, sewn* (a few ll. torn and 2 pp. soiled), 6s (p. M. 12)
Stuttgart, 1883
 The printing machine was first used for printing *The Times* of Nov. 29, 1814.
- 10253 **KOENIGS** (Gabriel) LEÇONS des CINÉMATIQUE professées à la Sorbonne, avec des Notes par GASTON DARBOUX et E. et F. COSSERAT: CINÉMATIQUE THÉORIQUE; *with 93 diagrams*, roy. 8vo. *hf. crimson morocco neat* (fine copy), *with bookplate of Prof. Lloyd Tanner, F.R.S.*, 10s 6d 1897
- 10254 **KOENIGSBERGER** (Leo), und Gustav ZEUNER; REPERTORIUM der literarischen Arbeiten aus dem Gebiete der REINEN und ANGEWANDTEN MATHEMATIK: 'Originalberichte der Verfasser,' gesammelt und herausgegeben von, 2 vols. 8vo. in 11 parts, *sewn*, 6s 6d (p. M. 17.20)
Leipzig, 1876-9
- 10255 **KOERBER** (Felix) Ueber den COMETEN 1865 I.: Inaugural-Dissertation; *with 2 plates*, 8vo. *sewn*, 2s
Breslau, 1887
- 10256 **KÖHLER** (Heinrich Gottlieb) LOGARITHMISCH-TRIGONOMETRISCHES HANDBUCH für alle Zahlen bis 108600 auf SIEBEN DECIMALSTELLEN, mit den GAUSSISCHEN und natürlichen Logarithmen, goniometrischen Funktionen, u. s. w., roy. 8vo. *boards*, 2s
Leipzig, 1862
- 10257 **KÖHLER** (Wilhelm) On the INFLUENCE of FLUCTUATIONS of ATMOSPHERIC PRESSURE on the EVOLUTION of FIRE-DAMP, translated by G. G. BAGSTER, *with 2 plates and 10 folding tables*, 4to. (pp. 18), *sewn*, 3s 6d
Vienna, 1886
- 10258 **KOHLRAUSCH** (Friedrich; F.R.S.) LEITFADEN der PRAKTISSCHEN PHYSIK, mit einem Anhang: das elektrische und magnetische absolute Maas-System, 5. vermehrte Auflage; *with diagrams*, 8vo. *sewn*, 1s 6d (p. M. 5.60)
Leipzig, 1884
- 10259 ——— LEHRBUCH der PRAKTISSCHEN PHYSIK, 10. vermehrte Auflage des Leitfadens der praktischen Physik; *with numerous illustrations*, 8vo. *cl.*, 5s (p. M. 9)
ibidem, 1905
- 10260 ——— INTRODUCTION to PHYSICAL MEASUREMENTS, with Appendixes on Absolute Electrical Measurement, etc., translated from the 2nd German Edition by THOMAS HUTCHINSON WALLER and HENRY RICHARDSON PROCTER, *with 25 diagrams*, 8vo. *hf. morocco neat*, 3s (p. 12s) 1873
- 10261 ——— SECOND EDITION [enlarged], translated from the 4th German Edition, *with 37 diagrams*, 8vo. *cl.*, 4s 6d (p. 15s) 1883
- 10262 ——— THIRD [LAST] EDITION [enlarged], translated from the 7th German Edition, *with 91 diagrams*, 8vo. *cl.*, 7s 1894
- 10263 **KOKSCHAROW** (General Nicolai v.) BEITRAGE zur KENNTNISS einiger MINERALIEN (Magnesia-Glimmer vom Vesuv; Brookit; Molybdänglanz und Pyrosomalith; Topas); *with diagrams*, 8vo. (pp. 24), *sewn*, 3s 6d
[St. Petersburg. c. 1857]
- 10264 ——— MATERIALIEN zur MINERALOGIE RUSSLANDS, Band IV—V; *with woodcuts and diagrams*, 2 vols. roy. 8vo. in 4 parts, *sewn*, 12s 6d
ibidem, 1861-9
- 10265 ——— MINERALOGISCHE NOTIZEN über den PAJSBERGIT und GRAPHIT; *with diagrams*, roy. 8vo. (pp. 13), *sewn*, 2s
[ib., 1863]
- 10266 **KOLBE** (Adolph Wilhelm Hermann, F.R.S.) Über den NATÜRLICHEN ZUSAMMENHANG der ORGANISCHEN und UNORGANISCHEN VERBINDUNGEN, 8vo (pp. 42), *sewn* (no title); *scarce*, 5s 6d
[Leipzig, 1859]
 One of the author's most important memoirs, in which 'the revived radical theory attained to its completed form.'—*Prof. E. v. Meyer*.
- 10267 ——— RESEARCHES on the ELECTROLYSIS of ORGANIC COMPOUNDS, communicated by A. W. v. HOFMANN, 8vo. (pp. 28), *sewn*, 4s
[c. 1850]
 By decomposing acetic and valerianic acid by the electric current, the author obtained the radicals methyl and valyl [i.e. butyl]. It was the first attempt at the electrolysis of organic acids.
- 10268 ———, and Sir Edward FRANKLAND, F.R.S.: On the PRODUCTS of the ACTION of POTASSIUM on CYANIDE of ETHYL, *with woodcut*, 8vo. (pp. 15), *sewn*, 3s 6d
[1847]
 Containing the discovery of cyanethine.
- 10269 ———: UNTERSUCHUNGEN aus dem ACADEMISCHEN LABORATORIUM in MARBURG, Nr. XV—XX; *with woodcut*, 8vo. (pp. 48), *sewn*, 3s
[Leipzig, 1861]
 Consisting mainly of contributions by Kolbe.
- 10270 **KÖNIG** (Rudolf) BESTIMMUNG der BAHN des KOMETEN 1857 III.; roy. 8vo. (pp. 50), *sewn*, *with inser. to J. R. Hind, F.R.S.*, 1s 6d
Wien, 1891

- 10272 **KOLL** (Otto) DIE THEORIE DER BEOBSACHTUNGSFEHLER und die METHODE DER KLEINSTEN QUADRATE, mit ihrer Anwendung auf die Geodäsie und die Wassermessungen, 2. [neueste] Auflage; with 65 diagrams, large roy. 8vo. *hf. cl.*, 7s (p. M. 11.20) *Berlin*, 1901
- 10273 **KONIJNENBURG** (E. van, I. W.) SCHEIDING VAN MAAS EN WAAL: Beschrijving van den vroegeren Waterstaatkundigen Toestand in Noordbrabant, alsmede van de Werken uitgevoerd voor de Verlegging van den Maasmond; with 10 folding plans, besides text-illustrations, cr. 4to. *'s-Gravenhage*, 1905
sewn, 3s
- 10274 **KOPP** (Hermann; *Univ. Heidelberg*, F.R.S.) DIE ALCHEMIE IN ÄLTERER und NEUERER ZEIT; ein Beitrag zur Culturgeschichte, 2 vols. 8vo. *hf. cl. (o. p.)*, 12s 6s (p. M. 18) *Heidelberg*, 1886
The most complete history of alchemy.
- 10275 ——— BEITRÄGE ZUR GESCHICHTE DER CHEMIE; with plate, 3 vols. roy. 8vo. in 2, *hf. cl.*, 17s 6d (p. M. 30 *sewn*) *Braunschweig*, 1869-75
Vol. III is entitled: 'Ansichten über die Aufgabe der Chemie und über die Grundbestandtheile der Körper bei den bedeutenderen Chemikern von Geber bis G. E. Stahl. Die Entdeckung der Zusammensetzung des Wassers.'
- 10276 ——— DIE ENTWICKLUNG DER CHEMIE IN DER NEUEREN ZEIT; the Author's Proof Copy, with all his Corrections, roy. 8vo. *hf. morocco, uncut*, £1. 1s *München*, 1873
- 10277 ——— GESCHICHTE DER CHEMIE; with 4 portraits, 4 vols. 8vo. *hf. roan* (VERY SCARCE), £3. 15s *Braunschweig*, 1843-7
- 10278 ——— ANOTHER COPY, 4 vols. in 2, newly bound in *hf. polished crimson morocco gilt, t. e. g.*, £4. 4s
'Distinguished by its comprehensiveness and thoroughness. He possesses in a remarkable degree the gift of sympathetically tracing out the development of important ideas and hypotheses.'—*Prof. E. v. Meyer*.
This work has never been reprinted, and is now becoming increasingly rare.
- 10279 ——— VOLUME I ONLY, 8vo. *sewn, uncut* (SCARCE), £1. 1s *ib.*, 1843
- 10280 ——— VOLUMES III AND IV ONLY, with portraits of Sir Humphry Davy and Liebig, 2 vols. 8vo. *sewn*, 12s 6d *ib.*, 1845-7
- 10281 ——— SONST und JETZT in der CHEMIE, 8vo. *sewn*, 1s *ib.*, 1867
- 10282 **KORISTKA** (Carl) STUDIEN ÜBER DIE METHODEN und die BENÜTZUNG HYPOMETRISCHER ARBEITEN, nachgewiesen an den Niveauverhältnissen der Umgebungen von Prag; with woodcuts and 2 folding maps (coloured), 4to. *sewn*, 5s (p. M. 12) *Gotha*, 1858
- 10283 **KORN** (Arthur; *Univ. Munich*) LEHRBUCH DER POTENTIALTHEORIE. Allgemeine Theorie des Potentials und der Potentialfunktionen im Raume. Allgemeine Theorie des logarithmischen Potentials und der Potentialfunktionen in der Ebene; with 152 diagrams, 2 vols. large 8vo. in 1, *hf. cl.*, 12s 6d (p. M. 18 *sewn*) *Berlin*, 1899-1901
- 10284 **KORTAZZI** (Ivan; *Nikolaiev Observatory*) BESTIMMUNG DER LÄNGEN-DIFFERENZ zwischen PULKOWA, HELSINGFORS, ÅBO, LOWISA und WIBORG, impl. 4to. (pp. 69), *sewn*, 3s *St. Pétersbourg*, 1871
- 10285 **KOTEN** (J. H. van) De GALVANISCHE STROOM toegepast op electro-magnetische Telegrafen en UURWERKEN; with 4 folding plates, large cr. 8vo. *sewn* (scarce), 6s 6d *Amsterdam*, 1855
Interesting as an early work on electric clocks.
- 10286 **KÖTHNER** (Paul) NOTIZ ÜBER DAS WAHRSCHEINLICHE ATOMGEWICHT DES TELLURS und über Atomgewichtsrechnungen überhaupt, roy. 8vo. (pp. 7), *sewn*, 1s *Hamburg*, 1903
- 10287 ———, und E. AEUER: Ueber das ATOMGEWICHT DES JODS; with 3 illustrations, 8vo. (pp. 47), *sewn*, 2s *Leipzig*, 1904
Added is the authors' first paper as published in the 'Berichte der chem. Ges.'
- 10288 **KÖVESLIGETHY** (Radó) MATHÉMATIKAI ÉS CSILLAGÁZATI FÖLDRAJZ KÉZIKÖNYVE; with 320 illustrations, large 8vo. *cl.*, with bookplate of Dr. Emil Reich, 4s 6d *Budapest*, 1899
- 10289 **KOWALSKI** (Marian, *Univ. Kazan*) RECHERCHES SUR LA RÉFRACTION ASTRONOMIQUE, roy. 8vo. *cl.* (scarce), 5s *Kasan*, 1878
- 10290 ——— ANOTHER COPY, *sewn*, with author's inscr., 4s 6d
- 10291 **KRAFFT** (Georg Wolfgang) DESCRIPTION et REPRÉSENTATION exacte de la MAISON de GLACE, construite à St. PÉTERSBOURG au Mois de Janvier 1740, et de tous les Meubles qui s'y trouvent; avec quelques REMARQUES sur le FROID en général, et particulièrement sur celui qu'on a senti cette même Année dans toute l'Europe, traduit par PIERRE LOUIS LE ROY; with 6 plates, 4to. (pp. 32), *sewn*, 7s 6d *St. Pétersbourg*, 1741
An account of the celebrated Hard Winter throughout Europe in 1740 when coaches plied on the Thames. It includes a list of historical frosts of great severity, many of which are unnoticed in Haydn's Dictionary of Dates.
- 10292 **KRAFT** (Max, *Univ. Graz*) Das SYSTEM DER TECHNISCHEN ARBEIT, II.-III. ABTHEILUNG: Wirthschaftliche Grundlagen und Rechtsgrundlagen, 2 vols. roy. 8vo. *sewn*, 5s (p. M. 10) *Leipzig*, 1902
- 10293 **KRAKATOA**, The ERUPTION of, and subsequent PHENOMENA: Report of the ROYAL SOCIETY'S KRAKATOA COMMITTEE, edited by G. J. SYMONS, F.R.S., with numerous diagrams, maps, and COLOURED PLATES after W. ASCROFT, showing the remarkable Twilight and After-glow Effects at CHELSEA, 4to. *cl.*, 18s 6d (p. £1. 10s nett) 1888
- 10294 ——— ANOTHER COPY, *cl.* (back damaged), 16s
The scientific account of the tremendous volcanic outbreak in the Eastern Archipelago, probably the greatest eruption on record, which destroyed on the spot or by a resulting tidal wave 36,500 lives, and set up a series of concentric atmospheric waves which travelled at least three times round the world. It produced for more than two years, by dust thrown up to an immense height, the most lovely atmospheric effects throughout the world, which were painted for their beauty by an artist at Chelsea, Mr. Ascroft, before anyone had guessed to what cause they were due.
Included in the volume are: Volcanic Phenomena and the Ejected Materials, by J. W. JUDD, F.R.S.; Air Waves and Sounds caused by the Eruption, by LT.-GEN. SIR R. STRACHEY; Seismic Sea Waves, by SIR W. J. L. WHARTON; Unusual Optical Phenomena of the Atmosphere, by the Hon. F. A. R. RUSSELL and E. DOUGLAS ARCHIBALD; and Magnetical and Electrical Phenomena, by G. M. WHIFFLE.
- 10295 **KRECKE** (F. W. C., *Utrecht*) De DISSOCIATIE-VERSCHIJSSELEN van WATERIGE OPLOSSINGEN van CHLORETUM FERRICUM, 8vo. (pp. 20), *sewn*, 1s 6d *Amsterdam*, 1871

- 514 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10297 **KRATZENSTEIN** (Christian Gottlieb; *Univ. Copenhagen*) THEORIA ELECTRICITATIS MORE GEOMETRICO EXPLICATA; with vignette and copperplate, 4to. (pp. 70), *sewn* (rare), 12s 6d
Halle Magd. [1746]
- The author was the first to use electricity for therapeutical purposes by applying the spark from a Leyden jar to cure paralysis of a finger.
- 10298 **KRAUCH** (C.) CHEMICAL REAGENTS; their Purity and Tests: a new and Improved Text by E. MERCK: Authorised Translation by HENRY SCHENCK, roy. 8vo. *buckram*, 4s (p. 6s nett) 1907
- 10299 ——— The TESTING of CHEMICAL REAGENTS for PURITY, Authorised Translation by J. A. WILLIAMS, F.C.S., and L. W. DUPRÉ, with Additions and Emendations by the AUTHOR, roy. 8vo. cl., 6s (p. 12s 6d) [1902]
- The German edition of this work is now out of print and scarce.
- 10300 **KREBS** (Adolph) LEHRBUCH DER INDUKTIONSELECTRICITÄT und ihrer ANWENDUNGEN, nebst Sammlung gelöster Aufgaben; with 213 illustrations, roy. 8vo. boards, 3s (p. M. 6 sewn)
Stuttgart, 1889
- 10301 **KREBS** (Heinrich Johannes) ANFANGSGRÜNDE DER REINEN MATHEMATIK, II. Theil: GEOMETRIE; with 17 folding plates, 8vo. calf, 3s
Copenhagen, 1778
- 10302 **KREBS** (Léon) TRAITÉ DE LA FABRICATION DES BOISSONS ÉCONOMIQUES ET LIQUEURS DE TABLE, Vins, Cidres, Bières, etc. etc.; with 8 woodcuts, fcap. 8vo. cl., 2s 6d 1887
- 10303 **KREIDER** (Henry R.), and Harry Clary JONES: The DISSOCIATION of ELECTROLYTES in NON-AQUEOUS SOLVENTS as determined by the Conductivity and Boiling-Point Methods, with 12 diagrams, roy. 8vo. (pp. 43), *sewn*, 1s 6d [Baltimore, 1911]
- 10304 **KRETZ** (Walter C.) The POSITIONS and PROPER MOTIONS of the PRINCIPAL STARS in the CLUSTER of COMA BERENICES, as deduced from Measurements of the Rutherford Photographs, roy. 8vo. *sewn*, 3s
New York, 1900
- 10305 **KREUTZ** (Heinrich; *Univ. Kiel*) Über die BAHN des KOMETEN von 1771, roy. 8vo. (pp. 34), *sewn*, 1s 6d [Wien, 1882]
- 10306 ——— UNTERSUCHUNGEN über das SYSTEM der COMETEN 1843 I, 1880 I und 1882 II, III. Theil, 4to. (pp. 90), *sewn*, 5s (p. M. 9) nicht im Handel, Kiel, 1901
- 10307 **KRUEGER** (Adalbert) Ueber die PARALLAXE des STERNS LL. 21258: Ueber die PARALLAXE des STERNS OELTZEN No. 17415, 6, 4to. (pp. 18), *sewn*, with inscr. to J. R. Hind, F.R.S., 3s
Helsingfors, 1863
- 10308 ——— Der STERNHAUFEN h PERSEI: Beobachtungen am Bonner Heliometer, nebst deren Berechnung; with plate, 4to. (pp. 25), *sewn*, 3s ib., 1865
- 10309 **KRÜGER** (Julius) VADEMECUM des PRAKTISCHEN PHOTOGRAPHEN, nebst Einleitung: GESCHICHTE der PHOTOGRAPHIE und ihre Theorie vom chemischen Standpunkte u.s.w.; 3. umgearbeitete Auflage; with diagrams, post 8vo. cl., 4s
Including a large number of old recipes. Leipzig, 1858
- 10310 **KRÜGER** (Ludwig) BEDINGUNGSGLEICHUNGEN für LINIENNETZE und für RÜCKWÄRTS-EINSCHNITTE; with 9 diagrams, 4to. boards, 2s 6d (p. M. 4) Potsdam, 1908
- 10311 **KRUPP** (Friedrich; *German steelmaster*) EXPÉRIENCES de TIR de l'ÉTABLISSEMENT FRIED. KRUPP, exécutées au Polygone de Meppen au Mois d'Août 1879; with very numerous folding plates and tables, 4to. cl., 7s 6d Essen [1879]
- 10312 **KRUSPÉR** (Stefan v.) THERMOCHRONOMETER, impl. 8vo. (pp. 16), *sewn*, 2s Budapest, 1873
- 10313 **KUENEN** (J. P.) ON THE CONDENSATION and the CRITICAL PHENOMENA of MIXTURES of ETHANE and NITROUS OXIDE, with diagrams, 8vo. (pp. 32), *sewn*, 2s Leiden, 1895
- 10314 ——— ON THE CONDENSATION of a MIXTURE of TWO GASES, with diagrams, 8vo. (pp. 16), *sewn*, 1s 6d ibidem, 1894
- 10315 ——— EXPERIMENTS regarding the ANOMALOUS PHENOMENA near the CRITICAL POINT; with FURTHER EXPERIMENTS, plate, 8vo. (pp. 29), *sewn*, 2s ib., 1894
- 10316 ——— ON THE INFLUENCE of GRAVITATION on the CRITICAL PHENOMENA of SIMPLE SUBSTANCES and of MIXTURES, with plate, 8vo. (pp. 19), *sewn*, 1s 6d ib., 1895
- 10317 ——— INVESTIGATIONS concerning the MISCIBILITY of LIQUIDS, 8vo. (pp. 8), *sewn*, 1s ib., 1911
- 10318 ——— MEASUREMENTS concerning the SURFACE of VAN DER WAALS for MIXTURES of CARBONIC ACID and METHYL CHLORIDE: ON RETROGRADE CONDENSATION and the CRITICAL PHENOMENA of MIXTURES of TWO SUBSTANCES, 8vo. (pp. 14), *sewn*, 1s 6d ib., 1892
- 10319 **KUHLMANN** (Frédéric) SILICATISATION, ou Application des Silicates Alcalins Solubles au Durcissement des Pierres Poreuses, des Ciments, et des Plâtrages, à la Peinture, à l'Impression, aux Apprêts, etc. etc., 3^e Edition, 8vo. *sewn* (o. p.), 5s 1858
- The author was the first to prepare soluble or water glass by a wet process, and describes in the above work his 'blanc fixe', which he obtained from sulphate of baryta.
See also FUCHS, No. 8176, ante.
- 10320 **KUHN** (Carl, München) Ueber die fixen LINIEN im SPECTRUM des SONNENLICHTES; with folding plate, 8vo. (pp. 16), boards, 4s [St. Petersburg, 1853]
- Interesting as having been written less than one year before the true meaning of the phenomenon known as 'Fraunhofer's lines' was discovered by Kirchhoff.
- 10321 **KÜHNE** (Willy; *Univ. Heidelberg*) ERWIDERUNG auf einen ANGRIFF des Herrn HOPPE-SEYLER, 8vo. (pp. 6), *sewn*, 1s 6d [Heidelberg, 1878]
- 10322 ——— Ueber das SEKRET des PANKREAS: WEITERE MITTHEILUNGEN über VERDAUUNGS-ENZYME und die VERDAUUNG der ALBUMINE, 8vo. (pp. 10), *sewn*, 2s [ib., 1876]
- 10323 ——— Ueber das VERHALTEN verschiedener organisirter und sog. UNGEFORMTER FERMENTE. Ueber das TRYPSIN (Enzym des Pankreas), 8vo. (pp. 10), *sewn*, 2s [ib., 1876]
- The author's contributions on ferments are of great importance. He first proposed the term *enzyme*.
- 10324 **KUNHARDT** (C. P.) STEAM YACHTS: their Machinery and Management, with 97 illustrations, sq. 8vo. cl., 5s (p. 16s) New York, 1887

- 10326 **KÜHNEN (Fr.)** HYDROSTATISCHE HÖHENVERGLEICHUNGEN von 4 FESKPUNKTEN auf dem Telegraphenberg bei Potsdam; *with 7 plates, 4to. sewn, 4s* *nicht im Handel, Berlin, 1908*
- 10327 —, und **Philipp FURTWÄGLER**: BESTIMMUNG der ABSOLUTEN GRÖSZE [sic] der SCHWERKRAFT zu POTSDAM, mit REVERSIONSPENDELN; *with 4 plates, 4to. sewn, 10s 6d* *nicht im Handel, ibidem, 1906*
- 10328 **KUMMER (Ernst Eduard; F. R. S.)** Sur les DIVISEURS de CERTAINES FORMES de NOMBRES qui résultent de la THÉORIE de la DIVISION du CERCLE, traduit par JULES HOÜEL, 4to. (pp. 18), *sewn, 3s* 1860
- 10329 — Über die EINFACHSTE DARSTELLUNG der aus EINHEITSWURZELN GEBILDETEN COMPLEXEN ZAHLEN, welche durch Multiplikation mit Einheiten bewirkt werden kann, 8vo. (pp. 12), *sewn, 1s 6d* [Berlin,] 1870
- 10330 — Über eine EIGENSCHAFT der EINHEITEN der aus den WURZELN der Gleichung $a^x = 1$ gebildeten COMPLEXEN ZAHLEN und über den zweiten FAKTOR der KLASSENZAHL, 8vo. (pp. 26), *sewn, 2s* *ib.*, 1870
- 10331 — Über die aus 31^{ten} WURZELN der EINHEIT GEBILDETEN COMPLEXEN ZAHLEN, 8vo. (pp. 12), *sewn, 2s* *ib.*, 1870
- 10332 — Über die FLÄCHEN VIERTEN GRADES, auf welchen SCHAAREN von KEGELSCHNITTEN liegen, 8vo. (pp. 15), *sewn, 2s 6d* *ib.*, 1863
- 10333 — Ueber die WIRKUNG des LUFTWIDERSTANDES auf KÖRPER von VERSCHIEDENER GESTALT, insbesondere auch auf die GESCHOSSE; *with 2 plates, 4to. (pp. 57), boards (scarce), 5s* *ib.*, 1875
- 10334 **KUNCKEL [v. LÖWENSTJERN] (Johann)** ARS VITRARIA EXPERIMENTALIS, oder vollkommene Glasmacher-Kunst . . . Die allerhurtz-bündigsten Manieren, das reineste Chrystall-Glas, alle gefärbte oder tintirte Gläser, künstliche Edelstein oder Flüsse, Amausen oder Schmelzte, Doubleten, Spiegeln, das Troppf-Glas, Ultramarin, Lacc- und ander nützliche Mahler-Farben . . . zu machen . . . Samt einem II. Haupt-Theil, mit mehr als 200 Experimenten vom Glasmahlen, Vergulden und Brennen, vom **Holländischen Kunst- und Borcellan-Töpferwerk**, Glas-brennen . . . mit einem Anhange von den Perlen und fast allen natürlichen Edelsteinen; in dieser III. Edition um ein merkliches vermehret; *with portrait, engraved title, and numerous other fine engraved plates, besides woodcuts, 4to. old hf. calf (back of binding damaged, and partly water-stained); RARE, 17s 6d* Nürnberg, 1743
This classic work on glassmaking contains the author's discovery of *ruby glass*, besides a large number of useful recipes. The plates afford a very accurate picture of contemporary processes.
- 10335 **KUNDT (August Adolf, Berlin)** VORLESUNGEN über EXPERIMENTALPHYSIK, herausgegeben von KARL SCHEEL [mit] Biographie von G. SCHWALBE; *with portrait, coloured plate, and 534 illustrations, large 8vo. (pp. 876), hf. cl., 10s 6d (p. M. 15 sewn)* Braunschweig, 1903
Considered as models of lectures on experimental physics. The author, who was the successor of Helmholtz at Berlin University, invented a number of new apparatuses to illustrate his lectures.
- 10336 **KUNTZE (Wilhelm Friedrich, Pastor zu Dippoldiswalde)** QUADRATUR der SEGMENTE des CIRKELS nach der Art des Hippocrates; *with folding plate, 4to. boards, uncut (rare), 10s 6d* Dresden, 1792
A very painstaking 'correct' solution which was unknown to Professor de Morgan.
- 10337 **KUNZ (George Frederick, U.S. Geological Survey)** GEMS and PRECIOUS STONES of NORTH AMERICA: a Popular Description of their Occurrences, Value, History, Archeology, and the Collections in which they exist, also a Chapter on PEARLS and on REMARKABLE FOREIGN GEMS owned in the UNITED STATES, *with 24 plates (8 BEAUTIFULLY COLOURED), and 20 smaller illustrations, impl. 8vo. cl., uncut (SCARCE), £1. 10s (p. £2. 12s 6d)* New York, 1890
'As a treatise from the hand of an expert in the uses and values of minerals concerned, it possesses an interest and importance which the work of a simple mineralogist, however learned or skillful, could not claim.'—*Engineering and Mining Journal*.
- 10338 — THE PRODUCTION of PRECIOUS STONES in the UNITED STATES, 1895-9, *with coloured plates, 7 parts in 1 vol. impl. 8vo. hf. red morocco (as good as new), with author's inser. to Prof. Hilary Bawerman, 10s* Washington, 1900
- 10339 — 1898 and 1899, *with coloured plate, 2 parts impl. 8vo. sewn, 3s 6d ibidem, 1899-1900*
- 10340 —, and **Charles BASKERVILLE**: The ACTION of RADIUM, ACTINIUM, ROENTGEN RAYS and ULTRA-VIOLET LIGHT on MINERALS and GEMS, roy. 8vo. (pp. 32), *sewn, with author's inser., 2s* New York, 1903
- 10341 **KÜPFERSCHLAEGER (Isidore, Univ. Liège)** NOTICE sur l'ACTION du FER et du ZINC dans les Dissolutions des Métaux dont les Oxydes sont solubles dans l'Ammoniaque, 8vo. (pp. 15), *sewn, 2s* Liège, 1860
- 10342 — TABLEAUX des CARACTÈRES PYROGNOSTIQUES que présentent les SUBSTANCES MINÉRALES traitées seules on avec les Réactifs, 4to. *sewn, 2s* *ibidem, 1860*
- 10343 **KURB (Johann Gottlob v.)** Das MINERALREICH in BILDERN: naturhistorisch-technische Beschreibung und Abbildung der wichtigsten Mineralien; *with 24 finely COLOURED PLATES (some heightened with gold and silver), folio, original boards (SCARCE), £1. 1s* Stuttgart, 1858
- 10344 — The MINERAL KINGDOM, *with 24 finely COLOURED PLATES (some heightened with gold and silver), folio, hf. morocco (SCARCE), £1. 5s* *Edin., 1859*
- 10345 — ANOTHER COPY, *hf. morocco (name on title, and back badly damaged), £1. 1s*
A work remarkable for its exquisitely coloured plates.
- 10346 **KYAN (John Howard)** On the ELEMENTS of LIGHT, and their IDENTITY with those of MATTER, RADIANT and FIXED, *with 3 plates (one coloured), roy. 8vo. cl. (scarce), 12s 6d* 1838
This work was apparently unknown to Professor de Morgan, who did not include it in his *Budget of Paradoxes*. The author was once well known as the inventor of the kyanizing process for preserving wood, especially for railway sleepers, by treating it with corrosive sublimate (perchloride of mercury), a subject chosen by Faraday for his inaugural lecture at the Royal Institution.

- 10348 **KUNZEK** (August) STUDIEN aus der HÖHEREN PHYSIK; with 64 woodcuts, 8vo. *hf. calf neat*,
2s Wien, 1856
- 10349 **LAAS** (Walter; Charlottenburg) Die GROSSEN SEGELSCHIFFE: ihre Entwicklung und
Zukunft; with 77 illustrations (including folding plates), cr. 4to. *sewn*. 4s (p. M. 6) Berlin, 1908
- 10350 **LA BECHE** (Sir Henry Thomas de, F.R.S., founder of South Kensington School of Mines)
The GEOLOGICAL OBSERVER, with 309 woodcuts. 8vo. (pp. 887), *cl.*, *uncut*, 6s 1851
- 10351 ——— ANOTHER COPY. *hf. morocco neat*, 7s
One of the fullest descriptions of the older fossiliferous rocks, with copious list of fossils, will be found in the first
edition of De la Beche's Geological Memoir (1851), p. 433.—Sir A. Geikie.
- 10352 ——— SECOND [LAST] EDITION, revised, with 308 woodcuts, thick 8vo. *hf. morocco gilt*, or,
hf. calf gilt, 9s 6d —1853
- 10353 ——— ANOTHER COPY, *hf. calf (rubbed)*, 8s
- 10354 ——— HOW to OBSERVE: GEOLOGY, 2nd Edition, with 138 woodcuts, large post 8vo. *cl.*, *uncut*,
with Lord Napier's bookplate, 3s 1836
- 10355 ——— REPORT on the GEOLOGY of CORNWALL, DEVON, and WEST SOMERSET, with 11 plates
and coloured map (all folding), besides woodcuts, thick 8vo. *cl.*, *uncut (scarce)*, 10s 6d 1839
- 'It is not too much to say that the publication of these works (the above and the 'Geological Observer') would alone
have placed him in the first rank of geologists. In them he exhibits the most varied acquirements, applying almost
every branch of science to the elucidation of geological facts. Notwithstanding the rapid advancement of geological
knowledge, these books will long continue to be well worthy of the earnest study of every geologist.'—Prof. W. J. Harrison.
- 10356 ——— SELECTION of the GEOLOGICAL MEMOIRS contained in the ANNALES DES MINES, with
Synoptical TABLE of EQUIVALENT FORMATIONS and M. BRONGNIART'S Table of the CLASSIFI-
CATION of MIXED ROCKS, trans., with Notes, 11 folding plates and maps (some coloured), 8vo. *blue*
calf gilt, 5s 6d 1824

The author's first published work.

- 10357 **LA BLANCHÈRE** (Pierre René Marie Henri Moullin, dit Henri de) L'ART du
PHOTOGRAPHE, comprenant les Procédés complets sur Papier et sur Glace Négatifs et Positifs;
2^e Edition, augmentée; with 33 illustrations, 8vo. *hf. roan*, 3s 1860
- 10358 **LABORATORY** (The), or SCHOOL of ARTS: in which are faithfully and fully explained a
Variety of Curious and Valuable Experiments in Refining, Calcining, Melting, Assaying . . . of
GOLD . . . Choice Secrets for Jewellers, the ART of MAKING GLASS, the Nature and Growth of
Saltpeter, etc. etc., translated from the German [by G. SMITH], with 5 copperplates, 8vo. *old calf*
(joints cracked), 6s 6d 1739

This work was unknown to Watt.

- 10359 **LA CAILLE** (Abbé Nicolas Louis de, F.R.S.) LEÇONS ÉLÉMENTAIRES d'ASTRONOMIE
géométrique et physique; nouvelle Édition, augmentée; with 9 plates, 8vo. *old calf*, 3s 6d 1764
- 10360 ——— The ELEMENTS of ASTRONOMY, deduced from Observations; and demonstrated on the
Mathematical Principles of the Newtonian Philosophy, with a TREATISE of PROJECTION in
general, translated by JOHN ROBERTSON, F.R.S., with Additions and Corrections communicated
by the AUTHOR, with 10 folding plates, thick 8vo. *contemporary calf (back slightly damaged)*,
5s 1750
- 10361 ——— TRAITÉ d'OPTIQUE, revu, corrigé et augmenté particulièrement de la MESURE de la
RÉFRACTION, de son Explication physique, de la Marche des Images dans les Instrumens
d'Optique, des Lunettes achromatiques, de l'Iris, et de quelques Problèmes intéressans, par
plusieurs Elèves de l'École Polytechnique; 2^e Édition, suivie du TRAITÉ de la PERSPECTIVE du
même Auteur; with 15 folding plates, 8vo. *sewn*, 5s 1808
- 'The Abbé' La Caille, who, like Franz Lixt, never proceeded beyond Deacon's Orders, is perhaps best known for his
four years' astronomical mission to the Cape of Good Hope in 1750, when he was the first to group and to name most of
the Southern constellations. According to Lalande, 'La Caille a fait à lui seul plus d'observations et de calculs que
tous les astronomes de son temps réunis. On doit admirer du moins leurs extrême exactitude, grâce du soin qu'il prenait
de répéter ses observations.'

- 10362 **LACHLAN** (R., Trinity Coll., Cantab.) ELEMENTARY TREATISE on MODERN PURE
GEOMETRY, with numerous diagrams, 8vo. *cl.*, 4s 6d (p. 9s) 1893
- 10363 **LACHMAN** (Arthur, Univ. Oregon) The SPIRIT of ORGANIC CHEMISTRY: an Introduction to
the Current Literature of the Subject, with Introduction by PAUL C. FREER, M.D., cr. 8vo. *cl.*,
4s (p. 6s 6d nett) New York, 1899
- 10364 **LA CONDAMINE** (Charles Marie de) JOURNAL du VOYAGE fait par Ordre du Roi à
l'ÉQUATEUR, servant d'Introduction historique à la MESURE des trois premiers Degrés du
MÉRIDIEN; with fine plates and maps (chiefly folding), '51; avec les 2 Suppléments, '52-4—
3 vols. 4to. in 2, *old calf gilt, newly rebound (FINE COPY)*; RARE, £1. 1s

Imprimerie Royale, 1751-4

- The supplements also contain the author's reply to BOUGUER, who attacked him shortly after their return to France.
- 10365 ——— MESURE des TROIS PREMIERS DEGRÉS du MÉRIDIEN dans l'HÉMISPHERE AUSTRAL;
with 3 folding plates, and vignette, 4to. *old calf gilt, newly rebound (fine copy)*; rare, 12s 6d
apud eandem, 1751

These two works form the account of the author's geodetic mission to Peru, in conjunction with Bouguer, Juan, and Ulloa (*qq. v. ante*), for measuring the meridian near the equator, in co-operation with another mission sent to Lapland and led by Maupertuis, Clairaut, and Celsius, to measure the meridian near the North Pole. The result of these two missions first established the correctness of Newton's views of the earth having the shape of an ellipsoid—a fact previously much doubted as the result of a faulty meridian-measurement by Cassini and Picard.

'This is the account of the scientific operations, divided into 2 parts. The first relates to the geodetical measurements, and the second to the astronomical observations. Pp. 239-58 contain an important discussion of Picard's operations'. —
Prof. Todhunter.

- 10366 **LA COUDRAYE** (François Célestin de Loynes, Chevalier de) THÉORIE des VENTS,
Pièce couronnée en 1785 par l'Académie Royale de Dijon; with large folding map, 8vo. *sewn*,
uncut (rare), 9s Fontenay, 1786

Ein new Künstlich Rechenbüch

mit der Ziffer:

Darinn die Anfang vñ Grund
der Rechenkunst/im Gangen vnd

Gebrochen / auff's klärlichst vnd
verständlichst dargehen sind/

Durch

Weiland H. Heinrich Brenbi/
der neuen Teütschen Schül

zū Zürich Ordinarium Schül
vnd Rechenmeister.

Nun aber menniglichem zū nutz

auff's newe übersehen / an vilen orten ver-
bessert/gemehrt / vnd mit sonderbarem
fleiß auff allerhand vortheil zuge-
richt: dergleichen vormals in
Teütscher sprach nie ge-
sehen worden.

Getruckt zū Zürich bey

Johanno Wolffen. 1599.

PET. LAUREMBERGI ROSTOCHIENSIS; INSTITUTIO- NES ARITHME- TICÆ.

IN QVIBVS

*Accurrata Methodó & facili
ompendio, non tantum vulgariunz
vnceriorum, & minutiarum Astronomicarum
atq. sed etiam doctrinã Proportionum, & sub-
tilissima ALGEBRÆ fundamenta, & perquam
diluſe de proponuntur, & ita explicantur, ut
jam à quouis intelligi sine difficul-
tate possint.*

Totius MATHEMATICI Cor-
poris, vel HELICONIS
PARS I.

*Accedit appendix de Arithmetica
per Circulum Proportionalem compen-
diosè demonstranda, & vsui ac-
commodata.*

HAMBURGI, Typis JACOBI REBENLINI.
Impensis TORÆ GUNDERMANNI.

ANNO M, D, C. XXXVI.

G. f.

LIB. I. PROP. VIII. 79

15
4 28 75

3 5 Radix Cubica.
7 7 9 Triplum Radicis, vel Nu-
merus primus.
2 7 Radix ducta in Triplum,
id est, Divisor.
..... 1 2 5 Cubus quotientis, (5.)
..... 2 2 5 Quadr. de Quotiẽte (25.)
in numer. primum (9)
1 3 5 Quotiẽs (5) ductus in
divisorem (27)
1 5 8 7 5 Numerus addit. subtra-
ctus punctis, queritur ex Tabula, Rad. Cubi-
ca de 42. Hic numerus non exat Sumo proxim. 3
26 cũ Radicibz scribenda sub puncto. Ablatis 27
à 42 restant 15. Triplum Radicis inventa 3, est 9,
scribenda sub 7, caractere scilicet proximo sequen-
ti puncto. Eadem radix 3 ducta in hoc triplum 9
facit 27, Divisorẽ ponendũ loco sequenti. Ducta
super lineã. Quotiẽs 27 in 15 8, vel 2 in 15? Invenio 5
que altera est radix. ponendo sub altero puncto.
Cubus de 5 est 125, supponendus ipsi puncto ant
invento Quotiẽti. Quadratum Quotiẽtius eius-
dem est 225, quod ductum in Numerum primum
vel triplum 9, facit 225, scribenda loco sequenti.
Insuper Quotiẽs 5 multiplicatus in Divisorẽ 27
D 4 facit

Rechenbüchlin

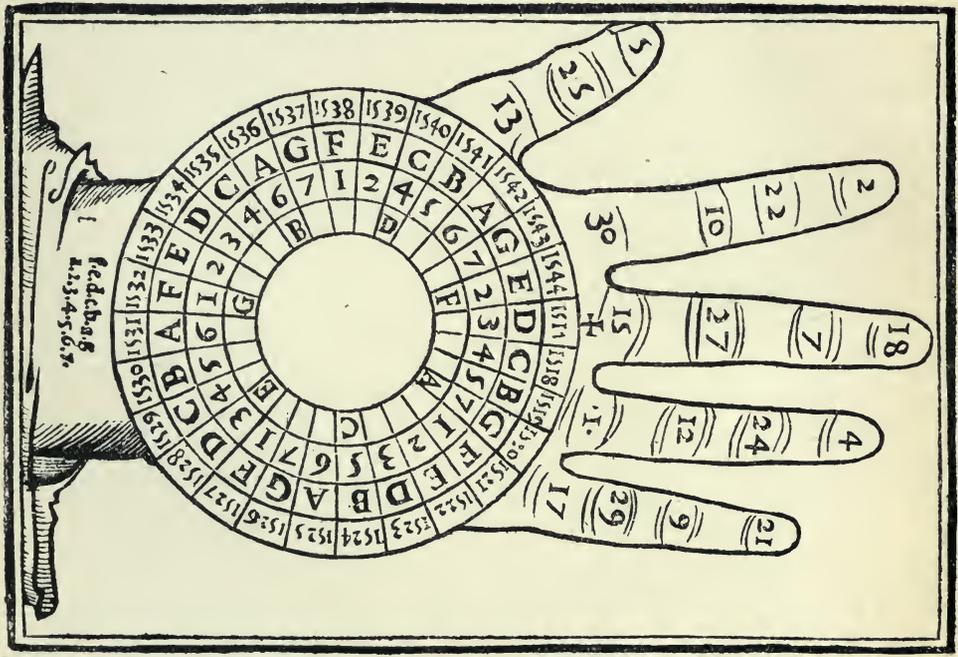
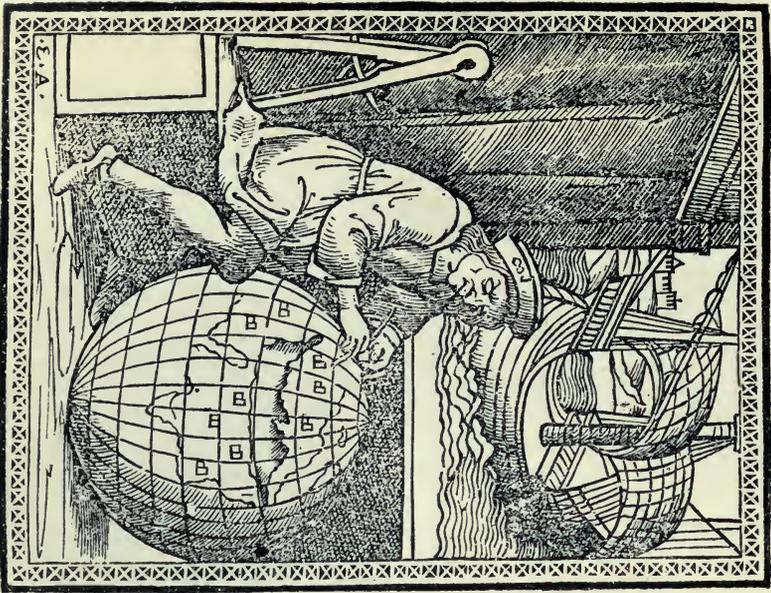
Creüz: were die Suma über 9/ so
wirffe gleicher gestalt 9. dauon vnd
setze das bleibend ins Creüz. Letzt-
lich wirff auch 9. hinweg so oft du
kanst/von der zal so getheilt wor-
den ist/was da überbleibt/setze vn-
den ins Creüz / wo sber dann bey-
de Probzalen oben vnd vnden ins
Creüz einandern gleich / schließ
ich du habist recht getheilt. Als/ich
wil das lest Exempel diser Spe-
cies Probieren/stab also:

~~5544~~
~~57806~~
~~5520923~~ (6780
~~687777~~
~~6900~~
~~86~~



Erstlich wirff 9. hinweg von der
Quotientzal vnd sprich/6. vnd 7.
ist 13/wirff 9. dauon bleibt 4/4. vñ
8. ist

Libro de Abaco nouamente
 composto per magistro Fracisco dala zdio Ve
 ronedequale iniega na afare molte rafone
 merchantile & comerepodano li pre
 ci & monete nouamente flapato.



No. 10630 (page 529).

An early and rare work on Arithmetic.

- 10368 **LA COUR (J. L.)** THEORIE der WECHSELSTRÖME und TRANSFORMATOREN; *with 263 diagrams*, roy. 8vo. *cl.*, 5s (p. M. 12) Berlin, 1902
- 10369 **LACROIX** (— de, *Commissary General of the Marine*) ABSTRACT on the MECHANISM of the MOTIONS of FLOATING BODIES, translated by ADML. [SIR CHARLES] KNOWLES, *with folding plate*, 4to. (pp. 53), *sewn (scarce)*, 10s 6d 1775
- 10370 — ANOTHER COPY, *hf. calf*, 12s
 'Containing more knowledge in the art of ship-building than any other book hitherto published that I have met with. The principles the author proceeds upon are just and true; I have tried them by a number of experiments, and they agree exactly with the calculations he gives: but what proved most satisfactory to me was their answering perfectly well when put into practice, in several line of battle ships and frigates, that I built when I was in Russia. CHARLES KNOWLES.'—*Preface.*
- 10371 **LACROIX (Sylvestre François; de l'Institut)** ŒUVRES (voir en bas); *with 26 folding plates*, 7 vols. 8vo. *old calf*, 8s 1802-6
 CONTENU:—Essais de Géométrie sur les Plans et les Surfaces courbes: Traité élémentaire d'Arithmétique: Traité élémentaire de Trigonométrie rectiligne et sphérique: Éléments de Géométrie: Complément des Éléments d'Algèbre: Essais sur l'Enseignement des Mathématiques: Traité élémentaire de Calcul Différentiel et de Calcul Intégral.
- 10372 — ÉLÉMENTS d'ALGÈBRE, 19^e Édition, *roy. hf. calf*, 2s 1849
- 10373 — ESSAIS sur l'ENSEIGNEMENT en général, et sur celui des MATHÉMATIQUES en particulier; 2^e Édition: TRAITÉ ÉLÉMENTAIRE de CALCUL DIFFÉRENTIEL et de CALCUL INTÉGRAL, 3^e Éd., augmentée; *with 5 folding plates*—2 vols. 8vo. in 1, *hf. calf (binding damaged)*, 3s 6d 1816-20
- 10374 — ESSAIS de GÉOMÉTRIE, sur les Plans, et les Surfaces Courbes (Éléments de Géométrie Descriptive), 6^e Éd., revue et corrigée; *with 10 folding plates*, post 8vo. *hf. calf gilt*, 2s 6d 1829
- 10375 — TRAITÉ ÉLÉMENTAIRE de CALCUL DIFFÉRENTIEL et INTÉGRAL, 3^e Édition, augmentée; post 8vo. *hf. calf*, 2s 1820
- 10376 — HUITIÈME ÉDITION, revue et augmentée de Notes par C. HERMITE et J. A. SERRET; *with 5 folding plates*, 2 vols. 8vo. *cl.*, 6s (p. F. 15 unbound) 1874
 The final edition.
- 10377 — ELEMENTARY TREATISE on the DIFFERENTIAL and INTEGRAL CALCULUS, translated, with Appendix and Notes [pp. 250, by CHARLES BABBAGE, SIR JOHN FREDERICK WILLIAM HERSCHEL, and GEORGE PEACOCK, Dean of Ely, F.R.S.], *with 5 plates*, thick 8vo. *hf. calf (scarce)*, 8s 6d Cambridge, 1816
- 10378 — ANOTHER COPY, *sewn*, 6s 6d
 'This translation gave the first impulse to a mathematical revival in England, by the introduction of the refined analytical methods and the more perfect notation in use on the continent.'—D. N. B. The appendix on finite differences by Sir John Herschel was styled by Prof. Tait 'one of the most charming mathematical works ever written.'
- 10379 — TRAITÉ ÉLÉMENTAIRE du CALCUL des PROBABILITÉS, 2^e Éd., augmentée; *with plate*, 8vo. *calf*, 2s 6d 1822
- 10380 — TRAITÉ du CALCUL DIFFÉRENTIEL et du CALCUL INTÉGRAL, 2^e [DERNIÈRE] ÉDITION, revue et augmentée; *with folding plates*, 3 vols. 4to. *sprinkled calf gilt (NICE COPY): rare*, £1. 5s 1810-19
- 10381 — ANOTHER COPY, *hf. calf (sound copy)*; or, *new hf. buckram*, £1. 1s
 The first exhaustive treatise on the subject ever written, and still of value. The preface (pp. 48) consists of an interesting account of its invention ('unduly prejudiced in Leibulz's favour), and of its development.
 'Lacroix [1765-1843] était un des derniers liens qui rattachaient l'ancienne Académie des Sciences à la nouvelle, et on le vénérait comme un débris vivant du dix-huitième siècle.'—*Biogr. Gén.*
 Born in great poverty, he was driven to science by the chance reading of *Robinson Crusoe*, which set him studying an old treatise on navigation to enable him to discover his own island, and this carried him on to the serious study of geometry at the Collège de France.
- 10382 [**LACY (John)**] The UNIVERSAL SYSTEM, or MECHANICAL CAUSE of all the APPEARANCES and MOVEMENTS of the VISIBLE HEAVENS: shewing the True Powers which move the Earth and Planets in their Central and Annual Rotations, with a DISSERTATION on COMETS. . . likewise an Attempt to prove what it is that moves the Sun round its Axis, *with 5 plates*, 8vo. *boards, uncut (rare)*, 15s 1779
 'The mechanical cause of the movement of all the bodies within the solar system is occasioned by the sun's moving swiftly round his axis, and thereby projecting the rays of heavy liquid light on them in transverse lines, driving them round his body as the sole centre, and under the Almighty Being, the cause of all our visible system.'—*Preface.*
 This paradox is not Budgeted by Professor de Morgan.
- 10383 **LADENBURG (Albert; Univ. Breslau)** HANDWÖRTERBUCH der CHEMIE, herausgegeben unter Mitwirkung von LUDWIG BEREND, RUDOLF BIEDERMANN, EDMUND DRECHSEL, u. A. m.; mit General-Register; *with 429 woodcuts*, 13 vols. roy. 8vo. *hf. German calf (binding of a few vv. damaged, and of others rubbed)*, £3. 3s (p. M. 250) Breslau, 1882-96
 Still valued as a general work of reference on chemistry.
- 10384 — Ueber die HYDRIRUNGSMETHODE durch NATRIUM und ALKOHOL, 8vo. (pp. 2), *unbound*, 1s Berlin, 1901
- 10385 — Über das ISOCONIN, ein neues Isomeres des Coniins, und über den asymmetrischen Stickstoff, roy. 8vo. (pp. 11), *sewn*, 1s 6d *ibidem*, 1892
- 10386 — Eine NEUE METHODE zur MOLEKULARGEWICHTSBESTIMMUNG des OZONS, roy. 8vo. (pp. 5), *sewn*, 1s *ib.*, 1901
- 10387 —, und C. KRÜGEL: Über das KRYPTON; *with 2 illustrations*, roy. 8vo. (pp. 6), *sewn*, 1s *ib.*, 1900
- 10388 **LAER (Henri van)** Sur quelques PHÉNOMÈNES de COAGULATION produits par les BORATES (Agglutination de la Levure), roy. 8vo. (pp. 17), *sewn*, 1s 6d Bruxelles, 1905
- 10389 **LA GOURNERIE (Jules de)** TRAITÉ de GÉOMÉTRIE DESCRIPTIVE, 3 vols.: Atlas; *with 150 plates*, 3 vols.—6 vols. 4to. in 2, *hf. brown morocco gilt, cl. sides, g. e., with bookplate of Prof. Lloyd Tanner, F.R.S.*, 12s 6d (p. F. 30 *sewn*) 1860-4
 A well-known classic on the subject.

- 10391 **LADIES' DIARIES (The)**, The MATHEMATICAL PARTS of the, from 1705 to 1773 (Nos. 2-70, with Appendix containing Additional Solutions, and Index), with numerous diagrams, 3 vols. 12mo. contemporary *hf. calf (nice copy)*, 12s 6d [1705-73]
This excellent publication went on for nearly a hundred years, at a time when Women of Fashion must have actually studied Mathematics, a form of dementia whose existence nowadays might have provided one more ground for divorce to the Majority of the Divorce Commission.
It contains a large number of interesting problems. Its editors were John Tipper (1705-13), Henry Beighton, F.R.S. (14-44), Robert Heath (45-53), Thomas Simpson, F.R.S. (54-60), and Edward Rollinson (61-73).
See LEYBOURN (Thomas), post.
- 10392 **LADY'S and GENTLEMAN'S DIARY (The)**, or Complete Mathematical Almanach, 1844-6, with diagrams, 3 vols. fcap. 8vo. *sewn*, 4s 1844-6
The unhappy mania above referred to would seem to have survived into the Nineteenth Century. In the Twentieth a complete prophylactic can happily be found in the sixpenny magazine.
- 10393 **LA FAYE** (— de, *Trésorier général des Gratifications des Troupes*) RECHERCHES sur la PRÉPARATION que les ROMAINS DONNOIENT à la CHAUX dont ils se servoient pour leurs Constructions, et sur la COMPOSITION et l'EMPLOI de leurs MORTIERS, avec MÉMOIRE pour servir de SUITE à ces Recherches—2 vols. sm. 8vo. in 1, *old mottled calf (fine copies)*; rare, 12s
Imprimerie Royale, 1777-8
- 10394 ——— ANOTHER COPY, *sewn, uncut*, 10s 6d
'Les différens procédés que j'indique sont justifiés par les textes des auteurs des anciens, et je me suis assuré de leur succès par des épreuves multipliées.—*Avertissement.* But even after this and other researches, the wonderful hardness of Roman mortar keeps its secret still.
- 10395 **LAFON (A.)** MÉMOIRE sur la ROTATION d'un CORPS SOLIDE AUTOUR d'un [*sic*] POINT FIXE, 8vo. (pp. 36), *sewn*, 1s 6d [Nancy,] 1860
- 10396 **LA GARAYE** (Claude Toussaint Marot, Comte de) CHIMIE HYDRAULIQUE, pour EXTRAIRE les SELS ESSENTIELS des Végétaux, Animaux, et Minéraux, avec l'Eau pure, par M. L. C. D. L. G., première édition; with 2 folding copperplates, 12mo. contemporary French *calf gilt (nice copy)*, 12s 6d 1745
'Selon lui les végétaux, les animaux ou les minéraux contiennent, dit M. Pougin, des remèdes spécifiques contre toutes les maladies curables, les matières médicamenteuses sont mêlées à d'autres éléments qui en affaiblissent l'énergie. Il appartient à la chimie de séparer les éléments utiles des éléments inutiles ou nuisibles. Pour obtenir cette division, la chimie avait jusque là employé la distillation sèche et la distillation par l'action du feu. Le comte de la Garaye, jugeant que le premier de ces moyens altérait la nature même des matières médicamenteuses, et que le second diminuait leur force, imagina de recourir à l'eau froide ou tiède tout au plus, animée d'un mouvement rapide ou incessant, pour dissoudre la partie active des matières médicamenteuses appartenant aux trois règnes de la nature. Il fonda son opinion de la non-altération des sels qu'il préparait ainsi sur ce qu'ils avaient le goût, l'odeur et toute l'efficacité du végétal dont ils étaient extraits.—*Biogr. Gén.*
- 10397 **LAGRANGE** (Joseph Louis Comte; de l'Institut; F.R.S.]) LEÇONS sur le CALCUL des FONCTIONS; nouvelle Édition, revue et augmentée par l'AUTEUR, 8vo. *hf. bound, or, sewn*, 3s 6d 1806
'This work may be considered as the starting point for the researches of Cauchy, Jacobi, and Weierstrass.—*W. W. R. Ball.*
- 10398 ——— LECTURES on ELEMENTARY MATHEMATICS, translated [with Memoir] by THOMAS JOSEPH McCORMACK, with portrait and diagrams, post 8vo. *cl.*, 3s 6d (p. 5s nett) Chicago, 1898
- 10399 ——— MÉCANIQUE ANALITIQUE, première édition, 4to. *old hf. calf (rare)*, 15s 1788
'From Walter Nichol to Edward Irving—Nov. 1818.—*Inscr. on flyleaf.* This was probably the Rev. Edward Irving (1792-1884), founder of the 'Irvingites,' and friend of Carlyle.
- 10400 ——— ANOTHER COPY, contemporary French *calf extra (fine copy)*, 17s 6d
- 10401 ——— THE SAME; ALSO: Dubuat [de Sassegny] (Le Chevalier) MÉMOIRES sur la MÉCANIQUE, Tome premier (seul paru); with folding plate—2 vols. 4to. in 1, *hf. morocco gilt (nice copies)*, £1. 1s 1788-1821
- 10402 ——— NOUVELLE (2^e) ÉDITION, revue et augmentée par l'Auteur [et achevée, après sa Mort, par J. P. M. BINET], 2 vols. 4to. in 1, *calf gilt (nice copy)*, 15s 1811-15
'His great work in which he lays down the law of virtual work, and from that one fundamental principle, by the aid of the calculus of variations, deduces the whole of mechanics, both of solids and liquids.—*W. W. R. Ball.*
'A kind of scientific poem'—*Sir W. R. Hamilton.*
'Analytical mechanics was brought to its highest degree of perfection by Lagrange. His aim is to dispose once for all of the reasoning necessary to resolve mechanical problems, by embodying as much as possible of it in a single formula. This he did. Every case that presents itself can now be dealt with by a very simple, highly symmetrical and perspicuous schema; and whatever reasoning is left is performed by purely mechanical methods. The Mechanics of Lagrange is a stupendous contribution to the economy of thought.—*Prof. E. Mach.*
- 10403 ——— THÉORIE des FONCTIONS ANALYTIQUES, contenant les Principes du Calcul Différentiel, dégagés de toute Considération d'Infiniment Petits, d'Évanouissans, de Limites et de Fluxions, et réduits à l'Analyse Algébrique des Quantités Finies, première édition, 4to. *sewn*, 6s 6d
an V [1797]
- 10404 ——— NOUVELLE [2^e] ÉDITION, revue et augmentée par l'AUTEUR, 4to. *hf. cl.*, 6s 1813
- 10405 ——— ANOTHER COPY, *hf. calf gilt (nice copy)*, 7s 6d
'The *Théorie des fonctions* aimed at placing the principles of the calculus on a sound foundation by relieving the mind of the difficult conception of a limit or infinitesimal. Lagrange attempted to prove Taylor's theorem [v. No. 4782, ante.]—the power of which he was the first to point out—by simple algebra, and then to develop the entire calculus from that theorem', etc. etc. etc.—*Prof. Cañori.*
- 10406 ——— TRAITÉ de la RÉSOLUTION des ÉQUATIONS NUMÉRIQUES de tous les Degrés, avec des Notes sur plusieurs Points de la Théorie des Équations Algébriques, nouvelle [2^e] Edition, revue et augmentée par l'AUTEUR, 4to. *sewn*, 5s 6d 1808
- 10407 ——— ANOTHER COPY, *old calf*, 6s 6d
- 10408 ——— TROISIÈME ÉDITION, conforme à celle de 1808, et précédée d'une Analyse de l'Ouvrage, par LOUIS POINSOT, 4to. boards, *uncut*, 10s 6d 1826
The best edition.
'Giving a method of approximating to the real roots of numerical equations by continued fractions, and, among other things, a proof that every equation must have a root—a theorem which appears before this to have been considered as self-evident.—*Prof. Cañori.*

- 10410 **LA HARPE** (Clément de) NOTES et FORMULES de l'INGÉNIEUR et du CONSTRUCTEUR-MÉCANICIEN : Mathématiques, Mécanique, Electricité, Chemins de Fer, Mines, Métallurgie, etc., par un Comité d'Ingénieurs, sous la Direction de CH. VIGREUX, CH. MILANDRE, et R. P. BOUQUET, 15^e [dernière] Edition, considérablement augmentée, avec VOCABULAIRE TECHNIQUE en français, anglais, allemand ; with 15 illustrations, large 12mo. (pp. 2002), roan, 7s (p. F. 14 nett) 1907
- 10411 **LA HIRE** (Philippe de, de l'Académie des Sciences) MÉMOIRES de MATHÉMATIQUE et de PHYSIQUE, contenant un TRAITÉ des EPICYCLOÏDES, et de leurs Usages dans les Mécaniques ; l'Explication des principaux EFFETS de la GLACE et du FROID ; Dissertation des DIFFÉRENCES des SONS de la CORDE de la TROMPETTE MARINE ; et Traité des différens ACCIDENS de la VÛE ; with woodcuts and numerous diagrams, 4to. old calf gilt (RARE), 17s 6d Imprimerie Royale, 1694
- 10412 ——— ANOTHER COPY, old calf, newly rebound, with British Museum stamp on title, 16s 6d
Including the author's valuable treatise on epicycloids, and their application to mechanics, chiefly founded on the teaching of Desargues. The second treatise contains an investigation on the thermometer.
- 10413 ——— TABLES ASTRONOMIQUES, avec les Mouvements du Soleil, de la Lune, et des autres Planètes, deduits des seules Observations, et indépendamment d'aucune Hypothèse ; la Méthode du Calcul Astronomique, et le Calcul des Eclipses par la seule Trigonometrie rectiligne ; la Description et l'Usage des Instrumens d'Astronomie, etc. etc. etc., 3^{me} Edition ; with 4 folding plates of astronomical instruments, etc., besides numerous diagrams, 4to. old calf, newly rebound, 10s 6d 1755
Containing a description of a machine of the author's invention showing the theory of eclipses.
- 10414 ——— TRAITÉ de MÉCANIQUE, où l'on explique tout ce qui est nécessaire dans la Pratique des Arts, et les Propriétés des Corps Pesants lesquelles ont un plus grand Usage dans la Physique ; with woodcuts and numerous diagrams, 12mo. old mottled calf (sound copy), with auto. of George Rennie, F.R.S., on title (rare), 15s Imprimerie Royale, 1695
A copious treatise on the subject, and more especially on percussion, which the author claims to be largely original. It contains a description of several interesting hydraulic machines.
- 10415 **LAIS** (Giuseppe, D.O., Osservatorio Pontificio) PROLOGOMENTI allo STUDIO delle BURRASCHE del CLIMA di ROMA ; with folding chart, 4to. (pp. 32), sewn, 3s Roma, 1873
- 10416 **LAISANT** (Charles Anne) INTRODUCTION à la MÉTHODE des QUATERNIONS ; with diagrams, 8vo. sewn, 3s 6d 1881
- 10417 **LAKE** (W. R.) PATENTS for INVENTIONS relating to MACHINE-GUNS and AUTOMATIC BREECH-MECHANISM [1854-95], with numerous plates, roy. 8vo. boards, 5s [c. 1596]
- 10418 **LALANDE** (Joseph Jérôme Le François de ; de l'Institut. F.R.S.) ASTRONOMIE, 2^e Édition, revue et augmentée [avec TABLES ASTRONOMIQUES calculées pour le Méridien de Paris jusqu'à 1770 (pp. 248)] ; with 46 folding plates, 4 thick vols. 4to. old calf, £1. 1s 1771-81
'Cet ouvrage, qui est son principal titre de gloire, est un répertoire complet de tout ce que l'on savait alors et de beaucoup de méthodes peu répandues.'—*Biogr. Gén.* He determined the parallax of the moon on a voyage to the Cape of Good Hope.
Vol. I includes an interesting list of astronomical instruments and their prices.
- Vol. IV, which is often missing, contains : Traité du flux et du reflux de la mer ; Mémoire sur l'origine des constellations, et sur l'explication de la fable, par le moyen de l'astronomie, par M. DUPUIS. A few copies of this volume were issued with a separate title. It was never reprinted nor re-issued with the 3rd Edition of 1793.
- 10419 ———, CATALOGUE of those STARS in the HISTOIRE CÉLESTE FRANÇAISE of, for which Tables of Reduction to the Epoch 1800 have been published by PROF. SCHUMACHER, reduced at the Expense of the British Association of Science, under the Superintendance of FRANCIS BAILY, F.R.S., thick 8vo. (pp. 218), boards, uncut (SCARCE), £1. 10s 1847
Lalande's *Histoire Céléste*, which was first published in 1801, gives the places of 47,390 stars, but 'in the rough, as it were, and consequently needing laborious processes of calculation to render them available for exact purposes.' To obviate these defects, its reduction was undertaken by the British Association in 1837-8 at the instance of Baily, and published in a form 'which first rendered the work practically available' (*Miss Agnes M. Clerke*).
- 10420 ——— EXPOSITION du CALCUL ASTRONOMIQUE ; with 3 folding plates, 12mo. contemporary mottled calf extra, with author's auto. pasted on styleaf, 5s Imprimerie Royale, 1762
- 10421 ——— TABLES de LOGARITHMES [sic], pour les Nombres, et pour les Sinus, Édition stéréotype ; 24mo. sewn, 2s F. Didot, An X (1802)
- 10422 [——] TABLES of LOGARITHMS [edited and revised by RICHARD FARLEY], 16mo. sewn, 2s S. D. U. K., 1859
- 10423 ———, CATALOGUE des LIVRES composant la BIBLIOTHÈQUE de feu, dont la Vente aura Lieu dans le courant du Moi de Mars 1808, au Collège de France, 8vo. sewn (scarce), 6s [1803]
The library consisted of 2000 lots, 1210 of which were astronomical, mathematical, and physical works. At end is an index of authors.
- 10424 **LAMBERT** (Johann Heinrich) PHOTOMETRIA, sive de MENSURA et GRADIBUS LUMINIS, COLORUM, et UMBRE, editio princeps ; with 8 folding plates, large 12mo. sound copy in contemporary German hf. calf (RARE), £1. 10s Augustae Vindelicorum, 1760
First Edition of this work, which first laid a scientific basis for the measurement of the intensity of light. The author propounds in it the law of the absorption of light named after him, and describes the photometer invented by him.
- 10425 ——— PYROMETRIE, oder vom MAASSE des FEUERS und der WÄRME, I. Ausgabe ; with 8 folding plates, 4to. contemporary boards (large and sound copy) ; RARE, with autos. of C. Buzengeiger (1771-1835), and R. Lipschitz, £1. 5s Berlin, 1779
'Lambert's most important work, *Pyrometrie* (Berlin, 1779), is a systematic treatise on heat, containing the records and full discussions of many of his own experiments.'—*Ency. Brit.*
It enumerates 19 different thermometric scales, and includes numerous experiments with Amontons's air thermometer, which enabled the author to approximate the absolute zero of temperature to -270° C.
- 10426 ——— SYSTÈME du MONDE, publié par [HANS BERNHARD] MÉRIAN, 2^e Édition, sm. 8vo. hf. vellum (rare), 7s 6d ibidem, 1784
'His conceptions were grandiose, his intuitions bold, his views on some points a singular anticipation of subsequent discoveries.'—*Miss Agnes M. Clerke*.
'Lambert conjectured the existence of binary stars.'—*G. F. Chambers*.

- 10128 **LAMARCK** (Jean Baptiste Pierre Antoine de Monnet, Chevalier de, de l'Institut; founder of the Lamarckian theory of evolution) ANNUAIRE MÉTÉOROLOGIQUE (No. 7) pour l'AN XIV [1806] . . . présentant, 1°. L'Indication des Époques où, dans le Cours de l'An XIV, les INFLUENCES de la LUNE sont dans le Cas d'occasionner de Mauvais Temps; 2°. Une Esquisse de l'HISTOIRE de la MÉTÉOROLOGIE, et différentes Considérations sur cette Histoire; 3°. Un SYSTÈME GÉNÉRAL de MÉTÉOROLOGIE, 8vo. contemporary French tree-calf extra (fine copy); rare, 8s 6d [1806]
- 10129 ——— pour l'AN 1808 (No. 9), à l'Usage de ceux qui aiment la Météorologie et qui se livrent aux Observations Atmosphériques; with plate, 8vo. French mottled calf extra, with the original paper cover bound in (fine copy), with author's inscr. to Sir Benjamin Thompson. Count Rumford, F.R.S. (see below), 15s [1808]
- 'A Monsieur le Comte de Rumford de la part de l'auteur.'—Inscr. on rev. of cover. The volume includes: 'Sur les différents Mois météorologiques de l'année; Application du Principe propre à déterminer le caractère général des Saisons; Des influences particulières', etc. etc.
- Lamarck was a believer in the meteorological influence of the moon, a belief which he shared with Sir John Herschel, but which earned him a brutal remark from Napoleon when he presented him with a copy of one of his works on natural history.
- 10130 ——— **HYDROGÉOLOGIE, ou Recherches sur l'Influence qu'ont les Eaux sur la Surface du Globe Terrestre, sur les Causes de l'Existence du Bassin des Mers, de son Déplacement et de son Transport successif sur les différens Points de la Surface du Globe; et enfin sur les Changemens que les Corps Vivans exercent sur la Nature et l'État de cette Surface, 8vo. sewn, uncut (rare), 12s 6d An X [1802]**
- 'Mon objet dans cet ouvrage est de présenter quelques considérations que je crois nouvelles et du premier ordre, qui ont échappé aux recherches des physiciens, et qui me paraissent devoir servir de base pour former une bonne théorie de la terre'.—P. 4.
- 10131 **LAMB** (Francis) **ASTROSCOPIUM: or TWO HEMISPHERES, containing all the NORTHERN and SOUTHERN CONSTELLATIONS, projected upon the Poles of the World, which (by the Help of a Movable Horizon) are rendered Projectable in any Latitude. The Uses of which Hemispheres are illustrated by Variety of Examples. To which is added the Arabick, Chalde, Greek, Latin, and English Names of the Constellations, with other Things pertinent to them, with 4 copperplates (2 folding), large 12mo. contemporary sheep (binding slightly damaged, otherwise a SOUND COPY); RARE, £1. 5s W. Leybourn, 1673**
- The author acknowledges having received the help of WILLIAM LEYBOURN. The work, which was unknown to Lowndes, contains an 'Appendix containing the Construction of these Hemispheres', 'Precepts of the Projection of the Hemispheres', and a 'Catalogue of Constellations', containing 12 constellations of the southern hemisphere which are not in Thomas Hood's work.
- 10132 **LAMB** (Horace, F.R.S.; Prof. Math., Univ. Manchester) **TREATISE on the MATHEMATICAL THEORY of the MOTION of FLUIDS, with 12 diagrams, 8vo. cl., 4s 6d (p. 12s) Univ. Press, Cambridge, 1879**
- 10133 ——— On the VELOCITY of SOUND in a TUBE, as AFFECTED by the ELASTICITY of the WALLS, 8vo. (pp. 16), sewn, with author's inscr., 2s Manchester, 1898
- 10134 ——— On WAVES in a MEDIUM having a PERIODIC DISCONTINUITY of STRUCTURE, with diagrams, 8vo. (pp. 20), sewn, 2s ib., 1898
- 10135 **LAMBERT** (Abbé Edmond) **NOUVEAU GUIDE du GÉOLOGUE: Géologie générale de la France, avec Appendice sur la Géologie des principales Contrées de l'Europe; with 76 woodcuts, cr. 8vo. sewn, 2s (p. F. 5 nett) 1873**
- 10136 **LAMÉ** (Gabriel; de l'Institut) **COURS de PHYSIQUE; with plates, 3 vols. 8vo. in 1, hf. velum, 4s 6d 1837-8**
- 'Son Cours de Physique a opéré une révolution dans l'enseignement de cette science'.—M. Marie.
- 10137 ——— **LEÇONS sur les COORDONNÉES CURVILIGNES et leurs diverses Applications; with diagrams, 8vo. sewn (scarce), 10s 1859**
- 10138 ——— ANOTHER COPY, boards, or, hf. cl., 10s 6d
- 10139 ——— **LEÇONS sur les FONCTIONS INVERSEDES TRANSCENDANTES et les SURFACES ISOTHERMES; with diagrams, 8vo. hf. cl., or, hf. calf, 4s 1857**
- This work first introduced the functions known by the author's name.
- 10140 ——— **LEÇONS sur la THÉORIE ANALYTIQUE de la CHALEUR; with diagrams, 8vo. sewn, 3s 6d (p. F. 6.50 nett) 1861**
- 10141 ——— ANOTHER COPY, hf. calf, 4s 6d
- 10142 ——— **LEÇONS sur la THÉORIE MATHÉMATIQUE de l'ÉLASTICITÉ des CORPS SOLIDES; with plate, 8vo. sewn (scarce), 10s 6d 1852**
- 10143 ——— ANOTHER COPY, hf. calf, 12s
- 10144 ——— **DEUXIÈME ÉDITION [Réimpression]; with plate, 8vo. cl., with auto. and MS. notes of Prof. A. S. Herschel, F.R.S., 11s 1866**
- 10145 ——— ANOTHER COPY, hf. calf gilt, or, hf. morocco, 13s
- 'A problem in elasticity called by Lamé's name, viz. to investigate the conditions for equilibrium of a spherical elastic envelope subject to a given distribution of load on the bounding spherical surfaces, and the determination of the resulting shifts, is the only completely general problem on elasticity which can be said to be completely solved.'—Prof. Cajori.
- 'Tous ses ouvrages ont une grande valeur scientifique et la plupart sont des véritables créations.'—M. Marie.
- 10146 ——— **MÉMOIRE sur les SURFACES ORTHOGONALES et ISOTHERMES, 4to. (pp. 38), sewn, 3s 1843**
- 10147 ——— **NOTE sur la MÉTHODE de RECHERCHE des SURFACES ISOTHERMES, 4to. (pp. 6), sewn, 1s 6d 1843**
- 10148 ———, et Benoist Pierre Émile **CLAPEYRON: MÉMOIRE sur la STABILITÉ des VOUTES; with plate, 8vo. (pp. 48), sewn, 4s 1823**
- 'A Monsieur Georges Rennie [F.R.S.] de la part du rapporteur de la commission de l'Académie des Sciences [le Baron de Prony].—Inscr. on p. 1.

- 10450 **LAMI (E. O.), et A. THAREL:** DICTIONNAIRE ENCYCLOPÉDIQUE et BIOGRAPHIQUE de l'INDUSTRIE et des ARTS INDUSTRIELS, avec la Collaboration des Savants, Spécialistes et Praticiens les plus éminents de notre Epoque; with several thousand woodcuts, 8 thick vols. large impl. 8vo. *hf. red French morocco neat*, £3. 3s (p. F. 290 nett sewn) 1881-8
- 10451 **LAMING (Richard, M.R.C.S.)** A NEW VIEW OF ELECTRICAL ACTION, based on the Assumption that Electricity is the only Ponderable Element in Nature, and allotted to Atoms in Quantities that are definite, and indicated relatively by their Chemical Equivalents, 3 parts 8vo. (pp. 94), *sewn (scarce)*, 6s 6d 1858-9
- 10452 ——— **MATTER and FORCE:** an Analytical and Synthetical Essay on Physical Causation, with 5 plates (2 coloured), 8vo. *cl.* (*scarce*), 8s 6d 1851
Attempting to derive mathematically 'the principal phenomena and laws of chemistry, electricity, and heat, from a moral volition, and demonstrating the preservation of the Universe to be contingent on the incessant exercise of a moral power'
- 10453 **LAMONT (Johann v., F.R.S.)** BESCHREIBUNG der an der MÜNCHENER STERNWARTE zu dem BEOBSACHTUNGEN verwendeten NEUEN INSTRUMENTE und APPARATE; 4to. (pp. 101), *sewn-München*, 1851
Bruxelles [1843]
- 10454 ——— **PHYSIQUE du GLOBE**, 8vo. (pp. 22), *sewn*, 2s
- 10455 **LAMPRECHT (Robert)** RECOVERY WORK after PIT FIRES: the principal Methods pursued, especially in Fiery Mines; and the various Appliances employed, etc., translated by CHARLES SALTER, with 7 folding plates, 8vo. *cl.*, 5s 6d (p. 10s 6d nett) 1901
- 10456 **LANA (Francesco Terzi de, S.J.)** MAGISTERIUM NATURE, et ARTIS: Opus Physico-Mathematicum in quo Oculiora Naturalis Philosophiæ Principia manifestantur, et multiplici tum Experimentorum, tum Demonstrationum Serie comprobantur, ac demum tam antiqua pene omnia Artis inventa, quam multa nova ab ipso Autore excogitata in Lucem profertur; with 56 plates, 3 vols. folio, *old calf gilt (FINE COPY)*. £2. 2s
Brixia, 1684—Parmæ, '92
Father Lana was a friend of his fellow-Jesuit KIRCHER (*q. v. ante*), and though believing with most savants of his day in Perpetual Motion, was a genuine observer and experimenter. He is also noteworthy as the first suggester of the Balloon (see the next article), and his calculations regarding its practicability were checked and approved by LEIBNIZ.
'The above work may be regarded as an attempt to explain various theories advanced in the *Prodromo* [*v. infra*]. The third volume, which did not appear until the author's death [out of nine volumes intended by him], is said by his bibliographer Eyrès to be 'très-rare'. It would require an explanatory volume to give an idea of this work, which is truly a cypædæia of all sciences connected with natural philosophy.'—*Libri Catalogue*.
It describes a large number of 'perpetual motion' machines, while one chapter treats 'of motion which is called electric attraction'.
- 10457 ——— **PRODOMO overo Saggio di alcune INVENTIONI NUOVE** premesso all' Arte Maestra, per mostrare li piu reconditi Principij della Naturale Filosofia, riconosciuti con accurata Teorica, nelle piu segnalate Inventioni, ed Ispersione sin' hora ritrovate da gli Scrittori di questa Materia, ed altre nuove dell' Autore medesimo; with 20 plates, folio, *boards (an exceptionally fine and large copy)*; VERY RARE, £4. 4s
Brescia, 1670
This work is of great importance in the history of ballooning as having been the first to formulate a theory of aerostatics. The author proposed—besides many other curious experiments—to exhaust hollow globes of copper, which, being lighter than the air, were to raise the vehicle placed underneath. Plate II (No. 2421 *ante*) illustrates this idea, which, impracticable itself, nevertheless formed the basis of Montgolfier's invention.
'Rara e pregiata opera . . . Meritevoli di singolare encomio sono le molte inventioni dal Lana . . . Rimarchevole soprattutto è la nota sua barca volante . . . che rimase il fondamento della Aeronautica moderna.'—*Riccardi*.
- 10458 **LANCASTER (Hugh)** PRACTICAL FLOOR MALTING, with 10 plates, and 12 woodcuts, 8vo. *cl.*, 6s (p. 12s 6d) 1908
- 10459 **LANCHESTER (F. W.)** AERODYNAMICS, with Appendixes on the Velocity and Momentum of Sound Waves, on the Theory of Soaring Flight, etc., with 2 plates and 161 other illustrations, thick 8vo. *cl.*, 14s (p. £1. 1s nett) 1907
- 10460 **LANDEN (John, F.R.S.)** MATHEMATICAL MEMOIRS respecting a Variety of Subjects; with Appendix containing Tables of THEOREMS for the CALCULATION of FLUENTS, VOL. I, with 5 plates, 4to. *sound copy in old calf gilt (rare)*, 10s 6d 1730
'The remarkable theorem known by Landen's name, for expressing a hyperbolic arc in terms of two elliptic arcs, was inserted in the 'Philosophical Transactions' for 1775, and specimens of its use were given in the first volume of his 'Mathematical Memoirs' (1780).—*Miss Agnes M. Clerke*.
- 10461 ——— OBSERVATIONS ON CONVERGING SERIES, occasioned by Mr. Clarke's Translation of Mr. LORGNA'S TREATISE on the same Subject; with Appendix, printed for the author, 1781-[2]; also: Clarke (Henry) SUPPLEMENT to PROF. LORGNA'S SUMMATION of SERIES, with Remarks on Mr. Landen's Observations on the same Subject, plate; with Additional Remarks, printed for the author, 1782-3—4 vols. 4to. in 1, *sewn (rare)*, 12s 6d 1781-3
'John Landen attacked this [Clarke's 'Dissertation on the Summation', etc.] in a pamphlet, on the ground that the method was contained in Simpson's 'Mathematical Dissertations'. Clarke replied in a 'Supplement' (1782), and to a further attack in 'Additional Remarks' (1783). The controversy is noticed in Hutton's *Mathematical Dictionary*.—*D. N. E.* See also LORNA, *post*.
- 10462 **LANDMANN (Isaac)** TREATISE ON MINES, for the Use of the Royal Military Academy at Woolwich, with 16 folding plates, 8vo. *calf (worn)*, 5s 1815
- 10463 **LANDO (Giovanni Giacomo, Genovese)** ARITMETICA MERCANTILE, nella quale si vede, come si hanno da fare li CONTI, per li CAMBI, che si fanno nelle Città Principali della Christianità; il Modo di raguagliare le Piazze, di aggiustare ogni Sorte di Comissioni de Cambi, e Mercantie, e formare Arbitrij, prima edizione; with device on title, sm. 4to. *old limp vellum (sound copy)*, £2. 2s
Napoli, T. Longo, 1604
'Raro.'—*Riccardi*.
- 10464 ——— NUOVA EDIZIONE, sm. 4to. *boards, uncut (RARE)*, £1. 5s
Venetia, Ghir. Imberti, 1640
There was no copy of any edition of this rare work in the Libri Collection, nor was it known to Brunet, Graesse, or Poggendorf. Professor de Morgan, who seemingly had never seen a copy of it, only refers to the author in his 'List of 1580 Names of Authors of Works on Arithmetic' as Landus, nor is the work mentioned in Mr. R. Brown's 'Bibliography of Book-Keeping.'

- 10466 **LANDAU** (Edmund; *Univ. Göttingen*) Über die BEDEUTUNG einiger neuen GRENZWERTSÄTZE der Herren HARDY und AXER, impl. 8vo. (pp. 81), *sewn*, 3s
Warszawa, 1910
- 10467 — Ein SATZ über die ζ-FUNKTION, roy. 8vo. (pp. 7), *sewn*, 1s
Köbenhavn, 1911
- 10468 **LANDOLT** (Hans Heinrich; *Univ. Berlin*) HANDBOOK of the POLARISCOPE, and its Practical Applications, adapted by D. C. ROBB and V. H. VELEY, with Appendix by I. STEINER, 57 *woodcuts*, 8vo. *cl.*, *uncut* (SCARCE), £1. 1s
1882
- Including the author's important investigations on the refractive index of chemical compounds, and more especially on the relation between the constitution of a chemical substance and its light-refracting power.
- 10469 — UNTERSUCHUNGEN über etwaige ÄNDERUNGEN des GESAMMTGEWICHTES CHEMISCH sich UMSETZENDER KÖRPER, I.-III. MITTHEILUNG, impl. 8vo. (pp. 101), *sewn*, 4s 6d
[Berlin], 1893-1906-S
ibidem, 1883
- 10470 —, und Richard BÖRNSTEIN, *Berlin*: PHYSIKALISCH-CHEMISCHE TABELLEN, 4to. *cl.*, 5s (p. M. 12)
Original edition.
- 10471 — DRITE UMGARBEITETE und VERMEHRTE AUFLAGE, von RICHARD BÖRNSTEIN und WILHELM MEYERHOFFER, sq. impl. 8vo. *original moleskin*, £1. (p. M. 36)
ibidem, 1905
The most extensive collection of physical and chemical tables, formulas, and constants yet published.
- 10472 **LANDRIANI** (Marsiglio Conte) OPUSCOLI FISICO-CHIMICI; with *folding copperplate and engraved vignettes*, 8vo. *sewn*, 10s 6d
Milano, 1781
- 10473 — ANOTHER COPY, *contemporary calf gilt (back somewhat wormed)*, 12s
Containing 'Descrizione del Chronhyometro, ossia di una Nuova Macchina Meteorologica, colla quale si misura la durata della Pioggia' (pp. 65); 'Dissertazione del Calor Latente' (pp. 69), etc.
- 10474 — DISSERTAZIONE dell' UTILITÀ dei CONDUTTORI ELETTRICI; with *folding copperplate and fine vignette on title*, 8vo. *sewn, uncut, with author's inscr. on flyleaf*, 10s
ib., 1784
'Landriani drew attention to the paramount importance of a perfect earth connexion.'—R. Anderson.
- 10475 — DESCRIPTION d'une MACHINE propre à ÉLEVER l'EAU par la ROTATION d'une CORDE VERTICALE, 8vo. (pp. 15), *sewn* (? *plate missing*), 3s 6d
Genève, 1782
- 10476 **LANE** (Timothy, F.R.S.), DESCRIPTION, with a REPRESENTATION, of an ELECTROMETER INVENTED by; and Account of some EXPERIMENTS made by him with it; in a Letter to Benjamin Franklin, F.R.S., with *copperplate*, 8vo. (pp. 4), *unbound*, 6s
1769
An account of the author's invention by which a modified Leyden Jar is made into an electrometer. The author—like many other noteworthy scientists—is not included in D. N. B.
- 10477 **LANG** (Viktor v.) BESTIMMUNG des BRECHUNGSQUOTIENTEN einer concentrirten CYANIN-LÖSUNG, roy. 8vo. (pp. 21), *sewn*, 1s 6d
[Wien, 1881]
The author was the founder of modern physical crystallography.
- 10478 **LANG** (William Robert, *Univ. Toronto*), et A. RIGAUT: Sur la DISSOCIATION du CHLORURE de CADMIUM HEXAMMONIACAL, 4to. (pp. 3), *sewn*, 1s 6d
[1899]
- 10479 **LANGDON** (Roger; *station master at Silverton, G.W.R., and amateur astronomer*), THE LIFE of, told by HIMSELF, with Additions by his Daughter ELLEN [and Preface by H. CLIFTON LAMBERT], cr. 8vo. *cl.*, 2s
[1908]
- 10480 **LANGDON** (William Edward, M.I.E.E.) THE APPLICATION of ELECTRICITY to RAILWAY WORKING, with 5 *plates* and 142 other *illustrations*, 8vo. *cl.* (o. p.), 4s 6d (p. 10s 6d)
1897
- 10481 **LANGE** (Ludwig) Die GESCHICHTLICHE ENTWICKELUNG des BEWEGUNGSBEGRIFFES und ihr voraussichtliches Endergebniss, roy. 8vo. *buckram*, 2s 6d
Leipzig, 1836
- 10482 **LANGILLE** (H. D.), F. G. PLUMMER, Arthur DODWELL, Theodore F. RIXON, and John B. LEIBERG: FOREST CONDITIONS in the CASCADE RANGE FOREST RESERVE, OREGON, with Introduction by HENRY GANNETT, with 4 large coloured maps, and 37 *plates* and *diagrams* (some coloured), 4to. *sewn*, 6s 6d
U.S. Geological Survey, Washington, 1903
- 10483 **LANGLEY** (Edward M.) TREATISE on COMPUTATION: the chief Methods for Contracting and Abbreviating Arithmetical Calculations, 12mo. *cl.*, 2s
1895
- 10484 **LANGLEY** (Samuel Pierpont; *Smithsonian Inst., F.R.S.*) RESEARCHES on SOLAR HEAT and its ABSORPTION by the EARTH'S ATMOSPHERE: a Report of the Mount Whitney Expedition, with 22 *plates* (some *folding*), 20 *diagrams*, and *map*, large 4to. *cl.*, 12s
Washington, 1884
- 10485 — ANOTHER COPY, *cl.*, with interesting auto. letter from the author to Edward Whympers, 14s
'Atmospheric absorption [of solar heat] had never before been studied with such precision as it was by Langley on Mount Whitney. Aided by simultaneous observations from Lone Pine, at the foot of the Sierra, he was able to calculate the intensity belonging to each ray before entering the earth's gaseous envelope—in other words, to construct an extra-atmospheric curve of energy in the spectrum.'—Miss Agnes M. Clerke. The author invented the bolometer, which he largely used in the investigations described in the above work.
- 10486 **LANGMAID** (J., R.N.), and H. GAISFORD R.N.; ELEMENTARY LESSONS in STEAM MACHINERY and the MARINE STEAM ENGINE, with the CONSTRUCTION of a BATTLESHIP; enlarged Edition, with 62 *plates*, 8vo. *cl.*, 3s (p. 6s nett)
1893
- 10487 **LANGMUIR** (A. C.) INDEX to the LITERATURE of DIDYMIUM, 1842-1893, roy. 8vo. (pp. 20), *sewn*, 1s
Washington, 1894
- 10488 **LANGSDORF** (Karl Christian v.; *Univ. Heidelberg*) LEHRBUCH der HYDRAULIK, mit beständiger Rücksicht auf die Erfahrung; with 51 *folding copperplates*, thick 4to. *old hf. calf*, 6s 6d
Altenburg, 1794
- Interesting for the extensive mathematical treatment of the subject. The chapter 'über die Construction des hydrometrischen Flügels' is by REINHARD WOLTMANN.
- 10489 — VERSUCH einer NEUEN THEORIE HYDRODYNAMISCHER und PYROMETRISCHER GRUNDLEGENDE und deren Anwendung auf die Anlage neuer Röhrenleitungen, Pumpenkünste, Wassersäulen und DAMPF-MASCHINEN; with 4 *folding copperplates*, 8vo. *old calf gilt (nice copy)*, rare, 10s 6d
Frankfurt, 1787
- An original treatment of the subject and largely mathematical. Pp. 204-94 contains the author's theory of the steam-engine.

- 10491 **LANKEREN MATTHES** (D. van) *Over de SPIRAAL-LIJNEN*; with *folding plate*, roy. 8vo. (pp. 54), *sewn*, 1s 6d
Amsterdam, 1857
- 10492 **LANSBERG** [recte **LAENSBERGH**] (Philips van) *BESCHRIJVINGH der VLACKE SONNE-WYSERS*: in welke de waere Manier, om deselve op allerhande Vlackten te betrecken, volgens Wisconstige Regulen geleert, ende door een groot getal Verhoog-schetzen aangewesen werdt, nieuwelijx oversien ende met noodige Byvoeging verrijkt door **JACOB MOGGE**; with *numerous large diagrams, and woodcuts*, sm. folio, *sewn* (RARE), £1. 1s
Middelburgh, 1675
- 10493 ——— *ANOTHER COPY, sound copy in hf. parchment*, £1. 5s
- 10494 ——— *URANOMETRIÆ Libri III*, in quibus Luna, Solis, et reliquorum Planetarum, et Inerrantium Stellarum Distantiæ à Terra, et Magnitudines, hactenus ignoratæ perspicuè demonstrantur; with *numerous diagrams*, sm. 4to. *sewn* (fine and large copy); rare, 12s 6d
ibidem, 1631
- 10495 **LAPAGE** (Richard Herbert, M.I.C.E., Argentine Govt. Ry.) *On COMPOUND LOCOMOTIVES*, with 13 plates, 8vo. (pp. 63), *sewn*, 2s
1889
Favouring the Worsdell-van Borries system. The full Discussion on the paper is included.
- 10496 **LAPAZZAJA** [sic **LAPIZZAYA**] (Abbate **Giorgio**, Canonico Monopolitano) *FAMILIARITA D'ARITMETICA e GEOMETRIA*, con l'usitata PRATICA NAPOLITANA, nuovamente con sonima Diligentia ristampata e correta. Aggiuntovi molti bellissimo GIOCHI et altre GENTILEZZE, per VIA di NUMERI, prima edizione Italiana; with *vignette on title, and numerous other woodcuts and diagrams*, sm. 4to. boards (a few corners worn away, also a few ul. repaired and others slightly worn); RARE, £1. 1s
Napoli, H. Salviani, 1566
THE FIRST ITALIAN EDITION. According to Barbieri, the work was originally published in Latin in the same year. Riccardi gives no collation of the above edition, and had apparently seen no copy of it.
- 10497 ——— *D'ARITMETICA e GEOMETRIA*; with *woodcut title containing the author's portrait, and numerous woodcuts and diagrams*, sm. 4to. old vellum (water-stained, and slightly worn); RARE, £1. 5s
[col.] *ibidem*, Mattio Cancer, 1569
The above two works were quite unknown to Professor de Morgan, who has not even included the author's name in his List of 1580 authors of arithmetical works. The above edition was also unknown to Riccardi, nor was there a copy of either work in the Libri Library.
- 10498 **LAPI** (Giovanni Girolamo) *LEZIONE ACCADEMICA intorno L'ORIGINE de' due LAGHI ALBANO e NEMORENSE*; with *vignette on title*, 4to. (pp. 27), *sewn*, 2s 6d
Roma, 1781
- 10499 **LAPLACE** (Pierre Simon Marquis de; F.R.S.) *ESSAI PHILOSOPHIQUE sur les PROBABILITÉS*; 2^e Édition, augmentée, 8vo. *hf. calf gilt*, 3s
1814
- 10500 ——— *EXPOSITION du SYSTEME du Monde*, 4^e Édition, revue et augmentée par l'AUTEUR; with *fine portrait*, 4to. unbound, 9s
1813
- 10501 ——— *MÊME ÉDITION*, 2 vols. 8vo. *hf. russia* (joints cracked), 4s 6d
1813
This edition contains three chapters left out in the later ones, viz., De la stabilité de l'équilibre des mers: Réflexions sur la loi de la pesanteur univèrselle; de l'attraction moléculaire (pp. 52).
- 10502 ——— *CINQUIÈME ÉDITION*, revue et augmentée par l'AUTEUR, with *fine portrait*, 4to. *sewn*, 7s 6d
1824
Pp. 312-99 give a concise history of astronomy, considered a masterpiece of French literature, which procured his admission to the French Academy. The work also contains his celebrated nebular hypothesis.
'A very clear popular exposition of the laws of the celestial motions.'—Prof. Simon Newcomb.
- 10503 ——— *THE SYSTEM of the WORLD*, translated by JOHN POND, F.R.S., 2 vols. 8vo. *hf. calf*, 7s 6d
1809
- 10504 ——— *PRÉCIS de l'HISTOIRE de l'ASTRONOMIE*, 2^e Édition, 8vo. *sewn*, 2s
1863
- 10505 ——— *THÉORIE ANALYTIQUE des PROBABILITÉS*, 2^e Édition, revue et augmentée par l'AUTEUR; avec 2 Suppléments—in 1 vol. 4to. *hf. calf* (rubbed), 14s
1814-13
- 10506 ——— *LA MÊME*, avec les 3^e ET 4^e SUPPLÉMENTS—in 1 vol. 4to. nice copy in *hf. calf gilt*, £1. 1s
1814-25
'The introduction (pp. cvi) is an admirable and masterly exposition without the aid of analytical formulæ of the principles and applications of the science. One of the most important parts is the application of probability to the method of least squares.'—Prof. Cajori. It also contains Laplace's theory of generating functions.
- 10507 ——— *TRAITÉ de MÉCANIQUE CÉLESTE* [avec les 4 Suppléments], première édition, 5 vols. 4to. old *hf. calf, uncut* (some joints cracked); RARE, £2. 5s
An VII [1798.] 1825
- 10508 ——— *VOLUMES I-IV ONLY, with 2 Suppléments*, 4 vols. 4to. *sewn, uncut*, 17s 6d
An VII [1798.] 1805
'Selon M. A. Maury des fautes graves se sont glissées dans l'impression de la nouvelle édition, et laissent ainsi à la première toute sa rareté et tout son prix.'—*Biogr. Gén.*
- 10509 ——— *LE MÊME* (Tomes I à III, 2^e Ed., IV à V, première édition), avec tous les Suppléments, 5 vols. 4to. *hf. calf gilt, cl. sides* (fine copy), £2. 5s
1829-5
- 10510 ——— *TREATISE upon ANALYTICAL MECHANICS*: being the FIRST BOOK of the MECHANIC [sic] CÉLESTE, translated, with Notes, by JOHN TOPLIS, pr., Fellow of Queen's Coll., Cantab., with *folding plate*, 8vo. boards, uncut (name torn off title), 4s
Nottingham, 1814
- 10511 ———: [YOUNG (Thomas, M.D., F.R.S.)] *ELEMENTARY ILLUSTRATIONS of the CELESTIAL MECHANICS of LAPLACE, PART I* (all pub.), comprehending the FIRST BOOK, with *numerous diagrams*, 8vo. boards, uncut, 5s 6d
1821, or '32
Including original contributions on the motion and cohesion of fluids, and on 'interpolation and extermination.'
- 10512 **LA PRISE** (R. Gervais de) *MÉTHODE NOUVELLE et GÉNÉRALE pour tracer facilement des CADRANS SOLAIRES sur toutes SURFACES PLANES, en Situation quelconque, sans Calcul ni embarras d'Instrumens*, par un seul Problème Géométrique. PRINCIPES et USAGE du COMPUT et de l'ART de VÉRIFIER les DATES; with 24 *folding plates*, 2 vols. 8vo. in 1, contemporary French *calf gilt* (rare), £1. 1s
Caen, 1781—Bayeux, 1780
- 10513 **LAPWORTH** (Charles, F.R.S.) *INTERMEDIATE TEXT-BOOK of GEOLOGY*, with 174 *woodcuts*, cr. 8vo. cl., 2s 6d (p. 5s)
Edin., 1899

- 524 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10515 **LA PORTE** (— *de, teneur de livres de comptes*) LA SCIENCE des NÉGOCIANS et TENEURS de LIVRES, ou Instruction générale pour tous ce qui se pratique dans les Comptoirs des Négocians, tant pour les Affaires de Banque, que pour les Marchandises, et chez les Financiers pour les Comptes; nouvelle Edition, revue, et corrigée avec la dernière Exactitude, et augmentée d'un Traité des Changes Etrangers, etc. etc. etc., thick oblong 12mo. *sewn, uncut* (RARE), 15s
Amsterdam, an VII [1799]
- This edition was unknown to Mr. R. Brown ('History of Accounting').
- 10516 **LARDEN** (W.) ELECTRICITY for PUBLIC SCHOOLS and COLLEGES, new Edition, with illustrations, cr. 8vo. *cl.*, 2s (p. 6s) 1891
- 10517 **LARDNER** (Dionysius, *pr.*, F.R.S.; Thackeray's 'Dionysius Diddler') ALGEBRA: GEOMETRICAL ANALYSIS, with plate: Barlow (Peter, F.R.S.) THEORY OF NUMBERS: Airy (Sir George Biddle, F.R.S.) TRIGONOMETRY, 2 plates (*Encyclopædia Metropolitana*), in 1 vol. 4to. *hf. cl.*, 4s [1827]
- 10518 ——— The ELECTRIC TELEGRAPH POPULARIZED, with 100 woodcuts, cr. 8vo. *cl.*, 2s [1878]
- 10519 ——— ELEMENTARY TREATISE on the DIFFERENTIAL and INTEGRAL CALCULUS, 8vo. (pp. 555), boards, or, *cl.*, 3s 1825
- 10520 ——— The GREAT EXHIBITION, and London in 1851, reviewed in Letters to the Times, with woodcuts, thick post 8vo. *cl.*, 3s 1852
- Including photography (pp. 26-43), the electric telegraph (pp. 65-118), railways (pp. 182-236), etc. etc.
It was the gay and reverend scientist's first publication after his seduction of the wife of Captain Richard Heaviside, for which the latter got damages of £8000.
- 10521 ——— HAND-BOOK of ASTRONOMY, 3rd Edition, revised by EDWIN DUNKIN, F.R.A.S., with numerous plates and woodcuts, thick post 8vo. *cl.*, 4s 1867
- 10522 ——— HAND-BOOK of NATURAL PHILOSOPHY: ELECTRICITY, MAGNETISM and ACOUSTICS, with 395 woodcuts, post 8vo. *cl.*, 2s 1856
- 10523 ——— NEW EDITION, by G. C. FOSTER, F.R.S., with 400 woodcuts, post 8vo. *cl.*, 2s 6d 1868 or '74
- 10524 ——— : MECHANICS, with 357 woodcuts, post 8vo. *cl.*, 1s 6d 1863
- 10525 ——— : OPTICS, with 290 woodcuts, cr. 8vo. *cl.*, 2s 1856
- 10526 ——— and ASTRONOMY, THIRD COURSE: METEOROLOGY and ASTRONOMY, with 37 plates (one folding), and over 200 woodcuts, thick post 8vo. *cl.*, 3s 6d 1853
- 10527 ——— POPULAR ASTRONOMY, with 119 woodcuts, fcap. 8vo. *hf. brown calf neat*, 3s 1856
- 10528 ——— POPULAR ESSAYS on SCIENTIFIC SUBJECTS, with various Essays on Industrial Subjects by C. DUPIN, M. CHEVALIER, etc. etc., with woodcuts, thick post 8vo. *cl.* (cover slightly damaged), 3s 6d [1852]
- 10529 ——— RUDIMENTARY TREATISE on the STEAM ENGINE, for the Use of Beginners, first edition, with steel front. and woodcuts, fcap. 8vo. *cl.*, 3s 1848
- 10530 ——— The STEAM ENGINE familiarly explained and illustrated, with its Invention and Progressive Improvement, and its Application to Navigation and Railways, 6th Edition, enlarged, with front. of Watt, vignette, and 12 steel plates, besides woodcuts, post 8vo. *cl.*, 4s 1836
- This edition contains a full account of railways, and 'plain maxims for railway speculators,' which perhaps led to the downfall of Jeanes de la Pluche.
- 10531 ——— SEVENTH [BEST] EDITION, enlarged and rewritten, with Memoir of Watt, with front. and 138 pretty woodcuts, 8vo. *cl.*, or, *hf. calf*, 5s 1840
- 10532 ——— ANOTHER COPY, *hf. calf gilt* (nice copy), with auto. of George Rennie, F.R.S., 6s 6d
- 10533 ——— EIGHTH EDITION, revised and improved, with front. and 108 woodcuts, post 8vo. *cl.*, 4s 1851
- 10534 ——— RAILWAY ECONOMY: a Treatise on the NEW ART of TRANSPORT, its Management, Prospects and Relations, Commercial, Financial and Social, with the practical Results of the Railways in Operation in the United Kingdom, on the Continent and in America, with woodcuts, thick post 8vo. *cl.*, 4s 1850
- 10535 ——— TREATISE on ARITHMETIC, Theoretical and Practical, with vignette by Finden, 12mo. *cl.*, 3s 1834
- 10536 ——— TREATISE on HEAT, with vignette by Finden, and woodcuts, 12mo. *cl.*, 2s 6d 1833
- 10537 ——— TREATISE on HYDROSTATICS and PNEUMATICS, vignette and woodcuts, 12mo. *cl.*, 2s 6d 1831
- The Reverend Doctor Lardner was a pushful person who knew how to make use of the knowledge-hunger of his time, and impressed Thackeray as a literary quack who advertised his cyclopædia at dinner-parties. He followed up his eloquent with a lecturing tour in the United States and Cuba which brought him in £40,000, and then settled in Paris. He was a man of great and versatile ability, master of a lucid style, and as a populariser of science did excellent work:—D. N. B.
- 10538 **LA RIVE** (Auguste Arthur de; F.R.S.) DISSERTATION sur la Partie de l'Optique qui traite des COURBES dites CAUSTIQUES; with folding plate, 4to. (pp. 97), *sewn*, with author's inser. (as below), 5s 6d
Genève, 1823
- 'Dr. [Peter Mark] Roget [M.D., F.R.S.] from the author.'—*Inser. on cover.*
- 10539 ——— ANOTHER COPY, *hf. cl.*, 5s
- The author's first publication, and the first monograph on caustics in which the calculus is employed in their treatment.
- 10540 ——— FURTHER RESEARCHES on the AURORÆ BOREALES, and the Phenomena which attend them, 8vo. (pp. 8), *sewn*, 2s 1862
- 10541 ——— TRAITÉ d'ÉLECTRICITÉ THÉORIQUE et APPLIQUÉE; with 447 woodcuts, 3 vols. 8vo. *hf. green calf gilt*, 12s 6d 1854-8
- 10542 ——— ANOTHER COPY, *sewn*, 7s 6d
- 10543 ——— TREATISE on ELECTRICITY in THEORY and PRACTICE, translated by CHARLES V. WALKER, F.R.S., with numerous woodcuts, 3 thick vols. 8vo. *cl.* (scarce), 15s 1853-8
- This still valuable work contains in a collected form all the author's important discoveries and investigations (e.g. on the electric arc, simultaneously with Sir Humphry Davy, polarized electricity, his theory of diamagnetic phenomena, etc. etc.). De la Rive was one of the founders of the electro-chemical theory of galvanism, which, slightly modified, was accepted by Faraday; he was also the inventor of the first gold-plating process, for which he received a prize of 3000 francs from the Paris Academy.

- 10545 **LARKIN (James)** *The PRACTICAL BRASS and IRON FOUNDER'S GUIDE: a Concise Treatise on Brass Founding, Moulding, the Metals, and their Alloys, with recent Improvements in the Manufacture of Iron and Steel by the Bessemer Process, etc. etc.*, 5th Edition, with extensive Additions, cr. 8vo. *hf. green morocco*, 4s (p. 12s 6d in cl.) Philadelphia, 1887
- 10546 **LARKIN (N. J., teacher of crystallography and mathematics)** INTRODUCTION TO SOLID GEOMETRY, and to the STUDY of CRYSTALLOGRAPHY, containing an Investigation of some of the Properties belonging to the PLATONIC BODIES independent of the Sphere [with Appendix by P. M. ROGET, M.D., F.R.S.], with 4 folding plates by Lowry, 8vo. boards, 4s 1820
- 10547 [**LARNACH (W. J. M.)**] HANDBOOK of NEW ZEALAND MINES; I. Gold, Silver, Copper, and Antimony Mining, etc.; II. Coal Deposits and Coal Mining; Appendix: School of Mines, principal Forest-Trees, Building-Materials, Mineral Waters, Mineral Leases, etc., with 3 folding maps, and 24 plates, 8vo. (pp. 514), cl., 6s Wellington, N.Z., 1887
- 10548 **LA RUE (Warren de, F.R.S.)**, AUXILIARY TABLES for DETERMINING the ANGLE of POSITION of the SUN'S AXIS and the Latitude and Longitude of the Earth, referred to the Sun's Equator, 4to. (pp. 20), sewn, 3s 6d privately printed, 1875
- 10549 ——— REPORT of CELESTIAL PHOTOGRAPHY in ENGLAND, with diagrams, 8vo. (pp. 23), sewn, 2s 6d 1860
 'To Warren de la Rue belongs the honour of having obtained the earliest results of substantial value in celestial photography.'—Miss Agnes M. Clerke.
- 10550 ———, **Hugo W. MÜLLER, F.R.S., and William SPOTTISWOODE, F.R.S.:** EXPERIMENTS to ascertain the Cause of STRATIFICATION in ELECTRICAL DISCHARGES in VACUO, with 4 diagrams, 8vo. (pp. 6), sewn, 2s 1875
- 10551 **LASAULX (A. v.)** Über ein DEMONSTRATIONSPOLARISCOP; with 2 illustrations, 8vo. (pp. 6), [Stuttgart,] 1878
 sewn, 1s 6d
- 10552 **LASSAR-COHN (Dr., Königsberg)** CHEMISTRY in DAILY LIFE: Popular Lectures, translated by M. M. PATTISON MUIR, 3rd Edition, with 22 woodcuts, cr. 8vo. cl., 2s 6d (p. 6s) 1905
- 10553 ——— FOURTH EDITION, with 25 woodcuts, 8vo. cl., 3s 1909
- 10554 **LASSELL (William, F.R.S.)** OBSERVATIONS of PLANETS and NEBULÆ at MALTA; MISCELLANEOUS OBSERVATIONS with the Four-Foot Equatoreal at Malta; CATALOGUE of NEW NEBULÆ discovered at Malta with the Four-Foot Equatoreal, 1863-5, with 10 plates, 4to. (pp. 77), sewn (one plate missing), 3s 6d 1867
- 10555 **LATHAM (Baldwin, M.I.C.E.)** SANITARY ENGINEERING: a Guide to the Construction of Works of SEWERAGE and HOUSE DRAINAGE, with Tables for facilitating the Calculations of the Engineer, 21 plates (linen-mounted), and 112 woodcuts, 8vo. *hf. calf*, or, *hf. morocco (title stamped)*; scarce, 10s 6d (p. £1. 10s) 1873
- 10556 ——— ANOTHER COPY, cl., 12s
- 10557 ——— SECOND [LATEST] EDITION [greatly enlarged], with 23 folding plates, and 169 woodcuts, thick 8vo. cl. (SCARCE), £1. 5s 1878
- 10558 ——— ANOTHER COPY, with the plates linen-mounted, thick 8vo. *hf. calf gilt*, as good as new (title stamped), £1. 5s
- Still a standard work on the subject, the result primarily of the author's drainage of Croydon, and the first treating wholly on sewerage. It is now out of print and scarce.
- 10559 **LATHAM (Frank, M.I.C.E.)** THE CONSTRUCTION of ROADS, PATHS, and SEA DEFENCES, with Private Street Repairs, Specification Clauses, Prices for Estimating, and Engineer's Replies to Queries, 3 folding plates in pocket, and 57 woodcuts, 8vo. cl., 4s 6d (p. 7s 6d net) 1903
- 10560 ——— THE SANITATION of DOMESTIC DWELLINGS, with Introduction by BALDWIN LATHAM, M.I.C.E., with 93 illustrations, cr. 8vo. cl., 2s [1898]
- 10561 **LATHAM (John Herbert, C.E.)** THE CONSTRUCTION of WROUGHT IRON BRIDGES: embracing the Practical Application of the Principles of Mechanics to Wrought Iron Girder Work, with 6 folding plates, and woodcuts, 8vo. cl., 2s 6d Cambridge, 1858
- 10562 ——— ANOTHER COPY, cl., with auto. letter and inscr. to Col. J. T. Smith, F.R.S., 3s
- 10563 **LAUGHTON (Sir John Knox, R.N., F.R.MET.SOC.; naval historian)** INTRODUCTION to the PRACTICAL and THEORETICAL STUDY of NAUTICAL SURVEYING, with 33 diagrams, cr. 8vo. cl., 3s (p. 6s) 1872
- 10564 **LAUNDY (Samuel Linn)** TABLE of QUARTER-SQUARES of all INTEGER NUMBERS up to 100,000, by which the Product of Two Factors may be found by Addition and Subtraction alone [with Introduction], sq. roy. 8vo. cl., 7s 6d (p. £1. 1s) 1856
- Based on the formula $\frac{(a+b)^2}{4} - \frac{(a-b)^2}{4} = ab.$
- 10565 **LAUREMBERG (Johann Wilhelm)** ARITHMETICA, peculiaribus Observationibus et Exemplis Historicis illustrata, itidem ALGEBRE PRINCIPIA, in Regiâ Academiâ Soranâ proposita; with diagrams, sm. 4to. fine copy in contemporary white vellum (back damaged); RARE, £1. 1s Soræ, H. Crusius, 1643
- 'A curious work, containing the solutions of numerous algebraic problems, some indeterminate. The Arabic origin of the word algebra is here derived from 'its inventor Al-Geber', and we note as a curious fact that the Arabic characters used to express the different powers given in this work, are in perfect accordance with the modern European notation.'—*Libri Catalogue.*
- 'A book which uses the Italian method of division is a rarity among German books of this period. The examples are drawn from historical matters, and from the military art.'—*Prof. de Morgan.*
- 10566 **LAUSANNE (Société des Sciences Physiques de), MÉMOIRES de la, Tome Ier; with folding plates, 4to. sewn, 5s 6d** Lausanne, 1784
- Containing contributions by Samuel Jean François, Gregor Count Razumofski, Jean Louis Antoine Reynier, Heinrich Struve, and François Verdel.

- 10568 **LAURANCE** (Lionel) GENERAL and PRACTICAL OPTICS, with 307 diagrams, roy. 8vo. *cl.*, 4s 6d 1908
 'Treating more completely those subjects which are intimately connected with spectacle work'.—*Præface.*
- 10569 **LAUREMBERG** (Peter, *Univ. Rostock*) INSTITUTIONES ARITHMETICÆ in quibus Accurata[sic] Methodo et facili Compendio, non tantum vulgarium Numerorum et Minutiarum Astronomicarum Ratio, sed etiam Doctrina Proportionum et subtilissima Algebra Fundamenta . . . explicantur; accessit Appendix de Arithmetica per Cercinum Proportionalem compendiose demonstranda, *Hamburgi*, 1636: **STRÜBI** (Heinrich) ARITHMETICA: ein new künstlich Rechenbuch mit der Zipher darin die Anfäng vñ Gründ der Rechenkunst | im Ganzen und Gebrochen | aufs klärlichest unnd verständlichest dargethon sind . . . Nun . . . aufs neue übersehen | an vilen Orten verbessert | gemehret | . . . dergleichen vormals in Teütscher sprach nie gesehen worden [durch CASPAR RÜTLINGER], *Zürich, bey Johannis Wolfen*, 1599—2 vols. 18mo. in 1, *old white vellum (title and a few ll. of the second work very slightly mended, otherwise SOUND COPIES)*; very rare. £5. 5s 1636-1599
 Two very rare works, especially the second, which is quite unknown to bibliographers (including Poggenдорff, Kästner, and Prof. Moritz Cantor), the only reference to it being in Professor de Morgan's 'List of 1580 Names of Authors, etc. of Works on Arithmetic', where the author's name is quoted (without further particulars) as *Strubius*. It is probably the first work on Arithmetic in German printed in Switzerland.
- 10570 **LAURENCE** (John Z., F.R.C.S.) OBSERVATIONS on the SENSIBILITY of the EYE to COLOUR, 8vo. (pp. 8), *sewn*, 1s 6d *Glasgow*, 1861
- 10571 **LAURENT** (Auguste, *de l'Institut*) MÉTHODE de CHIMIE, 8vo. *sewn, uncut* (2 ll. torn and defective); SCARCE, 10s 6d 1854
- 10572 ——— CHEMICAL METHOD, NOTATION, CLASSIFICATION, and NOMENCLATURE, translated by WILLIAM ODLING, F.R.S., 8vo. *cl., uncut, t. e. g.*, 7s *Cavendish Soc.*, 1855
 Containing the author's substitution theory. He was the first to distinguish clearly between the definitions of molecular, atomic, and equivalent weights, and to point out that the substitution of hydrogen for chlorine does not materially alter the properties and structure of a chemical compound—an axiom forming the basis of the substitution theory.
- 10573 ——— THÉORIE des RADICAUX DÉRIVÉS et MÉMOIRES sur les SÉRIES NAPHTHALIQUE et STILBIQUE; with diagrams, 8vo. *sewn, with auto. of Nevil Story Maskelyne, F.R.S.* (*scarce*), 7s 6d [1843]
 The author was the first to investigate the properties of naphthaline and the compounds derived from it.
- 10574 **LAURENT** (Hermann) THÉORIE ÉLÉMENTAIRE des FONCTIONS ELLIPTIQUES; with 14 diagrams, 8vo. *hf. calf, with auto. and bookplate of Prof. Lloyd Tanner, F.R.S.*, 2s 6d 1882
- 10575 ——— TRAITE du CALCUL des PROBABILITÉS, 8vo. boards (*scarce*), 12s 1873
 'Le présent traité peut être considéré comme une véritable introduction au traité de Laplace'.—*Præface.*
 It includes a 'Liste des principaux Ouvrages ou Mémoires publiés sur le Calcul des Probabilités' (pp. 14).
- 10576 **LAURIE** (Arthur Pillans, *Principal Heriot-Watt College*) THE ELECTROMOTIVE FORCE of IODINE CONCENTRATION CELLS in Water and Alcohol, with 2 illustrations, roy. 8vo. (pp. 12), *sewn*, 1s *Edin.*, 1908
- 10577 **LAWES** (Sir John Bennet, F.R.S., *of Rothamsted; pioneer of artificial manures*) On the CHEMISTRY of FEEDING ANIMALS for the PRODUCTION of MEAT and MANURE, 8vo. (pp. 21), *sewn*, 2s *Dublin*, 1864
- 10578 ———, and Sir Joseph Henry GILBERT, F.R.S.: On AGRICULTURAL CHEMISTRY, especially in Relation to the MINERAL THEORY of BARON LIEBIG, with 2 coloured folding tables, 8vo. (pp. 41), *sewn*, 3s 6d 1851
 V. LIEBIG, No. 10846, *post.*
- 10579 ——— DETERMINATIONS of NITROGEN in the SOILS of some of the Experimental Fields at ROTHAMSTED, and the Bearing of the Results on the Question of the SOURCES of the NITROGEN of our CROPS, 8vo. (pp. 60), *sewn*, 2s 6d 1833
- 10580 ——— EXPERIMENTS on ENSILAGE, conducted at ROTHAMSTED, 8vo. (pp. 58), *sewn*, 2s 1886
 The method of preserving wet cut grass, which has come to the front again during the wet summer of 1912.
- 10581 ——— EXPERIMENTS on the MIXED HERBAGE of PERMANENT GRASS-LAND, conducted for many Years in Succession on the same Land, PART III: CHEMICAL RESULTS, Section I, with 2 folding tables, roy. 4to. (pp. 72), *sewn*, 3s 1900
- 10582 ——— The GROWTH of SUGAR BEET, and the MANUFACTURE of SUGAR in the UNITED KINGDOM, 8vo. *sewn*, 2s 1898
- 10583 ——— REPLY to BARON LIEBIG'S 'PRINCIPLES of AGRICULTURAL CHEMISTRY', with coloured folding plate, 8vo. (pp. 90), *sewn, with auto. and MS. notes of Prof. Story Maskelyne, F.R.S.* (*scarce*), 6s 6d 1855
- 10584 ———, and Robert WARINGTON, F.R.S.: NEW DETERMINATIONS of AMMONIA, CHLORINE, and SULPHURIC ACID, in the RAIN-WATER collected at ROTHAMSTED, 8vo. (pp. 21), *sewn*, 1s 6d 1833
- 10585 ——— The NITROGEN as NITRIC ACID, in the SOILS and SUBSOILS of some of the Fields at ROTHAMSTED, 8vo. (pp. 39), *sewn*, 2s 1833
 Sir John Bennet Lawes was a character of very unusual type—an Etonian and a country squire of long descent—who was born both a chemist and a great man of business, turned his endowments to the creation of a great private fortune, and spent the whole of that fortune in experiments for the benefit of the community. Though his great services were not unrecognised in his lifetime he is far from being remembered as the very remarkable man he was, and is one more illustration of the exceptional men of the Nineteenth Century in England being so many, that nearly half of them escape notice in the crowd of their fellows.
- 10586 **LAWLER** (James J.) AMERICAN SANITARY PLUMBING: a Practical Work on the Best Methods of Modern Plumbing, etc., with 123 illustrations (including folding plates), 8vo. *cl.*, 4s (p. 10s 6d) *New York* [1896]
- 10587 **LEACH** (Frederick Peacock) LIMONENE NITROSO-CYANIDES and their DERIVATIVES, 8vo. (pp. 15), *sewn*, 1s 1903

- 10589 **LAVOISIER (Antoine Laurent; F.R.S.; beheaded under the Terror)** ESSAYS, of the EFFECTS produced by various PROCESSES on ATMOSPHERIC AIR; with a particular View to an Investigation of the CONSTITUTION of the ACIDS, translated by THOMAS HENRY, F.R.S., 8vo. *sewn (rare)*, 12s 6d
Warrington, 1783
With interesting preface by the translator (pp. 13) on the phlogiston controversy between Dr. Priestley and Lavoisier then raging.
- 10590 ——— **MÉTHODE de NOMENCLATURE CHIMIQUE**, proposée par MM. DE MORVEAU, LAVOISIER, BERTHOLET [*sic*], et DE FOURCROY; on y a joint un NOUVEAU SYSTÈME de CARACTÈRES CHIMIQUES, adaptés à cette Nomenclature, par HASENFRAZT et ADET, première édition; with 7 folding tables, 8vo. *old calf gilt (VERY RARE)*, £1. 10s 1787
- 10591 ——— THE SAME, *original wrappers (one missing), uncut*, £1. 8s 6d
- 10592 ——— ANOTHER COPY, *contemporary hf. calf. with Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff*, £1. 11s 6d
FIRST EDITION of this important work, first propounding the principles of the chemical nomenclature now in use.
‘The reform of language effected by Lavoisier was an indispensable prelude to the reform of [anti-phlogistic] thought. The new terminology prevailed without change for 50 years, and has been fitted, by trifling modifications, to meet the exigencies of recent progress.’—*Ency. Brit.*
- 10593 ——— **METHOD of CHYMICAL NOMENCLATURE**, proposed by Messrs. DE MORVEAU, LAVOISIER, BERTHOLET [*sic*], and DE FOURCROY, with a New System of Chymical Characters, adapted to the Nomenclature by Mess. HASENFRAZT and ADET, translated, and the New Chymical Names adapted to the Genius of the English Language, by JAMES ST. JOHN, M.D., with 7 folding tables, 8vo. *old calf gilt (RARE)*, £1. 10s 1788
‘In this work all substances are divided into elements and compounds . . . Compounds were classified as binary and ternary, and these designations were in great part retained later on, although it was found necessary to extend their meaning as chemistry developed. To the binary compounds belonged the acids . . . and the oxygen compounds of the metals, which, as bases, were placed opposite the acids . . . The principal ternary compounds were the salts, produced by the combination of bases with acids . . . The advance which is shown by this classification of chemical compounds is very great. In place of false assumptions and designations devoid of any system, we find a correct idea of the qualitative composition of substances, and a rational nomenclature according with it.’—*Prof. E. v. Meyer.*
Bound up with the above is: ‘The New Chemical Nomenclature, selected from the most Distinguished Modern Writers on Chemistry, by C. PVE, Chemist, 1802. The English translation contains an interesting preface by the Editor.’
- 10594 ——— **OPUSCULES PHYSIQUES et CHIMIQUES**, 2^e Édition [augmentée]; with 3 plates, 8vo. *extra boards, uncut (fine copy); rare*, 12s 6d 1801
‘Cet ouvrage, à l’exception des tables, fut imprimé pendant la détention du citoyen Lavoisier.’—*AVIS au Lecteur.*
In this work Lavoisier first publishes his investigations into the nature and properties of gases, in connexion with numerous experiments, and lays the basis of his anti-phlogistic theory.
- 10595 ——— **ESSAYS PHYSICAL and CHEMICAL**, VOL. I (all pub.), translated, with Notes and Appendix, by THOMAS HENRY, F.R.S., with 3 folding copperplates, 8vo. *FINE COPY in contemporary calf extra, with booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff (RARE)*, £1. 1s 1776
- 10596 ——— ANOTHER COPY, also: **ESSAYS on the EFFECTS produced by VARIOUS PROCESSES on ATMOSPHERIC AIR**, with a Particular View to an Investigation of the Constitution of the Acids, translated by THOMAS HENRY, F.R.S.—2 vols. 8vo. in 1, *old hf. calf (one joint cracked, and a few ll. stained or spotted); RARE*, £1. 10s 1776—Warrington, ‘83
The English translation of the *Opuscules physiques et chimiques*.
- 10597 ——— **PHYSIKALISCH-CHEMISCHE SCHRIFTEN gesammelt [*sic*] und übersetzt, mit Anmerkungen**, von C. E. v. WEIGEL; BAND III; with 2 folding plates, and tables, sm. 8vo. *sewn, 5s Greifswald*, 1785
The German translation of the *Opuscules physiques et chimiques*.
- 10598 ——— **TRAITÉ ÉLÉMENTAIRE de CHIMIE**, présenté dans un Ordre nouveau et d’après les Découvertes modernes, première édition; with 13 folding copperplates, and 2 tables, 2 vols. 8vo. *original paper covers, uncut (very rare)*, £4. 4s chez Cuchet, 1789
THE EXCESSIVELY RARE ORIGINAL EDITION of one of the most important works in the history of chemistry. The collected edition published by the French Government (v. No. 2489 *ante*) only gives the text of the second edition, published in the same year.
- 10599 ——— **SECONDE [TROISIÈME] ÉDITION**; with 13 folding copperplates, and 2 tables, 2 vols. 8vo. *sewn, uncut (RARE)*, £1. 10s apud eundem, 1793
- 10600 ——— ANOTHER COPY, *contemporary hf. calf (sound copy)*, £1. 12s 6d
- 10601 ——— **ELEMENTS of CHEMISTRY**, in a New Scientific Order, containing all the Modern Discoveries, translated by ROBERT KERR, F.R.S.E., first English edition, with 13 folding copperplates and 2 tables, thick 8vo. *old hf. calf (binding rubbed, but a very sound copy); RARE*, £2. 2s Edin., 1790
First edition of the English translation of the *Traité élémentaire*. ‘Some very material additions have been made by the translator in this edition, relative to certain discoveries in chemistry since the publication of the original.’—*Preface.*
- 10602 ——— **SECOND ÉDITION**, with Notes, Tables, and considerable Additions, with 13 folding plates, and 2 tables, thick 8vo. *fine copy in old calf gilt (RARE)*, £1. 10s *ibidem*, 1793
- 10603 ——— **THIRD ÉDITION**, with 13 folding plates, and 2 tables, 8vo. *cl.*, £1. 1s *ib.*, 1796
This edition contains an interesting postscript to the ‘Advertisement’, referring to Lavoisier’s execution during the Terror.
- 10604 ——— **FOURTH ÉDITION**, with 13 folding plates, and 2 tables, 8vo. *old hf. calf, 18s 6d ib.*, 1799
- 10605 ——— ANOTHER COPY, *contemporary tree-calf (fine copy)*, £1. 1s
‘In his *Traité élémentaire de Chimie* he gave a summary of the most important facts of chemistry, and explained them in accordance with the antiphlogistic theory, which thus received its first text-book; by means of translations of this book the new doctrine was materially propagated.’—*Prof. E. v. Meyer.*
- 10606 ——— **BIBLIOTHÈQUE du CHIMISTE**, publiée par M. LONGCHAMP, TOME VII: ÉPOQUE PNEUMATIQUE; with 2 folding plates, thick 8vo. *sewn (scarce)*, 10s 6d 1834
Containing reprints of Lavoisier’s ‘Opuscules Physiques et Chimiques’, and ‘Décomposition de l’Air Atmosphérique’, also of ‘Essai d’Expériences Chimiques’, by PIERRE BAYEN, ‘Essais XVI et XXVI de JEAN REY’, etc. etc., and a Life of Bayen by the Editor.
- 10607 **LEANING (J.) QUANTITY SURVEYING**; 2nd Edition, with 54 woodcuts, cr. 8vo. *cl.*, 3s (p. 9s) 1886
- 10608 **LEAPER (Clement Joseph, F.C.S.) MATERIA PHOTOGRAPHICA: the Manufacture, Properties and Uses of the Substances employed in Photography, woodcuts**, cr. 8vo. *cl.*, 3s (p. 5s nett) 1891

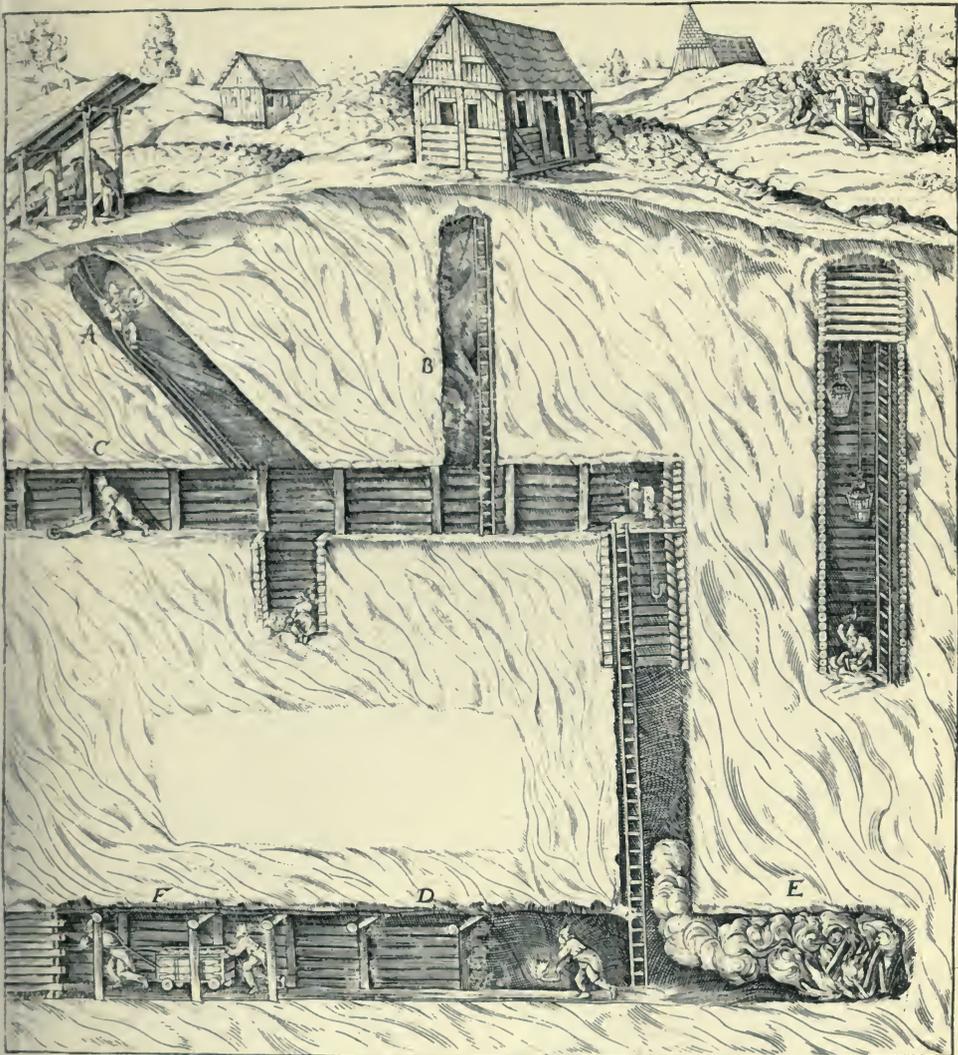
- 10610 **LAW** (Henry, M.I.C.E.), and **George Rowdon BURNELL**, C.E.: THE RUDIMENTS OF CIVIL ENGINEERING, including HYDRAULIC ENGINEERING, with plates and numerous woodcuts, 4 v.: **Glynn** (Joseph, F.R.S.) RUDIMENTARY TREATISE on the POWER of WATER, 49 woodcuts—5 vols. fcap. 8vo. in 1, *hf. morocco gilt, with auto. of Prof. Hilary Bauerman*, 5s 1852-3
Pp. 16-69 of v. II comprise Railway Engineering.
- 10611 — PARTS I AND II (CIVIL ENGINEERING) ONLY, with plates, and numerous woodcuts, 2 parts, 1852: RUDIMENTS of the ART of CONSTRUCTING and REPAIRING COMMON ROADS, with General Survey of the principal Metropolitan Roads by S. HUGHES, with 21 woodcuts, '50: **Dempsey** (G. Drysdale, C.E.) TUBULAR and other IRON GIRDER BRIDGES, particularly the BRITANNIA and CONWAY TUBULAR BRIDGES, with front. and 41 woodcuts, '50—4 vols. fcap. 8vo. in 1, *hf. morocco*, 5s 1850-2
- 10612 — SEVENTH [LAST] EDITION of the 'Rudiments,' with large Additions by D. KINNEAR CLARK, M.I.C.E., and TREATISE on HYDRAULIC ENGINEERING by GEORGE ROWDON BURNELL, M.I.C.E., with front. and 322 illustrations, thick fcap. 8vo. *cl.*, 3s 6d 1882
- 10613 **LAWN** (James Gunson, A.M.I.C.E.) MINE ACCOUNTS and MINING BOOK-KEEPING, 3rd Edition, roy. 8vo. *cl.*, 5s (p. 10s 6d) 1904
'It seems impossible to suggest how this book could be made more complete or more valuable.'—Accountants' Magazine.
- 10614 **LAWSON** (Henry, F.R.S.) A FEW OBSERVATIONS on the NEW PLANET [NEPTUNE], and the Circumstances connected with its Discovery, with folding plate, 8vo. (pp. 4), *sewn, with inser. to Prof. Story Maskelyne, F.R.S.*, 3s 6d 1847
- 10615 — PAPER on the ARRANGEMENT of an OBSERVATORY for PRACTICAL ASTRONOMY and METEOROLOGY, with 5 folding plates, impl. 8vo. (pp. 20), *cl.*, with inser. to Prof. N. Story Maskelyne, F.R.S. (*scarce*), 10s 6d [privately printed, Bath], 1844
Describing his invention of the observing chair 'Reclinea' and a new thermometer stand, for which he was awarded a silver medal by the Society of Arts.
- 10616 **LAWSON** (John; *Sidney Sussex Coll., Cantab.; Rector of Swanscombe*) SYNOPSIS of all the DATA for the CONSTRUCTION of TRIANGLES, from which Geometrical Solutions have hitherto been in Print, with Reference to the Authors where those Solutions are to be found, 4to. (pp. 24), *sewn*, 5s Rochester, 1773
- 10617 **LAWTON** (J.) A DESCRIPTION of LAWTON'S PATENT LOCK, which has been proved to be SECURE AGAINST FALSE KEYS and PICKS of every Description; also a few familiar Hints respecting the Necessity of using secure Locks, with 2 folding plates, roy. 8vo. *sewn (scarce)*, 10s 6d 1825
This should have been a very fair lock, as it anticipated the lever lock in having three tumblers which had to be raised exactly to the right height; while it added the principle of a curtain which advanced and covered the keyhole while the key and bolt were in motion. It remained unpicked for seven years under the stimulus of a hundred pounds' reward, and earned the compliment of a prisoner in Ilchester gaol who was invited to give an exhibition on it before the County Magistrates: 'It is one of them damned curtain locks—if it had not been for them I should not have been here now!'
- 10618 **LAYRIZ** (Lt.-Col. Otfried, *German Army*) MECHANICAL TRACTION in WAR for ROAD TRANSPORT, with Notes on AUTOMOBILES generally, trans. by ROBERT BRIGHT MARSTON, with numerous plates, roy. 8vo. *cl.*, 3s (p. 5s nett) 1900
Including interesting chapters on the history of the subject.
- 10619 [**LEA** (W.)] PROBLEMS in some of the HIGHER BRANCHES of ALGEBRA, 4to. (pp. 57), *sewn*, 6s 6d 1807
The author claims to have 'deduced a general theorem for solving biquadratic equations.'
- 10620 — TREATISE on the RESOLUTION of the HIGHER EQUATIONS in ALGEBRA, 4to. (pp. 48), *sewn*, 5s 6d 1811
'My chief design in the present work is to reduce to one several of the various and apparently independent methods, which have at different times been proposed to resolve equations.'—Preface.
- 10621 **LEA** (William) TABLES of the STRENGTH and DEFLEXION of TIMBER, with front. and 9 diagrams, post 8vo. *cl.*, 2s 6d (p. 10s 6d) 1850
- 10622 **LEADBETTER** (Charles; *gauger in the Excise*) THE ROYAL GAUGER; or GAUGING made PERFECTLY EASY, as practised by the Officers of Excise, containing the Practical Methods of finding the Areas, etc. etc., performed by the Pen and SLIDING RULE, etc. etc., to which is added Cask-Gauging, etc. as practised in the Port of London; 6th Edition, augmented and improved by SAMUEL CLARK, with plate of sliding rule, and 6 other folding plates on copper, 8vo. *old calf, newly rebound (partly water-stained)*, 7s 6d 1766
- 10623 — SEVENTH EDITION, with 7 folding plates, 8vo. *old sheep*, 7s 6d 1776
- 10624 — URANOSCOPIA: or, the Contemplation of the Heavens: a Demonstration of the Equation of Time, with the Method of observing Solar Ingresses into any Point of the Ecliptic, etc. etc. etc., with numerous diagrams, 8vo. *old calf*, 4s 1735
'Leadbetter was one of the first commentators on Newton, and his writings were useful in their time.'—D.N.B.
- 10625 **LEASES** of CATHEDRAL-CHURCHES and COLLEGES, TABLES for RENEWING and PURCHASING of the: according to several Rates of Interest, with their Construction and Use explain'd, also Tables for Renewing and Purchasing of Lives, etc. etc.; 5th Edition, 8vo. (pp. 72), *sewn*, 5s 1735
The sinecurist's guide in seeking after leasing. The above pamphlet was unknown to Watt.
- 10626 **LEATHAM** (John Gaston, *St. John's College, Cantab.*) VOLUME and SURFACE INTEGRALS used in PHYSICS, 8vo. *sewn*, 1s 6d (p. 2s 6d nett) Univ. Press, Cambridge, 1905
- 10627 **LEBESGUE** (V. A.) THÉORÈMES NOUVEAUX sur l'ÉQUATION Indéterminée $x^2 + y^2 = az^2$, 4to. (pp. 22), *sewn*, 2s 1843
- 10628 **LE BLANC** (Max, *Univ. Leipzig*) TEXT-BOOK of ELECTRO-CHEMISTRY, translated from the 4th German Edition by W. R. WHITNEY and J. W. BROWN, with 51 woodcuts, 8vo. *cl.*, 6s 6d (p. 10s 6d nett) 1907

- 10330 **LAZESIO, ò LAZISIC** (Francesco Feliciano da, *Veronese*): LIBRO DE ABACO nouamente composto per magistro FRANCESCO DALA ZESIO Veronese elquale insegna afare molte Rasone merchantile & come respòdano li Preci & Monete nouamète stàpato; *with fine woodcut on title and another large woodcut, 12mo. boards, uncut (slightly water-stained, and with one small wormhole, otherwise A VERY SOUND AND UNCUT COPY)*; **excessively rare, £12. 12s**
[col.:] *Venetia, per Nicolo Zopino e Vincentio suo compagno, 1518*
'Rarissimo opusculo.'—Riccardi.
- 10631 — LIBRO DI ARITHMETICA e GEOMETRIA, SPECULATIUA e PRATICALE, intitolato SCALA GRAMALDELLI: nouamente stampato; *with numerous woodcuts and diagrams on margin, sm. 4to. old parchment cover (hole burnt into blank bottom margin, and a few ll. water-stained, otherwise a FINE COPY)*; **VERY RARE, £3. 15s** [col.:] *ibidem, A. Bindoni e M. Pasini, 1527*
- 10632 — ANOTHER COPY, boards (some ll. slightly stained and last l. partly mounted, but a very large and sound copy), £4. 4s
The very rare first edition of the *Libro di Arithmetica*—in spite of the *nouamente stampato* mentioned on title.
'Rarissima è questa prima edizione e poco conosciuta.'—Riccardi.
- 10633 — ALTRA EDIZIONE, nouamente stampata; *with title within woodcut border, and numerous woodcuts and diagrams on margins, sm. 4to. contemporary limp vellum (back of binding damaged, and a number of ll. browned), £2. 6s* [col.:] *ibidem, apud eosdem, 1545*
- 10634 — ANOTHER COPY, Italian white vellum (some ll. mended, otherwise a SOUND AND CLEAN COPY), £2. 10s
SECOND EDITION of the above work, and almost equally rare with the first, of which it is a reprint.
- 10335 — NUOVA EDIZIONE; *with title within woodcut border, and numerous woodcuts and diagrams on margins, sm. 4to. boards (slight tear in title, but a SOUND AND CLEAN COPY)*, £1. 5s [col.:] *ib., Francesco de Leno, 1561*
- 10636 — ALTRA EDIZIONE, ristampata, *with title within woodcut border, and numerous woodcuts and diagrams on margins, sm. 4to. fine copy in contemporary limp vellum, £1. 10s* [col.:] *ib., apud eundem, 1563*
- 10337 — L'ARITHMETICA e GEOMETRIA SPECULATIVA et PRATICALE, nouamente posta in Luce. Opera molto utile et necessaria à Mercanti et à tutti i Nobili et Suegliati Ingegni; *with vignette on title, and numerous woodcuts and diagrams on margins, sm. 4to. old hf. vellum (a few ll. water-stained, otherwise a fine copy), £1. 10s*
'Raro.'—Riccardi. It is a reprint of the Libro di Arithmetica, with a different title.
- 10638 — SCALA GRIMALDELLI: Libro di Aritmetica et Geometria Speculativa et Praticale, di noua ristampato, et da molti Errori corretto, et accresciuto di molte Cose da FILIPPO MACARIO Veronese, con la Gionta della REGOLA del CATAIN del medesimo; *with numerous woodcuts and diagrams, sm. 4to. contemporary limp vellum (binding wormed, but a large and sound copy), £1. 5s*
Verona, 1602
Another reprint of the foregoing work with a new title. It is the first edition with the above title, and was unknown to Riccardi, who only mentions the edition of 1629.
- 10639 — NUOVA EDIZIONE; *with numerous woodcuts and diagrams, sm. 4to. large and sound copy in old vellum, £1. 1s*
Padova, 1629
All editions of this once popular work are now rare, and neither M. Libri nor Professor de Morgan owned copies of any edition. The latter moreover mentions the author's name in his 'List of 1580 Names of Authors, etc. of Works on Arithmetic' only on the authority of Dean Peacock.
According to G. Rossi, the author was the first to mention the quadrant (il squadra) as an instrument used in surveying, which he states had been in use already towards the end of the XVth Century.
The author's real name was FRANCESCO FELICIANO, as given on the title of the later editions, but he is chiefly known to biographers as Laziesio.
- 10640 **LE BLANC (V.)**; *son of the inventor of the Leblanc soda process* CHOIX de MODELES appliqués à l'ENSEIGNEMENT du DESSIN des MACHINES, avec un Texte descriptif; *with Atlas, containing 60 fine folding plates (one coloured), 2 vols. 4to. in 1, hf. calf, with auto. of George Rennie, F.R.S., 8s 6d* 1830
- 10641 **LE BLOND (Guillaume)** ELEMENS de FORTIFICATION; 4^e Édition, augmentée; *with 19 folding plates, 12mo. old calf gilt (joints rubbed), 3s* 1756
- 10642 — CINQUIÈME ÉDITION, augmentée de l'Explication détaillée de la Fortification de M. DE COEHORN, etc. etc.; *with 37 folding plates, 8vo. old calf, 3s 6d* 1764
- 10643 — AUSFÜHRLICH ABGEHANDELTE ARTILLERIE-WISSENSCHAFT . . . übersetzt, mit praktischen Anmerkungen und einem Beitrag, durch JOHANN WILHELM JÄGER; *with 30 folding plates, 8vo. hf. roan. 5s* Frankfurt, 1766
- 10644 **LEBOIS (C.)** L'ÉLECTRICITÉ INDUSTRIELLE, II^e PARTIE: Courants Continus et Alternatifs. Applications, 2^e Édition; *with 282 woodcuts, cr. 8vo. cl., 2s 6d* [1909]
- 10645 **LEBOULLENGER (L. C. M., ingénieur des mines)** PHILOSOPHIE CHIMIQUE, ou NOTIONS GÉNÉRALES sur la PHYSIQUE et la CHIMIE; *with folding plate and tables, 8vo. sewn, uncut (scarce), 10s 6d* St.-Etienne, 1824
'Le but de cet ouvrage est d'offrir une explication des phénomènes de physique ou de chimie, très-simple et bien différente de celle adoptée . . . qui doit remplacer la philosophie de Fourcroy,' etc. etc.—Préface.
- 10646 **LEBRUN Jeune (F. M., architecte)** MÉTHODE PRATIQUE pour l'EMPLOI de BÉTON en Remplacement de toute autre Espèce de Maçonneries dans les Constructions en Général, 8vo. (pp. 145), sewn, 3s 6d 1835
- 10647 **LECCHI (Antonio Giovanni, s.j.)** MEMORIE IDROSTATICO-STORICHE delle Operazioni eseguite nell' INALVEAZIONE del RENO di BOLOGNA, e degli altri minori Torrenti per la Linea di Primario al Mare, 1765-72, con altre Memorie riguardanti varie Spedizioni, ed Operazioni analoghe fatte contemporaneamente in Germania, ed altrove; *with folding map, 2 vols. 4to. in 1, russia extra, g. e. (fine copy), with booklabel of George Rennie, F.R.S., 10s 6d* Modena, 1773

- 10649 **LE CHATELIER** (Louis) CHEMINS de FER d'ALLEMAGNE: Description Statistique, Système d'Exécution, Tracé, Voie de Fer, Stations, Matériel, Frais d'Établissement, Exploitation, Produit de l'Exploitation; with *map and folding table*, 8vo. *sewn, with auto. of George Rennie, F.R.S.*, 8s 6d 1845
The lines open in Germany three years before the Year of Revolution already stretched from Mannheim to Bâle, Stettin, Berlin, and Hanover to Dresden, and Prague to Wiener-Neustadt, besides many shorter routes. M. Le Chatelier was the inventor in 1865 of the 'Counter-Pressure Brake' for giving steam to the cylinder against the train, which was the chief attempt to improve on the weak hand-brake before the Continuous Automatic Brake operated by a vacuum or compressed air, the latter of which is now universal outside England and India.
- 10650 **LECKY** (Capt. Squire Thornton Stratford, F.R.A.S.) THE DANGER ANGLE and OFF-SHORE DISTANCE TABLES; 13th Edition, enlarged, with Table of Natural Sines, Tangents, etc., 12mo. *cl.*, 3s (p. 4s 6d nett) 1904
- 10651 ——— 'WRINKLES' in PRACTICAL NAVIGATION, with 76 plates and woodcuts, roy. 8vo. *cl.* (cover slightly stained), 4s (p. 15s) 1881
- 10652 ——— FOURTEENTH EDITION, enlarged, with fine portrait, and 130 plates and other illustrations, thick roy. 8vo. *cl.*, 14s (£1. 5s nett) 1904
- 10653 **LE CLERC** [Latine CLERICUS] (Jean) PHYSICA, sive de Rebus Corporeis Libri V, in quibus, præmissis potissimis Corporearum Naturarum Phænomenis et Proprietatibus, Veterum et Recentiorum de eorum Causis celeberrimæ Conjecturæ traduntur; Editio VI. auctior et accuratior; with folding plates, 12mo. *contemporary English calf*, 8s 6d *Cantabrigie*, 1705
Book III contains 'de Aëre et Meteoris' (pp. 54), including an engraved chart of winds, one of the earliest of its kind.
- 10654 **LE COINTE** (Ignace Louis Alfred, S.J.) SOLUTIONS DÉVELOPPÉES de 300 PROBLÈMES qui ont été proposés dans les COMPOSITIONS MATHÉMATIQUES pour l'Admission au Grade de Bachelier ès Sciences; with diagrams, 8vo. *hf. cl.* (o. p.), 5s 1865
- 10655 **LECONTE** (Félix) ÉTUDE EXPÉRIMENTALE sur un MOUVEMENT CURIEUX des OVOÏDES et des ELLIPSOÏDES, with plate, 8vo. (pp. 10), *sewn*, 1s 6d *Genève*, 1890
- 10656 **LECOQ** (Henri, Clermont-Ferrand) Des GLACIERS et des CLIMATS, ou des Causes Atmosphériques en Géologie; Recherches sur les Forces Diluviennes, indépendantes de la Chaleur Centrale, sur les Phénomènes Glaciaire et Erratique, 8vo. (pp. 566), *hf. calf gilt (nice copy)*, with *auto. of Sir M. Holzmänn*, 5s 6d 1847
- 10657 **LECORNU** (L.) Sur les SURFACES possédant les mêmes PLANS de SYMÉTRIE que l'un des POLYÈDRES RÉGULIERS; with 8 diagrams, 4to. (pp. 80), *sewn*, 2s [*Stockholm*, 1887]
- 10658 **LECOUNT** (Lieut. Peter, R.N., F.R.A.S.; London and Birmingham Ry.) PRACTICAL TREATISE on RAILWAYS, explaining their Construction and Management, being the Article 'Railways' in the 7th Edition of the Encyclopædia Britannica, with Additional Details, with 10 folding plates, and numerous woodcuts, post 8vo. *cl.*, uncut (SCARCE), £1. 1s *Edin.*, 1839
Termed by contemporary reviewers 'the best and most complete treatise on the subject,' and 'by far the most valuable work on the construction and management of railways extant.' It includes a long list of the lines already authorised, with their capital and much information on the gauge question and other matters. The illustrations include one of a very workmanlike locomotive, and other rolling stock, with the third-class 'carriage' of primitive days—a low-sided open goods truck with side doors, but no seats.
- 10659 **LE CREULX** (François Michel) RECHERCHES sur la FORMATION et l'EXISTENCE des RUISSEAUX, RIVIÈRES et TORRENS qui circulent sur le Globe terrestre; avec des Observations sur les principaux Fleuves qui traversent la France, sur les Causes des Changements qu'ils éprouvent dans leur Cours, les Moyens de les contenir dans leur Lit, et d'en tirer Avantage pour la Navigation; with 8 folding plates, 4to. *russia extra, g. e. (fine copy)*, 10s 6d 1804
- 10660 **LECTURES** on GOLD; for the Instruction of EMIGRANTS about to proceed to AUSTRALIA, by J. BEETE JUKES, EDWARD FORBES, SIR LYON [LORD] PLAYFAIR, SIR W. W. SMYTH, JOHN PERCY, and ROBERT HUNT, F.F.R.S., woodcuts, cr. 8vo. boards (scarce), 5s 1852
An excellent guide to the geology and metallurgy of gold, written at the outbreak of the Australian gold-fever.
- 10661 **LE DANTEC** (Félix) Les LOIS NATURELLES: Réflexions d'un Biologiste sur les Sciences; with diagrams, 8vo. *cl.*, 3s (p. F. 6 nett) 1904
- 10662 **LEDEBUR** (C. H. A., Bergakademie, Freiberg) HANDBUCH der EISENHÜTTENKUNDE; with 305 illustrations (including many folding plates) 8vo. (pp. 1026), *hf. calf neat*, 12s (p. M. 40 *sewn Leipzig*, 1884
'This is an excellent reference book for those who read German, and contains a very complete account of the metallurgy of both iron and steel, and of their properties. There are also classified lists of the literature on each of the branches of the subject.'—*B. Stoughton*.)
- 10663 **LEDGER** (Edmund, pr., F.R.A.S.) THE SUN: its PLANETS and their SATELLITES: Gresham Lectures on the Solar System, with chart of Mars, 8 woodburytype plates, and 94 woodcuts, large cr. 8vo. *cl.* (o. p.), 5s (p. 10s 6d) 1882
- 10664 **LEDOUX** (Charles) DESCRIPTION RAISONNÉE de quelques CHEMINS de FER à VOIE ÉTROITE; with Atlas, containing 10 folding plates (in pocket), 8vo. *cl.* (o. p.), 5s (p. F. 12.50) 1874
Including lines of extreme narrow gauge of less than one metre.
- 10665 ——— ICE-MAKING MACHINES, translated, revised, and transformed to English Units by J. E. DENTON, D. S. JACOBUS, and A. RISENBERGER, illustrated, 12mo. boards, 1s 6d *New York*, 1893
- 10666 **LEDUC** (Stéphane) THÉORIE PHYSICO-CHEMIQUE de la VIE, et GÉNÉRATIONS SPONTANÉES; with 57 full-page and other illustrations, 8vo. *sewn*, 2s 6d (p. F. 5 nett) 1910
- 10667 **LEE** (J. Bridges) PHOTOGRAPHIC SURVEYING, with folding plate, 8vo. (pp. 24), *sewn*, 1s 6d 1899
- 10668 **LEE** (John Edward, F.G.S., F.S.A.; author of 'Isca Silurum') NOTE-BOOK of an AMATEUR GEOLOGIST, with 210 plates, and 17 woodcuts. 8vo. *cl.* (o. p.), 10s 6d (p. £1. 1s) 1881
- 10669 **LEE** (N. J. van der) Der EINFLUSS des DRUCKES auf den KRITISCHEN LÖSUNGSPUNKT, 8vo. (pp. 9), *sewn*, 1s 6d *Leipzig*, 1900
- 10670 **LEES** (George) ELEMENTS of ARITHMETIC, ALGEBRA, and GEOMETRY, for Students in the Edinburgh School of Arts, diagrams, 8vo. boards, 2s 6d *Edin.*, 1826

- 10672 **LEECH** (Thomas, F.C.S.) DOZENS *versus* TENS, or the Ounce, the Inch, and the Penny, considered as Standards of Weight, Measure, and Money, and with Reference to a DUODECIMAL NOTATION, cr. 8vo. *cl.*, 2s 6d 1866
- 10673 **LEEDS** (Frank Henley, F.I.C.), and William John Atkinson **BUTTERFIELD**: ACETYLENE: a practical Handbook on the PRINCIPLES of its GENERATION and USE; 2nd [latest] Edition, enlarged, with 62 *illustrations* and 2 *folding tables*, large cr. 8vo. *cl.*, 5s 6d (p. 8s 6d net) 1910
- 10674 **LEEDS** (Lewis W.) TREATISE ON VENTILATION: showing the great Want of Improved Methods of Ventilation in our Buildings, 2nd Edition, with 12 *coloured plates*, and *numerous woodcuts*, 8vo. *hf. calf*, or, *hf. morocco (title stamped)*, 4s
New York, 1876
- LEEKE** (John)—v. CAUS (No. 729), and FOSTER (No. 8051-2), *ante*.
- 10675 **LE FEBURE** (Nicasius, *recte* Nicolas, *prof. chemistry to Charles II.*) A COMPLETE BODY OF CHYMISTRY: wherein is contained whatsoever is necessary for the attaining to the curious Knowledge of this Art; comprehending in general the whole Practice thereof; and teaching the most exact Preparation of Animals, Vegetables and Minerals, so as to preserve their essential Vertues, rendered into English by P. D. C., Esq. one of the Gentlemen of H.M.'s Privy Chamber; with 8 *folding copperplates*, 2 parts in 1 vol. sm. 4to. *old calf*, *rebacked (first title and last 2 ll. soiled, and the former mounted)*; RARE, £1. 5s
Tho. Katchliffe, 1664
- FIRST ENGLISH EDITION of this early treatise on theoretical chemistry. 'Premier ouvrage de ce genre. On sentait depuis longtemps le besoin de réunir en un corps de doctrine les matériaux dispersés un peu partout. Le 'Traité de Chimie' de Lefebure répondait à ce besoin de l'époque; et c'est ce qui en explique le succès.'—F. Hofer.
- 10676 **LEFEBURE de FOURCY** (Louis Étienne) ÉLÉMENTS de TRIGONOMÉTRIE, 7^e Édition; with *folding plate*, 8vo. *sewn*, 1s 6d
Mons. 1853
- 10677 ——— LEÇONS d'ALGÈBRE, 6^e Édition, 8vo. *cl.*, with *auto. of Richard Congreve, Positivist* (1818-1899), 2s 6d 1850
- 10678 ——— LEÇONS de GÉOMÉTRIE ANALYTIQUE, comprenant la Trigonométrie Rectiligne et Sphérique, etc., 5^e Édition; with 11 *folding plates*, 8vo. *hf. morocco neat*, 3s 1846
- 10679 ——— NEUVIÈME ÉDITION; with 11 *folding plates*, 8vo. *cl.*, 3s 6d 1871
- LEFÈVRE d'Étapes** (Jacques)—v. FABER STAPULENSIS, no. 7736 *ante*.
- 10680 **LEGENDRE** (Adrien Marie; F.R.S.) ÉLÉMENTS de GÉOMÉTRIE, avec des Notes; première édition; with 11 *folding plates*, 8vo. *old calf (rubbed)*, 5s 1794
- 10681 ——— ELEMENTS of GEOMETRY and TRIGONOMETRY, with Notes, translated from the French; edited by SIR DAVID BREWSTER, F.R.S., with Notes and Additions, and INTRODUCTORY CHAPTER on PROPORTION [by THOMAS CARLYLE], *diagrams*, 8vo. *cl.* (*scarce*), with *auto. of T. R. Birks. pr.* (1810-83), 12s 6d
Edin., 1824
- Of special interest for the essay by the historian—his only contribution to the exact sciences. The translation was also by Carlyle, who was recommended to undertake the work by Sir David Brewster, F.R.S., and received for it £30.
- 10682 ——— THÉORIE des NOMBRES, 3^e [LA MEILLEURE] ÉDITION [avec Appendice: Méthodes nouvelles pour la Résolution Approchée des Equations Numériques, etc. etc.]; with *folding plate*, 2 vols. 4to. *hf. calf* (VERY RARE), £2. 15s
Didot, 1830
- THE BEST EDITION, NOW EXCESSIVELY SCARCE. 'The third edition, issued in 1830, includes the results of his various later papers, and still remains a standard work on the subject. It may be said that he here carried the subject as far as was possible by the application of ordinary algebra. . . . The law of quadratic reciprocity, which connects any two odd primes, was first proved in this book. Gauss called the proposition 'the gem of arithmetic, . . . This work also contains the useful theorem by which, when it is possible, an indeterminate equation of the 2nd degree can be reduced to the form $ax^2 + by^2 + cz^2 = 0$.'—W. W. R. Ball.
- 10683 ———: DAVIES (Charles) ELEMENTS of GEOMETRY and TRIGONOMETRY from the Works of A. M. LEGENDRE, adapted to the Course of Mathematical Instruction in the UNITED STATES, with *numerous diagrams*, 8vo. *calf (binding worn)*, 2s 6d
New York, 1876
- 10684 **LEGGATT** (William) The THEORY and PRACTICE of JUTE SPINNING: a Complete Description of the Machines used in the Preparation and Spinning of Jute Yarns; with 4 *plates* (2 *folding*), and about 140 *other illustrations*, cr. 4to. *cl.*, 6s (p. 10s 6d net)
Dundee, 1893
- 10685 **LEGOYT** (Alfred) Le LIVRE des CHEMINS de FER Construits, en Construction et Projetés, ou STATISTIQUE GÉNÉRALE de ces Voies de Communication en France et à l'Étranger, post 8vo. *sewn* (*scarce*), 7s 6d 1845
- Including the UNITED STATES. Several English names are most delightfully transnogrified, sc. that early venture, never yet used for passenger traffic, the Thames Haven line appears anthropomorphically as Thomas Havendock, and the line which made Cardiff as the Toffvale.
- 10686 **LE GRAY** (Gustave, *peintre et photographe*) PHOTOGRAPHIE: Traité Nouveau, théorique et pratique, des Procédés et Manipulations sur PAPIER SEC et HUMIDE, et sur VERRE au Collodion et à l'ALBUMINE, première édition, roy. 8vo. *sewn* (SCARCE), £1. 1s
Lerebours et Secretan [1852]
- This work, besides being a *résumé* of all then known of photography, gives several new processes; but is of still greater interest in connexion with the rival claims of the author and FREDERICK SCOTT ARCHER (1813-57) to the discovery of the COLLODION PROCESS. The latter (according to D. N. B.) 'in 1850 successfully applied collodion to photography. . . . The first account was published in the 'Chemist' March 1851.' Le Gray however in the preface to the above work states that he had already made the discovery in 1849, but attached little importance to it, and recommends it only 'sous le rapport de la finesse et de la rapidité.' Pp. 89-111 give a description of his collodion process. The announcement of the discovery appeared in the English translation of 1850 (*q. v. infra*).
- 10687 ——— PRACTICAL TREATISE ON PHOTOGRAPHY, on PAPER and GLASS, translated by THOMAS COUSINS, post 8vo. (pp. 24), *sewn* (SCARCE), 10s 6d 1850
- In the appendix the author announces his invention of the collodion process, which however had already been discovered and used by Frederick Scott Archer, who unfortunately for himself never thought of taking out a patent, and after a few years died a poor man.
- 'I have just discovered a process upon glass, by hydrofluoric ether, the fluoride of potassium and soda dissolved in alcohol 40°, mixed with sulphuric ether, and afterwards saturated with collodion', etc. etc. etc.—P. 24.
- 10688 ——— PHOTOGRAPHIC MANIPULATION: the WAXED PAPER PROCESS, translated, 12mo. (pp. 23), *sewn* (*scarce*), 5s 1853

- 10690 **LEGROS (Adolphe)** PHOTOGRAPHIE sur COLLODION, 8vo. (pp. 63), *sewn (scarce)*, 6s
chez l'auteur [1852]
An early work on the collodion process, invented by Scott Archer and Le Gray (*q. v. ante*) before 1850.
- 10691 **LEHMANN (Carl Gotthelf)** PHYSIOLOGICAL CHEMISTRY, translated from the 2nd Edition by GEORGE E. DAY, F.R.S., 3 vols. 8vo. *cl.*: ATLAS of PHYSIOLOGICAL CHEMISTRY, by OTTO FUNKE (SUPPLEMENT), 15 plates, 4to.—4 vols., 8s 6d
Cavendish Soc., 1851-4
The author made important original investigations on the nature of the albumens and the ferments of digestion.
- 10692 **LEHMANN (Otto, Karlsruhe)** Die ELEKTRISCHEN LICHTERSCHEINUNGEN, oder ENTLADUNGEN bezeichnet als Glimmen, Büschel, Funken und Lichtbogen, in freier Luft und in Vacuumröhren, unter Berücksichtigung von Entladungen ohne Lichterscheinung und der Entstehung des Lichtes, der elektrischen Strahlen, Kathodenstrahlen, Röntgenstrahlen etc., zum Theil auf Grund EIGENER EXPERIMENTALUNTERSUCHUNGEN bearbeitet; with 10 coloured plates, and 370 other illustrations, large 8vo. boards, 12s (p. M. 20)
Halle a. S., 1898
- 10693 **LEHMUS (Daniel Christian Ludolph)** KURZER LEITFADEN für den VORTRAG der HÖHERN ANALYSIS, HÖHERN GEOMETRIE und ANALYTISCHEN MECHANIK; with plate: DREI HUNDERT AUFGABEN aus der HÖHERN und ANGEWANDTEN MATHEMATIK, with plate: AUFGELOSTE AUFGABEN aus der NIEDERN, HÖHERN und ANGEWANDTEN MATHEMATIK, with 3 plates—3 vols. 8vo. in 1, brown calf extra (*nice copy*), 5s 6d
Berlin, 1842—Leipzig, '38
- 10694 **LE HON (Henri)** L'HOMME FOSSILE en EUROPE [et l'INFLUENCE des LOIS COSMIQUES sur la CLIMATOLOGIE et la GÉOLOGIE]; 4^e Edition, avec Notice bibliographique et Notes paléontologiques et archéologiques, par E. DUPONT; with coloured front., and 100 woodcuts, 8vo. hf. calf, 5s 1877
The Pitdown skull has now (1912) put back palaeolithic man to a far earlier dawn of human consciousness than was ventured on in 1877.
- 10695 **LEIBNIZ (Gottfried Wilhelm Freiherr v.; F.R.S.)** OPERA OMNIA, nunc primum collecta, in Classes distributa, Præfationibus et Indicibus exornata, studio LUDOVICI DUTENS; with fine portrait by P. Savart, and illustrations, 6 thick vols. 4to. sound copy in contemporary calf (RARE), £3. 13s 6d
Geneve, 1768
'Collection très-recherchée.—Brunet. It contains the 'éloge' by Fontenelle, and a life by Jacob Brucker.
- 10696 ——— NOVA METHODUS pro MAXIMIS et MINIMIS itemque TANGENTIBUS, quæ nec Fractus nec Irrationales Quantitates moratur, et singulare pro illis Calculi Genus [mit Einleitung und Anmerkungen (pp. 35) von F. GIESEL]; with plate, 4to. *sewn*, 4s
Leipzig, 1884
The well-known paper, originally published in the *Acta Eruditorum* in 1684, on which Leibniz based his claim to the invention of the calculus.
- 10697 ——— NOUVELLES LETTRES et OPUSCULES INÉDITS, précédés d'une Introduction par A. FOUCHER DE CAREIL, 8vo. hf. mottled calf (joints broken), with bookplate of Henry Reeve, C.B., editor of the *Greville Memoirs*, 4s 6d
1857
- 10698 ——— OPUSCULES et FRAGMENTS INÉDITS: Extraits des Manuscrits de la Bibliothèque Royale de Hanovre, par LOUIS COUTURAT; with numerous diagrams, 4to. hf. brown morocco gilt, *cl. sides, uncut, t. e. g.*, with bookplate of Dr. Emil Reich, 17s 6d
1903
Containing much of mathematical interest.
- 10699 ———: Virorum celeberrimorum G. GUL. LEIBNITII et JOH. BERNOULLII COMMERCIUM PHILOSOPHICUM et MATHEMATICUM, 1694-1716: with numerous plates, 2 vols. 4to. boards, uncut, 15s
Lausanne, 1745
- 10700 ——— ANOTHER COPY, with fine portrait of Leibniz by Ficquet, 2 vols. 4to. contemporary calf extra (one joint cracked, otherwise a fine copy), £1. 2s 6d
Important for containing the evidence, as embodied in the correspondence between Leibniz and Jean Bernoulli, on the question of the rival claims to priority of the invention of the calculus between Newton and Leibniz. It was the only serious claim published in Leibniz's favour, and a tardy reply to the *Commercium Epistolicum* (*v. No. 3292 ante*), which gave the evidence in Newton's favour.
However little the merits of Leibniz's claim may be as to its origination, there can be no doubt as to the superiority of his notation to Newton's fluxional one, which being stubbornly adhered to at the English universities, prevented this country from having any important share in the progress of the calculus for more than a century after.
- 10701 ——— CORRESPONDANCE avec OLDENBURG, COLLINS, NEWTON, GALLOYS, et VITALE GIORDANO, publiée par C. J. GERHARDT; with 3 plates (2 folding), 8vo. *sewn*, 4s
1853
- 10702 ———: HANSCH (Michael Gotlieb) G. G. LEIBNITII PRINCIPIA PHILOSOPHIÆ, MORE GEOMETRICO DEMONSTRATA: cum Excerptis ex Epistolis Philosophi et Scholii quibusdam ex Historia Philosophica, cum Indicibus; accedunt Theoremata Metaphysica de Proprietatibus quibusdam Entis Infiniti et Finiti Mundique existentis Perfectione ex Philosophia Leibnitiana selecta et geometricè demonstrata, etc. etc., 4to. contemporary vellum, 8s 6d
Francofurti, 1728
- 10703 ———: RECUEIL de DIVERSES PIÈCES sur la Philosophie, la Religion Naturelle, l'Histoire, les Mathématiques, etc. par MRS. LEIBNITZ, CLARKE, NEWTON, etc. [publié par PIERRE DES MAIZEAUX; F.R.S.]; with portrait of Charlotte, Queen of George II., after Kneller, 2 vols. 16mo. in 1, old hf. calf gilt, 12s 6d
Amsterdam, 1720
Containing the correspondence of Leibniz and A. S. Conti, F.R.S., on the dispute regarding the invention of the calculus, also Newton's remarks, and Leibniz's letter to him.
- 10704 **LEJEUNE-DIRICHLET (Peter Gustav; Göttingen)** RECHERCHES sur la THÉORIE des NOMBRES COMPLEXES, Traduction de HERVÉ FAYE, 4to. (pp. 25), *sewn*, 2s
1844
- 10705 ——— VORLESUNGEN über ZAHLENTHEORIE, herausgegeben v. R. DEDEKIND, erste Auflage, 8vo. hf. calf gilt (*nice copy*), 5s
Braunschweig, 1863
'Of his original researches the most celebrated are that on the establishment of Fourier's Theorem, and that in the theory of numbers on asymptotic laws, i.e. laws which approximate more closely to accuracy as the numbers concerned become larger.'—*W. R. Ball*.
- 10706 **LEMNIUS [sive LEMMENS] (Lieven [Latine Levinus])** De MIRACULIS OCCULTIS NATURÆ Libri IIII, item, de Vita cum Animi et Corporis Incolumitate recte instituenda, Liber unus: illi quidem iam postreum emendati, et aliquot Capitibus aucti; his verò nunquam antehac editus, thick 24mo. old vellum, 10s 6d
Francofurti, 1628



A Donleger Schacht D Tuffen Stoller
 B Brigschacht E Feuer setzen Stollord
 C Dorr Stoller F Jundleuffer

No. 10983 (page 546).

An early and rare work on Mining.

A CATALOGUE

OF

The most vendible Books in *England*,

Orderly and Alphabetically Digested;
Under the Heads of

Divinity, History, Physick, and Chyr-
urgery, Law, Arithmetick, Geometry, Astro-
logy, Dialling, Measuring Land and Timber, Gag-
ing, Navigation, Architecture, Horfmanfhip,
Faulconry, Merchandize; Limning, Military
Difcipline, Heraldry, Fortification and
Fire-works, Husbandry, Garden-
ing, Romances, Poems,
Plays, &c.

WITH

Hebrew, Greek, and Latin Books,
for Schools and Scholars.

The like Work never yet performed by any.

by *W. London*

Varietas Delectat.

LONDON,

Printed in the Year 1658.

Books Mathematical, &c.

* The exact Surveyour of Land, to
plot all grounds, to reduce and di-
vide the same, by the plain Table,
Theolodite, and Circumferentiar;
to find the Area of Land; to make
a Map thereof, and adorn it. 80.

* Mr *Fisher*. Elliptical, or Arithmetical
Horologigraphy, containing sever-
all waies of describing Dials:
upon all kinds of superficies, ei-
ther plain or curved, &c. 40.

— The use of the Quadrant, fitted
for daily practice, both for the
ordinary lines, for the hour and
azimuth, and other things of the
same course in reference to the Ho-
rizon, with new lines; also to
find the hour of the night by Stars;
the description of usuall sorts of
Dials, to perform all common
things in Mensuration. 80.

Shirris Art. Nova de Usuarii. 40.

— *Trigonometria optima.*

* The Key of the Mathematick new
fied, with the solutions of Ad-
solved equations, with the Art of
Geometrical Dialling. 80.

* Mr *Goodwin*. A Table of gaging all
kinds of vessels. 80.

Trigonometry, or the doctrine of Tri-
angles: writ in Lat. by *B. Finjous*
in *Solefia*, now Englished: also
added certain nautical Questions
in the finding of the variation of
the compass; all performed by
Arithmetick, without Map, Sphere,
Globe, or Astrolabe. 40.

Mr *Ray*. The description and use of a
universal quadrant. 40.

* Mr *Scarborough*. Trigonometry. 40.

Cor. *Aetrippa*, his occult Philosophy, of
Geometry; Magical elements, of
P. de Albano. The nature of sphi-
eres. 40.

Euclid's Elements of Geometry. The
first six Books, in a compendious
form contracted and demonstrated,

by Cap. *T. Rudd*. chief Engineer
to his Majesty; with a Mathe-
matical Practice, by Mr *J. Dec*. 40.

* Mr *Fale*. *Horologigraphia*, or the
Art of Dialling; for making all sorts
of Dials, and how to know the
hour of the night by Diall. 40.

* *The Deliquity and Excellency of Globes*,
what the Globe is, and of the Cir-
cles, Horizon, Meridian, Pole, Axes,
&c. Tropicks, Zodiacs, &c. 40.

Mr *Hewes*. *Traclatus duo Mathematici*,
quorum primus de Globis Celestibus
et Terrestribus tractatus, &c. Alter
de usum totius orbis Terrarum. Per
Bertii Math. et Profess. Regii.

The same in English. 120.

Mr *Carpenter's* Geography delineated
forth in two Books, containing the
Spherical and Topical parts
thereof. 40.

The Works of that famous Mathematic-
ian Mr *E. Gunter*, professor of As-
tronomy in *Grays Inn* Colledge,
newly printed with many Addi-
tions and Corrections: by *S. Poffet*
late Professor of the same Col-
ledge. 40.

☐ *Vignola*. The Compleat Architect,
the rules of the five Orders in Ar-
chitecture, &c. Tulcan, Dornick,
Jonick, Corinthian, and Composite,
showing the proportion of all the
members, which in a building have
relation to one another. English. 80.

— The Same Lat. *folio.*
Parrallele de Architecture. *folio.*
Vitruvii Architectura. *folio.*
Sabbatini Shirley's Architect. *folio.*
Hans Blom's, *S. Cellom's.* *folio.*
Andr. Palladio's Architect. *folio.*
Allesi, *Durr's* Architect. *folio.*
Vingbon's Architect. *folio.*

* Mr *Gillibrand*. The Institution Tri-
gonometrically explaining the Doc-
D d

BOOKS

OF THE

MATHEMATICKS.

V I Z.

Arithmetick, Geometry, Musick, Astro-
nomy, Astrology, Dialling, measuring
of Land and Timber, Gageing Vessels,
Navigation, Architecture, &c.

ALSO

Of Horfmanfhip, Faulconry, Merchandize,
Limning, Military Difcipline, Heraldry,
Fire-works, Husbandry, &c.

Books Mathematical, &c.

of Dimension, of plain and spheri-
cal Triangles, done by Tables
both of sines, tangents, secants, and
logarithmes; with their applica-
tion in Quest. of Astron. and Na-
vigation. 80.

* Dialling proved instrumentally by
our Hemisphere in Plane. first
projected by Mr *Dughred*: with
one and twenty several Diagrams,
or Schemes, demonstrating the
ground work of all Dialling: also
to know, distinguish, and set
down the hour-lines for both fa-
ces of all places at one working. 40.

Varie Architecture D *J. Fr. Fandi.*
Florentino *scultore. del Redella*
grand Pittore. 40.

Mr *Digge*. *Telichion*: The exact
measuring of all land, squares,
timber, stone, steeple, pillars,
penters rule; fit for Surveyors,
land makers, joynters, carpenters,
maisons, &c. 40.

Mr *Dughred*. *Clavis Mathematica*
de uno limitato sive potens fabricata:
cum alijs quibusdam episodij
commentationibus qua in sequenti
pagina necessaria. 80.

☐ Circles of proportion.

☐ Trigon. or manner of calculating
the sides and Angles of Triangles,
by the Mathematicall cano-
nized. English. 40.

☐ *Trigonometria*. *Hic est modus*
computandi triangulorum, latera et
Angulos, ex canone mathematico Tri-
gonij quod demonstratur. 40.

Lambertij *Tabula perpetua motuum ce-*
lestium. 40.

Tabula Rudolphi. *folio.*
Johstini *Buntham de sphaera mundi.*
folio.
Angeloni *Optica.* *folio.*
Tabula Mathematica, containing the

natural and artificial signs and
Tangents, and the secants natural
of every degree, and hundred
part of a degree, with an insitu-
tion on Mathematical, for the use
of the said Tables, in the solution
of all triangles, plain and spheri-
cal, with the application thereof, in
Astronomy, Dialling, and Naviga-
tion. 80.

Mr *Partridge*. The art of numbering
by Rods, whereby the operations
of Multiplication and division, ex-
traction of roots, &c. Are per-
formed by addition and substrac-
tion, with many examples for
practice of the same. 80.

Mr *Briggses*. *Trigonometria Britannica, seu*
de Doctrina triangulorum, lib. duo. 80.

— *Arithmetica logarithmica, sive loga-*
rithmorum, continens centum pna-
metru naturalia sive cretentes ab
unitate ad accessu.

Hypothij. *Mathematica.* 40.

☐ Mr *Norwood*. The doctrine of Tri-
angles, shewing the mensuration of
right lined Triangles, and Spheri-
cally, with growths and demenfira-
tions, both by logarithmes, with
the application thereof in three
kinds of sailing, with Tables of
the Sines declination. 40.

☐ *Epitome*. Or the application of
the Doctrine of Triangles, in cer-
tain problems, to the use of the
plain Sea Chart and Mercators,
with a table of artificial signs and
tangents, and complements Arith-
metical of sines, supplying the use
of Scales. 80.

Mr *Batts*. His Water-Works, and Fire-
works. 120.

☐ Mr *Chrapp*. The artificers plain
scale, or the Carpenters new rule,
shewing how to measure all
superficies and solids, as timber,
&c.

- 10708 **LEIGH (Valentine)** The most PROFITABLE and COMMENDABLE SCIENCE, of SURVEYING of LANDES, TENEMENTS, and HEREDITAMENTES. Whereunto is also annexed by the same Author, a right necessarie Treatise, of the measuryng of all Kindes of Landes, be it Meadowe, Pasture, Errable, Woodde, Hill, or Dale, and that aswell by certaine easie, and compendious Rules, as also by an exacte and beneficiall Table, purposely drawn and devised for that Behalfe. Newly Imprinted and corrected, *printed in black letter; with woodcuts, large woodcut initials, and numerous diagrams*, sm. 4to. *old hf. binding (wanting sigg. H 1-4; also a few ll. water-stained, but otherwise a VERY SOUND AND UNUSUALLY LARGE COPY)*; rare, £1. 15s

Andrew Mcounsell, in Paules church-yarde, at the signe of the Parret, 1578
In his preface the author states that he was 'one of the firste, that attempted the collectyng of the same Arte into a volume.'

The above, the second edition, was unknown to Lowndes. It was first published in 1577, and reprinted in 1583, 1589, 1592, and 1596.

- 10709 **LELY (C.)** ONTWERP tot VERBETERING van de SCHIPBEEK in het belang der Afwatering van het Waterschap de Schipbeek; *with 6 coloured and plain folding plates*, 4to. (pp. 90), *sewn*, 3s

Zwolle, 1884

- 10710 **LÉMERY (Nicolas)** COURS de CHYMIE: la Manière de faire les Opérations qui sont en Usage dans la Médecine, par une Méthode facile, avec des Raisonemens sur chaque Opération; 11^e Édition, revue, corrigée et augmentée par l'Auteur; *with front. and 8 plates, and folding table*, thick 8vo. *old mottled calf (sound copy)*, *with Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff*, 10s 6d

Lejde, 1716

- 10711 ——— A COURSE of CHYMISTRY, containing an easie Method of preparing those Chymical Medicines which are used in PHYSICK, with curious Remarks and useful Discourses upon each Preparation, 3rd Edition, translated from the 8th French Edition, which is very much enlarged beyond any of the former [by JAMES KEILL, M.D.], *with 7 plates*, 8vo. *old calf (back slightly damaged)*, 15s

1693

'Ce livre a fait autorité en chimie pendant plus de 100 ans. Il a été le guide, le code, le manuel obligé des chimistes du XVIII^e siècle, et même après le renouvellement de la science on chercha longtemps encore dans le livre de Lémery des procédés, des détails pratiques que l'on ne trouvait point alors.'—*Cap.*

Lémery, who could not bring himself permanently to leave France, though he had previously taken refuge in England and been favourably received by Charles II., renounced Protestantism on the Revocation of the Edict of Nantes.

'Lémery, comparé à Lefèvre, est l'homme positif succédant à l'homme d'Imagination. Ce qui caractérise le cours de Lefèvre, c'est l'étendue de ses idées; ce que l'on remarque dans celui de Lémery, c'est la clarté de ses descriptions.'—*Dumas.*

- 10712 **LEMOINE (Émile)** GÉOMÉTROGRAPHIE, ou ART des CONSTRUCTIONS GÉOMÉTRIQUES; *with 32 diagrams*, 8vo. boards, 1s

1902

- 10713 **LE MONNIER (Pierre Charles; de l'Institut; F.R.S.)** DESCRIPTION et USAGE des principaux INSTRUMENTS d'ASTRONOMIE; *with 14 fine folding copperplates of mural circles, and machine for making and dividing circles*, impl. folio, *sewn, uncut (RARE)*, 12s 6d

1774

Including probably the fullest account ever issued of the construction of the now obsolete mural circle.

- 10714 ——— HISTOIRE CÉLESTE, ou Recueil de toutes les Observations Astronomiques faites par Ordre du Roy; avec Discours sur le Progrès de l'Astronomie, où l'on compare les plus récentes Observations à celles qui ont été faites immédiatement après la Fondation de l'Observatoire Royal; *with 7 plates (2 illustrating the transit instrument)*, 4to. *old calf gilt, newly rebounded*, 12s 6d

1741

Including the observations by PICARD and DE LA HIRE from 1666-85, also full description of the transit instrument (made by GEORGE GRAHAM, F.R.S.), which the author was the first to introduce into France.

- 10715 ——— MÉMOIRES concernant diverses Questions d'ASTRONOMIE et de PHYSIQUE; lûs et communiqués à l'Académie Royale des Sciences; *with 2 plates and folding map*, 4 parts in 1 vol. 4to. *sewn*, 10s 6d

Imprimerie Royale, 1781-8

- 10716 ——— ANOTHER COPY, *hf. calf (rubbed)*, *with bookplate of Sir John Francis Davies*, 12s

Containing, 'Histoire abrégée du progrès des découvertes relatives à la pesanteur de l'air; Éclipse du Soleil, 24 juin 1778. Observations physiques sur la théorie des vents; De la Variation de l'Aiguille Aimantée; de l'Aiguille Aimantée et de l'État de la Boussole aux Mers de Chine', etc. etc. etc.

- 10717 **LE MORT (Jacobus, M.D.; Univ. Utrecht)** CHYMIA, RATIONIBUS et EXPERIMENTIS Auctioribus, iisque Demonstrativis SUPERSTRUCTA, in qua Malevolorum Calumnie modestè simul diluuntur; *with 2 folding plates of chemical apparatus*, 12mo. *old calf gilt (back slightly damaged, otherwise sound copy)*, 10s 6d

Lugduni Batavorum, 1688

- 10718 ——— CHYMLE VERÆ NOBILITAS et UTILITAS, in Physica Corpusculari, Theoria Medica, ejusque Materia et Signis, ad majorem Perfectionem deducendis: CHYMIA MEDICO-PHYSICA, Ratione et Experientia Nobilitata: PHARMACIA MEDICO-PHYSICA: COLLECTANEA CHYMICA LEIDENSIA MAETSIANA et MARCGRAVIANA—4 vols. sm. 4to. in 1, *old calf, newly rebounded*, 17s 6d

ibidem, 1696

'Dass auch ohne Sublimat, durch Erhitzen von Quecksilber, Kochsalz und calcinirtem Vitriol, versüsstes Quecksilber gewonnen werden kann, behauptete zuerst Le Mort in Chymia medico-physisca 1696.'—*H. Kopp.*

- 10719 ———: JACOBI LE MORT, Pseudochemici et Ratiocinatoris Dupondianis IGNORANTIA circa CHEMIAM et Universam Scientiam Naturalem, detecta à Christiano Marggravio, M.D., large 12mo. *extra boards, uncut (fine copy)*, 1s 6d

ib., 1687

Doubtless the *Calumnia Malevolorum* referred to in the first article *supra*.

- 10720 **LENARD (Philipp), Heike KAMERLINGH ONNES, and W. E. PAULI**: The BEHAVIOUR of the PHOSPHORESCENT SULPHIDES of the ALKALINE EARTHS at VARIOUS TEMPERATURES, and particularly at very Low Temperatures, translated, *with plate*, roy. 8vo. (pp. 23), *sewn*, 1s 6d

Leiden, 1909

- 10721 **LEONHARD (Carl Cæsar v.; Univ. Heidelberg)** HANDBUCH der ORYKTOGNOSE, 2, vermehrte Auflage; *with 7 folding plates*, thick 8vo. *hf. calf*, 3s 6d

Heidelberg, 1826

- 10722 ———, and Heinrich August VOGEL: MINERALOGISCH-CHEMISCHE UNTERSUCHUNGEN des TRIPHAN'S und TANTALIT'S; *with plate*, 4to. (pp. 38), *sewn*, 3s 6d

München, 1818

- 534 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10724 **LEONARDO Pisano** [**BONACCI** *sive* **FIBONACCI**; *floruit* A.D. 1200] SCRITTI (II LIBER ABBACI, e La PRACTICA GEOMETRIA), pubblicati da BALDASSARRE BONCOMPAGNI; *with numerous diagrams*, 2 vols. folio, *sewn, uncut*, £2. 2s
Roma, 1857-62
- 10725 ——— II LIBER ABBACI, pubblicato secondo la Lezione del Codice Magliabechiano C. I, 2616, Badia Fiorentina, no. 73, da BALDASSARRE BONCOMPAGNI; *with numerous diagrams*, folio, *sewn, with inscr. to the Duca Massimo*, £1. 1s
ibidem, 1857
'He explains in his *Liber Abaci* the Arabic system of numeration, and remarks on its great advantages over the Roman; gives an account of algebra, and points out the convenience of geometry to get rigid demonstrations of algebraical formulae. He shows how to solve simple equations, solves a few quadratic equations, and states some methods for the solution of indeterminate equations. . . . The *Liber Abaci* is especially interesting in the history of arithmetic, since practically it introduced the use of Arabic numerals into Christian Europe.'—*W. W. R. Dall.*
- 10726 ———, TRE SCRITTI INEDITI di, pubblicati da BALDASSARRE BONCOMPAGNI; *with folding plate*, 8vo. *sewn, with editor's inscr. and MS. CORRECTIONS AND ADDITIONS*, 7s 6d Firenze, 1854
The questions propounded to Leonard of Pisa by the celebrated Emperor Frederick the Second on his passage through Pisa in 1225, which resulted in the production of three of Leonard's most remarkable works. The volume, here first printed by M. Boncompagni, contains 'Super Solutionibus quarundem Questionum ad Numerum et ad Geometriam vel ad utrumque pertinentium, Liber Quadratorum.'
A defence of the views of Clavius on contiguous angles. It was answered by Wallis.
'Cet écrit est suivi d'un traité sur la quadratrice de Dinostrate, où l'auteur développe quelques propriétés non encore aperçues de cette courbe.'—*Biogr. Gén.*
- 10728 [LEREBOURS (Noël Marie Paymal, opticien)] TRAITÉ de GALVANOPLASTIE, par J. I.; *with 11 illustrations*, roy. 8vo. *sewn (scarce)*, 7s 6d 1843
One of the earliest practical treatises on electrotyping, published only a few years after its invention by Jacobi (*v. No.* 9709 *ante*).
At end is a 16 p. Catalogue of Photographic Apparatus, Microscopes, etc. made by the author.
- 10729 ——— TREATISE on PHOTOGRAPHY; containing the latest Discoveries and Improvements appertaining to the DAGUERRETYPE, translated by J. EGERTON, *with folding plate*, cr. 8vo. *cl. (scarce)*, 12s 6d 1843
Containing chapters on 'Photogenic Papers on the Calotype,' by H. FOX TALBOT, F.R.S., 'On a Voltaic Process for Etching Daguerreotype plates,' by SIR W. R. GROVE, F.R.S., etc. etc.
- 10730 LEROY (Charles François Antoine) ANALYSE APPLIQUÉE à la GÉOMÉTRIE des TROIS DIMENSIONS, 3^e Edition; *with 5 folding plates*, 8vo. *hf. calf (binding rubbed)*, *with auto. and bookplate of Sir H. W. Elphinstone*, 3s 6d 1843
- 10731 ——— TRAITÉ de GÉOMÉTRIE DESCRIPTIVE, suivi de la Méthode des Plans cotés et de la Théorie des Engrenages cylindriques et coniques; 3^e Edition augmentée; *with 71 plates*, 2 vols. 4to. *hf. calf (backs damaged)*, 4s 6d 1850
- 10732 LE SAGE (Pierre Charles) RECUEIL de divers MÉMOIRES extraits de la BIBLIOTHÈQUE IMPÉRIALE des PONTS et CHAUSSÉES, à l'Usage des INGÉNIEURS; 2^e Edition, augmentée de cinq Nouveaux Mémoires inédits; *with fine portrait of the author, and of J. R. Perronet after Cochin fils, and 36 copperplates (many folding)*, 2 vols. large 4to. *russia extra, g. e. (backs slightly rubbed)*, otherwise a fine copy), £1. 1s 1810
The first volume contains interesting memoirs on civil engineering in England, including views of houses in Piccadilly and Oxford Street, and the second a translation of Smeaton's account of the Eldystone Lighthouse, with 4 plates reengraved. There is also a fine folding view of the Place and Pont de la Concorde, Paris, after Desprez.
- 10733 LESCALLIER (Daniel Baron) TRAITÉ PRATIQUE du GRÉEMENT des VAISSEAUX et autres Bâtimens de Mer; *with 34 fine copperplates (mostly folding)*, 2 vols. 4to. *old calf (rare)*, 17s 6d 1791
- 10734 ——— ANOTHER COPY, 2 vols. in 1, *old English calf (nice copy)*, 18s 6d
An interesting treatise not only on rigging ships, but on French naval architecture at a time when it excelled in some respects (and often unwillingly enriched!) even that of England.
- 10735 ——— VOCABULAIRE des TERMES de MARINE ANGLAIS et FRANÇOIS, avec une Explication des Figures qui y sont contenues, et des Définitions de quelques Termes de Marine, principalement ceux de Grément; *with 31 fine copperplates and 2 vignettes on copper*, 4to. *fine copy in contemporary French calf extra*, 15s
Imprimerie Royale, 1777
- 10736 LE SEUR [*sive* LE SUEUR] (Thomas, *Ord. Min.*; *commentator on Newton*) MÉMOIRE sur le CALCUL INTÉGRAL, 12mo. (pp. 52), *sewn*, 5s 6d Rome, 1748
'Renfermant des recherches sur la résolution générale des équations. L'auteur fait voir que si l'on cherche à décomposer en facteurs le premier nombre d'une équation d'un degré supérieur au quatrième, on est amené à des équations dont le degré est au moins égal.'—*Biogr. Gén.*
- 10737 ———, Francesco JACQUIER, *Ord. Min.*, e Ruggiero Giuseppe BOSCOVICH, S.J.: RIFLESSIONI sopra alcune DIFFICOLTÀ spettanti i Danni, e Risarcimenti della CUPOLA di S. PIETRO; *with vignette on copper*, 4to. (pp. 64), *sewn*, 6s 6d [*ibidem*], 1743
- 10738 LESOW (William) 'MATHEMATICAL BOOK' (treating of Navigation, Trigonometry, and Dialling), a neatly written MS. on about 300 pp., *with numerous very prettily executed diagrams*, folio, *vellum (back damaged)*, £3. 3s 1713-14
Containing Trigonometry, Plane and Spherical, 'Sailing, Plain, Oblick, in Currents, etc. etc., Mercators Sailing, Finding ^{ye} Latitude, Doctrine and Projection of the Sphere, Astronomical Problems, and the Art of Dialling.'
- 10739 L'ESPINASSE (Charles, F.R.S.) DESCRIPTION of an IMPROVED APPARATUS for PERFORMING ELECTRICAL EXPERIMENTS, in which the Electrical Power is increased, the Operator intirely secured from receiving any accidental SHOCKS, and the whole rendered more convenient for Experiments than heretofore, *with copperplate illustrating the new electrical machine*, 8vo. (pp. 3), *unbound*, 5s 1769

- 10741 [LESLIE (Sir John; F.R.S.E.; *Univ. Edin.*)] AEROSTATION: an Article contributed to the 'Encyclopædia Britannica,' 4th Edition, Supplement, with copperplate, 4to. (pp. 12), *unbound*, 6s 6d [1815]
- 10742 ——— DESCRIPTION of INSTRUMENTS designed for extending and improving METEOROLOGICAL OBSERVATIONS, with front and woodcuts, 8vo. cl., 6s 6d *Edin.*, 1820
- 10743 ——— ELEMENTS of GEOMETRY, GEOMETRICAL ANALYSIS, and PLANE TRIGONOMETRY, with Appendix, Notes, and Illustrations, 2nd Edition, enlarged, with diagrams, 8vo. *hf. calf gilt*, 8s *ib.*, 1811
 'A work conspicuous for freshness and originality of treatment. It attracted considerable attention, and had an article (by John Playfair) devoted to it in the Edinburgh Review.'—*D.N.B.*
- 10744 ——— ELEMENTS of NATURAL PHILOSOPHY, VOL. I [all published], including MECHANICS and HYDROSTATICS, first edition, with 10 folding plates, 8vo. boards, uncut, with auto. of George Rennie, F.R.S., 6s *ib.*, 1823
- 10745 ——— ANOTHER COPY, *hf. calf gilt*, 6s
- 10746 ——— SECOND EDITION, corrected and enlarged, with 10 plates, thick 8vo. boards, uncut, 7s *ib.*, 1829
 In this work the author 'has given the first correct explanation of the rise of a liquid in a tube by considering the effect of the attraction of the solid on the very thin stratum of liquid in contact with it.'—*J. Clerk Maxwell.*
- 10747 ——— GEOMETRICAL ANALYSIS, and GEOMETRY of CURVE LINES, being Vol. II of a Course of Mathematics, and designed as an Introduction to the Study of Natural Philosophy, with 22 folding plates, 8vo. boards, uncut, 4s *ib.*, 1821
- 10748 ——— THE PHILOSOPHY of ARITHMETIC, exhibiting a Progressive View of the Theory and Practice of Calculation, with Tables for the Multiplication of Numbers to 1000, 2nd Edition, improved and enlarged, with very large folding table, and diagrams, 8vo. *hf. morocco neat (nice copy)*, 7s 6d *ib.*, 1820
 'Containing an elaborate discussion of fundamental principles and much interesting information on the history of the subject.'—*D.N.B.*
 'In his *Philosophy of Arithmetic* he has entered incidentally into much of its history. He was, by taste, a searcher of old books; and various dates, etc. occur, which shew that he had more knowledge of books than can be got from catalogues.'—*Prof. de Morgan.*
- 10749 ——— SHORT ACCOUNT of EXPERIMENTS and INSTRUMENTS, depending on the Relations of AIR to HEAT and MOISTURE, with plate, 8vo. old *hf. calf (back damaged)*, 7s 6d *ib.*, 1813
- 10750 ——— ANOTHER COPY, boards, uncut, 8s 6d
 'In 1810 he successfully applied the absorbent powers of sulphuric acid to freeze water under the receiver of the air-pump. This is the first recorded achievement of artificial congelation. 'A Short Account of Experiments and Instruments' (1813) contains a description of this experiment, and is full of important and original work.'—*D.N.B.* It also contains his invention of the dry-and-wet-bulb thermometer, first suggested by James Hutton (*v. Nos. 9587-8, ante*).
- 10751 LE SOURD (Paul) TRAITÉ PRATIQUE des VINS, CIDRES, SPIRITUEUX, et VINAIGRES, publié avec la Collaboration de J. DESCLOZEUX, A. M. DESMOULINS, ED. DELLE, et H. FERRAND, 5^e [dernière] Edition, entièrement refondue et considérablement augmentée; with 82 woodcuts, thick roy. 8vo. *hf. black morocco (o. p.)*, 8s [1892]
- 10752 LETOUZÉ (P.), et P. LOYEAU: TRAITÉ PRATIQUE des TRAVAUX en ASPHALTE; with 6 folding plates, and 54 woodcuts, 8vo. sewn, with M. Letouzé's inscr., 4s 6d (p. F. 10 nett) 1897
- 10753 LETTS (Edmund Albert; F.R.S.E.) On PHOSPHORUS-BETAINES, with plate, 4to. (pp. 51), sewn, 3s 6d [Edin., 1881]
- 10754 ——— On THETINES and their DERIVATIVES, with woodcuts, 4to. (pp. 42), sewn, 3s 6d *ibidem*, 1878
- 10755 ———, and Robert Frederick BLAKE, F.I.C.: THE CARBONIC ANHYDRIDE of the ATMOSPHERE, with 3 folding plates, and woodcuts, 8vo. (pp. 164), sewn, 2s 6d *Dublin*, 1900
- 10756 ———, and John Norman COLLIE, F.R.S.: On the ACTION of PHOSPHIDE of SODIUM on HALOID ETHERS and the SALTS of TETRABENZYL-PHOSPHONIUM, 4to. (pp. 35), sewn, 3s 6d [Edin., 1881]
- 10757 LEUCHS (Johann Carl) ALLGEMEINES ERFINDUNGS-LEXIKON, oder a b c'sche Angabe der Erfindungen, Entdeckungen, Gewohnheiten, Verirrungen und Fortschritte, bis auf unsere Zeiten, 2. Ausgabe, 8vo. sewn, 3s *Nürnberg* [1851]
 Interesting as an early example of pan-German enthusiasm, claiming as German inventions, *inter alia*, that of the steam engine, steam navigation, telegraphy, the telescope, electro-magnetism, galvanism, gas lighting, the lightning conductor, logarithms, rockets, etc. etc., as well as the DISCOVERY of AMERICA.
- 10758 [——] DREIHUNDERT ENTDECKUNGEN und BEOBACHTUNGEN in der FÄRBEREI, dem FARBIGEN DRUK und der FARBEN-BEREITUNG, 1828-31, 8vo. sewn, 2s *ibidem* [1831]
- 10759 [——] POLYTECHNISCHE BÜCHER-KUNDE, oder beurtheilendes Verzeichniss der vorzüglichsten Bücher über Chemie, Technologie, Fabrikwissenschaft, Mechanik und einzelne Gewerbszweige, 3. ganz umgearbeitete Ausgabe, post 8vo. sewn, 2s 6d *ib.*, 1841
- 10760 [——] SAMMLUNG NEUER ENTDECKUNGEN und VERBESSERUNGEN in der FÄRBEREI, ÖRTLICHEN DRUKEREI, und FARBEN-BEREITUNG, with woodcuts, 8vo. (pp. 166), sewn, 4s *ib.*, 1823
- 10761 ——— VOLLSTÄNDIGE OEL- und FETT-KUNDE, oder theoretisch-praktische Anweisung zur Bereitung, Gewinnung, etc., der fetten Oele, des Talges, des Thrans, des Wachses und aller andern Fettarten, mit Angabe verbesserter Vorrichtungen, Oelmöhlen, Pressen u. a. Geräthe; with 16 woodcuts, 8vo. sewn, 3s *ib.*, 1832
- 10762 LEVEAU (G.) Sur la COMÈTE PÉRIODIQUE de D'ARREST, et son prochain Retour en 1833, roy. 4to. (pp. 7), sewn, 2s [1877]
- 10763 LEWES (Vivian Byam, F.I.C., R.N. Coll., Greenwich) EXPLOSIVES and their MODERN DEVELOPMENT (Cantor Lecture), with diagram, roy. 8vo. (pp. 37), sewn, 2s 1895
- 10764 ——— LIQUID and GASEOUS FUELS, and the Part they play in modern Power Production, with 54 illustrations, 8vo. cl., 4s (p. 6s nett) 1907
- 10765 ——— The USE of GAS for DOMESTIC LIGHTING (Cantor Lecture), roy. 8vo. (pp. 29), cl., 2s 1897

10767 **LEUPOLD (Jacob)** THEATRUM MACHINARUM, mit SUPPLEMENT und HAUPTREGISTER; a complete set as below; with 538 copperplates, 15 vols. roy. folio in 5, *russia extra, joints (fine set)*; rare, £8. 8s
Leipzig, 1724—Dresden, 1802

INHALT:—I. Theatrum Machinarum Generale, oder Schauplatz des Grundes mechanischer Wissenschaften, 1724; II. T. M. Hydrotechnicum, oder Schauplatz der Wasserbaukunst, '74; III. T. M. Hydranicum, oder Schauplatz der Wasserkünste, 2 v., '90-74; IV. T. M., oder Schauplatz der Hebezeuge, '74; V. T. Statici Universalis (Gewichtkunst und Wagen); Wissenschaft und Instrumente zum Wasserwägen; Abwiegung der Luft; Wasser- oder Horizontal-Waagen), 4 v., '74; VI. T. Pontificale, oder Schauplatz der Brücken und des Brückenbaues, '74; VII. T. Arithmeticum et Geometricum, oder Schauplatz der Rechen- und Messkunst, '74; VIII. Supplement und Hauptregister zum ganzen Werke von J. E. SCHEFFLER, '74; IX. T. M. Molarum, oder Schauplatz der Mühlenbaukunst von J. M. BAYER, J. BORN und J. K. WEINROLD, 3 v., '88-1802.

'On trouve rarement ces 9 volumes réunis et complets.'—*Graesse*.

The most complete work on engineering published till then. The author first described here a quantity of ingenious or useful machinery, e.g., the pedometer. He considered perpetual motion a possibility, and describes a number of such machines, of which a full account is given in Mr. Dircks's *Perpetuum Mobile*.

10768 — THEATRUM MACHINARUM HYDRAULICARUM, oder: Schau-Platz der Wasserkünste, bestehend in einer vollkommenen Beschreibung und Unterricht meist aller erfundenen Maschinen die Wasser dadurch in die Höhe zu treiben, oder aus der Tiefe zu erheben; with 117 fine copper-plates, 2 vols. folio in 1, *old hf. calf (back damaged)*, £1. 10s
Leipzig, 1724

10769 — THEATRUM MACHINARUM HYDROTECHNICARUM: Schau-Platz der Wasser-Bau-Kunst, oder: Deutlicher Unterricht und Anweisung desjenigen, was bey dem Wasser-Bau, und absonderlich der Damm-Kunst, zu wissen nöthig ist; with 51 copperplates, folio, *old calf*, £1. 1s
ibidem, 1724

10770 [**LEURECHON (Jean, S.J.; 'HENRI VAN ETTEN')**] RECREATIONS MATHÉMATIQUES, composées de plusieurs Problemes plaisans et facetieux d'Arithmetique, Geometrie, Astrologie, Optique, Perspective, Mechanique, Chymie, et d'autres rares et curieux Secrets: plusieurs desquels n'ont iamais esté imprimez. La troisieme Partie, contient un Recueil de plusieurs gentilles et recreatives INVENTIONS de FEUX d'ARTIFICE: La maniere de faire toutes Sortes de Fuzées, simples et composées; with numerous curious woodcuts, 12mo. *old limp vellum (some ll. water-stained, otherwise a FINE COPY)*; RARE, £1. 10s
Rouen, Charles Osmont, 1630, or '34

10771 — [NOUVELLE ÉDITION]; with the numerous woodcuts RE-ENGRAVED, 12mo. *old calf (foxed, bottom of title torn off and back of binding damaged)*, £1. 1s
Lyon, J. B. de Ville [1656]

Neither of the above editions was known to Brunet or Graesse, who mention however others of Rouen, 1629, and Lyon, 1680. A copy of the former was in M. Libri's Collection, who mentions in his Sale Catalogue: 'This work contains very curious problems, viz., 'Comment on peut charger un canon sans poudre' (by steam or heated air), and several arithmetical questions'.

10772 [—] MATHEMATICALL RECREATIONS, or a Collection of many Problemes, extracted out of the Ancient and Modern Philosophers, as Secrets, and Experiments in Arithmetick, Geometry, Cosmographie, Horologigraphie, Astronomie, Navigation, Musick, Opticks, Architecture, Statick, Mechanicks, Chymistrie, Water-works, Fireworks, etc. Not vulgarly manifest till now. Written first in Greek and Latin, lately compild in French, by HENRY VAN ETTEN, and now in English, with the Examinations and Augmentations of divers Modern Mathematicians. Whereunto is added the DESCRIPTION and USE of the GENERALL HOROLOGICALL RING: and the DOUBLE HORIZONTAL DIALL, invented and written by WILLIAM OUGHTRED, with curiously engraved title, and numerous engravings on copper, 2 vols. 12mo. in 1, *old calf, rebaked (printed front. slightly defective and mounted, and some ll. torn or scribbled on)*; RARE, £1. 10s
William Leake, 1653-2

10773 — ANOTHER COPY, *old sheep (printed title missing)*, £1. 10s

10774 — NEW EDITION, with sharp impressions of the engraved title and the numerous copper- engravings, 2 vols. 12mo. in 1, *sound copy in contemporary calf (VERY RARE)*, £2. 2s

apud eundem, 1674

The third and last English edition, and the rarest of all, being unknown to Lowndes, Watt, and Allibone. The impressions of the engravings (of which the plates were either retouched or reengraved) are unusually clear.

The work is a highly interesting storehouse (once of great popularity, and now rare in all its editions) of a multitude of mathematical, astronomical, and physical problems. It was based on the work of BACHET DE MEZIRIAC (v. Nos. 204 and 5901, ante), and included, besides numerous original problems by the author, some taken from Cardan; and in its turn formed the foundation of the works of Mydorge, Ozanam, Montucla, and Hutton.

Among the more interesting problems are, besides the one mentioned above by M. Libri: 'How to make an instrument that helps to hear' (the speaking tube, the invention of which is ascribed to Sir Samuel Morland in 1671), 'a lampe which goeth not out, though one carries it in one's pocket', several magnetical problems, including 'a secrecie in the Magnes, for discovering things farre remota', 'of the Thermometer'; 'how to weigh the lightness of the ayre', 'of longitude and latitude', 'how to make a clocke with one wheele', 'how to make a perpetuall motion', etc. etc. etc.

10775 **LE VERRIER (Urbain Jean Joseph; F.R.S., discoverer of Neptune)** RECHERCHES sur l'ORBITE de MERCURE et sur ses PERTURBATIONS. Détermination de la Masse de Vénus et du Diamètre du Soleil, 4to. (pp. 87), *sewn*, 3s 6d
 1843

10776 — RECHERCHES sur les MOUVEMENTS de la PLANÈTE HERSCHEL (dite URANUS), roy. 8vo. (pp. 254), *sewn*, 8s 6d
 [1846]

A collection of the four memoirs on the perturbations of Uranus which led to the discovery of Neptune, with a fifth part added: 'Est-il possible de déduire des Observations d'Uranus la Position du Plan de l'Orbite de la Planète Troublante?'

The discovery of Neptune by calculation and its immediate verification by the telescope is one of the romances of astronomy. Le Verrier achieved the former, and communicated its exact position to Dr. Galle at Berlin, who at once observed it. It had two results for Le Verrier of an unusual kind for a scientist: Louis Philippe at once made him tutor to the Comte de Paris, and the Department of the Manche elected him willy-nilly to the Legislative Assembly.

10777 **LEVESQUE (John, Anchor Brewery, St. Luke's)** THE ART OF BREWING and FERMENTING, and MAKING MALT, exhibited in Essays and Decimal Tables, with Description of the Author's newly-invented Thermometer; 4th Edition, with ABSTRACT of the ACT to ALLOW the USE of SUGAR in the BREWING of BEER, by GILES HALL, with folding front., 8vo. cl., 4s
 1847

This edition refers to the leave then first granted by the Excise to use sugar in brewing.

- 10779 **L'ÉVEILLÉ** (—, *des Ponts et Chaussées*) Des PENTES et RAMPES sur les CHEMINS de FER; with *folding plate*, 8vo. (pp. 43), *sewn*, 5s
A mathematical study of the relation of gradients to curves and to the heavier trains and swifter and more powerful locomotives then coming into use.
- 10780 [**LEVY** (A., F.G.S.)] DIFFERENTIAL and INTEGRAL CALCULUS (Encyclopædia Metropolitana); 4to. *hf. cl.*, 3s [1830]
- 10781 ——— ANOTHER COPY, with INTEGRAL CALCULUS [continued, and with its Applications], *plate*, 2 vols. 4to. *unbound*, 4s [1830]
- 10782 ——— ANOTHER COPY OF BOTH WORKS, in one vol. 4to. *hf. cl.*, 5s
- 10783 **LEVY** (Lucien) La PRATIQUE du MALTAGE; with *folding plate*, and 53 illustrations, 8vo. *cl.*, 3s 6d (p. F. 7 nett) 1899
- 10784 **LEVY** (Maurice) La STATIQUE GRAPHIQUE, et ses Applications aux Constructions; with *Atlas*, containing 24 *folding plates*, 2 vols. roy. 8vo. *sewn*, 7s (p. F. 16.50) 1874
- 10785 **LEWIS** (Rt. Hon. Sir George Cornewall) HISTORICAL SURVEY of the ASTRONOMY of the ANCIENTS, thick 8vo. *cl.*, *uncut* (SCARCE), 18s 6d 1862
Applying a sceptical analysis to the ambitious Egyptology of Bunsen.—*Ency. Brit.* It consists of the following chapters: Primitive Astronomy of the Greeks and Romans; Philosophical Astronomy of the Greeks from Thales to Democritus; Scientific Astronomy of the Greeks from Plato to Eratosthenes; ——— of the Romans from Hipparchus to Ptolemy; Astronomy of the Babylonians and Egyptians; Early History and Chronology of the Egyptians and Assyrians; and Navigation of the Phœnicians.
- 10786 **LEWIS** (Gilbert Newton) The OSMOTIC PRESSURE of CONCENTRATED SOLUTIONS, and the Laws of the Perfect Solution, roy. 8vo. (pp. 16), *sewn*, 1s [Easton, Mass., 1908]
- 10787 **LEWIS** (Major J. F., R.E.) PERMANENT FORTIFICATION for English Engineers, with 43 *folding plates*, thick 8vo. *hf. calf*, 5s (p. 10s 6d nett) Chatham, 1890
- 10788 **LEWIS** (Walter and Thomas) MODERN ORGAN BUILDING, with especial Regard to PNEUMATIC ACTION; including Chapters on Tuning, Voicing, etc., with 76 illustrations (many *full-page*), 4to. *cl.*, t. e. g., 4s (p. 7s 6d) 1911
- 10789 **LEWIS** (William, M.D., F.R.S.) COMMERCIIUM PHILOSOPHICO-TECHNICUM; or the Philosophical Commerce of Arts: designed as an Attempt to improve Arts, Trades, and Manufactures, with *fine folding front*, on copper by P. C. CANOT, A.R.A., of a contemporary chemical laboratory, and 5 other copperplates, thick 4to. *old calf* (binding damaged), with armorial bookplate of Charles Spooner (mezzotint engraver, d. 1767), 12s 6d 1763
- 10790 ——— ANOTHER COPY, *old tree-calf gilt*, or, *hf. white vellum*, 15s
Consisting of the following chapters: Description of a Portable Furnace for making Experiments: History of Gold, and the various Arts and Businesses depending thereon: Experiments of the Conversion of Glass Vessels into Porcelain, and for establishing the Principles of the Art: Of the Expansion and Contraction of certain Boiles at the time of their passing from a Fluid to a Solid State: Of the Blowing of Air into Furnaces by a Fall of Water: History of Colours [Dyes and Inks]: History of Platina: Appendix.
- 10791 **LEWKOWITSCH** (Julius) The LABORATORY COMPANION to FATS and OILS INDUSTRIES, large 8vo. *cl.*, 4s (p. 6s nett) 1901
- 10792 **L'HOSPITAL** (Guillaume François Antoine, Marquis de St.-Mesme) ANALYSE des INFINIMENT PETITS, pour l'Intelligence des Lignes Courbes; 2^e Édition; with numerous plates, 4to. large copy in contemporary calf, with fine Chippendale bookplate of William Abbot, St. John's Coll., Cantab. (Senior Wrangler in 1754), and another of Prof. Turner, F.R.S., 7s 6d 1716
- 10793 ——— ANOTHER COPY, *hf. calf gilt*, with auto., dated 1728, and sheet of MS. notes of G. L. Leclerc Comte de Buffon (the naturalist), also an interesting letter from the COMTESSE DE BUFFON (his daughter-in-law), and bookplate of Frederick Hendricks, F.S.A., £1. 15s
Containing a partial investigation of the limiting value of the ratio of functions which for a certain value of the variable take the indeterminate form of 0:0. This work brought the differential notation into general use in France, and helped to make it known in Europe.—*W. W. R. Ball.*
It was the first, and for a long time the only, treatise on the calculus, explaining it in an intelligible manner not to be found in most subsequent treatises—a falling perpetuated in many a modern text-book on the calculus.
- 10794 ——— TRAITÉ ANALYTIQUE des SECTIONS CONIQUES et de leur Usage pour la Résolution des Equations dans les Problèmes tant déterminés qu'indéterminés; Onvrage posthume, première édition; with numerous plates, 4to. *old calf* (joints cracked), with Chippendale bookplate of W. Abbot, and of Prof. Turner, F.R.S., 8s 6d 1707
For nearly a century it was deemed a standard work on the subject.—*W. W. R. Ball.*
- 10795 **LIAGRE** (Lt.-Gén. Jean Baptiste Joseph) CALCUL des PROBABILITÉS et THÉORIE des ERREURS, avec APPLICATIONS aux Sciences d'Observation en général et à la GÉODÉSIE en particulier, 2^e [dernière] Édition par CAMILLE PENY; with diagrams, thick sq. 8vo. *sewn* (title and a few ll. foxed); SCARCE, 18s 6d Bruxelles, 1879
Especially valuable for applying the theory of probabilities to geodetic problems.
- 10796 **LIBRARY** of USEFUL KNOWLEDGE: MATHEMATICS, with numerous diagrams, 2 vols. 8vo. *cl.*, 7s 6d 1836
- 10797 ——— ANOTHER COPY, 2 vols. in 1, *hf. russica* (joints cracked), 6s 6d
CONTENTS:—I. Study and Difficulties of Mathematics [by AUGUSTUS DE MORGAN]: Arithmetic and Algebra: Examples of the Processes of Arithmetic and Algebra. II. Geometry, Plane, Solid, and Spherical, by PIERCE MORTON; Elements of Trigonometry, by W. HOPKINS; Spherical Trigonometry, by A. DE MORGAN; Algebraical Geometry, by S. W. WAUD.
- 10798 ———: NATURAL PHILOSOPHY, with Explanation of Scientific Terms, and Index, with numerous woodcuts and diagrams, 4 vols. 8vo. *cl.*, 10s 6d (p. £1. 18s) 1829-38
- 10799 ——— ANOTHER COPY, 4 vols., *hf. calf*, 12s
- 10800 ——— VOLS. I—III ONLY, 3 vols. 8vo. *hf. calf*, 7s 6d 1829-34
CONTENTS:—I. Objects, Advantages, and Pleasures of Science: Mechanics: Hydrostatics: Hydraulics: Pneumatics: Heat: Optics: Double Refraction and Polarisation. II. Newton's Optics: Optical Instruments: Thermometer and Pyrometer: Electricity; Galvanism: Magnetism: Electro-Magnetism. III. Astronomy: History of Astronomy: Mathematical Geography: Physical Geography: Navigation. IV. Chemistry: Botany: Animal Physiology: Animal Mechanics.

- 10502 **LEYBOURN** (Thomas, *R. M. Coll., Sundhurst*) **THE MATHEMATICAL QUESTIONS**, proposed in the **LADIES' DIARY**, and their **ORIGINAL ANSWERS**, with some **NEW SOLUTIONS**, from 1704 to 1816, *diagrams*, 4 vols. 8vo. *calf*, with *bookplate of Henry Bickersteth (Lord Langdale, Master of the Rolls)*, 12s 6d 1817-18
- 10303 **LEYBOURN** (William) **ARITHMETICK: VULGAR, DECIMAL, INSTRUMENTAL, ALGEBRAICAL** . . . whereunto is added, the **Construction and Use of several Tables of Interest and Annuities, Weights and Measures**, both of our own and other Countries, 4th Edition, corrected and enlarged, with 2 *folding copperplates*, 8vo. *old calf (binding slightly damaged)*, with *numerous contemporary MS. notes (rare)*, 12s 6d G. Sawbridge, 1678
- This edition was unknown to the author's biographer in *D. N. B.*, where the 1st and 2nd editions only are mentioned. The fourth part is a translation of **JACQUES DE BILLY'S ALGEBRA** (v. No. 6220, ante).
- 10804 — **THE ART OF DIALLING**, performed **GEOMETRICALLY**, by **Scale and Compasses: ARITHMETICALLY**, by the **Canons of Sines and Tangents: INSTRUMENTALLY**, by a **Trigonal Instrument**, accommodated with **Lines** for that purpose: the **Geometrical Part** whereof is performed by **Projecting of the Sphere in Plano**, upon the **Plain itself**, whereby not only the **Making**, but the **Reason also of Dials** is discovered, **first edition**, with *fine etched seated portrait, folding plate, and diagrams*, sm. 4to. *contemporary calf (binding slightly damaged and pp. 145-52 missing)*: **VERY RARE**, £1. 15s B. Tooke and T. Sawbridge, 1669
- This edition is excessively rare, that of 1687 being given by Hutton as the first, and was unknown to the author's biographer in *D. N. B.* It was also unknown to Lowndes, Watt, and Allibone. The portrait affixed is probably that by Gaywood, et. 30?
- 10305 — **THE COMPLETE SURVEYOR**: containing the whole **Art of Surveying of Land**, by the **PLAIN TABLE, THEODOLITE, CIRCUMFERENTOR, and PERACTOR**: after a more **easy, exact and compendious Manner**, than hath been hitherto published by any . . . with the taking of all **Manner of Heights and Distances** . . . also, the **Manner how to know whether Water may be conveyed from a Spring head to any appointed Place or not**, etc. etc., **first edition**, with *etched portrait et. 27, and numerous diagrams, folio, contemporary English calf (name on title, and some ll. slightly soiled)*; **RARE**, with *auto. of Francis Hargrave (1741-1821) on flyleaf*, £1. 15s R. and W. Leybourn, 1653
- 10803 — **ANOTHER COPY**, *contemporary calf (binding damaged, blank margin of portrait defective, and some ll. water-stained)*, £1. 10s
- A **VERY RARE EDITION**, unknown to Watt. It was originally published in 1650 as 'Planometria' by 'OLIVER WALLINBY'.
- 10807 — **THIRD EDITION**, corrected and much enlarged, with *fine portrait et. 48* by R. WHITE (*fine impression*), *numerous folding plates, and diagrams, folio, contemporary calf (with British Museum bookstamp, and back of title slightly damaged, otherwise a fine and tall copy)*; **RARE**, £1. 10s G. Sawbridge, 1674
- 10803 — **ANOTHER COPY**, with *title and 'Address' (pp. 2) supplied from the 1653 Ed.; contemporary sheep (large and sound copy, with contemporary MS. notes)*, with *bookplate of the Rt. Hon. Sir George Rose*, £1. 5s
- 10809 — **THE DESCRIPTION of an Entertaining and Useful Instrument**, called **GUNTER'S QUADRANT**, by which is performed most **Propositions in Astronomy**; as the **Altitude, Azimuth, Right Ascension and Declination of the Sun**, etc., also his **Rising and Setting**, with **Hour of the Day or Night**, and other **Conclusions exemplified at large**; with the **Use of the UNIVERSAL RING-DIAL**; 4th Edition, with **Improvements**, *folding front. on copper*, 12mo. **FINE COPY in contemporary sheep (joints tender)**; **rare**, 15s J. Gilbert, 1771
- This edition was unknown to *D. N. B.*, which gives that of 1731 as the last. It contains at end a 6-p. Catalogue of the **Mathematical and Optical Instruments of its publisher**.
- 10810 — **DIALING: Plain, Concave, Convex, Projective, Reflective, Refractive**; shewing, how to make all such **Dials**, and to adorn them with all useful **Furniture relating to the Course of the Sun**, performed **arithmetically, geometrically, instrumentally and mechanically**, **first edition**, with *numerous copperplates*, folio, *old calf (one joint cracked, portrait wanting, and one plate in MS.)*; **VERY RARE**, £2. 15s Awnsham Churchill, 1682
- An enlargement of the 'Art of Dialling', and the fullest treatise on the subject in English hitherto published. Pp. 323-30 contain a description of the celebrated Whitehall Dial, A.D. 1669, constructed by **FRANCIS LINE (alias HALL)**, S.J., with a copperplate illustration.
- 10811 — **SECOND [LAST] EDITION**, corrected and **TWO NEW TRACTATES** added, with *fine portrait et. 64* by R. WHITE, and *numerous plates*, folio, *old calf gilt, rebound (RARE)*, £3. 10s J. Matthews, for Awnsham and John Churchill, 1700
- 10812 — **ANOTHER COPY**, *contemporary calf (back damaged; and browned on margins)*, £3. 3s
- 10813 — **THE SAME** (*portrait wanting, a few ll. slightly wormed, and a small piece torn out of blank top of title, but a large and sound copy*); *original calf*, £2. 8s 6d
- Both the above editions (no others were published), are very rare, and were unknown to the author's biographer in *D. N. B.*, Lowndes, Watt, and Allibone; while Dr. Hutton only mentions that of 1700. They contain a description of **Father Line's (or Hall's) celebrated sun-dial set up in Charles II.'s private garden at Whitehall in 1669**, with a plate illustrating it. Both editions contain chapters on 'reflex dialling' by **JOHN TWYSDEN** and **I. HALTON**, and on 'refractive dialling.'
- 10814 — **THE LINE of PROPORTION or NUMBERS**, commonly called **GUNTER'S LINE**, made **easy**: by which may be **Measured all Manner of Superficies and Solids** . . . also, how to perform the same by a **Line of Equal Parts**, drawn from the **Centre of a Two-Foot Rule**, with the **Use of the Line of Proportion Improved**, etc. etc., with *plate*, 1684: **The Second Part**, with the **Addition of other Lines**, which may conveniently be put upon a **Two-Foot Rule**, and their **Uses Exemplified** . . . with **SUPPLEMENT**, containing the **Description and some Uses, of a convenient Two-Foot JOYNT-RULE**: upon which are inscribed **divers Lines and Scales**, suitable to all sort of **Artificers Occasions**, by **JOHN BROWN**, 2 v. '77-6—3 vols. 24mo. in 1, *contemporary calf (one joint cracked)*; **RARE**, £1. 10s H. and G. Sawbridge, 1684-76
- The author claims to have improved **Gunter's slide rule**, as modified by **Wingate, Milbourn**, and **Seth Partridge**, 'and so ordered the line, that it will perform the work without compasses, by inspection, looking only upon the ruler.'

- 10816 **LEYBOURN (William)** THE LINE OF PROPORTION, SIXTH EDITION [OF THE FIRST PART], carefully corrected and other New Ways of Measuring added by the Author, *with folding plate of slide rule (slightly damaged)*, 24mo. *old calf (binding damaged, title and some ll. soiled and worn, and some side margins cut into)*, 6s 6d *A. and J. Churchill, 1689*
- 10817 ——— **PANARITHMOLOGIA**, being a Mirror, Breviate, Treasure, Mate for Merchants, Bankers, Tradesmen, Mechanicks, and a Sure Guide for Purchasers, Sellers, or Mortgagers of Land, Leases, Annuities, Rents, Pensions, etc. in present Possession or Reversion, and a Constant Concomitant fitted for all Mens Occasions, all Performed by TABLES READY CAST UP . . . and by Common Addition and Subtraction, with a Necessary Appendix, containing Heads of Daily Use to all Traders, *first edition, small 8vo. sound copy in old calf (RARE)*, £1. 12s 6d *J. Duntton and J. Harris, 1693*
- The 'Appendix' (pp. 144), which has a separate title and pagination, is not contained in the following editions, and 'is rich in miscellaneous commercial information'.—*D. N. B.*
- 10818 ——— **THIRTEENTH EDITION**, with Table of Commission or Brokerage, 12mo. *old sheep*, 10s 6d *1761*
- 10819 ——— **SIXTEENTH EDITION**, carefully corrected and enlarged, with Tables directing how to Buy and Sell by the Hundred: And to Cast up Expenses by the Day, Week, Month, and Year, and a Calculation of PORTUGAL COIN, 12mo. *fine copy in old sheep*, 10s *1772*
'The most enduring of his works' [*D. N. B.*], and, according to Professor de Morgan, the EARLIEST READY RECKONER in English.
- 10820 ——— **PANORGANON: or a UNIVERSAL INSTRUMENT**, performing all such Conclusions Geometrical and Astronomical as are usually wrought by the Globes, Spheres, Sectors, Quadrants, Planispheres, and other the like Instruments, yet in being; with Ease and Exactness, *with seated portrait, 2 copperplates of the instrument, and numerous diagrams, sm. 4to. old calf (joints cracked, also a few wormholes, and water-stained on margins)*; RARE, £1. 5s *W. Birch, 1672*
Containing also 'Problemes in Dialling'.
The author claims his instrument as an improvement on Gunter's Quadrant, devoid of its 'incumberances, and it hath many other conveniences'.
- 10821 **LIBERT (Joseph)** EMPLOI de l'ÉLECTRICITÉ dans les MINES, 8vo. (pp. 130), *sewn*, 2s *St.-Etienne, 1900*
- 10822 **LIBRI [-CARRUCCI] (Guglielmo Brutus Icilius Timoleon Conte; biblioklept)** HISTOIRE des SCIENCES MATHÉMATIQUES en ITALIE, depuis la Renaissance des Lettres jusqu'à la Fin du XVII^e Siècle, Tomes I à IV (sensu parus; jusqu'à GALILÉE); *with diagrams*, 4 vols. 8vo. *sewn, uncut (slightly water-stained)*; SCARCE, £1. 1s *1838-41*
'Ouvrage remarquable par de consciencieuses recherches d'érudition et par un style aussi clair qu'élegant'.—*Biogr. Gén.*
'It is a valuable history as concerns arithmetic, both in text and notes; the latter contain the *liber augmenti et diminutionis* compiled by Abraham, supposed to be Aben Ezra (r. I pp. 304-76), Account of an extract from the *Libri Abbaei* of Leonard of Pisa (v. II pp. 287-304), the *Practica Geometria* of the same author, being the whole of his algebra (v. II pp. 305-76), and extracts from Pacioli (v. III pp. 277-94), besides many other matters not relating to arithmetic'.—*Prof. de Morgan's Arithmetical Books.*
As was remarked in the first division of the *Bibliotheca Chémico-Mathematica*, it is very sad that a mathematician endowed with such inspiring baptismal names should have ever lapsed from the stern virtue of a student of the exact sciences to the wholesale depredation of public libraries for a long period of years!
- 10823 **LICETI (Fortunio; Univ. Padua)** De LUCERNIS ANTIQVORUM RECONDITIS Libri IV, in quibus earum recens Inventarum adhuc ardentium Observaciones multe primum afferuntur: Aliorum Opiniones omnes de ipsarum Attributis dein expenduntur, earundem Causæ, Proprietates, Differentiæque Singulæ . . . explicatis diligenter additissimis Quæstionibus de Ignium Causis, Originis, Varietate, Duratione, Motu, et Extinctu: de Antiperistasi, de Fumis, de Cinere, de Lentore, de Mistis Incombustilibus, de Brutorum Funeribus, et de aliis Naturæ Arcanis; *with folding plate and other fine woodcuts*, 4to. *contemporary white vellum (FINE COPY)*, 12s 6d *Venetis, 1621*
The author seriously maintains that the lamps of the Vestal Virgins were inextinguishable, and continued to burn for several centuries without the addition of any fuel. The work is chiefly of antiquarian interest.
- 10824 **LICK OBSERVATORY of the University of California**, PUBLICATIONS of the, prepared under the Direction of the Lick Trustees, by EDWARD S. HOLDEN: Vols. I-VI, VIII, and X, *with numerous plates and other illustrations*, 8 vols. roy. 4to. *cl. (partly o. p.)*, £3. 10s *Sacramento, 1887-1908*
- CONTENTS:—I. History of the Observatory, with its Buildings and Instruments: Observations of Double Stars by S. W. BURNHAM, 1879, of the Transit of Mercury, 1881, by CAPT. FLOYD, E. S. HOLDEN, and S. W. BURNHAM, of the Transit of Venus, 1882, by D. P. TODD; Meteorological Observations, by T. E. FRASER, 1880-5, and Reduction Tables for Mount Hamilton, by G. C. COMSTOCK. II. Double-Star Observations with the 36-inch and 12-inch Refractors, by S. W. BURNHAM. III. Drawings and Photographs of the Moon, by L. WEINKE; Investigation of Prisms of Optical Glass, by C. S. HASTINGS; the Glass Scale of the L. O. Measuring Engine, by O. H. TITMAN; Spectroscopic Observations of Nebulæ, by J. E. KEELER. IV. VI. and X. Meridian Circle Observations, '93-1906, by R. H. TUCKER. V. Micrometrical Observations of Double Stars discovered at Pulkowa, by W. J. HUSSEY. VIII. Photographs of Nebulæ and Clusters made with the Crossley Reflector, by J. E. KEELER, *with 70 fine plates.*
- 10825 ——— **VOLUMES II-VI and VIII**, *with numerous plates and other illustrations*, 6 vols. roy. 4to. *cl.*, £2. 15s *ibidem, 1894-1908*
- 10826 ——— **VOLUMES II, and IV-VI ONLY**, *with plates and other illustrations*, 4 vols. roy. 4to. *cl.*, £1. 5s *ib., 1894-1903*
- 10827 ——— **VOLUME IV ONLY**, *with front.*, roy. 4to. *cl.*, 5s *ib., 1894*
- 10828 ——— **CONTRIBUTIONS** from the, Vols. I-IV, *with numerous plates (including fine silver prints of Eclipses) and other illustrations*, 4 vols. large 8vo. *cl. (o. p.)*, 17s 6d *ib., 1889-95*
- CONTENTS:—I. Reports on the Observations of the Total Eclipse of the Sun of Jan. 1, '89: — of the Total Eclipse of the Sun, Dec. 21-22, '89, and of the Total Eclipse of the Moon, July 22, '88, and Catalogue of the Library, '91: III. Terrestrial Atmospheric Absorption of the Photographic Rays of Light, by J. M. SCHAEFERLE, '93: IV. Report on the Total Eclipse of the Sun, observed at Mina Bronces, Chile, on April 16, '93, by J. M. SCHAEFERLE, '95.
- 10829 ——— **VOLUME IV ONLY**, *with 11 plates*, large 8vo. *cl.*, 4s *ib., 1895*

- 540 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10831 **LIAIS (Emmanuel)** CLIMATS, GÉOLOGIE, FAUNE, et GÉOGRAPHIE BOTANIQUE du BRÉSIL; *with folding map*, thick impl. 8vo. *sewn*, 6s (p. F. 18 nett) 1872
- 10832 **LIEBEN (Adolf)** SYNTHÈSE von ALKOHOLEN mittelst GECHLORTEN ÄTHERS. I. und II. ABHANDLUNG: Untersuchungen über den gechlorten Ather und seine Derivate; Äthylirter Äthylalkohol, 2 parts roy. 8vo. (pp. 81), *sewn*, 3s [Wien, 1867-9]
- A COMPLETE SET TO DATE IN THE ORIGINAL IMPRESSIONS:**
- 10833 **LIEBIG'S (Justus Freiherr v.; F.R.S.)** ANNALEN der CHEMIE (*originally: ANNALEN der PHARMACIE: eine Vereinigung des Archivs des Apotheker-Vereins im nördlichen Deutschland, und des Magazins für Pharmacie und Experimentalkritik, herausgegeben von RUDOLPH BRANDES, PH. LORENZ GEIGER und JUSTUS LIEBIG; copiously illustrated: A COMPLETE ORIGINAL SET from the beginning in 1832 to 1912 (Bd. I—CCCLXXXII), with Supplement-Band I-VIII, and Register zu Bd. 1-328, 8 v.—in all 408 vols. 8vo., everything to 1899 in 145 vv. strongly bound in hf. calf neat, cl. sides, and the rest in 61 vv. hf. green morocco gilt (a very fine set); VERY RARE, £220. Heidelberg, 1832—Leipzig, 1912*
- AN EXCEPTIONALLY FINE SET, AND THROUGHOUT IN THE RARE ORIGINAL IMPRESSIONS, of one of the most important chemical journals ever issued. The earlier as well as many of the later volumes are now excessively scarce and difficult to get.
- 10834 ——— **A LONG SERIES**, complete from 1854 (Bd. 89) to 1899 (Bd. 304): Register zu Band 1-276, 7 vols. in 4—in all 223 vols. 8vo., everything to 1888 in 50 vv. hf. calf, and the rest in 28 vv. hf. morocco gilt (IN SOUND CONDITION); SCARCE, £85. Heidelberg, 1854—Leipzig, '99
- 10835 ——— **ANIMAL CHEMISTRY**, or Organic Chemistry in its Applications to Physiology and Pathology, edited by WILLIAM GREGORY, M.D., 8vo. *cl.*, 3s 1842
- 10836 ——— **THIRD EDITION**, greatly enlarged, Part I (all pub.): Chemical Process of Respiration and Nutrition, Metamorphosis of Animal Tissues (Method to be pursued in the Investigation), 8vo. *cl.*, 3s 1846
- 10837 ——— **CHEMISCHE UNTERSUCHUNG über das FLEISCH und seine ZUBEREITUNG zum NAHRUNGSMITTEL**, 8vo. *sewn*, 3s 6d Heidelberg, 1847
- The work which created zochemical analysis.
- 10838 ——— **CHEMISTRY in its APPLICATIONS to AGRICULTURE and PHYSIOLOGY**, edited by LORD PLAYFAIR and WILLIAM GREGORY, M.D., 4th Edition, enlarged, 8vo. *cl.*, 3s 6d 1847
- 10839 ——— **CHEMISTRY and PHYSICS in Relation to PHYSIOLOGY and PATHOLOGY**, 8vo. *cl.*, 2s 1846, or '7
- 10840 ——— **FAMILIAR LETTERS on CHEMISTRY**, in its Relations to Physiology, Dietetics, Agriculture, Commerce, and Political Economy, third Edition, much enlarged [by WILLIAM GREGORY, M.D.], thick fcap. 8vo. *cl.*, 2s 6d 1851
- 10841 ——— **FOURTH EDITION**, revised and enlarged by JOHN BLYTH, M.D., *with portrait (added)*, large post 8vo. *cl.*, 3s 6d 1859
- Although now chiefly of historical interest, the work is still well worth reading as a popular introduction to chemistry.
- 10842 ——— **HAND-BOOK of ORGANIC ANALYSIS: the various Methods in determining the Elementary Composition of Organic Substances**, edited by AUGUST WILHELM V. HOFMANN, F.R.S., *with 85 woodcuts*, cr. 8vo. *cl.*, *uncut (scarce)*, 10s 6d 1853
- 10843 ——— **ANOTHER COPY, hf. brown morocco neat (title stamped)**, 10s
- This English edition contains an appendix 'On the Use of Gas as Fuel in Organic Analysis,' by the Editor.
- 10844 ——— **INSTRUCTIONS for the CHEMICAL ANALYSIS of ORGANIC BODIES**, translated by WILLIAM GREGORY, M.D., F.R.S.E., *with 43 woodcuts*, 8vo. *sewn*, 6s Glasgow, 1839
- This was the first edition of the above *Hand-Book*.
- 10845 ——— **The NATURAL LAWS of HUSBANDRY**, edited by JOHN BLYTH, M.D., 8vo. *cl.*, 3s 1863
- 10846 ——— **On SOME POINTS of AGRICULTURAL CHEMISTRY**, 8vo. (pp. 45), *sewn, with INSCR. 'FROM THE AUTHOR,' 4s* 1856
- An attack on LAWES and GILBERT (*qq. v. ante*), who questioned (quite rightly) Liebig's statement that plants took up nitrogen directly from the air. Liebig defends this view, and brings forward in support peas and beans, which produced nitrogenous food on unmanured soil. Later researches have shown that this is due to the nodules on the rootlets of these plants, which cause, through bacterial action (symbiosis), the conversion of the nitrogen of the air into nitrogenous salts.
- 10847 ——— **TRAITÉ de CHIMIE ORGANIQUE: Edition Française, considérablement augmentée par l'AUTEUR, et publiée par CHARLES GERHARDT**, 3 vols. 8vo. *hf. brown calf extra (nice copy)*, 8s 6d 1840-4
- 10848 ——— **UNTERSUCHUNGEN über einige URSACHEN der SÄFTEBEWEGUNG im THIERISCHEN ORGANISMUS; with woodcuts**, 8vo. *sewn*, 1s 6d Braunschweig, 1848
- 10849 ———, and Johann Christian POGGENDORFF: **HANDWÖRTERBUCH der REINEN und ANGEWANDTEN CHEMIE**, in Verbindung mit mehreren Gelehrten herausgegeben, mit Supplement; *with numerous copperplates (mostly folding)*, 10 vols. 8vo. *hf. morocco gilt (nice set)*, 6s 6d *ib.*, 1837-50
- 10850 ——— **ZWEITE AUFLAGE**, neu bearbeitet von mehreren Gelehrten und redigirt von HERMANN V. FEHLING; *with numerous woodcuts*, 9 vols. 8vo. in 11, *hf. calf*, 12s (p. M. 174 *sewn*) *ib.*, 1857-64
- See FEHLING, No. 7824, *ante*, for the third and last edition of this work.
- 10851 ———: JUSTUS VON LIEBIG: an AUTOBIOGRAPHICAL SKETCH, translated by J. CAMPBELL BROWN, 8vo. (pp. 15), *sewn*, 1s 1891
- 10852 ———: HOFMANN (August Wilhelm v., F.R.S.) **The LIFE-WORK of LIEBIG in Experimental and Philosophical Chemistry**, with his Influence on the Development of the Collateral Sciences (Faraday Lecture, 1875), *with fine photo-portrait, and fs. of 6-p. letter to Faraday*, 8vo. *cl. (scarce)*, 8s 6d 1876

- 10854 **LIESEGANG** (Paul E.) HANDBUCH der PHOTOGRAPHISCHEN VERFAHREN mit SILBERVERBINDUNGEN, 7. vermehrte Auflage; with 112 woodcuts, 8vo. *hf. calf (title stamped)*, 3s
Düsseldorf, 1881
- 10855 **LIFE-BOAT MODELS** submitted for the PREMIUM offered by ADMIRAL ALGERNON DUKE OF NORTHUMBERLAND, F.R.S.: REPORT of the COMMITTEE appointed to Examine them, with List of the existing Life-Boat, Rocket, and Mortar Stations, with Abstract of the Wrecks in 1850, with 13 folding tinted plates by Joseph Prowse, of Woolwich Dockyard, of the models, and coloured wreck-charts of the Northumbrian coast and of the British Islands, folio, cl. (scarce), 12s 6d 1851
The prize was awarded to JAMES BEECHING, of Great Yarmouth, whose model was that of the first self-righting lifeboat ever built. The work was issued for presentation only.
The fourth Duke of Northumberland was a rather unusual Duke, and a noblehearted man. He entered the Navy as a volunteer when he was twelve, and served for ten years, becoming acting-Captain of Lord Exmouth's flagship. At the peace he travelled in the East and was one of the early explorers of Egyptian antiquities, which led him to bear the whole cost, till he died, of E. W. Lane's enormous Arabic Lexicon. He went out with Sir John Herschel to the Cape in 1836 for observing the Southern Constellations, and maintained his scientific interests to the end. But he loved his old calling of the sea best of all, and this led him to his lifelong work for the National Life-Boat Institution, of which the above competition was a part. He became First Lord of the Admiralty in 1852, and though a sailor of the old war was a pioneer of steam power in the Navy. The only regrettable action of his life was the vestressing, at great expense, of the interior of the great feudal castle of Alnwick in the finicking mode of the age of Louis Quatorze.
- 10856 **LIMBIRD** (James) ACCOUNT of the STRATA observed in sinking for Water at BOSTON, Lincs., 4to. (pp. 5), unbound, 2s 6d 1786
Added are, 'Observations of the Transit of Mercury, May 4, 1786,' by J. G. KÖHLER and S. RUMOVSKI.
- 10857 **LIMOJOIN de ST. DIDIER** (Alexandre Toussaint) Le TRIOMPHE HERMETIQUE, ou la PIERRE PHILOSOPHALE VICTORIEUSE. Traité très complet et plus intelligible, qu'il y en ait et jusques ici, touchant le Magistere Hermetique; with emblematic folding plate, 12mo. seven (plate and some ll. mended, worn, and soiled); RARE, 15s Amsterdam, 1699
Including 'L'Antienne Guerre des Chevalliers, ou Entretien de la Pierre des Philosophes avec l'Or et le Mercure . . . composé originairement en Alleman par un très-habile Philosophe,' on which the *Triomphe Hermetique* forms a commentary.
- 10858 [—] The HERMETICAL TRIUMPH: or the VICTORIOUS PHILOSOPHICAL STONE: a Treatise more complete and more intelligible than any extant, concerning the Hermetical Magistry, translated from the French, with the ANCIENT WAR of the KNIGHTS, translated from the German [and Annotations], with emblematic front., 12mo. old calf, newly rebacked (sound copy); RARE, £1. 1s [1723]
With long and interesting preface by the translator, in which he complains of the scarcity of good English works on the 'Hermetic Art.'
The work and its author were unknown to Mr. A. E. Waite.
- 10859 **LINDELÖF** (Lorentz Leonard, Helsingfors) LEÇONS de CALCUL des VARIATIONS, rédigées en Collaboration avec l'ABBÉ F. N. M. MOIGNO, 8vo. *hf. calf neat*, 4s 1861
A standard work on the calculus of variations.
- 10860 **LINDEMANN** (Ed.) Zur BEURTHEILUNG der VERÄNDERLICHKEIT ROTHER STERNE, roy. 4to. (pp. 10), sewn, 1s 6d St.-Petersbourg, 1882
- 10861 ——— HELLIKKEITSMESSUNGEN der BESSEL'SCHEN PLEJADENSTERNE, roy. 4to. (pp. 29), sewn, 2s ib., 1884
- 10862 **LINDEN** (Diederick Wessel, M.D.) THREE LETTERS on MINING and SMELTING; in which a Method is laid down, whereby these useful Sciences may be greatly improved, with a Fourth Letter, setting forth a Discovery of an easy Method to secure SHIPS' BOTTOMS from WORMS, 8vo. (pp. 96), *hf. bound*, 7s 1750
The above copy belonged to JOHN WEALE (1791-1862), the architectural publisher of the Gothic Revival, and contains an interesting biographical note by him on the author.
- 10863 **LINDENAU** (Bernhard August v.) TABULAE MARTIS novae et correctae, ex Theoria, Gravitatis clarissimi DE LA PLACE, et ex Observationibus recentissimis erutae, 4to. buckram, 4s 6d Eisenberg, 1811
- 10864 ——— TABULAE VENERIS novae et correctae, ex Theoria Gravitatis clarissimi DE LAPLACE, et ex Observationibus recentissimis in Specula Astronomica Seebergensi habitis erutae, 4to. buckram, 4s 6d Gothæ, 1810
- 10865 **LINDERS** (Olof) Die FORMELZEICHEN: ein Beitrag zur Lösung der Frage der algebraischen Bezeichnung der physikalischen, technischen und chemischen Grössen, impl. 8vo. sewn, 3s (p. M. 5) Leipzig, 1905
- 10866 **LINDGREN** (Waldemar, U. S. Geol. Survey) THE GENESIS of the COPPER-DEPOSITS of CLIFTON-MORENCI, Arizona, 8vo. (pp. 40), sewn, 1s 6d [Washington, 1904]
- 10867 **LINDSAY** (John) ENGRAVING (Encyclopædia Metropolitana), with 4 plates by Lowry, 4to. (pp. 72), unbound, 3s [1835]
- 10868 **LINDSTEDT** (Anders) BEITRAG zur INTEGRATION der DIFFERENTIALGLEICHUNGEN der STÖRUNGSTHEORIE, roy. 4to. (pp. 20), sewn, 2s St.-Petersbourg, 1883
- 10869 **LINEHAM** (Wilfred James, M.I.C.E.) TEXT-BOOK of MECHANICAL ENGINEERING, with front., 18 folding plates, and 732 other illustrations, thick 8vo. cl., 5s 6d (p. 10s 6d nett) 1894
- 10870 ——— SEVENTH EDITION, enlarged [with 5 Appendixes (pp. 263)], with front., 19 folding plates, and 923 illustrations, thick 8vo. cl., 8s 6d (p. 12s 6d nett) 1904
- 10871 ——— ANOTHER COPY, cl. (cover soiled), 7s 6d
- 10872 **LINEMANN** (Albert; Univ. Königsberg) DISPUTATIO INAUGURALIS MATHEMATICAE de REFRACTIONIBUS URANICIS; with diagrams, sm. 4to. (pp. 24), sewn (rare), 10s 6d Regiomonti, 1634
- 10873 **LINGUET** (Simon Nicolas Henri) CANAUX NAVIGABLES, ou Développement des Avantages qui résulteraient de l'Exécution de plusieurs Projets en ce Genre pour la Picardie, l'Artois, la Bourgogne, la Champagne, la Bretagne, et toute la FRANCE en général, avec l'Examen de quelques-unes des Raisons qui s'y opposent, etc., 12mo. old French calf gilt, 6s 6d Amsterdam [Paris], 1769

- 542 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10375 LING (Arthur Robert, F.I.C.) MALTING, 8vo. (pp. 28), *sewn*, 1s 1908
- 10376 ———, and Bernard Furley DAVIS; F.I.C.: EXPERIMENTS ON MALT DIASTASE, narrow folio (pp. 11), *sewn* (advance proof, corrected), 1s 6d 1902
- 10377 ———, and Theodore RENDLE: The VOLUMETRIC DETERMINATION OF REDUCING SUGARS, roy. 8vo. (pp. 7), *sewn*, 1s 1905
- 10378 LINK (Heinrich Friedrich; *Univ. Berlin*) BEYTRÄGE zur PHYSIK und CHEMIE, 3 vols. 8vo. *sewn* (rare), 7s 6d Rostock, 1795-7
- INHALT:—Ueber einige Grundlehren der Physik und Chemie: Beobachtungen und Betrachtungen über den Wärmestoff: Beyträge zur Philosophie der Physik und Chemie.
The work was unknown to Poggendorf.
- 10879 LINTERN (William) THE MINERAL SURVEYOR and VALUER'S COMPLETE GUIDE: a Treatise on Improved Mining Surveying, with new Traverse Tables, with the 2nd Edition, revised, of FÉDOR THOMAN'S TREATISE ON COMPOUND INTEREST and ANNUITIES, with Logarithmic Tables, 4 plates, post 8vo. cl., 4s (p. 10s 6d) 1872
- 10880 ——— SECOND EDITION, with APPENDIX on MAGNETIC and ANGULAR SURVEYING, with Records of the Peculiarities of NEEDLE DISTURBANCES, 4 plates, post 8vo. cl., 2s 1887
- This edition does not contain Thoman's Treatise on Interest, etc. (pp. 206).
- 10881 LINTON (William; *landscape painter*) ANCIENT and MODERN COLOURS, from the earliest Periods to the present Time, with their Chemical and Artistical Properties, post 8vo. cl. extra, g. e., with author's *inscr.* (scarce), 8s 6d 1852
- A valuable historical account, with copious quotations from Greek and Latin Classics. According to D. N. B. the author 'was well versed in the chemistry of colours.'
- 10382 LIOUVILLE (Joseph, *de l'Institut*; F.R.S.) DÉVELOPPEMENTS sur un THÉORÈME de GÉOMÉTRIE: Sur une PROPRIÉTÉ des SECTIONS CONIQUES, 2 parts 4to (pp. 16), *sewn*, 2s 6d 1844
- 10383 ——— De la LIGNE GÉODÉSIQUE sur un ELLIPSOÏDE QUELCONQUE, 4to. (pp. 8), *sewn*, 1s 6d 1844
- 10384 LIPPINCOTT (Joseph Barlow, U.S. Geol. Survey) CALIFORNIAN HYDROGRAPHY, with map, etc., 8vo. *sewn*, 2s 6d Washington, 1903
- 10885 [L'ISLE (Joseph Nicolas de; F.R.S.) MÉMOIRES pour servir à l'HISTOIRE et au PROGRÈS de l'ASTRONOMIE, de la GÉOGRAPHIE, et de la PHYSIQUE: Dissertations, Pièces nouvelles, Observations et Reflexions; with folding plates, 4to. old calf gilt (newly rebounded); RARE, 15s St. Pétersbourg, 1738
- The illustrations contain one showing the author's thermometric scale, much discussed at the time, but never adopted in practice.
- 10386 LISSAJOUS (Jules Antoine) RAPPORT au Nom du Comité des Arts Économiques sur les divers MODÈLES de STÉRÉOSCOPES; with plate, 4to. (pp. 14), *sewn*, 5s [1857]
- A discussion of the respective merits of Brewster's refractive and Wheatstone's reflecting instruments, with Duboscq's improvements of both. There is also an account of a 'pseudoscope.'
- 10387 LISTING (Johann Benedikt) DER CENSUS RAUMLICHER COMPLEXE, oder VERALLGEMEINERUNG des EULER'SCHEN SATZES von den POLYEDERN; with 2 folding plates, 4to. (pp. 86), *sewn*, 4s Göttingen, 1862
- 10888 ——— VORSTUDIEN zur TOPOLOGIE; with woodcuts, 8vo. (pp. 68), *sewn* (scarce), with auto. of *ibidem*, 1848
- Prof. Lloyd Tunner, F.R.S., 6s 6d
- 'Various researches have been brought under the head of *analysis situs*. The subject was first investigated by Leibniz, and was later treated by GAUSS, whose theory of knots has been employed by J. B. Listing.'—Prof. Cajori.
- 10390 LITTEN (J. Eduard) DAS GESCHWEISSTE SCHMIEDEEISENROHR, 2. Auflage, post 8vo. *sewn*, 2s 6d Berlin, 1906
- 10390 LITTRON (Joseph Johann Edler v.; *Vienna Observatory*) GNOMONIK, oder Anleitung zur Verfertigung aller Arten SONNENUHREN, 2. umgearbeitete Auflage; with 2 folding copperplates, 8vo. *sewn* (scarce), 7s 6d Wien, 1838
- 10391 ——— Die WUNDER des HIMMELS, oder gemeinfassliche Darstellung des Weltsystemes, 5. Auflage, nach den neuesten Fortschritten der Wissenschaft bearbeitet von KARL V. LITTRON; with portrait, 10 plates (some coloured), and 147 woodcuts, thick 8vo. hf. calf neat, 4s Stuttgart, 1866
- One of the best popular German handbooks of astronomy.
- 10392 LIVEING (George Downing, F.R.S.) CHEMICAL EQUILIBRIUM the RESULT of the DISSIPATION of ENERGY, with 2 plates, cr. 8vo. cl., with auto. and numerous MS. notes by Prof. A. S. Herschel, F.R.S. (scarce), 10s 6d Cambridge, 1885
- Interesting for containing numerous MS. additions by Prof. A. S. Herschel, who defines chemical equilibrium as the result of 'structural vigour-couples, (reversible) dispensements, and (unreversible) dispenditures of energy.'
- The work also gives the author's theory of the constitution of matter, 'an outcome of the vortex theory.'
- 10393 ——— On the EFFECTS of DILUTION, TEMPERATURE, and other Circumstances on the ABSORPTION SPECTRA of SOLUTIONS of DIDYMIUM and ERBIUM SALTS, with 23 plates, 4to. (pp. 18), *sewn*, with *inscr.* to Sir Edward Thorpe, F.R.S., 3s 6d [Cambridge, 1899]
- 10394 ———, and Sir James DEWAR, F.R.S.: On the REFRACTION and DISPERSION of LIQUID OXYGEN, and the Absorption Spectrum of Liquid Air, 8vo. (pp. 5), *sewn*, 1s 6d 1895
- 10895 ——— On the SEPARATION of the LEAST VOLATILE GASES of ATMOSPHERIC AIR, and their Spectra, with 2 woodcuts, 8vo. (pp. 10), *sewn*, 1s 6d 1901
- 10896 ——— On the SPECTRUM of the MORE VOLATILE GASES of ATMOSPHERIC AIR which are not condensed at the Temperature of Liquid Hydrogen: PRELIMINARY NOTICE, 8vo. (pp. 8), *sewn*, 1s 6d 1900
- 10897 LÖB (Walther; *Univ. Berlin*) Die ELEKTROCHEMIE der ORGANISCHEN VERBINDUNGEN 3. [neueste], umgearbeitete Auflage von 'Unsere Kenntnisse in der Elektrolyse und Electro-synthese organischer Verbindungen'; with 10 illustrations, 8vo. *sewn*, 6s (p. M. 9) Halle a. S., 1905
- 10398 LOBANOFF (D. I.) CATALOGUE du MUSÉE de la SOCIÉTÉ OURALIENNE à Ekathérinebourg. I. GÉOLOGIE, MINÉRALOGIE, PALÉONTOLOGIE et ARCHÉOLOGIE (en Langues russe et française), roy. 8vo. *sewn*, 3s 6d Ekathérinebourg, 1897

- 10900 **LIVERPOOL and MANCHESTER RAILWAY**: MINUTES of EVIDENCE before the LORDS' COMMITTEES to whom was referred the Bill intitled 'AN ACT for MAKING and MAINTAINING a RAILWAY or TRAMROAD from the Town of LIVERPOOL to the Town of MANCHESTER, with certain Branches therefrom, all in the County of Lancaster,' folio, *hf. calf (joints broken)*, with *auto.* 'George Rennie [F.R.S.], May 9th, 1826' (VERY SCARCE), £3. 3s 1826
The parliamentary evidence in the Lords concerning the first railway line ever opened for passenger traffic, and thus of great importance in connexion with the early history of railway engineering. Among the witnesses were James Cropper (afterwards director of the railway), Sir John Gladstone, M.P. (father of Mr. Gladstone), Alexander Nimmo, F.R.S., George Rennie, F.R.S., and Charles Blacker Vignoles, F.R.S.; while among counsel for the promoters was the delightfully Pickwickian Mr. Serjeant Spankie.
- 10901 — **GEOLOGICAL SOCIETY**, ABSTRACT of the PROCEEDINGS of the, COMPLETE from the beginning in 1859 to 1885 (Vols. 1-5, No. 1), with numerous plates (coloured, photographic and plain), and other illustrations, 4 vols. and 1 part 8vo. *vv.* 1-3 buckram, and the rest sewn, £1. 1s
Liverpool, 1861-85
- 10902 **LIVERSEDGE** (Alfred John, A.M.I.C.E.) COMMERCIAL ENGINEERING, by 'a GENERAL MANAGER,' 8vo. *cl.*, 5s (p. 7s 6d nett) 1912
- 10903 **LIVERSIDGE** (Archibald, F.R.S.) THE MINERALS of NEW SOUTH WALES, 2nd Edition, 4to. *cl.*, 5s
[Sydney, 1882!]
- 10904 **LLOYD** (Commr. Edward William, R.N.), and Lt.-Col. A. G. HADCOCK, *Elswick Works*: ARTILLERY: its Progress and Present Position, with numerous plates (2 coloured), and woodcuts, thick roy. 8vo. (pp. 463), *cl.*, with *auto.* of Major-Gen. E. S. May, R.A., 12s 6d (p. £1. 11s 6d)
Portsmouth, 1893
- A valuable work. Pp. 815-423 contain ballistics.
- 10905 **LLOYD** (Humphrey, D.D., F.R.S.; *Provost T. C. D.*) ELEMENTARY TREATISE on the WAVE THEORY of LIGHT; 2nd Edition, with Additions, *diagrams*, 8vo. *cl.*, 4s 1857
- 10906 — THIRD [LAST] EDITION, revised and enlarged, with *diagrams*, 8vo. *cl.* (o. p.), 8s 6d 1873
'There is no book in any language which puts the leading principles of this subject so clearly and concisely, and at the same time so completely and in such an interesting manner, before the student.'—*Academy*.
The third edition contains an additional chapter on absorption and emission.
- 10907 — ELEMENTS of OPTICS, with 2 folding plates, 8vo. *cl.*, with *auto.* of W. F. Donkin, F.R.S., 5s
Dublin, 1849
- 10908 — LECTURES on the WAVE THEORY of LIGHT, 2 folding plates, 8vo. *hf. calf*, 4s *ibidem*, 1841
Forming the first edition of the 'Elementary Treatise on the Wave Theory of Light.'
- 10909 — On the PHENOMENA presented by LIGHT in its PASSAGE along the AXES of BI-AXIAL [*sic*] CRYSTALS, with 2 plates, 4to. (pp. 13), *sewn* (scarce), 6s 6d
[ib.], 1833
'Perhaps his most notable single scientific achievement, establishing by experiment the existence of conical refraction in biaxial crystals, in conformity with the theoretical anticipations of Sir William Rowan Hamilton [v. No. 8569, ante]. He also succeeded in establishing experimentally the law by which the polarisation of the rays composing the luminous cone is governed.'—*D. N. B.*
- 10910 — RESULTS of OBSERVATIONS at the MAGNETICAL OBSERVATORY of DUBLIN, 1840-3: 1. SERIES: MAGNETIC DECLINATION (pp. 25), with 3 plates: On the MEAN RESULTS of OBSERVATIONS (pp. 36)—in 1 vol. 4to. *sewn*, 4s 6d *ib.*, 1849
- 10911 **LOBATSCHESKY** (Nicolai Ivanovitch) GEOMETRICAL RESEARCHES on the THEORY of PARALLELS, translated [with Introduction, and Appendix on Elliptic Geometry], by GEORGE BRUCE HALSTED [4th Edition], with 37 *diagrams*, roy. 8vo. *cl.* (scarce), 8s 6d *Austin, Texas* [1892]
The only English translation of the author's celebrated researches on the theory of parallel lines—the foundation of hyperbolic geometry. 'What Vesalius was to Galen, what Copernicus was to Ptolemy, that was Lobatschewsky to Euclid.'—*Professor Clifford*.
- 10912 **LOBATTO** (Rehuel; *Delft*) LESSEN over de INTEGRAAL-REKENING; with 2 folding plates, 2 vols. 8vo. boards, 2s 6d
's Gravenhage, 1851-2
- 10913 — MÉMOIRE sur les FONCTIONS ELLIPTIQUES de PREMIÈRE et de SECONDE ESPECE, 4to. (pp. 47), *sewn*, 2s
[Amsterdam, 1846]
- 10914 — MÉMOIRE sur l'INTÉGRATION des ÉQUATIONS LINÉAIRES aux DIFFÉRENTIELLES PARTIELLES à TROIS VARIABLES, 4to. *sewn*, 2s 6d *ibidem*, 1837
- 10915 — MÉMOIRE sur l'INTÉGRATION des ÉQUATIONS LINÉAIRES aux DIFFÉRENTIELLES et aux DIFFÉRENCES FINIES, 4to. (pp. 73), *sewn*, 2s 6d *[ib.]*, 1837
- 10916 — MÉMOIRE sur une MÉTHODE d'APPROXIMATION pour le CALCUL des RENTES VIAGÈRES, 4to. (pp. 32), *sewn*, 2s 6d *ib.*, 1864
- 10917 — MÉMOIRE sur la THÉORIE des CARACTÉRISTIQUES, 4to. (pp. 82), *sewn*, 2s 6d *ib.*, 1837
- 10918 — NOTE sur une PROPRIÉTÉ relative aux RACINES d'une CLASSE PARTICULIÈRE d'EQUATIONS du 3^e DEGRÉ, 4to. (pp. 14), *sewn*, 1s 6d 1844
- 10919 — RECHERCHES sur la SOMMATION de quelques SÉRIES TRIGONOMÉTRIQUES, 4to. *sewn*, 2s 6d
Delft, 1827
- 10920 — VERHANDELING over de ZAMENSTELLING en het EVENWIGT van een Stelsel Krachten werkende op een Vast Lichaam, 4to. (pp. 66), *sewn*, 2s
Amsterdam, 1849
- 10921 — VERKLARING eener NIEUWE en VEREENVOUDIGDE HANDELWIJZE voor het TREKKEN van den CUBUSWORTEL, 12mo. *sewn*, 1s 6d
's Gravenhage, 1842
- 10922 **LOBLEY** (James Logan, F.G.S.) MOUNT VESUVIUS: a Descriptive, Historical, and Geological Account of the Volcano and its Surroundings, 20 plates and maps, 8vo. *cl.*, t. e. g., 5s (p. 12s 6d) 1859
Containing reprints of four contemporary accounts of the formation of Monte Nuovo in 1538, a description of Prof. Palmieri's Seismograph, etc. etc.
- 10923 — VOLCANIC PHENOMENA: THE MEAN VARIATION of the GLOBE: THE CRUST of the GLOBE and its Disturbances, plate—3 pamphlets 8vo. *sewn*, 2s 6d
Lewes, 1897-8
- 10924 **LOBMEYER** (L.), Albert ILG, and Wendelin BOEHEIM: Die GLASINDUSTRIE, ihre GESCHICHTE, gegenwärtige ENTWICKLUNG und STATISTIK, 8vo. *hf. roan neat*, 5s *Stuttgart*, 1874
Pp. 3-144 contain an interesting history of glassmaking to the end of the XVIIIth Century.

- 544 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10926 **LOBBY de BRUYN (C. A.)** The FLASHING POINT of PETROLEUM, 8vo. (pp. 57), *sewn*, 1s 6d [1896]
- 10927 ———, et **J. W. van GEUNS**: CORPS AROMATIQUES NITRÉS XVII: Étude comparative des trois Dinirobenzènes IV. Action du Cyanure de Potassium, roy. 8vo. (pp. 36), *sewn*, 1s 6d Leide, 1904
- 10928 ———, and **C. H. SLUITER**: The BECKMANN-REARRANGEMENT: TRANSFORMATION of ACETOPHENOXIME into ACETANILIDE and its Velocity, impl. 8vo. (pp. 6), *sewn*, 1s [Amsterdam, 1904]
- 10929 ———, et **Alphonse STEGER**: INFLUENCE de l'EAU sur la VITESSE de FORMATION des ÉTHERS ORDINAIRES, roy. 8vo. (pp. 16), *sewn*, 1s Leide. 1899
- 10930 **LOCK (Alfred George) GOLD**: its OCCURRENCE and EXTRACTION; the Geographical and Geological Distribution of Gold-bearing Rocks, Modes of Working Shallow Placers, etc., Hydraulic, the Reduction and Separation of Auriferous Quartz, the Treatment of Complex Ores containing other Metals; also a BIBLIOGRAPHY, and a GLOSSARY of English and Foreign TERMS, with 185 woodcuts, and 6 maps, thick impl. 8vo. (pp. 1250), *cl. (cover soiled)*; o. p., 17s 6d p. (£2. 12s 6d) 1882
- The most extensive work on the subject ever written, and indispensable as a work of reference.
- 10931 **LOCK (Charles George Warnford) MINING and ORE-DRESSING MACHINERY**: a comprehensive Treatise dealing with the Modern Practice of winning both Metalliferous and non-Metalliferous Metals, including all the Operations incidental thereto, and preparing the Product for the Market, with 639 woodcuts, thick roy. 4to. *cl.*, £1. 1s (p. £2. 12s 6d) 1890
- 10932 ——— WORKSHOP RECEIPTS, THIRD SERIES, illustrated, post 8vo. *cl.*, 1s 6d (p. 5s) 1885
- 10933 ———, **G. W. WIGNER**, and **Robert Henry HARLAND**, F.F.I.C.: SUGAR GROWING and REFINING: a Comprehensive Treatise on the Culture of Sugar-Yielding Plants, and the Manufacture, Refining, and Analysis of Cane, Beet, Maple, Melon, Milk, Palm, Sorghum, and Starch Sugars, with copious Statistics, and Chapter on the Distillation of Rum, with 10 folding plates and 205 woodcuts, thick 8vo. *cl. (o. p.)*, 12s 6d (p. £1. 10s) 1882
- 10934 **LOCK (John Bascombe, pr.; Caius Coll.) DYNAMICS for Beginners**, 3rd Edition, with numerous diagrams, cr. 8vo. *cl.*, 2s 6d 1890
- 10935 ——— TREATISE ON HIGHER TRIGONOMETRY, 4th Edition, enlarged, with numerous diagrams, cr. 8vo. *cl.*, 2s 6d 1893
- 10936 **LOCKE (John, F.R.S.) ELEMENTS of NATURAL PHILOSOPHY**, to which are added some Thoughts concerning Reading and Study for a Gentleman, with portrait after Kneller, 12mo. contemporary sheep (joints cracked), 4s [1750]
- 10937 **LOCKE (Joseph, M.P., C.E., F.R.S.)**: BOW-STRING BRIDGE RIBS: a Description of Ribs prepared for a Bridge over the REGENT'S CANAL, LONDON, for the Blackwall Extension Railway, by Messrs. Fox, Henderson and Co., under the Direction of JOSEPH LOCKE, M.P., F.R.S., with 3 folding plates (linen-mounted), 4to. *cl.*, 5s London Works, near Birmingham, 1849
- This was for the beginning of the original North London Railway, which was an extension of the North-Western from Chalk Farm to the Blackwall Railway and the Docks, and was the line on which Mr. Briggs was murdered by Müller. The bowstring girder had a long vogue, but is now hardly rigid enough for the enormous moving weights of the modern express train.
- 10938 ———, THE LIFE of, by JOSEPH DEVEY, with steel portrait, 8vo. *cl.*, 5s (p. 14s) 1862
- 10939 **LOCKHART (James) LEERWIJZE om den CUBIK-WORTEL uit alle Getallen te trekken**, roy. 8vo. (pp. 11), *sewn*, 3s 6d apud auctorem [Haarlem, 1821]
- 10940 ——— METHOD of APPROXIMATING towards the ROOTS of CUBIC EQUATIONS belonging to the IRREDUCIBLE CASE, with diagrams, impl. 8vo. boards, uncut (scarce), 6s 6d R. Ackermann, 1813
- 'Presented to me by J. Lockhart Esqre. Beets.'—Inscr. on flyleaf.
- The author, who is overlooked in D. N. B., was according to Poggenдорff, 'ein reicher Privatmann, der von 1819 bis 1835 in Harlem und darauf an verschiedenen Orten von England lebte. Mitglied der Astronomical Society.' On the title of the Dutch work, which has the preface initialled and the dates filled up in his autograph, he styles himself 'heer van Lanbams, in het graafschap van Essex.'
- 10941 **LOCKWOOD (Thomas Dixon) PRACTICAL INFORMATION for TELEPHONISTS**, large 12mo. morocco neat (title stamped), 2s New York, 1882
- 10942 **LOCOMOTIVE (The) of TO-DAY**, reprinted, with Revisions and Additions, from 'The Locomotive Magazine'; third Edition, with 56 illustrations (including 19 plates), 8vo. *cl.*, 2s 1904
- Not a mere collection of engine-portraits, but a complete treatise on construction and working.
- 10943 **LOEWY (Moritz; de l'Institut) BAHNBESTIMMUNG des ERSTEN KOMETEN 1857**: Über die BAHN des KOMETEN V 1853: — des KOMETEN DONATI: Elemente der BAHN des von BRUNHS am 21. Mai 1853 in Berlin entdeckten KOMETEN—4 parts roy. 8vo. unbound, 3s 6d Wien, 1858-9
- 10944 ——— ÉPHÉMÉRIDES des ÉTOILES de CULMINATION LUNAIRE et de LONGITUDE, 1892-1904; 13 parts 4to. *sewn*, 15s (p. F. 39 nett) 1891-1902
- 10945 ——— ÉTUDE des CONDITIONS à RÉALISER dans l'EXÉCUTION des CLICHÉS pour obtenir l'Homogénéité et le Maximum d'Exactitude dans la Détermination des Coordonnées des Images Stellaires, etc. etc., 4to. (pp. 7), *sewn*, 1s 6d 1902
- 10946 ——— RECHERCHES sur la DÉTERMINATION des CONSTANTES des CLICHÉS PHOTOGRAPHIQUES du CIEL; with diagrams, 4to. *sewn*, with author's inscr., 5s 6d 1893
- 10947 ———, et **Pierre PUISEUX**: ATLAS PHOTOGRAPHIQUE de la LUNE, publié par l'Observatoire de Paris; PARTS 2-6 and 8 (text only), 6 parts 4to. *sewn*, £1. 1s Imprimerie Nationale, 1897-1904
- 10948 ——— THÉORIE du SYSTÈME OPTIQUE composé d'une LUNETTE ASTRONOMIQUE et d'un DOUBLE MIROIR PLAN. Application à la Mesure précise des Distances en Vue de l'Étude de l'Aberration et de la Réfraction; with 27 diagrams, 4to. *sewn*, 3s 6d 1891
- 10949 ——— RECENT PROGRESS accomplished by Aid of PHOTOGRAPHY in the Study of the LUNAR SURFACE, 3 plates of lunar photographs, roy. 8vo. (pp. 17), *sewn*, 1s 6d Washington, 1900

- 10951 **LOCKYER** (Sir Joseph Norman, F.R.S.) The CHEMISTRY of the SUN, with 134 illustrations, 8vo. *cl.* (o. p.), 7s (p. 14s) 1887
This work develops the author's theory of sun-spots, first communicated to the Royal Society in 1886.
- 10952 ——— CONTRIBUTIONS to SOLAR PHYSICS: a Popular Account, with special Reference to SPECTROSCOPIC RESEARCHES, with 7 plates (3 coloured), and 175 woodcuts, thick 8vo. *cl. extra*, *t. e. g.* (o. p.), 8s 6d (p. £1. 11s 6d) 1874
Sir Norman Lockyer was the first to apply spectroscopy to the study of the sun's surface.
The above work includes his papers on solar physics contributed to the 'Philosophical Transactions' and to the French Academy of Sciences, as well as lectures and contributions to various scientific periodicals, with original chapters, notes, appendixes, and index.
- 10953 ——— ELEMENTARY LESSONS in ASTRONOMY, first edition, with coloured frontispiece, 15 plates, and 78 woodcuts, 12mo. *cl.*, 2s (p. 5s 6d) 1868
- 10954 ——— NEW EDITION [enlarged], with coloured front., 16 plates, and 90 woodcuts, 12mo. *cl.*, 2s 6d (p. 5s 6d) 1889
- 10955 ——— INORGANIC EVOLUTION as studied by SPECTRUM ANALYSIS, with 43 illustrations, 8vo. *cl.*, 2s 6d (p. 4s nett) 1900
'Containing an account of my most recent enquiries into the chemistry of the stars.'—*Preface.*
- 10956 ——— THE METEORITIC HYPOTHESIS: the Results of a Spectroscopic Inquiry into the Origin of Cosmical Systems, with 7 plates, and 101 woodcuts, 8vo. *cl.*, 10s (p. 17s nett) 1890
This important work contains all the author's investigations on the subject, and includes his proposition that 'all self-luminous bodies in the celestial space are composed either of swarms of meteorites, or of masses of meteoric vapour produced by heat.'
- 10957 ——— RECENT RESEARCHES in SOLAR CHEMISTRY, 8vo. (pp. 16), *sewn*, 2s 1878
- 10958 ——— THE SPECTROSCOPE and its APPLICATIONS, with coloured frontispiece, and 60 woodcuts, post 8vo. *cl.* (*scarce*), 4s 1873
- 10959 ——— STARGAZING: Past and Present, expanded from Shorthand Notes of a Course of Royal Institution Lectures, with the Assistance of G. A. SEABROKE, F.R.A.S., with frontispiece and 217 woodcuts, many from old prints, 8vo. *cl.*, uncut, *t. e. g.* (o. p.), 10s 6d (p. £1. 1s) 1878
Including a valuable historical account of the 'pre-telescopic age', and of the invention of the telescope; also accounts of 'Time and Space Measures', and 'Modern Meridional Observations'.
- 10960 ——— STUDIES in SPECTRUM ANALYSIS, with 8 coloured plates, and 51 woodcuts, post 8vo. *cl.*, 3s (p. 6s 6d) 1878, '83, or '94
- 10961 ———, and F. E. BAXANDALL: The SPECTRUM of γ CYGNI, with folding plate, 4to. (pp. 18), boards, 2s 6d 1903
- 10962 ———, and Arthur SCHUSTER, F.R.S.: REPORT on the TOTAL SOLAR ECLIPSE of April 6, 1875, with 6 plates, roy. 4to. (pp. 16), *sewn*, 3s 6d 1878
- 10963 **LODGE** (Alfred) MENSURATION for SENIOR STUDENTS, with diagrams, cr. 8vo. *cl.*, 2s 6d (p. 4s 6d) 1895
- 10964 ——— On PRODUCTS and QUOTIENTS of CONCRETE QUANTITIES, 8vo. (pp. 8), *sewn*, 1s 1888
- 10965 **LODGE** (Sir Oliver Joseph, F.R.S.) EASY MATHEMATICS, chiefly Arithmetic, containing a Summary of most Things in Elementary Mathematics useful to be known, with diagrams, cr. 8vo. *cl.*, 2s 6d (p. 4s 6d) 1905
- 10966 ——— ELEMENTARY MECHANICS, including Hydrostatics and Pneumatics; new Edition, completely revised by the AUTHOR, ALFRED and CHARLES S. LODGE, with 107 illustrations, cr. 8vo. 2s 6d (p. 4s 6d) 1904
- 10967 ——— MAN and the UNIVERSE: a Study of the Influence of the Advance in Scientific Knowledge on our UNDERSTANDING of CHRISTIANITY, 8vo. *cl.*, 4s 6d (p. 7s 6d nett) [1908]
- 10968 ——— MODERN VIEWS on ELECTRICITY, with 55 illustrations, cr. 8vo. *cl.*, with author's signature, and auto. of F. J. Jervis-Smith, jr., F.R.S., 2s 6d (p. 6s 6d) 1889
- 10969 ——— [SECOND EDITION, enlarged, and with Chapter on Recent Progress], with 67 illustrations, cr. 8vo., *cl.*, 3s (p. 6s 6d) 1892
- 10970 ——— MODERN VIEWS on MATTER (Romanes Lecture), 8vo. *sewn*, 1s Clarendon Press, Oxford, 1903
- 10971 ——— SIGNALLING ACROSS SPACE WITHOUT WIRES; the Work of HERTZ and his Successors; 2nd enlarged Edition, with steel portrait of Hertz, and 32 woodcuts, 8vo. *cl.*, 2s 6d [1898]
- 10972 ——— THIRD [LAST] EDITION, with additional Remarks on the APPLICATION to TELEGRAPHY, and Later Developments, 67 illustrations, 8vo. *cl.*, 3s 6d (p. 5s nett) [1900]
The Later Developments now include the Application to Party Politics.
- 10973 ——— The WORK of HERTZ and some of his SUCCESSORS, with steel portrait, and diagrams, 8vo. *cl.* (o. p.), 2s 6d [1894]
- 10974 **LOEFFLER** (Friedrich), Georg OESTEN, and R. SENDTNER: WASSERVERSORGUNG, WASSERUNTERSUCHUNG und WASSERBEURTEILUNG, mit Beiträgen von TH. WEYL; with 72 illustrations, roy. 8vo. buckram, 4s (p. M. 9 *sewn*) Jena, 1896
- 10975 **LOESCH** (M.) BESTIMMUNG der INTENSITÄT der SCHWERKRAFT auf 20 Stationen an der westafrikanischen Küste von Rio del Rey (Kamerun-Gebiet) bis Kapstadt; with 2 plates, 4to. (pp. 50), *sewn*, 3s 6d Berlin, 1902
- 10976 **LOEWE** (Ferdinand), and Georg MEYER: WEICHEN und KREUZUNGEN. DREISCHIEBEN und SCHIEBEBÜHNEN. (Der Eisenbahnbau. III. Abteilung); with folding plate, and 166 other illustrations, large impl. 8vo. *sewn*, 4s (p. M. 8) Leipzig, 1898
- 10977 **LÖFFLER** (Alexander) Über die METHODE, die grössten und kleinsten WERTHE UMBESTIMMTER INTEGRALFORMELN zu finden; with folding plate, roy. 8vo. (pp. 30), *sewn*, 1s 6s Wien, 1859

- 546 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 10980 **LOGAN (James)** DEMONSTRACIONES de RADIORUM LUCIS in SUPERFICIES SPHERICAS remotius ab Axe Incidentium a Primario Foco ABERRATIONIBUS; *with folding plate*, 8vo. (pp. 29), *sewn*, 6s
Lugduni Batavorum, 1741
- 10981 ——— EXPERIMENTA et MELETEMATA de PLANTARUM GENERATIONE, nec non CANONUM PROVENIENDIS REFRACTIONUM tum SIMPLICIUM, tum in LENTIBUS DUPLICIUM FOCIS DEMONSTRATIONES GEOMETRICÆ; *with 2 folding plates*, 8vo. (pp. 32). *sewn (rare)*, 10s 6d *ibidem*, 1739
The first part is an enlarged account, originally published in the *Philosophical Transactions*, of the author's experiments on the fertilisation of maize, 'an important demonstration of the sexuality of plants.'—*D. N. B.*
JAMES LOGAN, an Irishman, was William Penn's agent in America, Mayor of Philadelphia, and one of Benjamin Franklin's first protectors. He left his valuable library to the City of Philadelphia.
- 10982 **LOGARITHMS (Logistical)**, TABLE of, for finding the Part Proportional both in Time and Motion, 8vo. (pp. 26), *sewn*, 3s 6d [c. 1780]
- 10983 **LÖHNEYSS (Georg Engelhard v.)** BERICHT vom BERGWERCK, wie man dieselben bawen und in guten Wolstande bringen sol. . . sampt allen dazu gehörigen Arbeiten, Ordnung und rechtlichen Processen; *with engraved title*, and 16 finely etched folding plates, minutely illustrating the machinery and processes in Mining and Metallurgy then in vogue, folio, *sewn (small hole in 1 plate; some leaves slightly waterstained, otherwise a sound copy)*; RARE, £2. 2s o. J. u. O. [? 1619]
A complete treatise on mining and metallurgy as practised in Germany during the XVIIth Century. The above edition is very rare. It was reprinted in 1690.
- 10984 ——— GRÜNDLICHER und AUSSFÜHRLICHER BERICHT von BERGWERCKEN, wie man dieselben nützlich und fruchtbarlich bauen . . . insbesondere die Erzte und Metallen . . . auff's nützlichste bearbeiten, rösten, waschen, puchen, seigern, in kleinem Feuer probiren, cimentiren, scheiden, und im grossen Feuer ohne Abgang schmelzen und zu Nutze machen sol; sampt BERG-ORDNUNG, und Bericht von der Bergelte Verrichtung und Freyheiten; *with engraved title*, and fine and clean impressions of the 16 finely etched folding plates, folio, boards (engraved title mounted, also slightly waterstained and browned); RARE, £1. 10s *Leipzig*, 1690
- 10985 **LOHRMANN (Wilhelm Gotthelf)** MONDKARTE in 25 Sectionen und 2 Erläuterungstafeln, mit Erläuterungen und selenographischen Ortsbestimmungen, unter Mitwirkung von F. W. und M. OPELT, herausgegeben von J. F. JULIUS SCHMIDT; neue wohlfeile Ausgabe, mit Vorwort von H. EBERT; *with fine portrait, 1 plate, and 25 maps on copper, neatly LINEN-MOUNTED IN 4 LARGE SECTIONS*, roy. 4to. in portfolio (1 plate wanting); o. p., 15s (p. M. 25 unmounted) *Leipzig*, 1892
'A series of 25 excellent lunar charts.'—*G. F. Chambers, F.R.A.S.* 'The first scientifically executed lunar chart, on a scale of 37 $\frac{1}{2}$ " to a lunar diameter.'—*Miss Agnes M. Clerke.*
- 10986 **LOMMELE (Eugen, Erlangen)** THE NATURE of LIGHT, with General Account of PHYSICAL OPTICS; *coloured spectrum-table and 188 woodcuts*, cr. 8vo. cl., 2s (p. 5s) 1875, or '88
- 10987 ——— STUDIEN über die BESSEL'SCHEN FUNCTIONEN, 8vo. *sewn (scarce)*, 6s *Leipzig*, 1868
Adopting a nomenclature differing from Neumann's.
- THE EARLIEST BOOK CATALOGUE:
- 10988 [LONDON (William, bookseller)] A CATALOGUE of the most VENDIBLE BOOKS in ENGLAND, Orderly and Alphabetically Digested; under the Heads of Divinity, History, Physick, and Chyrurgery, Law, ARITHMETICK, GEOMETRY, ASTROLOGIE, DIALING, MEASURING LAND and TIMBER, GAGEING, NAVIGATION, Architecture, Horsmanship, Faulconry, Merchandize, Linning, Military Discipline, Heraldry, FORTIFICATION and FIRE-WORKS, Husbandry, Gardening, Romances, Poems, Plays, etc., with Hebrew, Greek and Latin Books for Schools and Scholars. THE LIKE WORK NEVER YET PERFORMED BY ANY [with SUPPLEMENT of New Books come forth since August 1, 1657, till June 1, 1658], sm. 4to. *old calf (partly water-stained, and back of binding damaged)*; very rare, *with inscr. as below*, £4. 4s *printed in the year 1658*
'J[ohn] W[inter] Jones [principal librarian, British Museum (1805-81)] with kind regards of John Edward Gray, British Museum [F. R. S., 1890-75].'*Inscr. on flyleaf.*
'London is best known by a very rare catalogue of English literature [supra], which he drew up in 1658 . . . The signature 'William Loudon' attached to the dedication has been absurdly explained as that of William Juxon, Bishop of London. Besides the dedication . . . there is an 'Epistle to the most candid and ingenious reader,' and a very spirited and well-written 'Introduction to the Use of Books, or a short Essay upon the Value and Benefits of Learning and Knowledge' (pp. 49) . . . London's claim to have produced the earliest catalogue of any bibliographical pretensions is fully justified.'—*Sir Sidney Lee.*
'Whenever you can meet with this small volume, purchase it, if it be only for the sake of reading the spirited introduction prefixed to it. The author was a man (whoever he may chance to be) of no mean intellectual powers.'—*Dibdin's Bibliomania*. Lemoine, in his *History of Printing*, ascribes the preface to THOMAS GUY, the bookseller-founder of Guy's Hospital—an obvious misstatement, as the latter was born (according to *D. N. B.*) c. 1645.
- 10989 **LONES (Thomas East)** ARISTOTLE'S RESEARCHES in NATURAL SCIENCE, *with 10 illustrations*, 8vo. cl., 4s (p. 6s nett) 1912
- 10990 **LONEY (Sidney Luxton, Roy. Holloway Coll.)** THE ELEMENTS of COORDINATE GEOMETRY, *with diagrams*, post 8vo. cl., 3s 6d (p. 7s 6d) 1895
- 10991 ——— SECOND EDITION, revised, *with diagrams*, post 8vo. cl., 4s 1896
- 10992 ——— PLANE TRIGONOMETRY; Stereotyped Edition, *with diagrams*, cr. 8vo. cl., 4s (p. 7s 6d) 1900
Univ. Press, Cambridge
- 10993 ——— ANOTHER COPY, with Solutions, 2 vols. cr. 8vo. cl., 10s (p. 18s) *apud eandem, ibidem*, 1896
- 10994 ——— TREATISE on ELEMENTARY DYNAMICS, 4th Edition, *diagrams*, with Solutions, 2 vols. cr. 8vo. cl., 8s (p. 15s) a. e., ib., 1897-2
- 10995 **LONG (Charles A.)** THE DRY COLLODION PROCESS, first edition, *with 5 woodcuts*, fcap. 8vo. (pp. 31), *sewn (title wanting)*, 3s 6d 1857
- 10996 ——— THIRD EDITION, *with 5 woodcuts*, fcap. 8vo. (pp. 38), *sewn*, 3s 6d 1858
'The dry collodion process devised by Mr. Long is more simple and effective than any other.'—*Ill. London News.*
- 10997 ——— PRACTICAL PHOTOGRAPHY, on Glass and Paper, including the Collodion, Albumen, Calotype, Waxed Paper, and Positive Paper Processes, fcap. 8vo. (pp. 43), *sewn*, 3s 6d 1854

- 10998 **LONG** (Roger, D.D., F.R.S., *Master of Pembroke Hall*) **ASTRONOMY**, with the rare *Continuation*, including Books IV and V [edited and continued by RICHARD DUNTHORNE and WILLIAM WALES, F.R.S.], with numerous fine folding plates, 2 vols. 4to. sound copy in contemporary calf, with old armorial bookplate of Thomas Wright, 12s 6d Cambridge, 1742-84
'An important work'.—Miss Agnes M. Clerke. The continuation includes an interesting memoir of the author, as well as a list of contents to v. II.
- 10999 ——— **VOL. I ONLY**, with numerous copperplates, 4to. old calf (joints cracked), 3s 6d *ibidem*, 1742
- 11000 **LONGITUDES** (Bureau des), ANNALES du: Travaux faits à l'Observatoire Astronomique de MONTSOURIS, et Mémoires divers, Tome Ve; with 4 plates, and numerous diagrams, 4to. sewn, 10s (p. F. 25 nett) 1897
- 11001 **LONGO** (Agatino, Univ. Catania) OSSERVAZIONI PRELIMINARI sulla TEORIA della GRAVITAZIONE UNIVERSALE, 8vo. hf. cl., with author's inscr. on cover (scarce), 5s 6d Catania, 1832
'Contiene la dimostrazione apodittica della erroneità della teoria della gravitazione universale.'—Avvertimento.
- 11002 **LONGOMONTANUS** [recte **LONGBERG**, sive **LUMBORG**] (Christian Severin) **ASTRONOMIA DANICA**, in duas Partes tributa: quarum I. Doctrinam de Diurna Apparente Siderum Revolutione super Sphæra Armillari Veterum instaurata, explicat: II. Theorias de Motibus Planetarum ad Observations TYCHONIS BRAHE, et proprias, in triplici Forma redintegratas, complectitur; cum Appendice de Asscitiitiis Cœli Phænomenis, nempe, Stellis Novis et Cometis, editio princeps; with woodcuts and numerous diagrams, 4to. old hf. calf (slightly browned as usual, but sound copy), 17s 6d Amstelodami, 1622
The author's most important work. According to Gassendi, th's work should be attributed more correctly to Tycho BRAHE, as the tables of celestial movements were begun under his direction, and executed after a treatise by him which had been copied by Longomontanus.
'Ein Buch welches die sphärische und theoretische Astronomie nach dem ptolemäischen, copernicanischen und tychonischen System enthält. Longomontan war Anhänger des Tycho, nahm aber an, dass die Erde täglich von Westen nach Osten rotire.'—L. Günther.
- 11003 **LONGRIDGE** (Capt. Cecil Clement, M.I.M.E.) **GOLD DREDGING**, with numerous folding and other plates, roy. 8vo. cl., 6s (p. 10s nett) 1905
- 11004 **LONGRIDGE** (James Atkinson, M.I.C.E.) On the CONSTRUCTION of ARTILLERY, and other Vessels, to RESIST GREAT INTERNAL PRESSURE, with Abstract of Discussion, edited by CHARLES MANLY, F.R.S., and JAMES FORREST, A.I.C.E., with woodcuts, 8vo. cl., 4s 6d 1860
- 11005 ——— **ANOTHER COPY**; also: **Bidder** (George Parker, Junr.; *Calculating Boy*) The NATIONAL DEFENCES, with maps and other illustrations—2 vols. 8vo. in 1, hf. calf neat, with bookplate of Henry Reeve, C.B., editor of the Greville Memoirs, 6s 6d 1860-1
- 11006 ——— **INTERNAL BALLISTICS**, with diagrams, 8vo. hf. calf neat (title stamped); o. p., 9s (p. 18s) 1859
- 11007 ——— **ANOTHER COPY**, cl., 8s
Including EMILE SARRAU's investigations of the formulæ for muzzle velocity and maximum pressure. Chapter V treats of 'Guns as Thermodynamic Machines.'
- 11008 ——— **TREATISE on the APPLICATION of WIRE to the CONSTRUCTION of ORDNANCE**, with diagrams, 8vo. cl., 8s 6d (p. £1. 5s) 1884
- 11009 ——— **WIRE-GUN CONSTRUCTION**, with Abstract of the Discussion on the Paper, 30 diagrams, 8vo. (pp. 52), sewn, 3s 1884
A proof copy of this important paper, the first practical suggestion of wire-guns.
- 11010 ———, and Charles Henry Brooks, F.R.A.S.: On **SUBMERGING TELEGRAPHIC CABLES**, with folding plate and 16 woodcuts, 8vo. (pp. 148), sewn, 6s 6d 1858
- 11011 **LOHIE** (William O.) **PRIZE ESSAY on the STEREOSCOPE**, with 4 plates, fcap. 8vo. sewn (scarce), 4s 1856
- 11012 **LOOMIS** (Elias; Yale Univ.) On **CERTAIN STORMS in EUROPE and AMERICA**, Dec. 1836, with 13 coloured plates, roy. 4to. (pp. 26), sewn (scarce), 6s 6d [Philadelphia, 1859]
Specially valuable for the minute charts of the great storm in the United States of Dec. 19-21, and in Europe of Dec. 21-23, 1836.
- 11013 ——— **INTRODUCTION to PRACTICAL ASTRONOMY**, with Collection of **ASTRONOMICAL TABLES**, diagrams, roy. 8vo. sheep (binding broken), 3s 6d New York, 1855
- 11014 ——— **SEVENTH EDITION**, with diagrams, roy. 8vo. sheep (binding damaged), 4s 6d *ibidem*, 1883
'The best work of the kind in the English tongue'.—J. P. Nichol, LL.D. 'Containing much information for the amateur astronomer'.—Prof. Simon Newcomb.
- 11015 ——— **THE SAME WORK**, TRANSLATED INTO CHINESE, printed in Chinese characters on thin rice paper, 16 parts sm. folio, sewn with silk thread, and enclosed in native silk portfolio, with bone fasteners, £1. 1s
This is supposed to be the only copy saved from Peking during the Boxer Rising.
- 11016 ——— **THE RECENT PROGRESS of ASTRONOMY**, especially in the UNITED STATES, illustrated, 8vo. cl. (o. p.), 4s New York, 1851
'The work is clearly written, popular, but still with a precision which pronounces the author equal to his task.'—Westminster Rev.
- 11017 ——— **TREATISE on METEOROLOGY**, with a Collection of **METEOROLOGICAL TABLES**, 3 plates and numerous woodcuts, large 8vo. sheep, 5s *ib.*, 1868
- 11018 **LOOMIS** (Elmer Howard) On the **FREEZING POINTS of DILUTE SOLUTIONS**, with 2 illustrations, 2 parts roy. 8vo. (pp. 32), sewn, 1s 6d [New York, 1893-4]
- 11019 **LOPPE** (F.), and Robert P. BOUQUET: **ALTERNATE CURRENTS in PRACTICE**, translated by FRANCIS J. MOFFETT, with 288 illustrations, cr. 8vo. cl., 3s (p. 15s) 1898
- 11020 **LORENTZ** (Hendrik Antoon, Leyden) **SICHTBARE und UNSICHTBARE BEWEGUNGEN**, unter Mitwirkung des Verfassers aus dem Holländischen übersetzt von G. SIEBERT; with 40 illustrations, 8vo. cl., 2s 6d Braunschweig, 1902
- 11021 ——— **THE THEORY of ELECTRONS**, and its APPLICATIONS to the PHENOMENA of LIGHT and RADIANT HEAT, with 9 diagrams, 8vo. cl., 6s (p. M. 9) Leipzig, 1909
- 11022 **LORENZ** (Johann Friedrich) **LEHRBEGRIFF der gemeinen und allgemeinen ARITHMETIK**, 8vo. boards, 3s Magdeburg, 1803

- 548 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11024 **LOGGNA** (Antonio Maria; F.R.S.) DISSERTATION on the SUMMATION of INFINITE CONVERGING SERIES with ALGEBRAIC DIVISORS, exhibiting a METHOD which is not only INTIRELY NEW, but MUCH MORE GENERAL than any other which has hitherto appeared on the Subject, translated with Notes, Observations, and Appendix, containing all the most elegant and useful Formulæ which have been investigated for the Summing of the different Orders of Series, with various Examples to each, by H. CLARKE, with 2 folding plates, 4to. boards (title soiled), 8s
1779
- 11025 ——— ANOTHER COPY, sewn, 8s 6d
'John Landen attacked the appendix in a pamphlet [v. No. 10461 ante] . . . The controversy is noticed in Hutton's 'Mathematical Dictionary'.'—D. N. B.
- 11026 ——— FABBRICA ed USI principali della SQUADRA di PROPORZIONE; with vignette on title and 2 folding plates, 4to. sewn, 6s 6d
Verona, 1768
'Il principale vantaggio che presenta questa squadra di sua invenzione, è di evitare nelle operazioni grafiche l'uso del compasso, quale richiedesi nell' adoperare quello di proporzione del Galilei.'—Riccardi.
v. IDRAULICI (OPUSCOLI), No. 9658, ante.
- 11027 **LOSSEN** (Wilhelm) FORMELN zur BERECHNUNG der MOLEKULARVOLUMINA ORGANISCHER VERBINDUNGEN, 8vo. (pp. 42), sewn, 1s 6d
Leipzig, 1889
- 11028 **LOSSIUS** (Lucas, Lunæburgensis) ARITHMETICES EROTEMATA PUERILIA, in quibus VI Species huius utilissimæ Artis, et REGULA, quam vocant DETRI, brevier et perspicuè traduntur, 16mo. (pp. 80), unbound (stained, and pp. 55-8 and 75-6 wanting, and last l. mended); very rare, £l. 5s
Lipsiæ, Abraham Lamberg, 1595
An extremely rare work, quite unknown to Professor de Morgan, Poggenдорff, Graesse, Brunet, and Ebert, as well as to the author's biographer in *Biographie Générale*, where only his musical and theological works are mentioned; nor was there a copy in the Libri collection.
- 11029 **LOTTERI** (Angelo Luigi, Univ. Pavia)] MEMORIA sopra le CURVE PARALLELE; with folding plate, 4to. (pp. 25), sewn (rare), 10s 6d
Pavia, 1792
'Die wichtigste, von Kästner und Lotteri unabhängig gefundene Eigenschaft [der Parallellkurven] bezieht sich auf die von zwei Kurvennormalen und den zwischen ihnen liegenden Bögen der Parallellkurven eingeschlossene Fläche. Sie ist nämlich gleich dem Inhalt eines Trapezes, dessen parallele Seiten gleich den beiden Parallellkurven sind, und dessen Höhe gleich dem Abstand derselben ist.'—Prof. M. Cantor.
- 11030 **LOUDON** (William J., Univ. Toronto) ELEMENTARY TREATISE on RIGID DYNAMICS, with 71 woodcuts, 8vo. cl., with auto. and bookplate of Prof. Lloyd Tanner, F.R.S., 6s 6d (p. 10s 6d nett)
New York, 1896
'I believe that the arrangement of the work, method of treatment, and more particularly the illustrations, are entirely new and original.'—Intro.
- 11031 **LOUIS** (Henry; M.I.C.E., Armstrong Coll., Univ. Durham) HANDBOOK of GOLD MILLING, with frontispiece from old print, 3 plates, and 120 woodcuts, thick cr. 8vo. cl., 4s 6d (p. 10s nett) 1894
- 11032 ——— SECOND EDITION [enlarged], with front. from old print, 3 plates, and 131 woodcuts, thick cr. 8vo. cl., 5s 6d (p. 10s nett) 1899
- 11033 ———, and George William CAUNT: TRAVERSE TABLES; with Introduction on CO-ORDINATE SURVEYING; diagrams, 8vo. cl., 2s 6d (p. 4s 6d nett) 1901
- 11034 **LOUNSBURY** (Thomas Raynesford, Yale Univ.) SHEFFIELD SCIENTIFIC SCHOOL [of Yale College], 1847-79: an Historical Sketch, impl. 8vo. (pp. 25), sewn, 2s
New York, 1879
- 11035 **LOVE** (Augustus Edward Hough, F.R.S.; Sedleian Prof. Nat. Phil., Oxon.) The GRAVITATIONAL STABILITY of the EARTH, with 4 diagrams, 4to. (pp. 71), sewn, 2s 6d 1907
- 11036 ——— THE SMALL FREE VIBRATIONS and DEFORMATION of a THIN ELASTIC SHELL, 4to. (pp. 56), sewn, 2s 6d 1888
- 11037 ——— THEORETICAL MECHANICS: an Introductory Treatise on the Principles of Dynamics, with Applications and numerous Examples, 84 diagrams, 8vo. cl., 6s (p. 12s)
Univ. Press, Cambridge, 1897
- 11038 ——— TREATISE on the MATHEMATICAL THEORY of ELASTICITY, VOL. I, with diagrams, 8vo. cl., 3s (p. 12s)
apud eandem, ibidem, 1892
- 11039 ——— WAVE MOTIONS with DISCONTINUITIES at WAVE-FRONTS, with diagrams, impl. 8vo. (pp. 26), sewn, with author's inser., 2s
[1903]
- 11040 **LOVE** (Thomas, working dyer and scourer) THE ART of CLEANING, DYEING, SCOURING, and FINISHING, on the most approved ENGLISH and FRENCH METHODS; being Practical Instructions in dyeing Silks, Woolens, Cottons, etc., scouring and cleaning Bed and Window Curtains, Carpets, etc., with LIST of PRICES, etc. etc.; 2nd Edition, enlarged, with portrait, cr. 8vo. cl. (pp. 448-53 missing); scarce, 6s 1855
- 11041 **LOVIBOND** (Joseph Williams, F.R.M.S.) MEASUREMENT of LIGHT and COLOUR SENSATIONS: a New Method of investigating the Phenomena of Light and Colour by means of the Selective Absorption in Coloured Glass, graded into Scales of Equivalent Colour Value, with frontispiece, 13 coloured plates, and 13 woodcuts, 8vo. cl., 5s 1893
An account of the author's barbarously-named tintometer, an invention based on a new theory of colours, for which he was awarded numerous prize medals.
- 11042 **LOVIBOND** (Thomas Watson, F.C.S.) BREWING with RAW GRAIN: a Practical Treatise, cr. 8vo. cl., 2s 6d (p. 5s) 1883
- 11043 **LOW** (David, Univ. Edin.) On the CHEMICAL EQUIVALENTS of CERTAIN BODIES, and on the Relations between Oxygen and Azote, roy. 8vo. (pp. 20), sewn, with inscr. to Sir E. Frankland, F.R.S., 2s 1854
- 11044 **LOW** (David Allan), and Alfred William BEVIS, M.M.I.M.E.: MANUAL of MACHINE DRAWING and DESIGN, 4th Edition, with 753 woodcuts, 8vo. cl., 3s (p. 7s 6d) 1896
- 11045 ——— NEW EDITION, enlarged, with 804 woodcuts, 8vo. cl., 4s (p. 7s 6d) 1906
- 11046 **LÖW** (Moritz) Zur THEORIE des PASSAGENINSTRUMENTS im ersten Vertical, 4to. (pp. 7), sewn, 1s 6d
[Kiel, 1881]

11048 **LOVETT** (Richard) The ELECTRICAL PHILOSOPHER, containing a NEW SYSTEM of PHYSICS FOUNDED upon the PRINCIPLE of a UNIVERSAL PLENUM of ELEMENTARY FIRE, wherein the Nature of Elementary Fire is explain'd, its Office pointed out, its extensive Influence and Utility in explaining many of the most abstruse Phenomena of Nature shewn, and the GRAND DESIDERATUM in particular which has been hitherto either entirely given up as INEXPLICABLE, or else sought after in vain by the most able Naturalists, is at length HAPPILY OBTAIN'D, viz. the CAUSE of GRAVITY, the Cause of COHESION, etc. etc., with Postscript containing Strictures upon the uncandid Animadversions of the Monthly Reviewers, with 2 folding plates, 8vo. contemporary *hf. calf (rare)*, 15s
Worcester, 1774

11049 — PHILOSOPHICAL ESSAYS: I. Enquiry into the Nature and Properties of the Electric Fluid, in order to explain . . . the Truth of Sir I. Newton's Doctrine of a Subtile Medium or Æther. II. Dissertation on the Nature of Fire in general, and the Production of Heat in particular. III. Miscellaneous Discourse, wherein the forementioned active Principle is shewn to be the only probable Mechanical Cause of Motion, Cohesion, Gravity, Magnetism, etc.; with Appendix on the VARIATION of the MAGNETIC NEEDLE or Mariner's Compass; by which the Longitude is investigated on the most simple Principles, and Glossary of Terms, with 4 folding copperplates, 8vo. boards, uncut (RARE), 15s
ibidem, 1766

With long list of subscribers, including Dr. Priestley, Abraham Bennet, F.R.S., etc. etc.

The author was a rare example of a scientific, or would-be scientific, chairman, as he was one of the Lay Clerks of Worcester Cathedral for 58 years till his death in 1780. He was an early dabbler in medical electricity, and advertised himself as able to effect cures of the throat by its use; but he only got budgetted for his pains by Professor de Morgan as 'a mere theorist: one of those ether philosophers who bring in elastic fluid as an explanation by imposition of words, without deducing any one phenomenon from what we know of it.'

11050 **LOWELL** (Percival, Director Lowell Observatory, Flagstaff, Ariz.) MARS, with 24 plates, and 3 smaller illustrations, 8vo. cl. (a number of ll. and plates loose), 6s (p. 12s 6d) 1896

11051 — SECOND EDITION, with 26 plates, and 3 other illustrations, 8vo. cl., uncut, t. e. g. (o. p.), 7s 6d 1896

11052 **LÖWIG** (Carl Jacob; Univ. Breslau), und Matthias Eduard SCHWEIZER: Über STIBAETHYL, ein neues ANTIMONHALTIGES, ORGANISCHES RADICAL, 3 parts 8vo. (pp. 48), sewn, Zürich, 1850

An account of the discovery of triethyl of antimony, based on Sir E. Frankland's discovery of ethyl of antimony.

11053 **LOWRY** (Thomas Martin, F.C.S.) STUDIES of the TERPENES and Allied Compounds. NITROCAMPHOR and its DERIVATIVES, 8vo. (pp. 21), sewn, 1s 1898

11054 **LOYS de CHESEAU** (Jean Philippe, de l'Académie des Sciences) MEMOIRES POSTHUMES sur Divers Sujets, d'ASTRONOMIE et de MATHÉMATIQUES, avec de nouvelles TABLES très-exactes, des moyens Mouvements du SOLEIL et de la LUNE; with 4 folding copperplates, 4to. contemporary boards, uncut, with auto. of L. C. Bowier, 10s 6d 1754
Lausanne, 1754

Including 'Problème sur l'oscillation du pendule dans un arc de cercle': 'Sur les Satellites en général, et sur ceux du Saturne en particulier': 'Problème Géométrique sur le Nombre de Personnes qui meurent dans chaque Âge.'

11055 **LUBBOCK** (Sir John William; banker and astronomer; V.P.R.S.; Lord Avebury's father) ACCOUNT of the 'TRAITÉ sur le FLUX et le REFLUX de la MER' of DANIEL BERNOULLI; and TREATISE on the ATTRACTION of ELLIPSOIDS, with diagrams, 8vo. (pp. 55), sewn, 4s 1830

11056 — ELEMENTARY TREATISE on the COMPUTATION of ECLIPSES and OCCULTATIONS, with folding plate, 8vo. (pp. 40), sewn (scarce), with auto. of the Duca di Rignano, 7s 6d 1835

Lord Avebury's father was a striking example of the union of great business ability with success in exact science. He showed the former in piloting the family bank through the bad panics of 1847 and 1857—his death saved him from the terrors of Black Monday in 1866. 'His laborious researches in physical astronomy were mainly directed towards the simplification of methods; and he introduced uniformity into the calculation of lunar and planetary perturbations by employing in the former, as in the latter, the time as the independent variable. He was foremost among English mathematicians in adopting Laplace's doctrine of probability, and he was the joint author, with Drinkwater, of an excellent elementary treatise on probability [q. v., No. 2711 ante] in 1930, which a binder's blunder caused to be often attributed to De Morgan, despite his frequent disclaimers.'—Miss Agnes M. Clerke.

11057 **LUC** (Jean André de, F.R.S.; reader to Queen Charlotte) IDÉES sur la MÉTÉOROLOGIE; with 2 folding plates, 2 vols. 8vo. nice copy in contemporary French calf extra (SCARCE), 18s 6d 1787

11058 — ANOTHER COPY, wanting Tome I Partie I; with 2 plates, 2 vols. 8vo. boards, uncut, 6s 6d

'Deluc made very numerous experiments on the atmosphere; inquiring into the modes of production of clouds, rain, hail, dew, etc. . . . He enunciated a point of the highest importance when he endeavoured to show that the amount of water-vapour in the atmosphere, or in any closed vessel, is independent of the density of the air in any other gaseous substance in which it is diffused, a theory which was subsequently proved more clearly by John Dalton.'—Prof. W. J. Harrison.

11059 — RECHERCHES sur les MODIFICATIONS de l'ATMOSPHÈRE, contenant l'Histoire critique du Baromètre et du Thermomètre, leur Construction et Usage, principalement à la Mesure des Hauteurs, et à la Correction des Refractions Moyennes, nouvelle Edition; with folding plates, 4 vols. 8vo. contemporary *hf. calf extra, uncut (nice copy)*, 17s 6d 1784

The author's most important work, containing his invention of an hygrometer (based on the property of ivory expanding or contracting by the amount of atmospheric moisture), his discovery that water reaches its greatest density at 4° C., and his observations on thawing ice utilised by Dr. Black in his discovery of latent heat. He was the discoverer of the 'dry pile', afterwards improved by Zamboni, and the first to give correct rules for measuring heights by the barometer.

11060 — SECOND PAPER on HYGROMETRY, with 3 copperplates by Basire, 2 parts 4to. (pp. 75), sewn, 5s 1790-1

11061 **LUDWIG** [sive LUDOVICI] (Daniel, M.D.) De PHARMACIA, Moderno Seculo applicanda, Dissertationes III, editio princeps, thick 18mo. sound copy in old white vellum (rare), 17s 6d

Gothæ, 1671

'Als Lehrbuch für das wissenschaftliche Studium der pharmaceutischen Chemie schrieb der gothaische Leibarzt Daniel Ludovici schon 1671 seine Pharmacia, eins der besten und am meisten gebrauchten Apothekerbücher der damaligen Zeit.'—H. Kopp. 'Il eut le mérite de débarrasser la pharmacie d'une foule de remèdes inutiles.'—Biogr. Gén.

The work was unknown to Poggendorff.

- 550 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11063 **LUCAS** (Alfred, F.I.C.) The CHEMISTRY of the RIVER NILE, with 2 folding plates, impl. 8vo. (pp. 78), *sewn*, 2s Cairo, 1908
- 11064 ——— A PRELIMINARY NOTE on some PRESERVATIVE MATERIALS used by the ANCIENT EGYPTIANS in Connection with EMBALMING, impl. 8vo. (pp. 17), *sewn*, 2s *ibidem*, 1908
- 11065 ——— PRESERVATIVE MATERIALS used by the ANCIENT EGYPTIANS in EMBALMING, impl. 8vo. boards, 2s *ib.*, 1911
- 11066 ——— REPORT on the SOIL and WATER of the WADI TUMILAT LANDS under RECLAMATION, with 5 plates, impl. 8vo. *sewn*, 2s *ib.*, 1903
- 11067 ——— The USES and LIMITATIONS of CHEMICAL ANALYSIS, impl. 8vo. *sewn*, 2s *ib.*, 1908
- 11038 **LUCHINI** (Domenico, di Pesaro) TRATTENIMENTI MATEMATICI, i quale comprendono copiose TAVOLE HORARIE per gli OROLOGJ a SOLE Orizzontali, Verticali, Riflessi, e Portatili, per tutte l'Altezze del Polo, e per tutte le Sorti d'Hore, con una breve Notizia Pratica della Geometria, e Trigonometria Sferica e Piana, con diversi Quesiti e Problemi Astronomici, e del Calendario Ecclesiastico, i quali facilmente si sciolgono con le TAVOLE de' LOGARITMI; with 14 plates comprising 90 figures, thick 4to. contemporary white vellum (sound copy); RARE, £1. 1s Roma, 1730
Questa voluminosa e pregevole opera è citata dal Montucla e dal Franchini.—Riccardi.
- 11039 **LUDLAM** (William, St. John's Coll., Cantab.; absentee Rector of Cockfield) ACCOUNT of a BALANCE of a NEW CONSTRUCTION, supposed to be of Use in the WOOLLEN MANUFACTURE; with 2 folding copperplates, 4to. (pp. 15), *sewn* (rare), 6s 6d 1766
He accepted from his college the Rectory of Cockfield in Suffolk, and removed to Leicester, where he spent the remaining twenty years of his life in his favourite studies. He enjoyed considerable reputation at the time for his skill in practical mechanics and astronomy, as well as for his mathematical lectures.—D. N. B.
- 11070 ——— DIRECTIONS for the USE of HADLEY'S QUADRANT, with Remarks on its Construction, with considerable Corrections and Additions, 4 folding plates, 8vo. (pp. 87), *sewn* (rare), 6s 6d 1790
In his introduction the author states that after Hadley's death a paper in Sir Isaac Newton's handwriting was found in his possession, 'which contained a drawing and description of an instrument not much different from the first of Hadley's [quadrants].'
- 11071 ——— The RUDIMENTS of MATHEMATICS, for Students at the Universities: containing an Introduction to Algebra; Remarks on the first VI Books of Euclid; Elements of Plain [*sic*] Trigonometry, first edition, with 3 folding plates, 8vo. boards, uncut, 6s Cambridge, 1785
The Bishop of Landaff [Richard Watson, F.R.S., 1737-1816] from the Author.—*Inscr. on flyleaf from one unabashed absentee to the other.*
- 11072 ——— THIRD EDITION, with 3 folding plates, 8vo. cl., with auto. of Dr. P. M. Roget, F.R.S., 1790
5s
It became a standard Cambridge text-book, passed through several editions, and was still in vogue in 1815.—D. N. B.
- 11073 **LUDOLF** (Hieronymus v., Univ. Erfurt) VOLLSTÄNDIGE und GRÜNDLICHE EINLEITUNG in die CHYMIE, darin nicht allein alle chymische Arbeiten deutlich gezeigt und gründlich erklärt, sondern auch zu derselben Erläuterung die wichtigsten Versuche aus der Pharmacie, Metallurgie und Alchymie nebst allen Vortheilen treulich ausgeführt worden; with portrait and 20 copperplates, thick 8vo. old calf, 12s 6d Erfurt, 1752
- 11074 ——— ANOTHER COPY, with portrait, but wanting the plates, 2 vols. 8vo. boards, uncut, 6s
Das auf nassem Wege gebildete schwarze Schwefelquecksilber kannte der Erfurter Professor Ludolf, der desselben in seiner 'Einleitung in die Chemie' (1752) erwähnt.—H. Kopp.
- 11075 **LUGO** (Giovanni) La VIA dell' ARITMETICA, appianata, e ripianata da ANTONMARIA Figlio, col Mezzo della quale; Giovanni di Negozio capaci di Lettura potranno agevolmente da se definire qualunque Proposta appartenente alla Parte inferiore della medesima, 2 vols. 8vo. in 1, boards, uncut (rare), 8s 6d Verona, 1754
Unknown to Professor de Morgan.
- 11076 [**LUKIN** (James, pr.)] The AMATEUR MECHANIC'S WORKSHOP: including Turning, Casting, Forging, Brazing, Soldering, and Carpentry, by the Author of the 'Lathe and its Uses', first edition, with 3 plates and 168 woodcuts, 8vo. cl., 3s 1870
- 11077 [——] SECOND EDITION, with 3 plates, and 168 woodcuts, 8vo. cl., 3s 1872
- 11078 [——] SIXTH EDITION, with 3 plates, and 168 woodcuts, 8vo. cl., 3s 6d 1880
Halkett and Laing mistakenly attribute the authorship to Elias Taylor.
- 11079 [——] TURNING for AMATEURS: the Lathe and its Attachments and Tools, first edition, with 129 woodcuts, post 8vo. hf. calf gilt, 2s 6d n. d.
- 11030 ——— NEW [THIRD] EDITION, enlarged, with 144 woodcuts, large post 8vo. cl., 2s 1884
- 11031 ——— TURNING LATHES: a Guide to Turning, Screw-Cutting, Metal-Spinning, etc., with 194 illustrations, post 8vo. cl., 2s 1888
- A FINE AND WHOLLY COMPLETE SET:
- 11032 **LUMIÈRE ÉLECTRIQUE** (La): JOURNAL UNIVERSEL d'ÉLECTRICITÉ: Revue Scientifique Illustrée publiée sous la Direction scientifique de TH. DU MONCEL; complete from the beginning in 1879 to its conclusion in August, 1894, copiously illustrated, 53 vols. 4to., the first 10 vv. in hf. cl., and the rest in hf. red morocco neat (A VERY FINE SET), SCARCE, £13. 13s 1879-94
The most important French journal on the subject. It was continued in 1894 by 'Éclairage Électrique.' The last 3 vols. are very scarce, and wanting in practically every set happening for sale.
- 11033 **LUMMER** (Otto) CONTRIBUTIONS to PHOTOGRAPHIC OPTICS, translated and augmented by SILVANUS PHILLIPS THOMPSON, F.R.S., with 55 illustrations, 8vo. cl., 4s (p. 6s nett) 1900
This work, which has never been published in book form in the original, 'gives in a concise form information not to be found elsewhere, and in a manner so logical and direct as to be of immediate value in scientific optics.'—Prof. Silvanus Thompson.
- 11034 **LUNT** (Joseph, F.I.C.) On the ORIGIN of certain UNKNOWN LINES in the SPECTRA of STARS of the β CRUCIS TYPE and on the SPECTRUM of SILICON, 8vo. (pp. 7), *sewn*, 1s 6d [1900]

11086 **LULLIUS (Raymundus; 'Doctor Illuminatus')** DE SECRETIS NATURAE, seu de QUINTA ESSENTIA Liber unus, in tres Distinctiones divisus, omnibus iam Partibus absolutus; adiecta est eiusdem EPISTOLA ad REGEM ROBERTUM de ACCURTATIONE LAPIDIS PHILOSOPHORUM; cui adiunctus est TRACTATUS de AQUIS ex Scriptis Raymundi super Accurtationis Epistolam ab Artis studioso collectus: MERCURIORUM LIBER iam tandem Subsidio MSi. Exemplaris perfectè editus; item eiusdem APERTORIUM, REPERTORIUM, ARTIS INTELLECTIVÆ THEORICA ET PRACTICA, MAGIA NATURALIS, Opuscula planè aurea; *printed in italie, with vignette on title*—2 vols. 16mo. in 1, *old calf (back of binding damaged, and a few ll. very slightly wormed, otherwise FINE COPIES)*; RARE, £1. 15s

Coloniae, Joa. Birckmann, 1567

'L'Epistole Accurtationis est la réponse de R. Lulle à une lettre de ROBERT [BRUCE], Roi d'Écosse, qui demande des renseignements sur la préparation de la pierre philosophale.'—F. Hoefcr.

11037 ——— **TESTAMENTUM**, duobus Libris universam Artem Chymicam complectens, item eiusdem COMPENDIUM ANIMAE TRANSMUTATIONIS ARTIS METALLORUM, Editio II^a, multorum Exemplarium Collatione infinitis Locis castigatio; *with 2 folding diagrams and other illustrations*, 16mo. *hf. parchment* (RARE), £1. 5s

ibidem, apud eundem, 1573

11038 ——— **ANOTHER COPY**, 12mo. *old vellum* (1 plate wanting, and the other defective; but tall copy), 17s 6d

Perhaps the author's most important alechemical work, and according to Prof. E. v. Meyer, one of the few genuine ones of the many works attributed to him.

Raymond Lull's unfortunate reputation as an alchemist has unhappily marred or obscured what should have been his true fame as a natural philosopher, and his glory, almost unique in the later Middle Ages, as a Christian missionary. As the former he may be considered as a forerunner of Francis Bacon, while his greatest work, the *Ars Generalis sive Magna*, was afterwards developed by Giordano Bruno. As the latter he shone with a zeal and bravery which few have surpassed before or since, and the tortures he underwent on his preaching journeys to the Muslims of Tunis and Algeria were only ended by his death by stoning at Bougie in the year 1515—a Medieval union of science and faith glorified by a pathetic heroism whose memory has long been let to fade away.

11039 **LUNARDI (Vincent, Secretary to the Neapolitan Ambassador)** ACCOUNT of the FIRST AERIAL VOYAGE in ENGLAND, in Letters to his Guardian CHEVALIER GHERARDO COMPAGNI, written under the Impressions of the various Events that affected the Undertaking, first edition, *with fine portrait by F. BARTOLOZZI after Cosway (mounted and slightly soiled), and 2 folding copper-plates of the balloon and filling apparatus (the former clumsily mended)*, 8vo. *hf. calf* (joints cracked, and some ll. soiled), *with AUTHOR'S SIGNATURE on flyleaf*; cheap, £1. 7s 6d

printed for the author, 1784

The portrait in the above copy is often missing; another by Burke after Nasmith was issued with Lunardi's Aerial Voyage in Scotland (*q. v. infra*).

11090 ——— **SECOND EDITION**, 8vo. *sewn* (portrait and plates wanting, but very clean copy), 10s 6d 1784

After various delays and apprehensions, Lunardi, having made his will, ascended from the Hon. Artillery Co.'s ground at Moorfields on 15 Sept. 1784, in the presence of nearly 200,000 spectators. The balloon was about 32 feet in diameter, and was filled with hydrogen under the direction of Dr. George Fordyce. He sailed over London at a great height, and descended near Ware. The attempt excited great interest among all classes. . . . The king viewed the balloon through a telescope from the Queen's presence chamber at St. James's. Several descriptions were printed, the best of which is that written by Lunardi himself'.—D. N. B.

An appendix contains attestations by eye-witnesses, and a poetical effusion addressed to the author.

A COLOURED COPY; PROBABLY UNIQUE:

11091 ——— **ACCOUNT OF FIVE AERIAL VOYAGES in SCOTLAND**, in a Series of Letters to his Guardian CHEVALIER GERARDO COMPAGNI, written under the Impression of the various Events that affected the Undertaking, *with fine portrait of the author in the uniform of the Hon. Artillery Co. by BURKE after NASMITH, and 2 plates (all finely coloured)*, 8vo. *contemporary red morocco gilt* (FINE AND LARGE COPY), £7. 1786

COLOURED COPIES AS THE ABOVE ARE GENERALLY UNKNOWN, AND THE ABOVE IS PERHAPS THE ONLY ONE IN EXISTENCE. *It was probably the author's own copy, as it bears on the flyleaf his auto. 'Vincent Lunardi N45 Finchfield Street, London.'*

At end are Verses (pp. 10) 'To Mr. Lunardi, on his Successful Aerial Voyages from Edinburgh, Kelso, and Glasgow', by JAMES TYTLER, the first British aeronaut, in which the latter gives some interesting details regarding his 'Edinburgh Fire Balloon'.

11092 ——— **ACCOUNT OF MR. VINCENT LUNARDI**, the first Aeronaut in England: **ACCOUNT OF MR. LUNARDI'S AERIAL VOYAGE**, on Sept. 15, 1784: Two Articles from the 'Universal Magazine', *with portrait and plate of balloon on copper, also woodcut*, 7s 6d [1784]

'Lunardi takes a high place among the pioneers of ballooning, his ascent having been made less than a year after the first flight in a 'Montgolfière' by Pilâtre de Rozier, and only a few days after the ascent by James Tytler from Edinburgh on 27 August 1784'.—D. N. B.

11093 **LUNGE (Ernest) COMPULSORY WORKING and REVOCATION of PATENTS**, 8vo. *cl.*, 2s 1910

11094 **LUNGE (Georg, Zürich) BEITRÄGE zur CHEMISCH-TECHNISCHEN ANALYSE**, impl. 8vo. [Berlin, 1904]

(pp. 25), *sewn*, 2s

11095 ——— **COAL-TAR and AMMONIA**, being the 2nd and Enlarged Edition of 'a Treatise on the Distillation of Coal-Tar and Ammoniacal Liquor', *with 191 woodcuts*, thick 8vo. *cl.*, 8s 6d [£1. 11s 6d] 1887

11096 ——— **REPORT of the INTERNATIONAL COMMITTEE on ANALYSES to the VIth International Congress of Applied Chemistry at Rome, 1906** [in English, French, and German], 8vo. *sewn*, 5s (p. M. 10) Zürich 1906

11097 ——— **THEORETICAL and PRACTICAL TREATISE on the MANUFACTURE of SULPHURIC ACID and ALKALI**, with the collateral Branches, 3rd Edition, enlarged (Vols. II and III, 2nd Edition), *with 959 illustrations (including many folding plates)*, 3 vols. 8vo. in 4, *cl.*, £2. 17s 6d (p. £6. 16s 6d nett) 1903-1896

11093 ——— **Zur THEORIE der BLEIKAMMERPROCESSES**, 2 parts 8vo. (pp. 39), *sewn, with author's inscr.*, 2s Berlin, 1888

11099 ———, and **Ferdinand HURTER: The ALKALI-MAKERS' HANDBOOK: Tables and Analytical Methods for Manufacturers of Sulphuric Acid, Nitric Acid, Soda, Potash, and Ammonia**, 2nd Edition, enlarged, *with 13 woodcuts*, cr. 8vo. *cl.*, 5s (p. 10s 6d) 1891

- 552 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11101 **LUNN** (Francis, F.R.S.) CHEMISTRY (Encyclopædia Metropolitana), with 2 plates, 4to. unbound, 2s [1827]
- 11102 ——— ANOTHER COPY, *hf. cl.*, 2s 6d
- 11103 ——— ELECTRICITY (Encyclopædia Metropolitana), with 5 plates, 4to. unbound, 2s 6d [1825]
- 11104 ——— ANOTHER COPY, *hf. cl.*, 3s
- 11105 ——— HEAT (Encyclopædia Metropolitana), plate, 4to. unbound, 2s [1826]
- 11106 ——— ANOTHER COPY, *hf. cl.*, 2s 6d
- 11107 **LYCETT** (John) THE COTTESWOLD HILLS; Hand-Book introductory to their GEOLOGY and PALEONTOLOGY, with 7 lithographs of fossil mollusca, cr. 8vo. *cl.* (scarce), 5s 6d 1857
Including 'List of Works on the Geology and Palæontology of the Jurassic Rock', and 'Index to Scientific Terms'.
- 11108 **LYCOUDIS** (Lieut.-Col. Pierre S.) SUITE au MÉMOIRE sur un NOUVEAU SYSTÈME de BOUCHES à FEU DÉMONTABLES. Nouveaux Tracés; with 6 folding plates, roy. 4to. (pp. 36), sewn, Athènes, 1896 4s [1864]
- 11109 **LYELL** (Sir Charles, F.R.S., P.G.S.) ADDRESS [to the BRITISH ASSOCIATION], 8vo. (pp. 23), sewn, 1s 6d [1864]
- 11110 ——— THE ELEMENTS of GEOLOGY, or the Ancient Changes of the Earth and its Inhabitants; sixth [LAST] EDITION, greatly enlarged, with 770 woodcuts, thick 8vo. *cl. gilt (o. p.)*, 7s 6d (p. 18s) 1865
- 11111 ——— ANOTHER COPY, *calf extra*, 9s
Forming a supplement to the *Principles*.
- 11112 ——— THE GEOLOGICAL EVIDENCES of the ANTIQUITY of MAN, with Remarks on Theories of the ORIGIN of SPECIES by VARIATION, 2nd Edition, revised [with Appendix], with frontispiece and 58 woodcuts, 8vo. *hf. calf gilt (nice copy)*, 6s 6d 1863
- 11113 ——— ANOTHER COPY, *cl.*, 5s
- 11114 ——— THIRD EDITION, revised, with front. and 58 woodcuts, 8vo. *cl. (o. p.)*, 6s (p. 14s) 1863
- 11115 ——— MANUAL of ELEMENTARY GEOLOGY: or, the Ancient Changes of the Earth and its Inhabitants, third and entirely revised Edition, with front., and 520 woodcuts, 8vo. *cl.*, 4s 1851
- 11116 ——— FOURTH EDITION, revised, with front., and 520 woodcuts, 8vo. *cl.*, 4s 6d 1852
The title was afterwards changed into 'Elements of Geology'.
- 11117 ——— THE PRINCIPLES of GEOLOGY; being an Attempt to explain the former Changes of the Earth's Surface, by Reference to Causes now in Operation, first edition, with 11 plates and maps (some coloured), and 135 woodcuts, 3 vols. 8vo. *hf. calf gilt (nice copy)*; SCARCE, £1. 10s 1830-3
The rare first edition, which first contains the now generally accepted division of tertiary strata into eocene, miocene, and pliocene, and prepared the way for Darwin's *Origin of Species*.
- 11118 ——— SEVENTH EDITION, revised, with 12 plates and maps, and 98 woodcuts, thick 8vo. *cl.*, 5s 1847
The first edition published in one volume.
- 11119 ——— EIGHTH EDITION, entirely revised, with 12 plates and maps, and 100 woodcuts, thick 8vo. *cl.*, 5s 6d 1850
- 11120 ——— NINTH EDITION, wholly revised, with 4 plates, 120 woodcuts, and folding map, thick 8vo. *cl. (cover slightly damaged)*, 6s 1853
- 11121 ——— TENTH EDITION [rewritten and greatly enlarged], with 7 plates, 158 woodcuts, and folding map, 2 thick vols. 8vo. *cl. (covers worn)*, 14s 1867-8
In this edition the author first accepts Darwin's theory of Natural Selection.
- 11122 ——— ELEVENTH EDITION, with 7 plates, 164 woodcuts, and folding map, 2 thick vols. 8vo. *cl. (cover slightly worn)*; *o. p.*, £1. 1s 1872
THE FINAL EDITION, the author's preface to the 12th and last edition stating that it leaves it substantially the same as the above 11th edition.
- 11123 ——— TWELFTH [LAST] EDITION [slightly revised], with 7 plates and 164 woodcuts, 2 thick vols. 8vo. *cl.*, uncut (SCARCE), £1. 15s 1875
'The *Principles* practically gave the death-blow to the catastrophic school of geologists. By its support of G. P. Scrope in questions relating to volcanoes, it led to the acceptance of moderate views, even in respect of the more proxymic forces of the globe.'—Prof. G. A. J. Cole.
'It will always rank as one of the classics of geology, and must form an early part of the reading of every man who would wish to make himself an accomplished geologist.'—Sir Archibald Geikie.
- 11124 ——— ON THE STRUCTURE of LAVAS which have consolidated on STEEP SLOPES; with Remarks on the Mode of Origin of Mount Etna, and on the THEORY of 'CRATERS of ELEVATION,' with 3 plates and 23 diagrams, 4to. (pp. 86), *hf. morocco gilt, t. e. g. (nice copy)*, 12s 6d 1859
Scrope and Lyell's theory of craters of elevation, maintaining that the outward dip of ash and lava from the volcanic centre was due to original conditions of deposition, is now generally accepted against that held by C. L. v. Buch, and his supporters.
Added is a fine photographic view 'l'Etna dai Benedettini, Catania', and 3 pamphlets in Italian on the above subject.
- 11125 ——— STUDENT'S ELEMENTS of GEOLOGY, 3rd Edition, revised [with Table of British Fossils], front. and 641 woodcuts, post 8vo. *cl.*, 3s 6d (p. 9s) 1878
'For several years the only convenient modern text-book on the subject. It may already be regarded as a classic.'—Prof. G. A. J. Cole.
- 11126 ——— TRAVELS in NORTH AMERICA; with GEOLOGICAL OBSERVATIONS on the United States, Canada, and Nova Scotia, with 7 plates and geological maps (mostly folding or coloured), besides woodcuts, 2 v.: SECOND VISIT to the UNITED STATES of NORTH AMERICA, with plate (mounted), and woodcuts, 2 v.—4 vols. post 8vo. *cl.*, uncut (SCARCE), £1. 5s 1845-9
- 11127 ——— LIFE, LETTERS, and JOURNALS of, edited by his Sister-in-Law [KATHARINE HORNER,] MRS. LYELL, with 3 steel portraits after George Richmond, etc. by C. Holl and G. J. Stodart, and view of Kinnordy, 2 thick vols. 8vo. *cl. (o. p.)*, 15s (p. £1. 10s) 1881
Including a complete bibliography of his works.
'Containing a vast mass of information which will be invaluable to the historian of the progress of natural science during the Nineteenth Century. Those who know Lyell's books will be delighted with his letters.'—*Sat. Rev.*
As a striking reminder of the vital links still left to us with the dawn of the modern scientific period, it is noteworthy that Sir Charles Lyell's sister-in-law and biographer *supra* is still alive and in full vigour of body and mind this March, 1913, in her ninety-sixth year.

- HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W. 553
- 11129 **LUNN** (John Robert, *St. John's Coll., Cantab.*) OF MOTION: an Elementary Treatise, diagrams, Svo. cl. (*name cut off title*), 2s 6d Cambridge, 1859
- 11130 **LUPICINI** (Antonio) DISCORSO sopra la FABBRICA, e Uso delle NUOVE VERGHE ASTRONOMICHE; with device on title and last l., large woodcuts, and diagrams, sm. 4to. boards (FINE COPY), 12s 6d Firenze, G. Marescotti, 1582
- 'L'autore espone la descrizione e l'uso di questi strumenti che servivano alla determinazione delle distanze, delle altezze e delle superficie.—Riccardi.
- 11131 **LUPTON** (Arnold, M.I.C.E.) PRACTICAL TREATISE ON MINE SURVEYING [with Appendix of Questions, Tables, etc.], with 209 illustrations, roy. 8vo. cl., 7s 6d (p. 12s nett) 1902
- 11132 **LUPTON** (Sydney, F.C.S.) CHEMICAL ARITHMETIC, with 1200 Examples [Reprint of the 2nd and last Edition], with folding table, fcap. 8vo. cl., 2s 6d 1894
- 11133 ——— NOTES ON OBSERVATIONS; the Methods used for determining the Meaning and Value of Quantitative Observations and Experiments in Physics and Chemistry, and for reducing the Results, cr. Svo. cl., 2s 1898
- 11134 ——— ON THE REDUCTION OF THE RESULTS OF EXPERIMENTS, with special Reference to the HYDRATE-THEORY OF SOLUTION, Svo. (pp. 12), sewn, 1s 1891
- 11135 ——— ON THE SLOW OXIDATION OF POTASSIUM, Svo. (pp. 14), sewn, 1s 1876
- 11136 **LUTSCHAUNIG** (Alfred) ALLOY TABLES, showing at Sight the Proportions in which the Precious Metals are to be Mixed with Alloy, in order to make the Standards recognized by the Goldsmiths' Hall, consisting of 15 tables on boards, large 8vo. cl., 5s 6d Liverpool, 1878
- 11137 **LUZ** (Johann Friederich, *Oberkaplan zu Gunzenhausen*) ANWEISUNG das EUDIOMETER des Herrn ABT VON FONTANA zu VERFERTIGEN und zum Gebrauch bequemer zu machen, ingleichen durch eine sehr einfache Einrichtung in kurzer Zeit MINERALWASSER zu verfertigen; with folding copperplate, Svo. old hf. vellum (rare), 8s 6d Nürnberg, 1784
- The author appears to have been ignorant that Stephen Hales, pr., F.R.S., was the inventor of the endiometer. It was much improved, on Dr. Priestley's suggestion, by Felice Fontana, and, based on the latter's description, by the above author.
- 11138 ——— VOLLSTÄNDIGE und auf Erfahrung gegründete BESCHREIBUNG von allen sowohl bisher BEKANNTEN als auch einigen NEUEN BAROMETERN; wie sie zu verfertigen, zu berichten und übereinstimmend zu machen, dann auch zu meteorologischen Beobachtungen und Höhenmessungen anzuwenden, nebst Anhang seine THERMOMETER betreffend; with 6 folding plates, thick 8vo. old boards (rare), 16s 6d *ibidem*, 1784
- 11139 ——— ANOTHER COPY, contemporary calf extra (*nice copy*), 18s 6d
- Containing a very copious description of all the barometers then in use or invented, including the author's own 'Reisebarometer.' There are 94 pp. treating on meteorological observations, and 66 pp. on hypsometry. The last 53 pp. contain an account of quicksilver, spirit, and air thermometers, with instructions how to make them.
- 11140 **LYLE** (Thomas Ranken), and Richard HOSKING: THE TEMPERATURE VARIATIONS OF THE SPECIFIC MOLECULAR CONDUCTIVITY and of the FLUIDITY OF SODIUM CHLORIDE SOLUTIONS, with 3 plates, etc., 8vo. (pp. 12), sewn, 1s 6d 1902
- 11141 **LYNDE** (Frederick Charles, A.M.I.C.E.) DESCRIPTIVE ILLUSTRATED CATALOGUE OF THE 68 COMPETITIVE DESIGNS FOR THE GREAT TOWER FOR LONDON, for the Tower Co., Ltd., with 68 plans, 8vo. cl., 5s 1890
- The designs for the tower at Wembley, Middlesex, which was to rival the Eiffel Tower. Nearly all the towers proposed are of a height of more than 1000 feet, while several are over 2000. The actual construction never got beyond the four great steel legs, which after being an eyesore in the landscape and a left-handed monument to the late Sir Edward Watkin were blown up with dynamite as a useless white elephant a few years ago.
- 11142 **LYNDON** (Lamar) STORAGE BATTERY ENGINEERING: a Practical Treatise, with 2 folding plates and 177 other illustrations, large 8vo. cl., 8s (p. 12s 6d nett) New York, 1903
- 11143 **LYNN** (Thomas) HORARY TABLES FOR FINDING THE TIME by INSPECTION, to facilitate the Operations for obtaining the LONGITUDE at SEA, by Chronometers and Lunar Observations, and for finding both the Latitude and Time, with an Easy Method of clearing the Observed Distance of the Effects of Refraction and Parallax, with New Tables, 4to. boards, uncut, with inser. and auto. letter from the author to Dr. James Andrew, 8s 6d 1827
- 11144 ——— NEW STAR TABLES, adapted to Practical Purposes for 22 Years, commencing Jan., 1843, with Appendix, which, together, contain all the PRINCIPAL PROBLEMS for DETERMINING the LATITUDE and LONGITUDE at SEA, with Tables and Exemplifications, plate, roy. 8vo. hf. calf, 4s 6d 1843
- 11145 **LYON** (John, pr., *historian of Dover*) EXPERIMENTS and OBSERVATIONS with a View to point out the ERRORS of the present RECEIVED THEORY OF ELECTRICITY; and which tend in their Progress to establish a New System on Principles more conformable to the simple Operations of Nature, with 2 folding copperplates, 4to. old hf. calf (rare), 15s 1780
- 11146 ——— ANOTHER COPY; with FARTHER PROOFS that GLASS is PERMEABLE by the ELECTRIC EFFLUVIA, and that the Electric Particles are possessed of a Polar Virtue; with Remarks on the Monthly Reviewers Animadversion on a late Work, intitled, 'Experiments and Observations', etc., with 2 copperplates—2 vols. 4to. in 1, boards, uncut (*fine copies*), £1. 5s 1780-1
- An attack on Benjamin Franklin and his one-fluid theory of electricity, as well as on his explanation of the charge and discharges of the Leyden Jar, and propounding a new theory 'based on a variety of new experiments.' It is interesting as remotely anticipating the electro-magnetic theory of light, a passage of the introduction reading: 'The electric fluid is nothing else but the particles which have been diffused from the sun through the different elements of water, earth, and air.'
- 11147 **LYONS** Jr. (Israel; *Board of Longitude*) TREATISE OF FLUXIONS, with 7 folding plates, 8vo. sewn, uncut, 4s 6d 1758
- 11148 ——— ANOTHER COPY, old hf. calf, with Calgarth Park booklabel of Richard Watson, F.R.S. '1737-1816), absentee Bp. of Llanduff, 5s

- 11150 [M. (J.)] The CARDING and SPINNING-MASTER'S ASSISTANT; or the Theory and Practice of Cotton Spinning, showing the Use of each Machine, how to adjust and adapt them, and the different Qualities of Yarn, and how to perform the various Calculations, also an Historical Sketch, with 9 plates (2 folding), 8vo. cl. (binding worn); scarce, 10s 6d Glasgow, 1832
- THE INVENTION OF MACADAMISING :
- 11151 McADAM (John Loudon, *General Surveyor of the Roads in the Bristol District*) REMARKS on the PRESENT SYSTEM of ROAD MAKING, deduced from Practice and Experience, with a View to a Revision of the existing Laws, and the Introduction and IMPROVEMENT in the Method of MAKING, REPAIRING, and PRESERVING ROADS, and defending the Road Funds from Misapplication; 3rd Edition, with considerable Additions, and Appendix, 8vo. *original boards, uncut (rare)*, 12s 1820
- 11152 ——— FIFTH EDITION, *original boards, uncut*, 10s 6d 1822
- 11153 ——— SEVENTH EDITION, with REPORT from the SELECT COMMITTEE of the HOUSE of COMMONS, June 1823, with Extracts from the Evidence, 8vo. *original boards, uncut*, 14s 1823
- 11154 ——— ANOTHER COPY, *hf. calf gilt*, 13s 6d
- This was the only work published by the author. All the above editions contain the Minutes of Evidence of the Commons' Committee of March—May, 1819.
- * McAdam's efforts largely contributed to produce that network of mail-coach communications which, for some years before railways were introduced, greatly advanced the nation's prosperity and prepared the way for the railway system. His process was adopted in all parts of the civilised world. The name of the inventor became the synonym for the invention, and derivatives like 'macadamise' were universally accepted.—D. N. B.
- His memory has been badly used, for the present way of tipping large-sized lumps of granite over the highway anyhow, and flattening it out by a steam-roller, is only a caricature of his method.
- 11155 McALLISTER (Adams Stratton, *Pa. State Coll.*) ALTERNATING CURRENT MOTORS, with 122 diagrams and folding table, 8vo. cl., 6s (p. 12s 6d nett) New York, 1906
- 11156 MACASSEY (L. Livingston, M.I.E.E.), and James Andrew STRAHAN: The LAW relating to CIVIL ENGINEERS, ARCHITECTS, and CONTRACTORS, 8vo. cl., 4s (p. 10s 6d) 1890
- 11157 McAULAY (Alexander, *Univ. Tasmania*) OCTONIONS; a DEVELOPMENT of CLIFFORD'S BI-QUATERNIONS, 8vo. cl., 4s (p. 10s 6d) Univ. Press, Cambridge, 1898
- 11158 MACAULAY (Francis Sowerby) GEOMETRICAL CONICS, with numerous diagrams, cr. 8vo. cl., 2s (p. 4s 6d) University Press, Cambridge, 1895
- 11159 M'BRIDE (Duncan) GENERAL INSTRUCTIONS for the CHOICE of WINES and SPIRITUOUS LIQUORS: I. Wines which are best to be used at the TABLES of the OPULENT. II. Wines which alone ought to be administered to the Sick. III. Instructions concerning Spirituous Liquors, with Methods for detecting Abuses in them. IV. Account of many Disorders cured by the Wine, called Toc-Kay de Espagna, 8vo. *hf. calf, with bookplate of Henry B. H. Beaufoy, F.R.S.*, 1793] 8s 6d
- 11160 ——— ANOTHER COPY, *sewn, uncut*, 7s
- Dedicated 'to H. R. R. the Prince of Wales'—unquestionably of great authority on the subject, founded on extensive experimental observations at and beneath the Tables of the Opuient.
- 11161 M'CANN (Hugh W.) REPORT on the DYES and TANS of BENGAL, roy. 8vo. cl., 6s Calcutta, 1833
- 11162 McCLEAN (Francis Kennedy, F.R.A.S.), and others: REPORT of the SOLAR ECLIPSE EXPEDITION to FLINT ISLAND, Jan. 3rd, 1908: an Account of the Observations made by the Expedition under the Leadership of F. K. McCLEAN, with 15 plates, 4to. cl., 6s [1908]
- 11163 McCLEAN (Frank, F.R.S.) SPECTRA of SOUTHERN STARS, with 13 double plates, 4to. boards, with author's *inscr.*, 5s (p. 10s) 1898
- 11164 M'CULLAGH (James, T.C.D., M.R.I.A., F.R.S.) GEOMETRICAL PROPOSITIONS applied to the WAVE THEORY of LIGHT, with plate (pp. 23): On the LAWS of the DOUBLE REFRACTION of QUARTZ (pp. 9)—2 parts 4to. *sewn (scarce)*, 8s 6d [Dublin,] 1833-6
- * His numerous papers on the wave theory of light contain ingenious attempts to construct a dynamical theory of the luminiferous ether. . . . The geometrical methods and results are of permanent value.—D. N. B.
- 11165 ——— On the SURFACES of the SECOND ORDER, 8vo. (pp. 65), *sewn (scarce)*, 6s [*ibidem*, 1844]
- * By far the most important of his scanty remains is the memoir on surfaces of the second order. His geometrical work is characterized by an elegance and power which might have placed him beside Chasles and Poncelet had he lived to finish his work.—D. N. B. It was unknown to Poggenдорff.
- The author, son of a poor farmer in County Tyrone, unhappily killed himself in his 38th year in a fit of temporary insanity caused by overwork and dyspepsia, probably brought on by contesting Dublin University in the Nationalist interest.
- 11166 McCULLOCH (John, M.D.; F.R.S., P.G.S.; friend of Sir Walter Scott) DESCRIPTION of the WESTERN ISLANDS of SCOTLAND, including the ISLE of MAN, comprising an Account of their Geological Structure, with Remarks on their Agriculture, Scenery, and Antiquities, 2 vols. 8vo., with Atlas, containing 33 fine copperplates and 10 maps, 4to.—3 vols. *green calf gilt (Atlas in hf. calf)*, SCARCE, £1. 10s 1819
- * Still remaining among the classic works in geology.—Prof. Bonney, *pr.*, F.R.S. V. note to No. 11160, *infra*.
- 11167 ——— A GEOLOGICAL CLASSIFICATION of ROCKS, with descriptive Synopses of the Species and Varieties, comprising the Elements of Practical Geology, thick 8vo. boards, 4s 1821
- 11168 [——] REMARKS on the ART of MAKING WINE, with Suggestions for the Application of its Principles to the IMPROVEMENT of DOMESTIC WINES, sm. 8vo. boards, *uncut (scarce)*, 10s 6d 1816
- 11169 ——— SECOND EDITION, sm. 8vo. boards, *uncut*, 10s 1817
- This really is by McCulloch, and is probably the only treatise on this joyous subject ever written by a geologist.
- * Some pungent remarks in *Description of the Western Isles of Scotland (q. v. supra)* and *On the Art of Making Wine* on the procrustianism, slovenly habits, and other defects of the sea-coast Celts excited vehement indignation.—Prof. Bonney.
- Neither of the above editions was known to D. N. B., where only those of 1821 and 1829 are quoted.
- 11170 ——— SYSTEM of GEOLOGY, with a THEORY of the EARTH, and Explanation of its Connexion with the Sacred Records, 2 vols. 8vo. cl., or, *hf. calf*, 6s 6d 1831
- * As an original observer he yields to no other geologist of our own time, and is perhaps unrivalled in the wide range of subjects on which he displayed great talent and profound knowledge.—Sir Charles Lyell.

- 11172 **MCCLELLAND** (John) SOME ENQUIRIES in the PROVINCE of KEMAON, relative to GEOLOGY, and other Branches of Natural Science, with 8 plates (some tinted), 8vo. cl., uncut (one plate soiled); scarce, 9s Calcutta, 1835
- 11173 **MCCLELLAND** (William J.), and Thomas **PRESTON**, F.R.S.: TREATISE ON SPHERICAL TRIGONOMETRY, with Applications to Spherical Geometry, and numerous Examples, PART 1, 2nd Edition, with diagrams, cr. 8vo. cl., 2s (p. 4s 6d) 1887
- 11174 **MCDERMAID** (Neil J.) SHIPYARD PRACTICE as applied to WARSHIP CONSTRUCTION, with numerous illustrations (many full-page), roy. 8vo. cl., 8s 6d (p. 12s 6d nett) 1911
- 11175 **M'DERMOTT** (Walter), and P. W. **DUFFIELD**: LOSSES in GOLD AMALGAMATION, with Notes on the Concentration of Gold and Silver Ores, 2nd Edition, with 6 folding plates, 8vo. cl. (o. p.), 3s 6d 1890
- 11176 **MACDONALD** (Lt.-Col. John, F.R.S.; son of Flora Macdonald) A CIRCUMSTANTIAL and EXPLANATORY ACCOUNT of EXPERIMENTS, lately made at the R. A. DEPÔT at WOOLWICH: before a Select Committee with a View of ascertaining the Comparative Accuracy of the Relative Times of BURNING of FUZES driven by a MACHINE, opposed to those of the Common Description: with a Correspondence, 1817-18, thereon; also Descriptions of Mortars and of Instruments made Use of in laying them, shewing the Effects of False Construction, etc. etc., with 2 folding plates, 8vo. cl. (title mounted); SCARCE, 12s 1819
- According to the author the driving fuses 'which burn in exact equal times' had been invented before 1790 by an officer of the Royal Artillery. Colonel Macdonald, who was born fourteen years after the 'Forty-five, was remarkable not only for his romantic parentage, but for much good scientific work. He was also noteworthy for having, when appointed by Pitt as field officer for the Cinque Ports Volunteers, made a reconnaissance from Dover in an open boat of Napoleon's preparations for invasion from the camp at Boulogne.
- 11177 **MACDONALD** (William J., F.R.S.E.) HIGHER GEOMETRY: an Introduction to Modern Geometry and Elementary Geometrical Conics, with diagrams, 12mo. cl., 1s 6d Edin., 1890
- 11178 ——— THIRD EDITION [enlarged], with diagrams, 12mo. cl., 2s ibidem, 1904
- 11179 **M'EWAN** (Duncan) EASY and CONCISE GUIDE to the STARRY HEAVENS, arranged as Companion to the Umbrella Star Map and Revolving Star Dome, with maps, and numerous other illustrations, 8vo. cl., 2s 6d (p. 5s) 1910
- 11180 **MACEY** (Frank W.) SPECIFICATIONS in DETAIL, with numerous illustrations, roy. 8vo. cl., 7s 6d (p. £1. 1s) 1898
- 11181 **MACFARLANE** (Alexander, F.R.S.E.) BIBLIOGRAPHY of QUATERNIONS and ALLIED SYSTEMS of MATHEMATICS, 8vo. sewn (scarce), with auto. of Prof. Lloyd Tanner, F.R.S., 5s Dublin, 1904
- 11182 ——— The FUNDAMENTAL THEOREMS of ANALYSIS GENERALIZED for SPACE, with 10 diagrams, roy. 8vo. sewn, 2s 6d Boston [Mass.], 1893
- 11183 ——— PRINCIPLES of the ALGEBRA of LOGIC, with Examples, diagrams, cr. 8vo. cl., with inscr. to William Spottiswoode, P.R.S. (o. p.), 5s Edin., 1879
- Advancing a theory of the operation of the mind in reasoning about quality.
- 11184 **M'GAULEY** (James William; Prof. Nat. Philos., Irish Board of Education) LECTURES on NATURAL PHILOSOPHY, with 252 woodcuts, 8vo. cl. (cover worn, and top cut off title), 2s 6d Dublin, 1840
- 11185 **MACGILLIVRAY** (William, F.R.S.E.; author of 'History of British Birds') MANUAL of GEOLOGY [with Glossary], woodcuts and large coloured map, fcap. 8vo. cl., 2s 6d 1840
- 11186 **MACGREGOR** (James Gordon; F.R.S., Univ. Edin.) ELEMENTARY TREATISE on KINEMATICS and DYNAMICS, with numerous diagrams, thick cr. 8vo. cl., 4s (p. 10s 6d) 1887
- 11187 **MACGREGOR** (William) GAS ENGINES, with 7 folding plates, cr. 8vo. cl., 2s 6d (p. 8s 6d) 1885
- 11188 **McGUIRE** (Joseph Deakins; Princeton Univ.; American ethnologist) A STUDY of the PRIMITIVE METHODS of DRILLING, with 201 illustrations, roy. 8vo. sewn, 3s 6d Washington, 1896
- 11189 **MACH** (Ernst) The SCIENCE of MECHANICS: a Critical and Historical Exposition of its Principles, translated from the 2nd German Edition by THOMAS J. McCORMACK, with 250 portraits and illustrations (many from old works), large cr. 8vo. hf. morocco, t. e. g., 6s 6d (p. 10s 6d nett) Chicago, 1893
- The well-known classic of the history of mechanics.
- 11190 **MACHOMETO BAGDEDINO**, LIBRO del MODO di DIVIDERE le SUPERFICIE, attribuito à, mandato in Luce la prima volta da GIOVANNI DEE da Londra, e da FEDERICO COMMANDINO da Urbino, con un breve Trattato intorno alla stessa Materia del medesimo Federico, tradotti di Latino in Volgare da FULVIO VIANI de MALATESTI da Montefiore, e novamente dato in Luce; with vignette on title, woodcut initials, and numerous diagrams, sm. 4to. old hf. calf (last l. wanting, also loose in cover, but a large and sound copy); RARE, £1. 1s Pesaro, 1570
- This work was supposed by its editor, DR. JOHN DEE, the Elizabethan 'magician' and Provost of Manchester Collegiate Church, to be one of Euclid's lost works, *περι διαρσεσων βιβλιον*, which was mentioned by Proclus, but of which all MSS. appeared to have been lost. This supposition has since been confirmed, with the qualification that Euclid's work formed here the basis of what had apparently been much revised by its Arabian editor [cf. Prof. M. Cantor's Vorlesungen über Gesch. d. Mathematik, Bd. I].
- 'Livre rare.—Brunet. The Libri copy fetched 40 francs in 1857. It was published in the same year—and probably simultaneously—with the Latin edition. Both are now VERY RARE.
- 11191 **MACKAY** (John Charles) LIGHT RAILWAYS for the United Kingdom, India, and the Colonies: the Principles on which they should be constructed, worked, and financed, and the Cost of Construction, Equipment, Revenue, and Working Expenses, with 32 plates, and 16 other illustrations, including many views on the Darjiling-Himalaya Ry., 8vo. buckram (o. p.), 7s 6d (p. 15s) 1896
- 11192 **MACKINLAY** (Captain G., R.A.) TEXT BOOK of GUNNERY, with numerous woodcuts, and tables, roy. 8vo. cl. (corner cut off title), 2s (p. 5s) 1883

- 11194 **MACKAY** (Andrew, F.R.S.E.; *Keeper of Aberdeen Observatory; examiner to the Trinity House*) COLLECTION OF MATHEMATICAL TABLES for the NAVIGATOR, GEOGRAPHER, and SURVEYOR, etc. [with Explanation (pp. 64)], Svo. boards, uncut, 4s 1804
 'He made important contributions to the science of navigation, and was a skilful, accurate, and indefatigable calculator of mathematical tables.'—*D.N.B.*
- 11195 ——— The DESCRIPTION and USE of the SLIDING GUNTER in NAVIGATION, 8vo. sewn, 6s
Aberdeen, 1802
- 11196 ——— ANOTHER COPY, contemporary calf gilt, 7s 6d
 Including 'The Description and Use of the Maritime Scale.'
- 11197 ——— The DESCRIPTION and USE of the SLIDING RULE, in the Mensuration of Wood, Stone, Bales, etc., also the Description of the SHIP-CARPENTER'S SLIDING RULE, and its Use applied to the Construction of Masts, Yards, etc., 8vo. (pp. 54), sewn (rare), 3s 6d 1799
- 11198 ——— The THEORY and PRACTICE of FINDING the LONGITUDE at SEA or LAND: with various Methods of determining the LATITUDE of a Place, and VARIATION of the COMPASS, with Tables, first edition, with 7 folding copperplates, 2 vols. 8vo. in 1, cl., or, boards, uncut, 10s 6d 1793
- 11199 ——— ANOTHER COPY, contemporary hf. calf, uncut (sound copy), 12s
- 11200 ——— SECOND EDITION, improved and enlarged, with fine portrait by J. Heath, and 8 folding plates, 2 vols. Svo. old calf, 15s
Aberdeen, 1801
- 11201 ——— THIRD [LAST] EDITION, enlarged, with 8 folding plates, 2 vols. roy. 8vo. cl., 15s 1810
 'In this work is given an account of a new method of finding the longitude and latitude of a ship at sea, together with the apparent time, from the same set of observations; for which the author had received the thanks of the boards of Longitude of England and France.'—*D.N.B.*
- 11202 **MACKENZIE** (Major-Gen. Alexander, U. S. Army) REPORT on CURRENT-METER OBSERVATIONS in the MISSISSIPPI RIVER, near Burlington, Iowa, October, 1879, with 41 folding diagrams, and map, large Svo. cl. (title stamped), 4s
Washington, 1884
- 11203 **MACKENZIE** (Colin, Operative Chemist) ONE THOUSAND PROCESSES in MANUFACTURES and EXPERIMENTS in CHEMISTRY, collected from the best Modern Authorities, British and Foreign, 4th Edition, with lurid coloured folding front. of the Brick Lane Gasworks, 19 plates, and numerous woodcuts, thick 8vo. boards, uncut (scarce), 10s 6d 1823
- 11204 ——— MEMORIAL PRATIQUE du CHIMISTE-MANUFACTURIER, ou Recueil de Procédés d'Arts et de Manufactures, traduit sur la 3^e Edition, revu et considérablement augmenté, par le Traducteur [A. BULOS]; with 3 folding plates, 3 vols. 8vo. sewn, uncut, 6s 1824-5
- 11205 **MACKENZIE** (George) MANUAL of the WEATHER for 1830, including a brief Account of the Cycles of the Winds and Weather, and of the Circle of the Prices of Wheat, with 2 tables, post 8vo. original boards, uncut, 6s 6d
Edin., 1829
- 11206 ——— The SYSTEM of the WEATHER of the BRITISH ISLANDS; delivered in 1816 and 1817, from a Journal commencing Nov., 1802, first edition, with 2 plates, 4to. hf. cl., uncut (SCARCE), 17s 6d
ib., 1818
 'He discovered that the periodical commencement and termination of years of scarcity or abundance are undoubtedly ascertainable with the recurrence of favourable or unfavourable seasons. In the spring of 1819 Mackenzie succeeded in forming his 'primary cycle of the winds', and received the thanks of the English Board of Agriculture. . . . On receiving a presentation copy the French Institute accorded a special vote of thanks to Mackenzie, and desired Baron v. Humboldt to make a report on it.'—*D.N.B.*
- 11207 **MACKENZIE** (Nicol Finlayson, M.I.C.E.) METHODS of SURVEYING, with 85 illustrations, 8vo. cl., 3s (p. 5s net) 1908
- 11208 ——— NOTES on IRRIGATION WORKS: Lectures at Oxford, with 6 plates (4 folding), and 11 diagrams. Svo. cl., 4s 6d (p. 7s 6d nett) 1910
- 11209 **MACKINTOSH** (Daniel, F.G.S.) The SCENERY of ENGLAND and WALES, its Character and Origin, with frontispiece, and 86 woodcuts, cr. 8vo. cl., 4s (p. 12s 6d) 1869
 'An attempt to trace the nature of the geological causes, especially denudation, by which the physical features of the country have been produced.'
- 11210 **MACKINTOSH** (Donald James, F.R.S.E.) CONSTRUCTION, EQUIPMENT, and MANAGEMENT of a GENERAL HOSPITAL, with 61 illustrations, and 17 folding plans, roy. 8vo. buckram, 4s (p. 10s 6d) *Edin.*, 1909
- 11211 **MACKONCHIE** (Alexander, of Baypoor, Malabar) PROSPECTUS of a Work, entitled, a PHILOSOPHICAL and EXPERIMENTAL INQUIRY into the LAWS of RESISTANCE of NON-ELASTIC FLUIDS, and COHESION of FIBROUS SOLIDS, as far as either is connected with the Theory, or Practice of NAVAL ARCHITECTURE, etc. etc., 4to. (pp. 44), sewn, 3s 6d 1805
 The work thus announced was never published. Was the author a kinsman of Mr. Mackonochie (Alexander Heriot) of St. Alban's, Holborn?
- 11212 **McMAHON** (Lt.-Gen. Charles Alexander, F.R.S., and Col. Sir Arthur Henry) NOTES on some VOLCANIC and other ROCKS occurring near the BALUCHISTAN-AFGHAN FRONTIER, between Chaman and Persia, with folding map and 2 plates, 8vo. (pp. 21), sewn, 2s 1897
- 11213 **McMAHON** (Major Percy Alexander, R.A., F.R.S.) A CERTAIN CLASS of GENERATING FUNCTIONS in the THEORY of NUMBERS, roy. 4to. (pp. 50), sewn, with author's inser., 2s 1894
- 11214 ——— MEMOIR on SYMMETRIC FUNCTIONS of the ROOTS of SYSTEMS of EQUATIONS, roy. 4to. (pp. 56), sewn, with author's inser., 2s 1890
- 11215 ——— MEMOIR and SECOND MEMOIR on the THEORY of the COMPOSITIONS of NUMBERS, with diagrams, 2 parts roy. 4to. (pp. 137), sewn, with author's inser., 4s 6d 1893-1907
- 11216 ——— MEMOIR on the THEORY of the PARTITIONS of NUMBERS, Part I, roy. 4to. (pp. 55), sewn, 2s 1896
- 11217 ——— The THEORY of PERFECT PARTITIONS of NUMBERS and the COMPOSITION of MULTI-PARTITE NUMBERS, 8vo. (pp. 17), sewn, 2s 1890
- 11218 **MacSWINNEY** (Robert Forster) The LAW of MINES, QUARRIES, and MINERALS, thick roy. 8vo. cl., 6s (p. £1. 15s) 1884

- 11220 **MACLAURIN** (Colin, F.R.S.) ACCOUNT OF SIR ISAAC NEWTON'S PHILOSOPHICAL DISCOVERIES; published from the Author's MSS. [with LIFE (pp. 20)] by PATRICK MURDOCH, F.R.S., first edition, with 6 folding plates, 4to. old calf (joints cracked), 9s printed for the author's children, 1748
This edition was published for the benefit of Maclaurin's children, and contains a long list of subscribers.
- 11221 ——— SECOND EDITION, with 6 folding plates, 8vo. contemporary calf, with auto. of RICHARD WATSON, D.D., F.R.S. (1737-1816), absentee Bp. of Llandaff, and his Calgarth Park booklabel, 6s 6d 1750
- 11222 ——— THIRD [LAST] EDITION, with 6 folding plates, 8vo. contemporary calf, 5s 1775
Comprising: Of a Method of Proceeding in Natural Philosophy, and the various Systems of Philosophers; Of the Theory of Motion, or Rational Mechanics; Gravity demonstrated by Analysis; The Effects of the General Power of Gravity deduced synthetically. The life prefixed is still the chief authority on Maclaurin.
The last chapter treats 'Of the Supreme Author and Governor of the Universe, the true and living God', and ends with an argument in favour of a future life, dictated but a few moments before his death.
- 11223 ——— GEOMETRIA ORGANICA: sive DESCRIPTIO LINEARUM CURVARUM UNIVERSALIS; with 12 plates, 4to. boards, uncut (RARE), £1. 5s 1720
Newton had discovered the theorem that if two angles of given magnitude be movable round their vertices, and the intersection of a side of the one with a side of the other be made to travel along a straight line, the intersection of the other pair of sides will describe a conic. Maclaurin develops this into a general method of reducing the description of a curve to the description of another curve of lower order; the theory is one of much beauty and power.—D. N. B.
'The work contains an elaborate discussion on curves and their pedals, a branch of geometry which he had created.'—W. W. R. Ball.
The above copy contains the leaf with *Imprimatur* by Sir Isaac Newton, to whom the work is dedicated.
- 11224 ——— TREATISE OF ALGEBRA, containing the Fundamental Rules and Operations, the Composition and Resolution of Equations of all Degrees, the different Affections of their Roots, and the Application of ALGEBRA and GEOMETRY to EACH OTHER, with APPENDIX on the GENERAL PROPERTIES of GEOMETRICAL LINES, first edition, with 12 folding plates, and numerous diagrams, 8vo. old calf, newly rebacked (rare), 12s 6d 1748
- 11225 ——— FINE PAPER EDITION, thick 8vo. old calf, 15s
- 11226 ——— SECOND EDITION [revised], with 12 folding plates, besides diagrams, 8vo. old calf, with bookplate of Sir John Francis Davis, 8s 1756
- 11227 ——— THIRD EDITION [revised], with 12 folding plates, besides diagrams, 8vo. old hf. calf (rubbed), 6s 6d 1771
- 11228 ——— FOURTH EDITION [with APPENDIX (as below)], with 12 folding plates, besides diagrams, 8vo. old calf (joints cracked), 7s 1779
This as well as the following editions contain also as an appendix the translation by JOHN LAWSON, pr., of Sidney Sussex College, of 'De Linearum Geometricarum Proprietatibus Generalibus Tractatus'. The first three editions only contain the Latin original.
- 11229 ——— FIFTH EDITION [unchanged], with 12 folding plates, besides diagrams, 8vo. old calf, 5s 1788
- 11230 ——— SIXTH [AND LAST] EDITION [unchanged], with 12 folding plates, besides diagrams, 8vo. old sheep (name cut off title), with auto. and bookplate of Prof. Lloyd Tanner, F.R.S., 5s 1796
'It is a model of clear and terse exposition, and was in vogue as a Cambridge textbook for more than half a century.'—D. N. B.
'Founded on Newton's *Universal Arithmetic*. It contains the results of some early papers of Maclaurin; and notably of two on the number of imaginary roots of an equation, suggested by Newton's theorem; and of one containing the well-known rule for finding equal roots by means of the derived equation. In this book negative quantities are treated as being not less real than positive quantities.'—W. W. R. Ball.
- 11231 ——— TREATISE OF FLUXIONS, first edition, with 40 plates, 2 vols. 4to. in 1, old calf gilt (1 joint cracked), with bookplate of Prof. Lloyd Tanner, F.R.S. (rare), 15s Edin., 1742
- 11232 ——— ANOTHER COPY, 2 vols. old calf (joints cracked), with Lord Auckland's bookplate, and auto. of Arthur Rawson Ashwell (fifteenth Wrangler; pr., biographer of Bp. Wilberforce), 1844, 15s
- 11233 ——— ANOTHER COPY, 2 vols. calf gilt (FINE COPY), 18s 6d
- 11234 ——— A LARGE and THICK PAPER COPY, 2 vols. 4to. old calf, newly and neatly rebacked, £1. 5s
- 11235 ——— SECOND [AND LAST] EDITION, carefully corrected and revised, with Account of his LIFE, by an EMINENT MATHEMATICIAN [?] WILLIAM DAVIS, editor of 'The Gentleman's Mathematical Companion', with 41 folding plates, 2 vols. 8vo. hf. calf (joints cracked); scarce, 12s 6d 1801
'Le chef-d'œuvre de géométrie qu'on peut comparer à tout ce qu'Archimède nous a laissé de plus beau et de plus ingénieux.'—Lagrange.
The first logical and systematic exposition of the method of fluxions. The cause of it was an attack of [George] Berkeley [Bp. of Cloyne] on the principles of the infinitesimal calculus [v. Nos. 614-5 ante]. In it he gave a proof of the theorem that $f(x) = f(o) + x f'(o) + \frac{x^2}{1 \cdot 2} f''(o) + \dots$. He also gave the correct theory of maxima and minima, and rules for finding and discriminating multiple points. This treatise is however especially valuable for its solution of numerous problems in geometry, statics, the theory of attraction, and astronomy'.—W. W. R. Ball. It also contains in a revised form the author's prize essay on the gravitational theory of tides.
'Gifted with a genius for geometrical investigation second only to Newton's, Maclaurin had no need to abandon Newton's methods in favour of any easier; and it was naturally more gratifying to his patriotism to develop the fluxional calculus to its fullest extent than to resort to the differential methods in use on the Continent. The result was that Maclaurin, the one mathematician of first rank trained in Great Britain in the Eighteenth Century, confirmed Newton's exclusive influence over British mathematics; and for three generations it was left to Continental mathematicians to develop the modern methods of mathematical analysis'.—D. N. B.
He sprang from ancestors long settled on the wild island of Tiree, the nearest land to the Skerryvore Lighthouse, who had removed to Inveraray after the Civil Wars. On the outbreak of the Forty-five he organised the defences of Edinburgh against the Jacobite troops, and worked day and night in planning and superintending the hastily raised fortifications. The result broke down his health, and he died prematurely in June, 1746, aged forty-eight—the *perferendum ingenium Sutorum* thus moving a mathematician to defend Edinburgh in the Eighteenth Century as he has moved our greatest Hegelian to reorganise the British Army in the Twentieth in the person of the present Lord Chancellor.
- 11236 **MACLAURIN** (James Scott; F.C.S.) ON THE ACTION OF POTASSIUM-CYANIDE SOLUTION upon GOLD, with 5 illustrations, 8vo. (pp. 14), sewn, 1s 6d [Auckland, N.Z.], 1896

- 11237 **MACLEAR** (Sir Thomas, F.R.S., *Royal Astronomer at the Cape*) CONTRIBUTIONS to ASTRONOMY and GEODESY, 2ND SERIES, 4to. (pp. 36), *sewn*, 3s 6d 1853
Containing his Comparison of Southern Stars of the British Association Catalogue Part III : Observations of Petersen's Comet : his Investigation of the Parallax of β Centauri, etc.
- 11238 ——— FURTHER PARTICULARS of the FALL of the COLD BOKKEVELD METEOROLITE, 4to. (pp. 6), *unbound*, 1s 6d 1840
- 11239 ——— OBSERVATIONS of DONATI'S COMET, at the Royal Observatory, Cape of Good Hope, Oct. 11th, 1858—March 4th, 1859, 4to. (pp. 25), *sewn*, 3s [1860]
'His cometary observations were of great value.'—*Miss Agnes M. Clerke.*
- 11240 ——— VERIFICATION and EXTENSION of LA CAILLE'S ARC of MERIDIAN at the CAPE of GOOD HOPE [edited by SIR GEORGE B. AIRY, F.R.S.], with 23 plates (mostly folding) of astronomical instruments, etc., 2 vols. 4to. and roy. 4to. cl., £1. 10s 1866
'For this great work, still fundamental in the survey of the colony, Maclear received the Lalande prize in 1867 and a royal medal in 1869.'—*Miss A. M. Clerke.*
'He has earned for himself a high place among living astronomers by the ability with which he has executed this important geodetic operation. . . . His labours have removed a serious difficulty from the science of astronomy, since we are now assured that the actual measurement of meridional arcs on each side of the equator concurs with the theory of gravitation, and the experiments with the pendulum, in assigning the same ellipticity to both hemispheres.'—*Prof. R. Grant, F.R.S.*
- 11241 **MCLEOD** (Herbert; *Cooper's Hill*; F.R.S.; *Director Roy. Society's Cat. Scientific Papers*) On the ELECTROLYSIS of AQUEOUS SOLUTIONS of SULPHURIC ACID, with special Reference to the Forms of Oxygen obtained, 2 folding diagrams, 8vo. (pp. 16), *sewn, with author's inser.*, 2s 1886
- 11242 **MACNEILL** (Sir John Benjamin; F.R.S.; M.R.I.A.; *pupil of Telford*) TABLES for CALCULATING the CUBIC QUANTITY of EARTH WORK in the CUTTINGS and EMBANKMENTS of Canals, RAILWAYS, and Turnpike Roads, with 4 plates, 8vo. *green vellum*, 4s 1833
- 11243 ——— SECOND [AND LAST] EDITION, considerably enlarged, with 4 folding plates, 8vo. *hf. morocco gilt*, 5s —*Dublin*, 1846
- 11244 ——— ANOTHER COPY, printed on yellow paper, 8vo. *hf. morocco gilt (nice copy)*, 6s
'This useful work.'—*D. N. B.*
Sir John Macneill was the first Professor of Civil Engineering at Trinity College, Dublin. He had besides a large private practice, and carried out the Dublin and Drogheda Railway, and the Kildare section of the Great Southern and Western.
- 11245 **MACPHERSON** (Hector, Jun.; F.R.A.S.) A CENTURY'S PROGRESS in ASTRONOMY, 8vo. cl., 3s 6d (p. 6s nett) —*Edin.*, 1906
A popular history of astronomy from Sir William Herschel to 1906.
- 11246 **McPHERSON** (John Ambrose, M.I.C.E.) WATERWORKS DISTRIBUTION : a Practical Guide to the Laying Out of Systems of Distributing Mains, with 20 plates (many folding), and 103 woodcuts, cr. 8vo. cl., 3s 6d (p. 6s nett) 1900
- 11247 **McPHERSON** (William, *Ohio State Univ.*), and William Edwards HENDERSON : ELEMENTARY STUDY of CHEMISTRY; revised Edition, with 90 illustrations, cr. 8vo. cl., 3s (p. 6s) —*Boston [Mass.]*, 1906
- 11248 [**MACQUER** (Pierre Joseph, *de l'Académie des Sciences*)] DICTIONARY of CHEMISTRY, containing the Theory and Practice, with full Explanations of the Qualities and Modes of Acting of CHEMICAL REMEDIES, and the Fundamental Principles of the Arts, Trades, and Manufactures dependent on Chemistry, translated, with Notes and Additions, by the Translator [JAMES KEIR, F.R.S.], 3 copperplates of chemical apparatus and characters, and 2 folding tables of affinities, etc., 2 vols. 4to. in 1, *old calf (joints cracked)*, 12s 6d 1771
- 11249 ——— SECOND EDITION; with APPENDIX : a Treatise on the various Kinds of Permanently Elastic Fluids, or Gases, with 3 copperplates (2 folding) of chemical apparatus and symbols, and folding table, 3 vols. 8vo. *old calf (a few joints cracked)*; RARE, 17s 6d 1777
This edition is valuable for the appendix by the translator, wherein he sets forth the discoveries made by Joseph Black, Cavendish, and Lavoisier. It also contains a passage interesting in connexion with molecular physics : 'For, in what does heat consist, but in the exceedingly quick vibrations of the particles of burning bodies?' In his preface to the appendix the translator apologizes for using here first the word *gas* against the terms 'fixable, fixed, or factitious air' hitherto employed.
- 11250 ——— ÉLÉMENTS de CHIMIE PRATIQUE, contenant la Description des Opérations fondamentales de la Chymie, avec des Explications et des Remarques sur chaque Opération, 2^e Édition, corrigée; with vignette on titles, 2 vols. 12mo. *contemporary calf gilt*, 8s 6d 1756
- 11251 ——— ÉLÉMENTS de CHIMIE THÉORIQUE, première édition, 12mo. *old calf gilt*, 5s 1751
- 11252 ——— NOUVELLE ÉDITION; with 4 folding plates of chemical apparatus and symbols, 12mo. *contemporary mottled calf gilt*, 8s 6d 1753
- 11253 ——— ELEMENTS of the THEORY and PRACTICE of CHYMISTRY, translated [by ANDREW REID], 2nd Edition, with 6 copperplates of chemical apparatus and symbols, 2 vols. 8vo. *old calf, with Calgarth Park booklabel and auto. of RICHARD WATSON, F.R.S. (1737-1816), absentee Bp. of Llandaff*, 14s 1764
- 11254 ——— THIRD EDITION, with 6 copperplates, 2 vols. 8vo. *old calf (joints cracked and name cut off titles)*, 8s 1775
- 11255 ——— ANOTHER COPY, 2 vols. *contemporary calf (sound copy)*, 10s
- 11256 ——— THE SAME, 2 vols. *fine copy in contemporary tree-calf extra*, 12s
'His work lay less in theoretical than applied chemistry, to which he made valuable contributions, especially in the manufacture of pottery and in dyeing. . . . From the beginning of his career to its end Macquer was a phlogistonist, and did all that he could to reconcile the continually augmenting discrepancies between theory and facts; he paid no heed to proportions by weight, for it was only in this way that he could maintain the phlogistic hypothesis. And even although it was proved to be erroneous and untenable several years before his death, he was still unable to renounce it.'—*Prof. E. v. Meyer.*
- 11257 **MAGANZINI** (Italo) LAVORI ESEGUITI nel BELGIO, pel MIGLIORAMENTO del Regime del FIUME MOSA; with 4 folding plates, roy. 8vo. *hf. calf*, 4s —*Roma*, 1877

- 11259 **MACVICAR** (John Gibson, LL.D., D.D., *Minister of Moffat*) *The FIRST LINES of MORPHOLOGY and ORGANIC DEVELOPMENT, GEOMETRICALLY CONSIDERED*, 8vo. (pp. 15), *sewn*, 2s [*Edin.*, 1861]
- 11260 — On the FORMS and STRUCTURE of the ATOMS and MOLECULES of BODIES, *with diagrams*, 8vo. (pp. 15), *sewn*, 3s 6d [*ibidem*, c. 1875]
- 11261 — INQUIRIES concerning the MEDIUM of LIGHT and the FORM of its MOLECULES, *with folding front.*, 8vo. boards, *with author's inser. to P. M. Roget, M.D., F.R.S., and the latter's auto.* (scarce), 10s 6d *ib.*, 1833
- In order to explain the optical phenomena which were difficult or impossible to account for on the corpuscular theory, the author assumes light to consist of molecules with a crystalline structure emitted from the luminous body and to travel in groups.
- 11262 — The NORMAL PRODUCTS of HEPATIC ACTION, Part II, 8vo. (pp. 15), *sewn*, 2s [*ib.*, 1871]
- 11263 — On the STRUCTURAL RELATION between UREA and URIC ACID, 8vo. (pp. 8), *sewn*, 2s [*ib.*, 1870]
- 11264 **MADDISON** (Isabel; *Bryn Maur Coll.*) On CERTAIN FACTORS of the *c*- and *p*- DISCRIMINANTS, and their Relation to Fixed Points on the Family of Curves, *with folding plate*, 8vo. (pp. 15), *sewn*, 1s 1892
- 11265 — On SINGULAR SOLUTIONS of DIFFERENTIAL EQUATIONS of the FIRST ORDER in TWO VARIABLES, and the Geometrical Properties of certain Invariants and Covariants of their complete Primitives, *with 2 folding plates*, 8vo. (pp. 64), *sewn*, 2s 1896
- 11266 **MADDY** (Watkin, *pr.*, *St. John's Coll., Cantab.*) *The ELEMENTS of the THEORY of PLANE ASTRONOMY*, new [last] Edition, greatly enlarged by JOHN HYMERS, D.D., F.R.S., *with 4 folding plates*, 8vo. boards (scarce), 6s Cambridge, 1832
- An excellent work.—*Miss Agnes M. Clerke.*
- 11267 **MÄDLER** (Johann Heinrich; *Univ. Dorpat*) *KURZGEFASSTE BESCHREIBUNG des MONDES*: ein Auszug aus der grösseren Selenographie; *with folding plate*, roy. 8vo. *sewn*, uncut, 3s 6d Berlin, 1839
- 11268 **MADRAS OBSERVATORY**: RESULTS of OBSERVATIONS of the FIXED STARS made with the MERIDIAN CIRCLE at the GOVERNMENT OBSERVATORY, MADRAS, edited by NORMAN ROBERT POGSON and C. MICHIE SMITH, F.R.A.S., Vols. I-IX (Observations 1862-87, and GENERAL CATALOGUE), 8 vols. 4to. and 1 vol. roy. 4to. *cl.*, £1. 5s Madras, 1887-99
- As an observér only one or two contemporaries could equal Pogson. In all he discovered nine minor planets between Mars and Jupiter, and twenty-one new variable stars.—*D. N. B.*
- 11269 — — — in the Years 1862-4 (VOL. I), 4to. *cl.*, 5s *ibidem*, 1887
- 11270 — — — 1883-7 (VOL. VIII), 4to. *cl.*, 4s *ib.*, 1894
- 11271 — — — GENERAL CATALOGUE (VOL. IX), roy. 4to. *cl.*, 7s 6d *ib.*, 1899
- — —: GENERAL CATALOGUE of the PRINCIPAL FIXED STARS, 1830-43—*v. TAYLOR* (T. G.) *post.*
- 11272 **MAGELLAN** [*sive* **MAGALHAENS**] (João Hyazinthe, F.R.S.) *COLLECTION de DIFFÉRENTS TRAITÉS sur des INSTRUMENTS d'ASTRONOMIE, PHYSIQUE, etc.; I. Nouveaux Instrumens Circulaires à Reflection. II. Quadrans Astronomiques Mobiles. III. NOUVEAUX BAROMÈTRES Portables et ceux à grande Echelle, etc. IV. Essai sur le Feu Élémentaire, et sur la Chaleur des Corps, avec la Description des NOUVEAUX THERMOMÈTRES. V. Instrumens ordonnés par la Cour d'Espagne. VI. Nouveau Remède de Mr. Mudge pour la Toux; with 3 folding plates*, 4to. *sound copy in contemporary tree-calf (rare)*, £1. 1s Londres, W. Richardson, 1780
- He devoted his last years to perfecting the construction of scientific instruments for scientific observation, such as thermometers and barometers, etc.—*D. N. B.*
- 11273 — DESCRIPTION of a GLASS APPARATUS, for making MINERAL WATERS, like those of Pyrmont, Spa, Seltzer, etc., in a few Minutes, and a very little Exence, with Description of some New EUDIOMETERS, or Instruments for ascertaining the Wholsomeness of Respirable Air, and the Method of using them, *first edition, with front.*, 8vo. (pp. 55), *sewn*, 7s 6d 1777
- 11274 — ANOTHER COPY, *original paper cover, uncut, with inser. (as below)*, 9s
- Pour la Bibliothèque de Son Alte S^me le Duc d'Arenberg de la part de l'auteur.—*Inscr. on cover.*
- Magellan's eudiometer is based on Dr. Priestley's suggestion to use nitric oxide for ascertaining the amount of oxygen contained in gases and in the atmosphere.
- 11275 — DESCRIPTION des OCTANTS et SEXTANTS ANGLAIS, ou Quarts de Cercle à Reflection, avec la Manière de se servir de ces Instrumens, pour prendre toutes Sortes de Distances Angulaires, tant sur Mer que sur Terre, avec Mémoire sur une Nouvelle Construction de ces Instrumens, et Appendix, contenant la Description et les Avantages d'un Double-Sextant nouveau; *with 3 folding plates*, 4to. *hf. roan (scarce)*, 15s 1775
- His book on English reflecting instruments, published in 1775, was declared by Lalande to be the most complete work on the subject at that period.—*D. N. B.*
- 11276 **MAGUIRE** (William R.) *DOMESTIC SANITARY DRAINAGE and PLUMBING: Lectures on Practical Sanitation delivered at the Central Technical Institution, South Kensington, with 253 woodcuts*, 8vo. *cl.*, 4s 6d (p. 12s) 1890
- 11277 **MAHAN** (Dennis Hart) *ELEMENTARY COURSE of CIVIL ENGINEERING*, edited by PETER BARLOW, F.R.S., *with 15 plates*, 4to. *hf. bound (joints broken)*, 3s 6d Glasgow, 1838
- 11278 — ANOTHER COPY, *cl.*, 4s 6d
- This work is quite different from the one below. The above is the last edition of the original 'Elementary Course.'
- 11279 — *ELEMENTARY COURSE of CIVIL ENGINEERING*, 6th Edition, with large Addenda, *with numerous woodcuts*, 8vo. *cl.*, or, *hf. morocco*, 4s (p. 18s) New York, 1864 or '52
- Mahan's and Millington's books on civil engineering are unequalled; in fact they are the most valuable works on the subject in the English language.—*Allibone.*
- MAHON** (Viscount) *PRINCIPLES of ELECTRICITY* (1779)—*v. STANHOPE* (Charles 3rd Earl), *post.*, et No. 4558, ante.

- 11281 **MAGINI** (Giovanni Antonio; *Univ. Bologna*) De ASTROLOGICA RATIONE, ac Usu DIERUM CRITICORUM seu DECRETORIORUM, ac præterea de cognoscendis ac medendis Morbis ac CORPORUM CÆLESTIUM COGNITIONE. Opus II Libris distinctum, quorum I. complectitur Commentarium in Claudii Galeni Librum III. de Diebus Decretoriis, alter agit de Legitimo Astrologiæ in Medicina Usu; his additur de Anni Temporis Mensura in Directionibus; et de Directionibus ipsis ex VALENTINI NABODEÆ scriptis, editio princeps; with *astrological diagrams*, sm. 4to. *sewn* (RARE), Venetiis, 1607
£1. 1s
‘Ouvrage où l'auteur découvre sa faiblesse pour l'astrologie.’—Biogr. Gén. It is recorded that he was extremely successful in his astrological predictions, which should make this work of great value to British neo-astrologers in the Twentieth Century.
- 11282 — BREVE INSTRUZIONE sopra L'APPARENZE et MIRABILI EFFETTI dello SPECCHIO CONCAVO SPERICO, prima edizione; with *numerous diagrams, and printer's device on title and at end*, sm. 4to. *sewn* (RARE), £1. 5s
Bologna, 1611
‘In this rare work Magini speaks of the rarity of concave mirrors in his time, and mentions several made by himself. . . The mirrors made by him were of a quite extraordinary size, measuring 5 feet in their circumference. They were employed for various uses and especially to ascertain the different heat of the sun during the various seasons. Magini speaks also of the camera obscura as having been described before Porta by Ansonio, in his theory of the Concave Mirror, published by Magini himself.’—Libri Catalogus.
‘Opuscolo raro e pregiato.’—Riccardi.
- 11283 — EPHEMERIDES CÆLESTIUM MOTUUM, ab A. D. 1581 usque ad 1620 [cum Supplemento ad Annum 1630], secundum COPERNICI Hypotheses, Prutenicosque Canones, atque juxta Gregorianam Anni Correctionem accuratissimè supputatæ, ad Long. Gr. 32° 30' sub qua inclyat Urbs Venetiarum sita est, addita est eiusdem in Stadium Animadversio . . . item Tractatus IV absolutissimi, nempe ISAGOGÆ in Judicariam Astrologiam, de Usu Ephemeridum, de Anniis Revolutionibus, et de Stellis Fixis; with *portrait et. 27 on rev. of title, woodcuts, and diagrams*, 3 vols. 4to. *old limp vellum* (RARE), £1. 15s
Venetiis D. Zenarius 1582 [1616]
- 11284 — EPHEMERIDES CÆLESTIUM MOTUUM, ab A. D. 1611 usque ad 1630, juxta COPERNICI OBSERVATIONES accuratissimesupputatæ, correctæ et auctæ, ad Longitudinem inclyatæ Venetiarum Urbis, eiusdem Tractatus II, nempe, ISAGOGÆ in ASTROLOGIAM, et de USU EPHEMERIDUM denuo correcti, et insigniter amplificati, atque COMPENDIUM DIRECTIONUM . . . pro DIRECTIONIBUS . . . additum est SUPPLEMENTUM ISAGOGICARUM EPHEMERIDUM . . . Astrologiæ circa Agriculturam et Navigatoriam Observationes, et Præcepta de Mutatione Aëris Libellus; with *woodcuts and diagrams*, thick 4to. *old limp vellum*, £1. 1s
ibidem, apud eundem, 1612
This work was unknown to Lalande.
- 11285 — CONTINUATIO EPHEMERIDUM CÆLESTIUM MOTUUM, ab A. D. 1610 usque ad Annum 1630 juxta COPERNICI Observationes accuratissimè supputatarum, ad Long. inclyatæ Venetiarum Urbis. Addita sunt: Reductio facilis Motus Solis . . . De Introitu Solis in Singulorum Signorum Initiis . . . Astrologiæ circa Agriculturam et Navigatoriam Observationes et Præcepta, de Mutatione Aëris Libellus; with *diagrams*, 2 vols. 4to. in 1, *old limp vellum*, £1. 1s
ib., 1607
- 11286 — EFEMERIDE dei MOTI CÆLESTI per Anni xx, da 1581 a 1600, secondo i Fundamenti del COPERNICO, et TAVOLE PRUTENICHE, accommodate alla Riforma dell' Anno di N. S. Gregorio XIII, alla Lunghezza di gr. 32.30' dell' inclita Città di Vinegia, con IV copiosissimi Trattati, il I. introdottorio alla Astrologia, il II. dell' Uso dell' EFEMERIDE, il III. delle Revolutioni, et il IV. delle Stelle Fisse; with *woodcut portrait et. 27 on rev. of title, and diagrams*, thick 4to. *old limp vellum*, 15s
ibidem, 1583
A copious account of Magini's *Ephem. ritus* will be found in Delambre's *Histoire de l'astronomie du moyen âge*. Kepler, who referred to Magini as 'summus in professione mathematica vir', invited him to help in the compilation of new astronomical tables (afterwards known as the Rudolphine Tables). According to *Biogr. Gén.*, this was done by Copernicus—a palpable error, as Copernicus died 12 years before Magini's birth.
- 11287 — NOVE CÆLESTIUM ORBIUM THEORICÆ congruentes cum Observationibus N. COPERNICI, editio princeps; with *engraved title, and numerous woodcuts and diagrams*, 4to. *old limp vellum* (back of binding damaged, and some ll. soiled, otherwise a large and sound copy), 18s 6d
ib., 1589
- 11288 — TABULÆ SECUNDORUM MOBILIIUM CÆLESTIUM, ex quibus omnium Syderum Aequales et Apparentes Motus ad quævis Tempora præterita, presentia ac futura mira Promptitudine colliguntur, congruentius cum Observationibus Copernici, et Canonibus Prutenicis, atque ad novam Anni Gregoriani Rationem accommodate, secundum Long. inclyatæ Venetiarum Urbis; with *diagrams and folding table*, 4to. *old vellum* (title and a few ll. slightly mended and some others browned), £1. 1s
ib., D. Zenarus, 1585
‘Ses écrits prevent qu'il a fait une étude approfondie des travaux de Copernic . . . On rencontre dans ses ouvrages des transformations et des théorèmes que d'habiles astronomes avaient cru de nos jours découvrir pour la première fois.’—G. Libri.
According to the same authority, the above and the *Novæ cœlestium orbium theoricæ*, published in 1608, were the only two works in which the author follows wholly the Copernican system. In all the works published between 1585 and 1608 he adopted a curiously involved system of his own, probably inspired by a fear of the Inquisition, with which not many years afterwards Galileo got into difficulties.
- 11289 **MALAISE** (Constantin) Sur les SILEX OUVRÉS de SPIENNES, avec NOTICE ADDITIONNELLE; with 3 plates (2 folding), 8vo. (pp. 18), *sewn, with author's inscr.*, 2s 6d
Bruxelles, 1866-8
- 11290 **MALLARD** (Ernest, de l'École des Mines) REVUE des PRINCIPAUX TRAVAUX publiés sur la MINÉRALOGIE pendant 1877 et 1878, 8vo. *sewn*, 2s 6d
1879
- 11291 — Sur la THÉORIE de l'HÉMITROPIC, et en particulier sur l'Hémitropie du Disthène et du Cuivre Gris, 8vo. (pp. 6), *sewn*, 1s 3d
Meulan, 1879
- 11292 —, et Louis Le CHATELIER: RECHERCHES EXPÉRIMENTALES et THÉORIQUES sur la COMBUSTION des MÉLANGES GAZEUX EXPLOSIFS; with 11 folding plates, 8vo. *sewn, with auto. of F. J. Jervis-Smith, pr., F.R.S.* (scarce), 6s 6d
1883
The authors were the first to make experiments on the ignition velocities of explosive mixtures of gases.

- 11294 **MAGNÉ de MAROLLES (G. F.)** LA CHASSE au FUSIL; contenant 1^o des Recherches sur les ARMES de TRAIT usitées pour la Chasse avant l'Invention des Armes à Feu; savoir l'ARC et l'ARBALETE . . . la Fabrication des Canons de Fusil, la Portée des Canons, etc. etc., avec des Instructions à bien tirer; 2^o les Enseignemens et Connoissances nécessaires pour chasser utilement les différentes Espèces de Gibier, etc. etc.; with 9 copperplates (3 folding), chiefly of CROSSBOWS, 8vo. old calf (joints cracked), with bookplate of John Symmons, and another of Henry B. H. Beaufoy, F.R.S. (rare), 12s 6d 1788

'A very useful book to a sportsman, as it shews every method practised with the gun in France, and also some of their methods of catching wild fowl with nets.'—*Old inser. on flyleaf.*

- 11295 **MAILLARD (Gen. Sebastian v.; Austrian Army)** Die MECHANIK der GEWÖLBE . . . nebst der Bestimmung ihrer Dicke und jener der Widerlagen, und der Dicke der Brückenpfeiler, 8vo. boards (wanting plates), 2s 6d Pesth, 1817

- 11296 ——— MÉMOIRE sur la THÉORIE des MACHINES à FEU; with folding copperplate, 4to. (pp. 71), sewn, (rare), 8s 6d St. Pétersbourg [1783]

This work was awarded a prize by the Imperial Academy of Science of St. Petersburg.

- 11297 ——— THÉORIE des MACHINES mues par la Force de la VAPEUR de l'Eau: with 2 folding copperplates, 8vo. old calf gilt (joint cracked); rare, 12s 6d Vienne, 1784

Also awarded the prize by the St. Petersburg Academy of Science.

- 11298 **MAILLET (Benoit de) TELLIMATED: or Discourses between an INDIAN PHILOSOPHER and a FRENCH MISSIONARY, on the DIMINUTION of the SEA, the FORMATION of the EARTH, the ORIGIN of MEN and ANIMALS, and other Curious Subjects, relating to Natural History and Philosophy, translated, 8vo. old calf, with MS. Note by Henry Reeve, editor of the 'Greville Memoirs' (see below) and his bookplate (rare), 15s 1750**

- 11299 ——— REPRINT, 8vo. sewn, 10s 6d

This remarkable work anticipated a number of geological and biological theories, and was highly praised by Buffon and Cuvier.

'This is a translation of the rare and curious work of Benoit de Maillet, which contains the germs of the systems of Lamarck and Darwin. Maillet died in 1739: this book was published after his death in 1748.'—*H. Reeve.*

- 11300 **MAIN (Robert, pr., F.R.S.; Radcliffe Observer)** The ANNUAL ADDRESS of the VICTORIA INSTITUTE, or Philosophical Society of Great Britain, 3rd Edition, 8vo. (pp. 36), sewn, 3s 1875

The address was on Modern Philosophic Scepticism, and 'was frequently reprinted' (D. N. B.).

- 11301 ——— On the PRESENT STATE of our KNOWLEDGE of the PARALLAX of the FIXED STARS, with 2 plates and diagrams, 4to. (pp. 60), sewn, 5s 1840

'A critical and historical essay.'—*D. N. B.*

- 11302 ——— [and Philip Thomas] PRACTICAL and SPHERICAL ASTRONOMY, with diagrams, 8vo. cl., 4s (p. 14s) Cambridge, 1863

'Including all the mathematical processes which will enable the reader to understand the operations of a modern Observatory furnished with the ordinary meridional and extrameridional instruments.'—*Preface.*

- 11303 **MAIN (Thomas John, pr.; F.R.A.S.; Roy. Naval Coll., Portsmouth), and Thomas BROWN: The MARINE STEAM-ENGINE; 3rd Edition, with 3 plates (2 folding), and numerous woodcuts, 8vo. cl., 3s 6d 1855**

- 11304 [MAINARDI (Matteo) OPERE MERCANTILI, et ECONOMICHE, che contengono la FORMA REGOLATA della SCRITTURA MERCANTILE, con le Lettere de' Negotij Correlativi; il CAMBIO REALE per ogni Piazza, e con altri Quesiti concernenti la Mercatura; e la SCRITTURA TUTELARE per Istruzione de' Ministri, circa al Governo Familiare], 4to. sewn (title wanting, but very sound copy); rare, 15s Bologna, G. Monti, 1646

This edition was unknown to Mr. R. Brown (History of Accounting), who only mentions the edition of 1632 of *Scrittura Mercantile*, and that of 1700 of *Scrittura Tutelare*. The *Cambio Reale* was apparently quite unknown to him.

- 11305 **MAIRAN (Jean Jacques Dortous de; F.R.S.) DISSERTATION sur la GLACE, ou Explication Physique de la Glace, et de ses divers Phénomènes; with fine front by Ingram, and 5 folding copperplates, 12mo. contemporary mottled calf gilt (VERY FINE COPY); RARE, 12s 6d Imprimerie Royale, 1749**

- 11306 ——— NOUVELLE ÉDITION, augmentée d'un Discours sur la CONSTRUCTION et la COMPARAISON des THERMOMÈTRES par GEORGE MARTINE, M.D., F.R.S.; with 5 folding plates, and table of thermometric scales, 2 vols. large 12mo. in 1, old boards, uncut, 15s Lucques, 1757

'Cette dissertation fut couronnée par l'Académie de Bordeaux.'—*Quérard.* There is no copy of any edition in the Royal Meteorological Society's Library Catalogue, 1891.

- 11307 ——— TRAITÉ Physique et Historique de l'AUREORE BORÉALE, première édition; with 15 copperplates, 4to. contemporary calf gilt (back slightly wormed), 10s 6d Imprimerie Royale, 1733

- 11308 ——— SECONDE [DERNIÈRE] Edition, revue et augmentée de plusieurs Eclaircissemens; with 17 plates, 4to. contemporary brown calf gilt, newly rebound (FINE COPY), 16s 6d apud eandem, 1754

BEST EDITION of the earliest exhaustive treatise on the aurora borealis, whose height the author estimates as above 100 geographical miles, and which he supposes to be zodiacal light that has come into contact with the atmosphere.

- 11309 **MAISSIAT (Michel) MÉMOIRE sur quelques CHANGEMENTS faits à la BOUSSOLE et au RAPPORTEUR, suivi de la DESCRIPTION d'un NOUVEL INSTRUMENT, nommé GRAMMOMÈTRE, servant à disposer sur les Plans et Cartes, les Hauteurs et l'Inclinaison des Écritures, et à diviser sans Compas les Lignes Droites; with 8 folding copperplates, 8vo. sewn, uncut (scarce), 10s 6d 1818**

'En 1801 il fut appelé à travailler sous la direction du colonel Tranchot, à la carte générale des départemens nouvellement conquis, du Mont-Tonnerre, de la Sarre, du Rhin-et-Moselle, et de la Roër, carte pour laquelle il inventa deux instrumens, le nouveau rapporteur et le grammomètre.'—*Biogr. Gén.*

- 11310 **MALLET (Allain Manesson) LA GEOMETRIE PRATIQUE, divisée en 4 Livres, 1^o Éléments de la Géométrie Pratique, 2^o la Trigonométrie, 3^o la Planimétrie, 4^o la Stéréométrie; with 500 copperplates (including portraits of the author and Louis XIV.), 4 vols. large 8vo. old mottled calf extra (binding of v. II damaged); RARE, £1. 1s 1702**

Valuable for the numerous views of French towns, villages, and castles, which form the majority of the plates of the above work. There are also many illustrations of mathematical instruments.

- 562 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11312 **MAITLAND (Samuel Roffey, D.D., F.R.S.; Lambeth Librarian; author of 'The Dark Ages')** SUPERSTITION AND SCIENCE: an Essay, with 2 woodcuts, fcap. 8vo. sewn (scarce), 5s 1855
Directed against spiritualism and Faraday's Lecture on Mental Education.
- 11313 **MALCOLM (Alexander, teacher of the Mathematicks at Aberdeen)** NEW SYSTEM of ARITHMETICK, Theoretical and Practical, wherein the Science of Numbers is demonstrated in a Regular Course from its First Principles; the Practice and Application to the Affairs of Life and Commerce being also fully explained: making the Whole a Complete System of Theory, for Men of Science and Business, 4to. *old calf (binding broken, and title and a few ll. water-stained)*, 7s 6d 1730
'One of the most extensive and erudite books of the XVIII. century.'—*Professor de Morgan.*
- 11314 **MALLET (John William, T.C.D.; F.R.S.; Confederate States Army; Prof. of Chemistry, Univ. Virginia)** On ACHREMATITE, a New Molybdo-Arsenate of Lead, from Mexico, 8vo. (pp. 7), *sewn*, 1s 6d 1875
- 11315 ——— On Certain NEW REACTIONS of TUNGSTEN, 8vo. (pp. 6), *sewn*, 1s 6d 1875
- 11316 ——— On the CHEMICAL and METEOROLOGICAL CONDITIONS involved in the SUCCESSFUL CULTIVATION of COTTON, 8vo. (pp. 14), *sewn*, 2s 1861
- 11317 ——— JEAN JERVAIS STAS, and the MEASUREMENT of the RELATIVE MASSES of the ATOMS of the CHEMICAL ELEMENTS, with *portrait and 4 p. fs. letter*, 8vo. (pp. 56), *sewn*, 3s 6d 1892
The Stas Memorial lecture.
- 11318 ——— On NITROGEN IODIDE, roy. 8vo. (pp. 6), *sewn*, 1s 6d *Baltimore, Md.*, 1879
- 11319 ——— REDETERMINATION of the ATOMIC WEIGHT of LITHIUM, 8vo. (pp. 8), with *inser. to Sir E. Frankland, F.R.S.*, 2s 6d 1856
- 11320 ——— REVISION of the ATOMIC WEIGHT of GOLD, with 9 woodcuts, roy. 4to. (pp. 47), *sewn*, 5s 1889
- 11321 ——— On the STRUCTURE of GOLD-LEAF, and the ABSORPTION SPECTRUM of GOLD, with *plate*, roy. 4to. (pp. 9), *sewn*, 1s 6d 1904
- 11322 **MALLET (Robert, T.C.D.; F.R.S., M.I.C.E.; father of the above)** On the PHYSICAL CONDITIONS involved in the CONSTRUCTION of ARTILLERY: with Investigation of the relative and absolute Values of the Materials principally employed, and of some hitherto unexplained CAUSES of the DESTRUCTION of CANNON in SERVICE, with 9 plates and 13 diagrams, roy. 4to. *cl. (cover damaged)*; *scarce*, 9s (p. £1. 10s) 1856
- 11323 ——— ANOTHER COPY, *cl.*, or, *hf. morocco*, 10s
The author constructed a 36-inch giant mortar, 'the Palmerston mortar', to blow up the Russians, which became useless after its fourth discharge, and was afterwards known as 'Palmerston's folly.' It rests now in Woolwich Arsenal.
- 11324 ——— VOLCANIC ENERGY: an Attempt to develop its True Origin and Cosmical Relations; with the ADDITIONAL PAPER, and Leaf of Errata, with 2 folding plates, 11 diagrams, and large folding table, roy. 4to. (pp. 91), *sewn*, with *author's inser.*, 6s 6d 1872-4
This important memoir laid the foundation of the contraction and wrinkling theory of the earth's crust—a fact unknown to the author's biographer in *D. N. B.*
The author, who was the largest, and eventually the only, ironfounder in Ireland, invented the buckled plate, now universal for flooring bridges, and built the lighthouse on the Fastnet rock.
- 11325 **MALO (Léon)** GUIDE PRATIQUE pour la FABRICATION et l'APPLICATION de l'ASPHALTE et des BITUMES; with 7 folding plates, post 8vo. *cl.*, 3s [1866]
- 11326 ——— ASPHALTE ROADWAYS, translated by J. HENDERSON, 8vo. *cl. (o. p.)*, 2s 6d 1886
- 11327 **MALOUIN (Paul Jacques, F.R.S.)** CHIMIE MÉDICINALE, contenant la Manière de préparer les Remèdes les plus usités, et la Méthode de les employer pour la Guérison des Maladies; nouvelle Edition, 2 vols. 12mo. *contemporary calf gilt (nice copy)*, 8s 6d 1754
One of the best works of its time on pharmaceutical chemistry. The author contributed several articles on chemistry to the *Encyclopédie*.
- 11328 **MALTHÉ (François de, Commissaire des Feux artificiels du Roy)** TRAITÉ des FEUX ARTIFICIELS pour la GUERRE, et pour la RECREATION; avec plusieurs belles Observations, abregé de Geometrie, Fortifications, HORLOGES SOLAIRES [*sic*], et Exemples d'Arithmetique; de nouveau reueu, corrigé et augmenté par l'Authéur; with engraved title, and numerous engravings on copper and wood, large 12mo. *old calf gilt (sound copy)*; RARE, £1. 1s 1640
Dedicated to Cardinal de Richelieu. It is interesting for the numerous copper-engravings it contains. One of the chapters treats of a 'Méthode très-violente pour porter le feu dans une ville.'
- 11329 **MALTON (Thomas)** Compleat TREATISE on PERSPECTIVE, in Theory and Practice; on the true Principles of Dr. Brook Taylor, made clear, in Theory, and reduced to Practice, in the most familiar and intelligent Manner; 2nd Edition, with large Additions, with 49 folding copperplates, folio, *old calf (2 ll. defective)*, 10s 1778
This work is remarkable for the fine plates it contains. There are some on contemporary furniture, which are of special interest as the author was originally a cabinetmaker in the Strand.
- 11330 ——— The ROYAL ROAD to GEOMETRY; or an EASY and FAMILIAR INTRODUCTION to the MATHEMATICS, with Appendix on the Theory of Mensuration of Superficies and Solids, as deduced from the Elements, with numerous woodcuts and diagrams (many with MOVABLE SLIPS), 8vo. *old calf*, 5s 1774
'A school-book intended as an improvement on Euclid.'—*D. N. B.*
- 11331 **MAMPIERI (Alessandro)** ILLUSTRAZIONE del QUADRO GEOGRAFICO-ASTRONOMICO-FISICO ASTRONOMICO-CIVILE STORICO STATISTICO COMMERCIALE, con Aggiunta delle Nozioni Generali sulle Conoscenze dei Tempi in Rapporto dell' Effemeridi Permanenti, cr. 4to. (pp. 40), *sewn*, 2s 6d *Roma*, 1856
- 11332 **MANGEOT (H., arquebusier de la cour à Bruxelles)** TRAITÉ du FUSIL de CHASSE, et Moyens d'en améliorer la Portée, le Fini et la Durée, avec la Manière d'éviter les Accidents, une Méthode de Tir au Pistolet, etc. etc.; with numerous plates and woodcuts, 8vo. *sewn (scarce)*, 6s 6d *Bruxelles, apud auctorem*, 1851

11334 **MALT-LIQUORS**, DISCOURSE on the PREPARATION, etc., of, 12mo. (pp. 94), *unbound (title missing)*; rare, 6s [c. 1740]

Unknown to Watt.

11335 **MANBY** (George William, *inventor of the Rocket Apparatus*; F.R.S.) ESSAY on the PRESERVATION of SHIPWRECKED PERSONS; with ACCOUNT of the APPARATUS, and the Manner of Applying it, *first edition, with numerous fine woodcuts by Berryman*, roy. 8vo. *original boards, uncut (back broken)*, 10s 6d 1812

Manby, who was a schoolfellow of Nelson's at Downham Market, was the actual inventor of the mortar or rocket-apparatus, which has saved so many lives; but the idea had been put forward before by JOHN CAREY, author of the *Grades*.
 'In 1810 the apparatus was investigated by a committee of the House of Commons, and the report was ordered to be printed 26 March of the same year. Manby embodied the results of his work in *An Essay*, published in 1812, which has been reprinted in many different forms.'—D. N. B.

11336 **MANCHESTER GEOLOGICAL SOCIETY**, TRANSACTIONS of the, complete from the beginning in 1841 to 1901, *with numerous plates (many coloured or folding)*, 26 vols. 8vo. and 7 parts, 18 vv. in 12 hf. bound, and the rest in parts as issued (SCARCE), £7. 10s 1841—Manchester, 1901

11337 — **LITERARY and PHILOSOPHICAL SOCIETY**, MEMOIRS of the, from the beginning in 1785 to 1898 (being FIRST SERIES COMPLETE, 1785-1802, 7 v. hf. calf; SECOND SERIES, 1805-57, 14 v. boards and cl.; THIRD SERIES (Vols. 2-8), 1863-84, 7 v. cl.; FOURTH SERIES, 1888-98, 12 v. cl.), *with copperplates*—in all 40 vols. 8vo. in 38, variously bound as above, £6. 16s 6d Warrington, 1785—Manchester, 1898

The early volumes of this rare publication are especially valuable for containing numerous contributions by JOHN DALTON, F.R.S. There are also others by THOMAS HENRY, F.R.S., J. P. JOULE, F.R.S., LORD KELVIN, F.R.S., and many other well-known scientific men.

11338 — **FIRST SERIES, VOLS. I-II only, with 5 copperplates (one defective)**, 2 vols. 8vo. boards, *uncut (backs torn and some ll. waterstained)*; rare, 15s Warrington, 1785

Including a memoir by BENJAMIN FRANKLIN: 'Meteorological Imaginations and Conjectures', in which he propounds a theory of hail.

11339 — **THIRD SERIES, VOLS. V. VII-VIII, and FOURTH SERIES, VOLS. I-III, with plates and woodcuts**, 6 vols. 8vo. cl., 12s 6d 1876—Manchester, 1890

Including original articles by J. T. Bottomley, H. B. Dixon, W. S. Jevons, Horace Lamb, J. H. Poynting, Osborne Reynolds, Sir H. E. Roscoe, Arthur Schuster, R. Angus Smith, and Balfour Stewart, F.F.R.S.

11340 **MANDEY** (Venerus) MELLIFICIUM MENSIONIS: or the MARROW of MEASURING, with choice Principles and Problems of Geometry, 4th Edition, with Additions, *portrait et. 37 by R. White, plates, and diagrams*, 8vo. *old calf gilt*, 6s 6d 1727

11341 — **ANOTHER COPY (wanting the portrait)**, boards, uncut, 5s

Containing an Appendix: the Measuring of Chimneys reformed, etc. etc. The 2nd Book: 'A Garden of Geometrical Roses' consists of a translation of Thomas Hobbes's 'Rosa Geometrica', and the 3rd 'Principles and Problems in Geometry thought formerly desperate', also translated from Hobbes.

11342 **MANELLI** (Francesco, *Faentino*) OPERA d'ARITMETICA e GEOMETRIA; nella quale con grandissima Facilità e Breuità insegnansi i veri MODI di SCIogliere qual si voglia Conto Mercantile, di Cambio, di Campagnie, di Baratti, e altri, col Modo di Misurare . . . e come si debbano conoscere i Vantaggi delle Monete sì d'Oro come d'Argento; *with portrait on copper et. 39, woodcuts, and diagrams*, sm. 4to. boards (RARE), £1. 1s Bologna, 1659

This rare work was quite unknown to Professor de Morgan, nor is it mentioned by Poggendorff, Graesse, or Brunet. There was no copy in the Libri Library.

11343 **MANFREDI** (Eustachio; *Univ. Bologna, F.R.S.*) EPHEMERIDES [et NOVISSIMÆ EPHEMERIDES] MOTUUM CELESTIUM, 1715-50, e Cassinianis Tabulis ad Meridianum Bononiæ supputate, cum Introductione in Ephemerides; *with 29 folding charts and plates, besides diagrams*, 4 vols. 4to. *contemporary white vellum (back of v. IV slightly damaged, otherwise a fine copy)*, 15s Bononic, 1715-25

'Della prefazione al t. I si raccoglie che l'autore ebbe a soci e collaboratori in questo pregiato lavoro, Giacomo Parma, Giuseppe Bolsi Marchesi, G. Bat. Bandierl, Domenico Weber, Guis. Ant. Nadi e Carlo Hebert'.—Riccardi.

11344 — De GNOMONE MERIDIANO BONONIENSI, deque Observationibus Astronomicis eo Instrumento ab ejus Constructione ad hoc Tempus peractis; *with 2 folding plates*, 4to. *old boards (sound copy)*, 8s 6d *ibid.*, 1736

11345 **MANFREDI** (Gabriele; *Univ. Bologna*) De CONSTRUCTIONE ÆQUATIONUM DIFFERENTIALIUM PRIMI GRADUS; *with 7 folding plates*, 4to. *old vellum (fine copy)*, 17s 6d Bononic, 1707

11346 — **ANOTHER COPY, old vellum, having copious MS. additions in a contemporary hand (lower part of plates and some ll. water-stained)**, 16s 6d

A very rare work which was highly commended by Leibniz. It is practically the first work on the subject, and contains all that was known at the time of the integral calculus, including as well numerous new problems of the author's invention.

11347 **MANGIN** (Arthur) The MYSTERIES of the OCEAN, translated, edited, and enlarged by W. H. DAVENPORT ADAMS; new Edition, revised, *with 130 full-page and other woodcuts by W. Freeman and J. Noël*, roy. 8vo. *red morocco gilt (rubbed)*, g. e., 5s 1870

Pp. 38-169 contain Ocean Meteorology, and pp. 170-180 Phosphorescence of the Sea.

11348 **MANGINUS** (Carolus Antonius, *philosophic doctor*) TABULÆ PRIMI MOBILIS, quibus Nova Dirigendi Ars, et præcipue Circuli Positionis Inventio, non minus facilis, quam exacta ostenditur: cui accedit Compendium de Directionibus juxta aliorum Methodum per easdem Tabulas absolvendis; *with engraved title*, 12mo. *old limp vellum (slightly damaged, and some ll. browned)*; RARE, £1. 1s Bononic, 1626

Nothing seems to be known of the author or his work, which was unknown to Riccardi, Houzeau and Lancaster, and Poggendorff, and is not mentioned in Brunet and Graesse.

11349 **MANN** (Charles Riborg, *Univ. Chicago*) MANUAL of ADVANCED OPTICS, *with 40 illustrations*, 8vo. cl., 4s 6d Chicago, 1902

The first text-book containing the methods of measurement which are based on the interference of light waves.

- 561 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11351 **MANN** (Isaac John; M.I.C.E.) RIVER BARS: Notes on the Causes of their Formation, and on their Treatment by 'Induced Tidal Scour', with Description of the successful Reduction by this Method of the BAR at DUBLIN, with 23 illustrations (including folding plates), sq. 8vo. cl., 3s 6d (p. 7s 6d) 1881
- 11352 **MANN** (James), and James **AYSCOUGH**; opticians: DESCRIPTION of the COMPOUND (commonly call'd the REFLECTING or DOUBLE) MICROSCOPE, with great Improvements, with folding copperplate (pp. 15): DESCRIPTION of the SOLAR, or CAMERA-OBSCURA MICROSCOPE, with folding copperplate (pp. 3), 8vo. sewn (scarce), 10s 6d [c. 1750]
The chief improvements claimed are an improved objective with an increased magnifying power, and a movable stage. The microscope also contained a parabolic condenser for dark-ground illumination, for which it is claimed that this microscope was the first to use it 'underneath the middle of the stage'.
- 11353 **MANN** (William, patentee, Brixton) DESCRIPTION of a NEW METHOD of PROPELLING LOCOMOTIVE MACHINES, and of communicating Power and Motion to all other Kinds of Machinery, with folding front. of Mann's Patent Locomotive Air Carriage, 8vo. (pp. 56), sewn (scarce), 10s 6d 1830
'Presented by the Author to George Ren[nie, F.R.S.], 6th Octob[er] 18 —.'—*Inscr. on title.*
The carriage described was constructed to be driven by compressed air, 'which at a density of 32 atmospheres is sufficient to propel it 14 miles . . . and at 64 atmospheres 3½ miles. The average cost of the power will be about a penny per mile.'
- 11354 **MANNHEIM** (Amédée, Colonel d'Artillerie) COURS de GÉOMÉTRIE DESCRIPTIVE de l'École Polytechnique, comprenant les ÉLÉMENTS de la GÉOMÉTRIE CINÉMATIQUE, 2^e [dernière] Édition; with 256 diagrams, roy. 8vo. hf. calf gilt, uncut, t. e. g., with Prof. Lloyd Tanner's bookplate, 10s 6d (p. F. 17 nett sewn) 1886
- 11355 **MANNING** (James Alexander) THE UTILIZATION of SEWAGE: a REPLY to BARON LIEBIG'S LETTER to LORD ROBERT MONTAGU, 8vo. (pp. 32), sewn, 1s 6d [1864]
- 11356 **MANNINGHAM** (Henry) COMPLETE TREATISE of MINES, extracted from the *Mémoires d'Artillerie*, with Professor BELIDOR'S DISSERTATION on the Force and Physical Effects of Gunpowder, with 21 folding copperplates, roy. 8vo. unbound, 6s 6d 1752
The 'mining' treated in the above work is the less useful art of military undermining.
- 11357 **MANSELL** (Major J. H., R.A.) INVESTIGATION of the LAW of BURNING of MODIFIED CORDITE, with 7 illustrations, roy. 4to. (pp. 20), sewn, 1s 6d 1907
- 11358 **MANSERGH** (James, F.G.S.) LECTURES on WATER SUPPLY, PROSPECTING for WATER, and WELL-SINKING and BORING, with 23 plates (20 folding and linen-mounted), besides woodcuts, roy. 8vo. hf. calf, 4s Chatham, 1882
- 11359 **MANSFIELD** (Charles Blachford) BENZOLE: its NATURE and UTILITY, with 3 woodcuts, 8vo. (pp. 47), cl. (scarce), 10s 6d 1849
'Nevil Story Maskelyne (F.R.S.) from his friend C. B. M.'—*Inscr. on title.* The work is important for containing the author's discovery of a method of extracting benzol from coal-tar, which 'laid the necessary foundation for the development of the aniline industry.'—*Prof. E. v. Meyer.* The work also describes 'some of the most important applications of benzol, among others the production of a light of peculiar brilliancy by charging air with its vapour.'—*D.N.B.* Added are some proof sheets of a Lecture on the subject by the author.
- 11360 ——— RESEARCHES on COAL TAR, Part 1, 8vo. (pp. 24), sewn, 3s 6d [1849]
- 11361 ——— A THEORY of SALTS: a Treatise on the Constitution of Bi-Polar (Two-Membered) Chemical Compounds [edited with Preface (pp. 25) by M. H. NEVIL STORY MASKELYNE, F.R.S.], with 2 folding plates, thick cr. 8vo. cl., uncut (scarce), 10s 6d 1865
'His most important contribution to theoretical chemistry.'—*D. N. E.*
'Mansfield wrote this book to defend the principle, that the facts of voltaic decomposition afforded the true indication, if properly interpreted, of the nature of the saline structure and of the atomicity of the elements that built it up; and he held that this structure or form of constitution is only one, but a most important one, among the types of constitution on which chemical compounds can be moulded.'—*Editor's preface*, which also contains an interesting biographical sketch.
The author died a martyr to science at the early age of 35, from injuries received by carrying a blazing naphtha still into the street, in an attempt to save the premises.
- 11362 **MANTELL** (Gideon Algernon, F.R.S.) GEOLOGICAL EXCURSIONS round the ISLE of WIGHT, and along the adjacent Coast of Dorsetshire; 3rd Edition, with 19 plates, 43 woodcuts, and coloured geological map, post 8vo. cl. (o.p.), 3s 6d 1854
'In the infancy of geological science he placed before the world the means by which others could write a thesis or found a system.'
- 11363 ——— The GEOLOGY of the SOUTH-EAST of ENGLAND, with 6 lithographs, numerous woodcuts, and coloured map, post 8vo. hf. calf (scarce), 6s 6d 1833
- 11364 ——— THE MEDALS of CREATION; or FIRST LESSONS in GEOLOGY, and in the Study of Organic Remains, with 6 plates (3 coloured), and 167 woodcuts by Sir George Scharf and J. W. Whymper, etc., 2 vols. cr. 8vo. cl., 5s 1844
- 11365 ——— PETRIFICATIONS and their TEACHINGS; or a Handbook to the Gallery of Organic Remains of the BRITISH MUSEUM, with front. and 115 woodcuts, cr. 8vo. cl., 3s 1851
- 11366 ——— PICTORIAL ATLAS of FOSSIL REMAINS, consisting of Coloured Illustrations selected from Parkinson's 'Organic Remains of a Former World', and Artis's 'Antediluvian Phytology', with Descriptions, with 74 COLOURED PLATES, containing nearly 900 figures, 4to. cl., 12s 6d (p. £2. 5s) 1850
- 11367 ——— SKETCH of the GEOLOGY of SURREY (from Brayley's Topographical History of Surrey), with 3 plates (1 coloured), 4to. (pp. 48), unbound, with *inscr.* to WILLIAM BENJAMIN CARPENTER, F.R.S., from E. W. Brayley, 5s Dorking, 1840
- 11368 ——— THE WONDERS of GEOLOGY: or a Familiar Exposition of Geological Phenomena, 6th Edition, with 7 plates (3 coloured), and 198 woodcuts, 2 vols. cr. 8vo. cl., 5s 1848
'Mantell was not only a popular lecturer and writer, but also the first to demonstrate the fresh-water origin of the Wealden strata, and by his researches among them [largely during the building of the Brighton Railway, especially in Tilgate Forest at the Balcombe Tunnel and Cutting] to discover four out of the five genera of Dinosaurs known at the time of his death.'—*Prof. T. G. Bonney.*

- 11370 **MANSION** (Paul, *Univ. Ghent*) THÉORIE des EQUATIONS aux DÉRIVÉES PARTIELLES du PREMIER ORDRE; 8vo. *sewn, with auto. and MS. corrections by Prof. H. W. Lloyd Tanner, F.R.S. (scarce)*, 4s 6d 1875
- 11371 **MANUFACTUREN** (Die) und FABRICKEN DEUTSCHLANDS nach ihrer heutigen Lage betrachtet und mit allgemeinen Vorschlägen zu ihren vorzüglichsten Verbesserungs-Mitteln begleitet, von dem Verfasser des Lehrbegriffs sämtlicher ökonomischen und Cameralwissenschaften, 2 vols. 8vo. *old hf. calf (binding damaged)*, 6s Frankfurt am Mayn, 1780
- 11372 **MANUSCRIPT** (Astronomical), *neatly written on 430 pp., with diagrams, marked 'Optics Vol. 4. From Feb. 12, 1755 to July 1, 1756', and consisting of remarks on astronomical observations, details as to the construction and use of telescopes, etc.*, 4to. parchment, £1 5s 1755-6
- 11373 — (Mathematical), in ITALIAN, *neatly and evenly written on 150 pp., with diagrams, roy. 4to. parchment (slightly water-stained)*, £3 3s Sac. XV.
Mathematical manuscripts of such an early period as the above (late XVth Century) are of rare occurrence. The above MS. is preceded by 3 pp. of a family chronicle by former owners, extending from 1433 to 1599.
- 11374 — — — — — : ANOTHER MANUSCRIPT, *very neatly written on over 300 pp. of writing paper, with several hundred well-executed diagrams and other illustrations, sm. 4to. contemporary English calf (IN EXCELLENT PRESERVATION)*, £2 15s [c. 1710]
This manuscript is divided into the following chapters: Principles of Geometrie: Practical Geometrie: Geometrical Arithmetick: Trigonometry, or the Doctrine of Plain Triangles: Treatise of Regular Fortification: Of Irregular Fortification: Navigation: The Doctrine of Plain Right-angled Triangles, applied in Problems of Mercator's Sailing: OF DIALLING.
The last chapter treats of: The Way of making an Horizontal Dial geometrically: A South Vertical Dial: An East Dial: A West Dial: An Erect Declining Dial: An Equinoctial Dial: The Polar Dial.
- 11375 — — — — — : A MANUSCRIPT entitled: ELEMEN [sic] de MATHÉMATIQUE; *very neatly written on 461 pages, 4to. old calf (back damaged)*, £1 1s Sac. XVIII.
This MS. bears the book-label 'Tixall Library', probably that of Sir Thomas Hugh Clifford, Constable of Tixall Hall, Staffordshire, the botanist, antiquary, and benefactor of French émigrés.
- 11376 — — — — — : A MANUSCRIPT, *very neatly written on 486 pp., including ASTRONOMY, ARITHMETIC, GEOMETRY, TRIGONOMETRY, MENSURATION, PERSPECTIVE, MECHANICS, FORTIFICATION, GUNNERY, DIALLING, and NAVIGATION, with numerous exceedingly well-executed original drawings in sepia (those of fortification COLOURED), besides diagrams, thick folio, old calf (binding badly damaged)*, £1 15s [c. 1760]
A manuscript quite unusual for the excellency of its illustrations, which include a number of charming views.
- 11377 — — — — — : A SIMILAR MANUSCRIPT, *very neatly and clearly written on 568 pp. of strong drawing paper, each page ruled with red ink, with many hundred illustrations, including numerous very pretty drawings in sepia, roy. folio, contemporary English calf gilt (binding slightly damaged and a few water-stains, otherwise in SPLENDID CONDITION)*, £2 2s [c. 1756]
The subjects contained in this manuscript are: Arithmetick: Logarithmical Arithmetick: Geometry: Practical Geometry: Mensuration of Superficies: Cask Gauging: Plain Trigonometry: Spherical Geometry: Spherical Trigonometry: Heights and Distances: Geography and the Use of the Terrestrial Globe: The Construction of Maps and Charts: Navigation: Astronomy (including DIALLING): The Gregorian Kalendar [sic]: Of the Shifting of the Tides: Remarkable Observations and Accidents, etc., on board H.M.S. Britannia, Capt. F. R.: Surveying: Perspective: Fortification: Propositions of Motion applied to Mechanical Powers: Gunnery.
It has as frontispiece 'A Plan and Elevation of the Royal Academy in his Majesty's Dock Yard Portsmouth.'
- 11378 **MANUSCRIPTS** (Old English): I. THE METHOD OF DELINEATING upon an HORIZONTAL and PERPENDICULAR PLANE by the PANTOGRAPHICALL INSTRUMENT, 3 pages, with 4 diagrams: II. THE DESCRIPTION of y^e INSTRUMENT, 3 pages, with illustrations and leaf of drawings: III. A DESCRIPTION of the GRAPHICALL COMPASSE as it is used in Epipedography, 1 page, with illustration: IV. TO MAKE the WATER for the WEATHER GLASSE, 2 pages, with illustration—4to., 10s 6d Sac. XVII.
- 11379 **MANZINI** (Carlo Antonio, *da Bologna*) L'OCCHIALE all' OCCHIO: DIOPTRICA PRATICA, dove si tratta della Luce, della Refrattione de' Raggi, dell' Occhio, della Vista, e degli Aiuti che dare si possono à gli Occhi per vedete quasi l'impossibile, dove in oltre si spiegano le REGOLE PRATICHE di FABBRICARE OCCHIALI à tutte le Viste, e CANNOCCHIALI da osservare i Pianeti, e le Stelle Fisse, da Terra, da Mare, et altri da ingrandire Migliaia di volte i minimi de gli Oggetti vicini; with fine etched portrait by Testana, and well-executed woodcuts of grinding and polishing tools, machines, and operations, besides diagrams, sm. 4to. contemporary vellum (FINE COPY); VERY RARE, £1 15s Bologna, 1660
A rare and very interesting work, and one of the earliest containing copious descriptions and illustrations of contemporary methods of grinding and polishing glass for telescopes. An inscription beneath the portrait states that the author was 'il primo che sin hora habbia perfettamenteato praticato il fabricare occhialoni.'
- 11380 **MANZONI** (Domenico) LA BRIEVE RISOLUZIONE di ARITMETICA universale, in qual si voglia Negotio, dove intervienga Numero, Peso, e Misura, con laquale si perviene all' Intelligëtia della Valuta di qualunque Cosa appetiata à Lire e Soldi di Moneta; with title within woodcut border, and fine and large woodcut initials, 12mo. contemporary limp vellum (binding damaged, also water-stained, and a few holes in last l.); VERY RARE, £2 2s [col. :] Vinegia, al Poggio delle Gride in Rialto, 1553
An extremely rare work, described in the Supplement to Riccardi, who only knew one copy in the possession of Andrea Tessier. There was no copy in the Libri Library, nor was it known to Prof. de Morgan or Poggenдорff, who do not even mention the author's name.
- 11381 **MARCHAL** (—, *ingénieur des constructions navales*) Les NAVIRES de GUERRE les PLUS RÉCENTS; with 30 woodcuts, 8vo. (pp. 127), hf. calf, 2s 6d 1876
- 11382 **MARCHETTI** (Alessandro, *da Pontormo*): PROBLEMATI VI à Leidensi quodam Geometra CHRISTOPHORO SADLERIO missa; ab hoc verò Germanis, Italisque Mathematicis proposita: resoluta ab A. M.; accesserunt bina eiusdem Auctoris THEOREMATI GEOMETRICA; with diagrams, 18mo. (pp. 48), *sewn (rare)*, 7s 6d Pisis, 1675

11384 **MAQUENNE (Léon)** Les SUCRES et leurs principaux DÉRIVÉS, 8vo. (pp. 1032), *cl.*, 7s 6d
(p. F. 16. nett) 1900

This valuable work consists of a *résumé* of all the scientific researches on sugar which had hitherto been dispersed throughout the scientific journals of the various nations.

MARAT SAVANT :

11385 [**MARAT (Jean Paul)**, *Docteur en Médecine et Médecin des Gardes-du-Corps de Monseigneur le Comte d'Artois ; M.D. of St. Andrews ; killed by Charlotte Corday*] MÉMOIRE sur l'ELECTRICITÉ MÉDICALE, couronné le 6 Août 1783, par l'Académie Royale des Sciences, Belles-Lettres et Arts de Rouen, 8vo. *sewn* (RARE), 15s 1784

This work has the merit of being one of the first to treat soberly the subject of electro-therapeutics at a time when electricity was thought to be a panacea for every known disease, and when generally far more harm (referred to on p. 100) than good was done by the electrical enthusiasts.

11386 [—] NOTIONS ÉLÉMENTAIRES d'OPTIQUE ; with 2 copperplates, 8vo. boards, *uncut* (slightly water-stained) ; RARE, £1. 1s Didot, 1784

Though now chiefly known as one of the most hideous monsters of the Terror, and as the author of *L'Ami du Peuple*, the revolutionary journal, Marat was previously the author of works of no small scientific value. He was one of the first to attack Newton's emission theory of light—a heresy which prevented his election to the French Academy. He translated Newton's *Opticks* into French (*q. v. post*).

The above work gives the author's own theory—a curious variety of the corpuscular one.

[—] OPTIQUE de NEWTON, Traduction Nouvelle, faite par M*** (1787)—v. NEWTON, *post*.

11387 [—] RECHERCHES PHYSIQUES sur l'ELECTRICITÉ ; with 5 folding plates, 8vo. *sewn* (VERY RARE), £1. 15s 1782

This, like the rest of the author's works, is full of original ideas and experiments. Pp. 345-53 contain an interesting chapter, 'Des Phénomènes électriques relatifs à l'Ébranlement de la Lumière,' in which he attempts an explanation of the phenomena.

11388 [—] PHYSISCHE UNTERSUCHUNGEN über die ELEKTRICITÄT, übersetzt, mit Anmerkungen, von C. E. WEIGEL ; with 5 folding plates, 8vo. boards, with auto. of C. G. Eschenbach (*Prof. Chemistry, Univ. Leipzig, 1753-1831*), 12s 6d Leipzig, 1784

11389 [—] RECHERCHES PHYSIQUES sur le FEU ; with 7 folding plates, 8vo. *sewn* (RARE), £1. 5s 1780

11390 [—] ANOTHER COPY, boards, *uncut* ; or, *hf. cl.* (both nice clean copies), £1. 8s 6d

In this work the author attempts to give, by his theory of a *fluida igné*, a mechanical explanation of the phenomena of heat.

Marat stayed many years in England, and some time, as a teacher of French, in Edinburgh, where he published in 1774 a revolutionary pamphlet 'The Chains of Slavery.' On the recommendation of certain Edinburgh physicians he received the degree of M.D. from St. Andrews University. According to Chambers's *Encyclopædia*, he was already dying of 'a loathsome skin disease,' contracted while hiding in the sewers of Paris from Lafayette's police, when he received his death-blow from Charlotte Corday. The last two works contain the *Privilège* from Louis XVI. to his 'bien aimé, le sieur Marat', who afterwards was the most ruthless promoter of his murder.

All his scientific works are now VERY RARE.

11391 [—] PHYSISCHE UNTERSUCHUNGEN über das FEUER, übersetzt, mit Anmerkungen, von CHRISTIAN EHRENFRIED WEIGEL, 8vo. *sewn*, 6s 6d Leipzig, 1782

11392 **MARAVIGNA (C.)** TAVOLE SINOTTICHE dell' ETNA, che comprendono la Topografia, la Descrizione de' Fenomeni, la Storia delle Eruzioni e la Mineralogia di questo Vulcano, Edizione 2^{da}, accresciuta, folio folded to 8vo. *unbound*, 3s 6d Parigi, 1838

11393 **MARCELLI (Hercule, da Matelica)** OPERA nuovamente composta, nella quale si contengono 8 MODI di TARIFFE sopra delli dui nobillissimi Metalli, cioè, ORO et ARGENTO ; de diverse BONTÀ, ovvero FINEZZE, cõ li loro limitati PREGI, secondo il COSTUME di VINEZIA ; with woodcut title, device at end, woodcuts, and numerous pretty woodcut initials, 12mo. old *hf. vellum* (some *ll. water-stained, and one slightly defective*) ; VERY RARE, £2. 5s

[*col. :*] *Venetia, per Francesco Marcolini, 1556*

A very rare work, known to Riccardi (who is unable to give a collation or full description) only by repute, and unknown to Poggenorff, Brunet, Grassie, and other bibliographers. There was no copy in the Libri Library.

11394 **MARCET (Alexander John Gaspard)**, M.D., F.R.S. ; husband of Mrs. Jane Marcet] CHEMICAL ACCOUNT of an ALUMINOUS CHALYBEATE SPRING in the ISLE of WIGHT, 4to. (pp. 36), *sewn, with author's inscr.*, 3s 1811

11395 **MARCET (François)** REMARQUES sur un MÉMOIRE de M. CHARLES MARTINS relatif à l'ACCROISSEMENT NOCTURNE de la TEMPÉRATURE avec la HAUTEUR dans les Couches Inférieures de l'Atmosphère, avec Note sur les Effets du Rayonnement Nocturne au-dessus des Grandes Surfaces d'Eau, 8vo. (pp. 21), *sewn, with inscr. to Sir E. Frankland, F.R.S.*, 2s 6d 1861

11396 [**MARCET (Jane)**] CONVERSATIONS on CHEMISTRY ; in which the Elements of that Science are familiarly explained and illustrated by Experiments ; 4th Edition, considerably enlarged, with 14 plates, 2 vols. fcap. 8vo. *contemporary hf. morocco gilt*, 10s 6d 1813

11397 [—] SIXTEENTH EDITION, revised and corrected, with 18 plates, 2 vols. fcap. 8vo. *cl.*, 5s 1853
This work will always retain a peculiar interest for having initiated Faraday, when a bookseller's errand-boy, into chemical knowledge. He acknowledged this fact in 1858 in an interesting letter to M. de la Rive (*cf. Dr. Bence Jones's Life and Letters of Faraday*).

11398 [—] CONVERSATIONS on NATURAL PHILOSOPHY ; in which the Elements of that Science are familiarly explained, and adapted to the Comprehension of Young Pupils, 13th Edition, with 24 plates, thick post 8vo. *cl.*, 3s 1858

11399 **MARCET (William, M.D., F.R.S.)** CHEMICAL INQUIRY into the PHENOMENA of HUMAN RESPIRATION, with 2 plates, roy. 4to. (pp. 31), *sewn, with inscr. to Edward Whymper*, 2s 6d 1890

11400 [—] On the COMPOSITION of FOOD, and how it is ADULTERATED, with practical Directions for its Analysis, with numerous woodcuts, and folding table, 8vo. *cl.*, 3s 6d 1856

11401 [—] CONTRIBUTION to the HISTORY of the RESPIRATION of MAN, with Supplementary Considerations of the Methods of Inquiry and Analytical Results ; with numerous plates, charts, and diagrams, impl. 8vo. *cl.*, with auto. and MS, notes by Edward Whymper, 5s (p. 12s 6d) 1897

- 11403 **MARCHAND** (Richard Felix, *Univ. Halle*) LEHRBUCH der PHYSIOLOGISCHEN CHEMIE; one vol. in 3 parts 8vo. *sewn*, 2s 6d Berlin, 1842-4
- 11404 —, und Karl Johann August Theodor **SCHEERER**: Ueber das CHEMISCHE ÄQUIVALENT des MAGNESIUMS; *with folding plate*, 8vo. (pp. 27), *sewn*, *with inscr. to Sir Charles Lyell, F.R.S.*, 4s 6d [Leipzig, 1850]
- Important in connexion with the determination of the atomic weight of magnesium. The pamphlet is preceded by an interesting historical sketch on the subject.
- 11405 **MARCHIS** (L.; *de la Sorbonne*) LECONS sur la PRODUCTION et l'UTILISATION des GAZ PAUVRES; *lithographed on 354 pp.*, *with 2 plates and 130 other illustrations*, 4to. *cl. (o. p.)*, 8s 6d [1906]
- 11406 **MARCI** (Adolph Frederik, *boekhouder*) Het VERMAAKELYK REEKEN-KONSTIG SPEL van de QUADRATA MAGICA, of zo genaamde Toover-Vierkanten van 12 maal 12 Perken, op het Jaar-Getal 1743, nevens Appendix, bevattende verscheide Voorstellen, zo uit de Cyffer-Meet- als Stel-Konst, enz.; *with 4 plates, and 3 folding tables*, 4to. *sound copy in old hf. calf*, uncut, 15s Amsterdam, 1744

A rare work on magic squares, unknown to Poggendorff, Graesse, Ebert, and other bibliographers.

- 11407 **MARCKWALD** (Willy, *Univ. Berlin*) Über BEQUERELSTRAHLEN und RADIO-AKTIVE SUBSTANZEN; *with illustrations*, roy. 8vo. *sewn*, 1s 6d Berlin, 1904
- 11408 — Ueber die BEZIEHUNGEN zwischen dem SIEDEPUNKTE und der ZUSAMMENSETZUNG CHEMISCHER VERBINDUNGEN welche bisher erkannt worden sind, roy. 8vo. (pp. 55), *sewn*, 3s *ibid.*, 1888

This essay was awarded the prize by the Philosophical Faculty of the University of Berlin. The author is the discoverer of 'phototropy.'

- 11409 **MARCUCCI** (Lorenzo) SAGGIO FILOSOFICO-CHEMICO sopra i COLORI MINERALI, e Mezzi di procurarsi gli ARTEFATTI, gli SMALTI, e le VERNICI, ed Osservazioni sopra la Pratica del dipingere ad Olio, ecc., col Note di PIETRO PALMAROLI, 2^a Edizione, aumentata; *with folding plate*, 8vo. *sewn*, uncut, 6s Roma, 1816
- 11410 **MARCUSE** (Adolf, *Univ. Berlin*) BEMERKUNGEN zu dem BERICHT der Herren SCHNAUDER und Dr. HECKER über die am PHOTOGRAPHISCHEN ZENITHTELESKOP erhaltenen RESULTATE, 4to. (pp. 11), *sewn*, 2s [Berlin, 1896]
- 11411 — ERGEBNISSE der POLHÖHENBESTIMMUNGEN in BERLIN, ausgeführt 1889-91, am Universal-Transit der königlichen Sternwarte, roy. 4to. (pp. 29), *sewn*, 3s *ibidem*, 1902
- 11412 **MARÉCHAL** (Henri) Les TRAMWAYS ÉLECTRIQUES: Dispositions générales, Voie, Tramway à Conducteurs Aériens, Souterrains etc. etc., Production et Transformation de l'Electricité, Exploitation, Dépenses, 2^e [dernière] Édition, refondue; *with 188 illustrations*, 8vo. *cl.*, 4s (p. F. 10 nett) 1902

- 11413 **MARESTIER** (Jean Baptiste, *ingénieur de la Marine royale*) MÉMOIRE sur les BATEAUX à VAPEUR des ÉTATS-UNIS d'AMÉRIQUE, avec Appendice sur diverses Machines relatives à la Marine, précédé du RAPPORT fait à l'Institut sur ce Mémoire, par MM. SANÉ, BIOT, POISSON, et C. DUPIN; roy. 4to. *cl. (damaged and name torn off title, also wanting Atlas)*, 6s 6d Imprimerie Royale, 1824
- 11414 — ANOTHER COPY (*Atlas wanting*), *hf. calf (rubbed)*, *with auto. of George Rennie, C.E.*, *F.R.S.*, 7s 6d

'Chargé de faire l'application des principes qu'il avait émis dans cet ouvrage, il construisit le premier bâtiment à vapeur et le premier appareil à basse pression que la marine française ait possédé.'—*Biogr. Gén.*

- 11415 **MARETT** (P. R.) YACHTS and YACHT BUILDING: a Treatise on the Construction of Yachts, and other Matters relating to Yachting, *with 10 folding plates, and 2 tables*, 8vo. *cl.*, 6s 1856
- 11416 **MAREY** (Étienne Jules; *de l'Institut*) ANIMAL MECHANISM: a Treatise on Terrestrial and AERIAL LOCOMOTION, *with 117 woodcuts*, cr. 8vo. *cl.*, 2s 6d (p. 5s) 1874
- Describing some very ingenious apparatus of the author's invention to ascertain the mode of flight of birds and insects.
- 11417 — Le MOUVEMENT; *with 3 plates and 214 illustrations*, cr. 8vo. *buckram (o. p.)*, 5s 1894
- 11418 — MOVEMENT; translated by ERIC PRITCHARD, *with 204 illustrations*, post 8vo. *cl.*, 3s 6d 1895

(p. 7s 6d)

'The most comprehensive summary hitherto published of the result and possibilities of instantaneous photography'—*Translator.*

- 11419 **MARGGRAF** (Andreas Sigismund) CHYMISCHE SCHRIFTEN [herausgegeben, mit Vorreden, von J. G. LEHMANN und L. v. BEAUSOBRE, Bd. I 2. Auflage], *with 3 plates and folding table*, 2 vols. sm. 8vo. in 1, *sewn*, *with auto. of T[homas] A[ddis] Emmet, M.D., United Irishman (1764-1827) on title (VERY RARE)*, £1. 18s 6d Berlin, 1768-7
- 'He was the last and most eminent adherent of the phlogistic views in Germany. . . . He carried out researches of the greatest merit. One has only to think of the observations made by him in his work on phosphoric acid, observations which, considering the highly defective state of chemical analysis at that date, fill us with admiration; of the proof of the difference between alum and the so-called bitter earth (magnesia), which had hitherto been generally confounded, and, above all, on his investigation of the juice of the red beet, in which he discovered cane sugar. It was during this research that Marggraf introduced the microscope into chemistry.'—*Prof. E. v. Meyer.*

- 11420 **MARIE** (F. C. M.) GÉOMÉTRIE STÉRÉOGRAPHIQUE, ou RELIEFS des POLYÈDRES, pour faciliter l'Étude des Corps; d'après l'Ouvrage anglais de JOHN LODGES COWLEY, avec Notes contenant les Démonstrations des Formules pour calculer les Tables des Surfaces et Volumes des Polyèdres Réguliers; *with 25 plates on stiff cardboards (24 with the figures cut out to form solids)*, 8vo. *hf. calf, gilt (scarce)*, 12s 6d 1835

A French edition of Cowley's work (v. No. 7670, *ante*), enlarged by the 'démonstrations des formules'.

- 11421 **MARIE** (Maximilien) HISTOIRE des SCIENCES MATHÉMATIQUES et PHYSIQUES, de Thalès à Abel; *with diagrams*, 12 vols. sq. post 8vo. in 6, *hf. calf gilt*, £2. 10s (p. F. 72 nett *sewn*) 1883-8
- 11422 — ANOTHER COPY, *sewn*, £1. 17s 6d

- 11424 **MARIANI** (A. Mariano) TRATTATO D'ARITMETICA RAGIONATA, post 8vo. *sewn*, 1s 6d
Pesaro, 1876
- 11425 **[MARIANI (Giovanni, vulgo Zuane)]** TARIFFA PERPETUA, con le ragioni fatte per scontro de qualunque Mercadante si voglia, che dimostra quanto monta ogni quantità de cadauna mercanzia ad ogni PRECIO, si a PESO come a NUMERE. Bona per ogniuno in Venetia, Dalmatia . . . Verona, Bressa, Bergamo, Milan, Cremona, Mantova, ecc., con la reddition de moneda Venetiana in moneda Imperiale, ecc.; *title within woodcut border, woodcut of weights and measures, and crude woodcut of the Virgin on last l.*, 16mo. *contemporary white vellum (slightly water-stained, otherwise a FINE COPY); VERY RARE*, £1. 15s [col.] Venetia, F. Rampazetto, 1567
*These Mercantile Tables are not unjustly considered as great rarities, most of the copies having no doubt been destroyed by constant use. Although Prof. de Morgan gives the name of Mariani in his Index, he does not seem to have seen the book, as he does not give the title of the work.—*Libri Catalogue*, which contained only the editions of 1567, 1580, and 1591.
- 11426 **MARIEMONT**; NOTICE sur la SOCIÉTÉ ANONYME des CHARBONNAGES de, et sur la Société Charbonnière de Bascoup; *with folding map, and folding plate*, 4to. *sewn*, 3s Morlanwelz, 1889
- 11427 **MARINI** (Aloisio) TENTAMEN de MOTU COMPOSITO; *with engraved title, and folding plate*, 4to. (pp. 26), *sewn*, 5s
Unknown to Riccardi, Poggenдорff, Graesse, or Brunet.
- 11428 **MARION** (Fulgence) Les BALLONS et les VOYAGES AÉRIENS, première édition; *with 30 fine woodcuts (chiefly full-page) of historical ascents by P. Sellier*, post 8vo. *hf. cl.*, *uncut*, 6s 6d 1867
- 11429 ——— WONDERFUL BALLOON ASCENTS; or the Conquest of the Skies: a History of Balloons and Balloon Ascents, translated from the French, *with plates and woodcuts*; post 8vo. *cl.*, 4s [1870]
- 11430 **MARIOTTE** (Edme, de l'Académie Royale) ŒUVRES, comprenant tous les Traitez paruz séparément ou pas encore publiez, imprimées sur les Exemplaires les plus exactes et les plus complets, corrigées de nouveau; *with 25 plates*, 2 vols. 4to. in 1, *old panelled calf (joints cracked)*, £1. 1s
Leide, 1717
- 11431 ——— ANOTHER COPY, 2 vols. in 1, *contemporary white vellum (fine copy)*, £1. 5s
- 11432 ——— THE SAME, 2 vols., *contemporary hf. calf gilt, with bookplate of GABRIEL CRAMER (1704-52), and auto. and inscr. by PIERRE PREVOST (1751-1839)*, £1. 8s 6d
BEST EDITION of the author's works, a reprint of which was published in 1740. It contains Traité de la Percussion; Essais de Physique (De la Végétation, de la Nature de l'Air, du Chaud et du Froid, de la Nature des Couleurs); Traité du Mouvement des Eaux; Règles pour les Jets d'Eau; Nouvelles Decouvertes touchant la Vuë; Traité du Nivellement; Traité du Mouvement des Pendules; Expériences touchant les Couleurs et la Congelation de l'Eau; Essai de Logique.
The most important of the above works is the *Essai de la Nature de l'Air*, which contains the law of compressibility of gases, known on the Continent as Mariotte's Law, although it was discovered 17 years before by Robert Boyle (v. Nos. 540 and 642a ante). Of importance also is his *Essai du Chaud et du Froid*, which includes observations on radiant heat, and the *Traité de la Percussion*, containing original investigations on the subject, and his percussion apparatus in use at the present time in physical laboratories.
- 11433 ——— NOUVELLE ÉDITION; *with 25 plates*, 2 vols. 4to. *hf. calf gilt (FINE COPY)*, £1. 1s
La Haye, 1740
- 11434 ——— TRAITÉ du MOUVEMENT des EAUX et des autres CORPS FLUIDES, mis en Lumière par les Soins de [PHILIPPE] DE LA HIRE, première édition; *with numerous woodcuts and diagrams*, 12mo. *sewn (last l. mended and somewhat water-stained)*; RARE, 15s
1686
In this work, which first contains the description of what is known as Mariotte's tube, the author investigates the laws governing the discharge of fluids, and first calls attention to the friction of fluids in conduit pipes.
- 11435 ——— NOUVELLE ÉDITION corrigée; *with numerous woodcuts and diagrams*, 12mo. *fine copy in contemporary white vellum*, 8s 6d
1700
Including: 'De l'origine des fontaines', and 'De l'origine et causes des vents'.
- 11436 ——— TRAITÉ du NIVELLEMENT, avec la DESCRIPTION de quelques NIVEAUX NOUVELLEMENT INVENTEZ; *with 2 folding plates*, 4to. *old limp vellum (cover slightly damaged)*; RARE, 15s 1672
- 11437 **MARISCOTTI** (Berselli Marchese Giacomo) De CENTRO AEQUILIBRII Disquisitio physico-mathematica, cui adjunctae sunt aliquot Propositiones physico-mathematicae de Aequilibrio; *with folding plate*, 4to. (pp. 37), *sewn*, 5s
Bononiae, 1746
Rare, and only known to Riccardi by repute.
- 11438 **MARKHAM** (Admiral Sir Clements Robert, F.R.S.; P.R.G.S.) MEMOIR on the INDIAN SURVEYS, 2nd [last] Edition [enlarged,], *with 5 folding maps (some coloured)*, colombier 8vo. *hf. cl. (scarce)*, 12s 6d
1878
A valuable historical account from Major Rennell's to Col. Strange's and that completed by Col. Thuillier in 1877. There are chapters on meteorological, astronomical, and tidal observations, and on the Geological and Archeological Survey of India. 'The great Surveyors must combine the knowledge and habits of thought of a Cambridge wrangler with the energy, resource, and presence of mind of an explorer or a backwoodsman, and add to this the gallantry and devotion of the leader of a forlorn hope. The story of the Great Trigonometrical Survey, when fitly told, will form one of the proudest pages in the history of English domination in the East'.—p. 146.
- 11439 ——— REPORT on the IRRIGATION of EASTERN SPAIN, *with front., woodcuts, and 6 maps (5 folding)*, 8vo. *with author's inscr. (as below)*, 6s
[1867]
— Mrs. [George] Rennie from the Author. March 1867.—*Inscr. on title.*
— vide ORTA (García da), post.
- 11440 **MARKS** (Edward Charles Robert, A.M.I.C.E.) The EVOLUTION of MODERN SMALL ARMS and AMMUNITION, *with 111 woodcuts, cr. 8vo. boards*, 3s
apud auctorem [1895]
- 11441 **MARKS** (Percy L.) The PRINCIPLES of PLANNING [BUILDINGS]: an Analytical Treatise for Architects and others, *with 37 plates and 30 other illustrations*, 8vo. *cl.*, 4s 6d (p. 8s 6d nett) 1901
- 11442 **MAROLOIS** (Samuel) ŒUVRES MATHÉMATIQUES traitant de la GÉOMÉTRIE et FORTIFICATION, reduictes en meilleur Ordre, et corrigées d'un Nombre infiny de Fautes escoulées aux Impressions précédentes: La GÉOMÉTRIE par THEODORE VERBEECK, et la FORTIFICATION par FRANÇOIS VAN SCHOTEN [sic]; *with 17 folding copperplates, and very numerous woodcuts*, 2 vols. folio in 1, *sound copy in old vellum, with auto. of Gen. Robert Melville*, 1755, F.R.S., F.S.A., inventor of a naval gun, 12s 6d
Amsterdam, G. J. Cæsius, 1628

- 11444 **MARNE (N. H.)** Ueber die ANZAHL der ELEMENTE ; ein Beytrag zur allgemeinen Naturlehre, 12mo. *sewn (rare)*, 12s 6d Berlin, 1786
A rare work, unknown to Poggendorff, Kopp, Graesse, etc. etc., and probably the first ever printed on chemical elements. The last chapter contains a remote anticipation of the Periodic Law. Nothing appears to be known of the author, who is not noticed in *Allgemeine Deutsche Biographie*.
- 11445 [**MARQUAND (Charles)**] REMARKS on the DIFFERENT CONSTRUCTIONS of BRIDGES, and IMPROVEMENTS to secure their FOUNDATIONS on the different SOILS where they are intended to be Built, which hitherto seems to have been a Thing not sufficiently consider'd, with 4 *folding copperplates*, sm. 4to. (pp. 15), *unbound (rare)*, 8s 6d 1749
'By the method I propose, the piers of any bridge may be prepared a mile or two from the place of erecting such an edifice, especially where the tide ebbs and flows'.—p. 8.
- 11446 **MARRIOTT (William, F.R.MET.S.)** THE EARLIEST DAILY METEOROLOGICAL REPORTS and WEATHER MAPS, roy. 8vo. (pp. 9), *sewn*, 1s 1903
- 11447 ——— SOME ACCOUNT of the METEOROLOGICAL WORK of the late JAMES GLAISHER, F.R.S. [with BIBLIOGRAPHY], 2 *plates* and 2 *woodcuts*, roy. 8vo. (pp. 28), *sewn*, 1s 6d 1904
- 11448 **MARSAUT (J. B.)** ÉTUDE sur le LAVAGE de la HOUILLE ; with 14 *plates*, roy. 8vo. (pp. 74), *sewn*, with author's *inscr. to Prof. Hilary Bauerman [sic Mr. Bormann]*, 3s 1878
- 11449 ——— COAL-WASHING APPARATUS at BESSÈGES, France, translated by A. BACHE, 8vo. (pp. 18), *sewn*, 1s 6d 1879
- 11450 **MARSDEN (William, F.R.S.)** On the CHRONOLOGY of the HINDOOS—v. no. 9208 *ante*.
On the ERA of the MAHOMETANS, called the HEJERÀ (1788)—v. NICHOLSON (William), *post*.
- 11451 **MARSH (Benjamin V.)** REMARKS on the LUMINOSITY of METEORS as affected by LATENT HEAT, roy. 8vo. (pp. 8), *sewn*, 1s 6d [New Haven, 1863]
- 11452 **MARSH (C. C., U.S.N.)** MAGNETIC OBSERVATIONS at the UNITED STATES NAVAL OBSERVATORY, 1894. with 13 *plates* and *charts*, 4to. *sewn*, 4s Washington, 1895
- 11453 **MARSH (George Perkins)** THE EARTH as MODIFIED by HUMAN ACTION : a New Edition of Man and Nature, large 8vo. *cl.*, 6s (p. 18) 1874
'Its great merits have long since made it an American classic, as well as given it an international reputation. It is in our opinion one of the most useful and suggestive works ever published.'—*Albion*.
- 11454 **MARSH (Othniel Charles, Yale Univ.)** INTRODUCTION and SUCCESSION of VERTEBRATE LIFE in AMERICA, *front.*, impl. 8vo. (pp. 50), *sewn*, with *inscr. to Prof. Hilary Bauerman*, 3s s. l. [c. 1878]
- 11455 ——— ODONTORNITHES : a Monograph on the EXTINCT TOOTHED BIRDS of NORTH AMERICA, with 34 *lithographic plates (mostly folding)*, and 40 *woodcuts*, 4to. *cl.* (SCARCE), £1. 1s Washington, 1880
- 11456 **MARSIGLI [sic MARSILLI] (Luigi Ferdinando Conte di, de l'Académie Royale ; F.R.S.)** HISTOIRE PHYSIQUE de la MER [traduite de l'italien par JEAN LECLERC, publiée par HERMAN BOERHAAVE] ; with *front.* and 52 *fine copperplates (several folding)*, folio, *fine copy in contemporary mottled calf extra*, with *bookplate of Sir John Francis Davis (1795-1890), British Plenipotentiary in China*, 15s Amsterdam, 1725
'Ouvrage assez recherché.'—*Quéraud*. It is of interest as an early work on oceanography, and contains the investigations of the maritime laboratory in Marseilles, the first of its kind ever founded, which the author established in 1706.
- 11457 **MARTEN (Edward Bindon, M.I.M.E.)** RECORDS of STEAM BOILER EXPLOSIONS, with numerous *woodcuts*, large post 8vo. *boards (o.p.)*, 3s 6d 1869
Including 'Brief Abstracts from Reports to the Midland Steam Boiler Inspection and Assurance Co.'
- 11458 ——— [NEW EDITION, enlarged], with 338 *woodcuts*, 8vo. *cl.* (o.p.), 5s 1872
- 11459 **MARTENS (Martin, Univ. Louvain)** RECHERCHES sur les VARIATIONS de la FORCE ÉLECTROMOTRICE du FER, 4to. (pp. 46), *sewn*, 5s Bruxelles, 1845
- 11460 **MARTIN (Adam Georg)** VOLLSTÄNDIGE ANLEITUNG zur PHOTOGRAPHIE auf METALL, nebst den neuesten Fortschritten der PHOTOGRAPHIE auf PAPIER, 12mo. *sewn (scarce)*, 6s 6d Wien, 1848
- An account of the improved daguerreotype, which not many years afterwards became extinct.
- 11461 **MARTIN (Adolphe, Lycée de Versailles)** PHOTOGRAPHIE NOUVELLE. PROCÉDÉ pour obtenir des ÉPREUVES POSITIVES DIRECTES sur GLACE, cr. 8vo. (pp. 23), *sewn (scarce)*, 5s 1852
The invention of obtaining direct positive prints on glass.
- 11462 **MARTIN (Benjamin)** BIBLIOTHECA TECHNOLOGICA : or, a PHILOLOGICAL LIBRARY of LITERARY ARTS and SCIENCES, 4th Edition, with Index, 8vo. *old calf*, 6s 1776
'A very skilful and comprehensive compilation, epitomising the current information and ideas of the time under 25 headings.'—*D. N. B.*
- 11463 ——— BIOGRAPHIA PHILOSOPHICA : an Account of the LIVES, WRITINGS and INVENTIONS of the most EMINENT PHILOSOPHERS and MATHEMATICIANS, from the earliest Ages, with *portrait of Newton*, 8vo. *old hf. calf, vellum sides (title soiled)*, 5s 1764
- 11464 ——— ANOTHER COPY, *old calf gilt, newly rebaked*, 6s
Including biographies of Roger Bacon, Regiomontanus, Nonius (Nuñez), Magini, Vicini, and several hundred other scientists.
- 11465 ——— DESCRIPTION and USE of a CASE of MATHEMATICAL INSTRUMENTS, with a practical Application in Geometry and Plain and Spherical Trigonometry, 8vo. (pp. 18), *sewn (plate wanting)*, 3s P. and J. Dollond, [1745]
- 11466 ——— REPRINT, with *folding copperplate*, 12mo. (pp. 24), *sewn*, 3s 6d W. Cary, 1819
- 11467 ——— NEW EDITION, revised and augmented by WILLIAM JONES, with *folding copperplate*, 8vo. (pp. 22), *sewn*, 4s 1788
Including at end a 2-pp. priced List of 'Mathematical, etc. Instruments, made and sold by J. Jones and Son, 135 Holborn, London.'

- 11469 **MARTIN (Benjamin)** The DESCRIPTION and USE of both the GLOBES, the ARMILLARY SPHERE, and ORRERY, exemplified in a large and select Variety of Problems in Astronomy, Geography, Dialling, Navigation, Spherical Trigonometry, Chronology, etc., also a NEW CONSTRUCTION of each GLOBE, by an Apparatus exhibiting the Phenomena of the Earth and Heavens exactly as they are, and adapting the same to every Age of the World, with 5 *folding copperplates*, 8vo. *old calf (sound copy)*, 5s [c. 1762]
The globes were after the construction by John Senex, F.R.S., 'with many corrections and improvements' by the author.
- 11470 — DESCRIPTION and USE of a NEW, PORTABLE, TABLE AIR-PUMP and CONDENSING ENGINE, with a select Variety of capital EXPERIMENTS, with *front. and folding plate on copper*, containing 43 *illustrations of apparatus and glasses*, 8vo. (pp. 40), *sewn*, 4s 1766
- 11471 — DESCRIPTION and USE of an ORRERY of a NEW CONSTRUCTION, representing in the various Parts of its Machinery all the Motions and Phenomena of the Planetary System; with a MATHEMATICAL THEORY for calculating the WHEEL-WORK to the greatest Degree of Exactness, 8vo. (pp. 28), *sewn (plate wanting)*, 3s 1771
- 11472 — The DESCRIPTION and USE of an UNIVERSAL SLIDING RULE, which, by means of Single and Double Slides, and the Addition of proper Lines, is adapted to answer all Questions in Arithmetic, Mixt-Mathematics, and Philosophy, 8vo. (pp. 24), *sewn*, 4s 6d n. d.
- 11473 — ESSAY on ELECTRICITY: an Enquiry into the Nature, Cause and Properties thereof, on the Principles of SIR ISAAC NEWTON'S THEORY of Vibrating Motion, Light, and Fire, with the Phenomena of 42 CAPITAL EXPERIMENTS, with Observations relative to the Uses that may be made of this Wonderful Power of Nature, 8vo. (pp. 40), *sewn (rare)*, 8s 6d Bath, 1746
'His experiments are popular experiments on electrical induction. The essay contains a dim forecast of modern theories in the statement: 'This subtle matter or spirit appears to be of an elastic nature, and acts by reciprocation of its tremors or pulses, which are occasioned by the vibrating motion of the parts of an electric body excited by friction'. The preface contains some disparaging remarks on an essay on the same subject by John Freke' (v. No. 8138 ante).—
D. N. B.
- 11474 — ESSAY on the NATURE and SUPERIOR USE of GLOBES . . . also a Candid Examination of the Construction and Use of Planispheres, wherein the Erroneous Nature, and many bad Consequences, attending the Use of the Vulgar Projection are pointed out: and the Nature and Use of Globular Projection, with many New Improvements, 2nd Edition, 8vo. (pp. 46) *sewn*, 3s 6d 1758
- 11475 [—] ESSAY on the NATURE and wonderful PROPERTIES of ISLAND [*sic*] CRYSTAL, respecting its manifold and unusual Refraction of Light, with *folding copperplate*, 8vo. (pp. 16), *sewn (rare)*, 5s n. d.
Interesting as an early work on polarisation. Being based on Newton's corpuscular theory, it naturally fails to explain the phenomenon, but gives a number of new experiments. The authorship was unknown to Halkett and Laing.
- 11476 — ESSAY on VISUAL GLASSES (vulgarly called SPECTACLES), wherein it is shewn from the Principles of Optics, and the Nature of the Eye, that the COMMON STRUCTURE of those GLASSES is contrary to the Rules of Art, to the Nature of Things, etc. and VERY PREJUDICIAL to the EYES; the Nature of Vision in the Eye explained, and GLASSES of a NEW CONSTRUCTION proposed, 2nd Edition, with *folding copperplate*, 8vo. *sewn (rare)*, 5s 1757
The author was so successful as a spectacle-maker, that he had to warn people against imitations of his glasses.
- 11477 — EXPLANATION of a NEW CONSTRUCTION and IMPROVEMENT of the SEA OCTANT and SEXTANT, containing, a most easy, expeditious and accurate Method of adjusting and rectifying those Instruments for Use both at Sea and Land, also the best Disposition of the Glasses; with Directions for making the Fore and Back Observations; and the several Steps in the Process of Finding the LONGITUDE at SEA, 8vo. (pp. 40), *sewn (plates wanting)*, 3s n. d.
'The Public are indebted solely to my Son, J. L. Martin, for the Invention of this New Construction and Improvement of the Sea-Octant.'—*Preface*.
- 11478 — LOGARITHMOLOGIA: or the whole Doctrine of Logarithms, Common and Logistical, in Theory and Practice: the Theory and Praxis of Logarithms, and Three-fold CANON of LOGARITHMS: Natural Numbers, Sines and Tangents, and Logistical Logarithms, with *large folding plate*, 8vo. *old calf*, 8s J. Hodges, at the Looking-Glass on LONDON-BRIDGE, 1740
- 11479 — ANOTHER COPY, *old calf (plate wanting)*, 6s
Including the author's own logarithmic scale, 'the like of which, for largeness, was never before published.'
- 11480 — The MARINER'S MIRROR, Part III. being a New and Compendious SYSTEM of LOGARITHMS, in all the different Kinds, viz. I. Nautical Logarithms invented by Mr. Wright. II. Natural Logarithms by Lord Neper. III. Common Logarithms by Mr. Briggs, with their Application, and the Construction and Delineation of all the Logarithmic Lines and Scales, with *folding plate*, 8vo. (pp. 62), *sewn (rare)*, 6s 6d 1772
'The invention of Logarithms has been unjustly ascribed to Lord Neper, whereas it is in reality due only to our countryman Mr. Edward Wright, as I have fully demonstrated.'—*Preface*. At end is a list of Martin's publications. The above appears to be his 'Logarithmologia Nova' with a different title.
- 11481 — MISCELLANEOUS CORRESPONDENCE, containing a Variety of Subjects, relative to Natural and Civil History, Geography, MATHEMATICS, Poetry, Memoirs of monthly Occurrences, Catalogues of New Books, etc., with *numerous copperplates, woodcuts, and folding maps*, 2 vols. 8vo. *old hf. calf*, 8s 6d 1759
One of the plates illustrates 'a machine for a perpetual electrified garden,' and others a newly discovered 'lyrichord', Mylne's design for Blackfriars Bridge, and the author's own 'constructed philosophically,' etc. etc. etc.
- 11482 — NEW and COMPENDIOUS SYSTEM of OPTICS, with Practical Description of a great Number of the most useful Optical Instruments and Machines, and their Construction shewn from the Theory, and the Manner of ADAPTING MICROMETERS to Microscopes and Telescopes of the reflecting Sort, with 34 *folding plates*, thick 8vo. *old calf (binding damaged)*, 7s 6d
J. Hodges, at the Looking-Glass on LONDON BRIDGE, 1740

- 11485 [? **MARTIN** (Benjamin)] The METHOD OF CALCULATING the MAGNIFYING POWER of a REFLECTING TELESCOPE, with a General Table of all the Magnifying Powers of 12 such Telescopes, from 4 to 100 Inches focal Distance of the Great Speculum, 8vo. (pp. 8), *sewn* (rare), 3s 6d *n. d.*
- 11486 — The NEW ART of SURVEYING by the GONIOMETER: a New Method of measuring Angles by this New Instrument with much greater Exactness than can be done by a Plain-Table or Theodolite, the Description and Use of a New Protractor, etc. etc., with 2 folding plates, 8vo. (pp. 38), *sewn*, 4s 1766
- 11487 — NEW COMPLETE and UNIVERSAL SYSTEM or BODY of DECIMAL ARITHMETICK, first edition, 8vo. *old calf*, 6s 1735
- 11488 — NEW EDITION, 8vo. *sound copy in contemporary calf*, 5s
 'A very full system of decimal arithmetic, applied to all parts of commercial arithmetic.—Prof. de Morgan.
 The work includes 'a new and complete set of decimal tables never before published', and 'an exact and accurate canon of logarithms for natural numbers.'
- 11489 — NEW and COMPREHENSIVE SYSTEM of MATHEMATICAL INSTITUTIONS, agreeable to the present State of the NEWTONIAN PHTHESIS; Vol. I, containing Arithmetic, Vulgar and Decimal, Logarithms, Algebra, Geometry, Plain Trigonometry, Conic Sections, FLUXIONS, 8vo. *old calf*, or, *old hf. roan*, 6s 6d 1759
 'Old Ben Martin (as his admirers called him) was an able, and in this instance a concise writer. He wrote on every mathematical subject (and never otherwise than well, I believe, except on biography).—Prof. de Morgan.
- 11490 — OPTICAL ESSAYS, containing, a practical Description of several Sorts of Single, Solar, and Compound MICROSCOPES; with their Apparatus and latest Improvements, the Nature of VISION in INSECTS, a Catalogue of the principal MICROSCOPIC OBJECTS, the USE of the REFLECTING TELESCOPE as an universal Perspective, the Manner of computing the MAGNIFYING POWER in MICROSCOPES, a New Method of applying the MICROMETER, etc. etc., with folding front. on copper, 8vo. *sewn* (rare), 5s 6d [1770]
- 11491 — ANOTHER COPY, *old sheep*, 6s
 At end is a 5-p. Catalogue of Philosophical, Optical, and Mathematical Instruments made by the author, with PRICES.
- 11492 — PANEGRIC on the NEWTONIAN PHILOSOPHY, shewing the Nature and Dignity of the Science; and its absolute Necessity to the Perfection of Human Nature, etc. etc., 2nd Edition, 8vo. (pp. 62), *sewn*, 3s 6d 1754
 Containing at end 'A Stricture on the Anti-Newtonians or, Pseudo-Philosophers of the Age', a poetical effusion in 7 pp.
- 11493 — ΠΑΝΕΓΜΕΤΡΙΑ; or the ELEMENTS of all GEOMETRY, containing the Rudiments of Decimal Arithmetic, Logarithms, and Algebra; Euclid's Elements; the Elements of Spherical Geometry, and the Projection of the Sphere in Plano; a Compendium of Conic Geometry; and an Epitome of the DOCTRINE of FLUXIONS, with 10 folding plates, 8vo. *old calf*, 5s 1739
- 11494 — PHILOSOPHIA BRITANNICA: or, a New and Comprehensive System of the NEWTONIAN PHILOSOPHY, Astronomy and Geography, with Notes, containing the . . . Proofs and Illustrations of all the Principal Propositions, also the Invention, Structure, Improvement and Uses of all the considerable Instruments, Engines, and Machines, with new Calculations, first edition, with 75 folding copperplates, 2 thick vols. 8vo. *old mottled calf*, 10s 6d Reading, 1747
- 11495 — SECOND EDITION [enlarged], with 81 folding copperplates, 3 vols. 8vo. *old calf*, 12s 6d 1759
 This edition (which was unknown to D. N. B., where the first only is mentioned) contains a further appendix 'concerning the Improvements in Optical Instruments', giving a description of the author's Universal Compound Microscope, his New Solar Microscope, and his Equatorial Telescope, the last of which is interesting for illustrating an early form of an equatorial stand, with 6 extra plates.
- 11496 — FOURTH [LAST] EDITION, with 81 folding copperplates, 3 vols. 8vo. *old tree-calf extra*, 14s 1788
 The above lectures were probably inspired by those of Dr. Desaguliers, to whom Martin acted as an assistant, a fact unknown to D. N. B., and other biographies, but brought to light by Prof. de Morgan from a pamphlet published in 1751 by Bp. Horne.
- 11497 — The PHILOSOPHICAL GRAMMAR: a View of the Present State of EXPERIMENTAL PHYSIOLOGY, or Natural Philosophy. I. SOMATOLOGY: the universal Nature and Properties of Matter, etc. II. COSMOLOGY. III. AEROLOGY, shewing the wonderful Nature and Properties of the Air, Wind, Meteors, etc. IV. GEOLOGY, first edition, with 16 folding plates, sm. 8vo. *hf. roan* (title mended, and a few ll. torn); rare, 6s 6d 1735
- 11498 — SECOND EDITION, with Alterations, and very large Additions by way of Notes, with 26 folding copperplates, 8vo. *old calf* (joints cracked), 4s 6d 1738
- 11499 — ANOTHER COPY, *sound copy in contemporary mottled calf*, 6s
- 11500 — THIRD EDITION, corrected and improved, with 26 copperplates, 8vo. *old calf* (binding damaged), 4s 1748
- 11501 — FOURTH EDITION [unchanged], with 26 copperplates, 8vo. *old calf* (joints cracked), 4s 1753
 'The most successful of Martin's works'.—D. N. B. It was several times reprinted in a French translation by Puisieux.
- 11502 — PLAIN and FAMILIAR INTRODUCTION to the NEWTONIAN PHILOSOPHY, first edition, with 6 folding plates, 8vo. *sewn*, 4s 1754
- 11503 — ANOTHER COPY, *old calf gilt* (joints weak), 5s
- 11504 — FIFTH EDITION, with 6 folding plates, 8vo. *old calf* (joints broken), 3s 6d 1765
- 11505 — The PRINCIPLES of PUMP-WORK illustrated, and applied in the Construction of a NEW PUMP without Friction, or Loss of Time, or Water, in Working, proposed for the Service of the British Marine, with 2 folding copperplates, 8vo. (pp. 33), *sewn* (rare), 4s 6d [c. 1767]
 This work was unknown to the author's biographer in D. N. B. One plate illustrates the author's patent 'frictionless' pump.

- 572 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11507 **MARTIN (Benjamin)** SURE GUIDE TO DISTILLERS, and all DEALERS in SPIRITUOUS LIQUORS, for discovering the True Proportion of Water and Alcohol in any Proposed Compound, and how to make it exactly Proof by a new-constructed Hydrometer and Scale of Lines, *with folding plate*, 8vo. (pp. 32), *sewn*, 3s 6d 1759
The hydrometer was of the author's own construction.
- 11508 — The THEORY of the GENUINE HYDROMETER, farther illustrated, and rendered universal, Part II, *with folding copperplate*, 8vo. (pp. 34), *sewn*, 3s 6d [1762]
Intended as a continuation to the 'Sure Guide'. It was unknown to the author's biographer in *D. N. B.* Appended is a list of 'Instruments invented or improved by B. Martin.'
- 11509 — The THEORY of HADLEY'S QUADRANT demonstrated: its Nature, Construction, and Uses, with a Table of the Sun's Declination, with a NEW CONSTRUCTION of the Quadrant, which, by means of an ARTIFICIAL HORIZON, renders it of universal Use by Sea and Land, *with folding plate*, 8vo. (pp. 26), *sewn (rare)*, 4s 6d *n. d.*
Unknown to *D. N. B.* At end is a priced list of quadrants and other scientific instruments made by the author.
- 11510 — The YOUNG GENTLEMAN and LADY'S PHILOSOPHY (the Heavens and of the Atmosphere; Light and Colour, and the Use of Optical Instruments; Sound, Music, and the Ear), 2nd Edition, *with 54 copperplates (many folding)*, 2 vols. 8vo. *old calf gilt*, 5s 1772
Still interesting for illustrating and describing a large number of contemporary physical apparatus.
- 11511 **MARTIN (F. P. B.)** MEMOIR on the EQUINOCTIAL STORMS of March-April, 1850: an Inquiry into the Extent to which the ROTATORY THEORY may be applied, *with folding maps*, large roy. 8vo. *cl. (scarce)*, *with author's inscr. to James Glaisher, F.R.S., and the latter's auto.*, 9s
privately printed at the author's press, 1852
An important investigation, pursued with the countenance of the Board of Admiralty, including leave to copy their Logs.
- 11512 **MARTIN (Geoffrey)** RESEARCHES on the AFFINITIES of the ELEMENTS, and on the CAUSES of the CHEMICAL SIMILARITY or DISSIMILARITY of ELEMENTS and COMPOUNDS, *with large folding plate (in pocket)*, *woodcuts, and 14 tables*, roy. 8vo. *cl.*, 10s 6d (p. 16s nett) 1905
'Containing the first attempt made to systematically collect data regarding the varying in stability of the different compounds which an element produces with other elements, with the object of discovering the law regulating the chemical attraction the elements mutually exert on each other.'—*Preface*. It includes an interesting speculation on dram-drinking as an instinctive preparation for the fall of earth-temperature with the cooling of the sun, when alcohol may take the place of water as the fluid which bathes the tissues of the living organism.
- 11513 **MARTIN (Henry)** PRODUCTION et DISTRIBUTION de l'ÉNERGIE pour la TRACTION ÉLECTRIQUE; *with 870 illustrations*, roy. 8vo. (pp. 749), *cl.*, 8s 6d (p. F. 25 nett) 1902
- 11514 **MARTIN (Hugh; D.D.)** NOTE on PROFESSOR TAIT'S 'QUATERNARY PATH' to DETERMINANTS of the THIRD ORDER, cr. 8vo. (pp. 5), *sewn*, 1s 6d [Edin., c. 1866]
- 11515 **MARTIN (Kenneth Beacham, harbour master, Ramsgate)** On the NECESSITY for HARBOURS of REFUGE, and their proved Utility in that Part of the British Channel called 'The Narrows', 8vo. (pp. 44), *sewn*, 2s 6d 1839
- 11516 **MARTIN (Thomas, T.C.D.)** On the METHOD of POLAR RECIPROCATION, as applied to THEOREMS of QUANTITY, 8vo. (pp. 15), *sewn*, 2s *University Press, Dublin*, 1860
- 11517 **MARTIN (Thomas Commerford), and Joseph WETZLER:** The ELECTRIC MOTOR and its Applications, *with 200 woodcuts (including folding plate)*, 4to. *cl.*, 3s (p. 15s nett) *New York*, 1887
Of historical interest. There is a chapter on 'Electric Motors in Marine and Aerial Navigation.'
- 11518 **MARTIN (Thomas Henri; Univ. Rennes)** TEXTES ANCIENS sur les VERRES COMBURANTS par RÉFRACTION, 4to. (pp. 4), *sewn*, 2s 6d [Rome], 1868
- 11519 — Sur l'ÉPOQUE de l'AUTEUR du PRÉTENDU XV^e LIVRE des ÉLÉMENTS d'EUCLIDE, roy. 4to. (pp. 4), *sewn (torn)*, 2s [ibidem], 1874
- 11520 **MARTIN (Capt. W. R., Royal Naval Coll., Greenwich)** TREATISE on NAVIGATION and NAUTICAL ASTRONOMY, *with 8 plates, movable compass card, and diagrams*, roy. 8vo. *cl.*, 6s 6d (p. 18s) 1888
- 11521 **MARTINE (George, M.D.)** ESSAYS and OBSERVATIONS on the CONSTRUCTION and GRADUATION of THERMOMETERS, and on the HEATING and COOLING of BODIES, second Edition, *with folding plate giving 15 different thermometric scales*, 12mo. *original calf (rare)*, 10s 6d *Edin.*, 1772
- 11522 — ANOTHER COPY, *with plate of the Réaumur thermometer (inserted)*, sm. 8vo. *original calf (one joint cracked, but nice copy), with auto. and MS. notes by Alex. Keith, friend of Sir Walter Scott (rare)*, 12s
- Valuable for the plate of thermometric scales. According to Prof. Preston, who only quotes a French translation of the above work, the author was the first to find the law of the cooling of a body for differences exceeding 40° or 50° C. The author died of fever in 1741 while attached to the Carthage expedition under Admiral Vernon, the inventor of grog. At end is an 'Essay towards a Natural and Experimental History of the various Degrees of Heat in Bodies.'
- 11523 **MARTINO (Pietro di; Univ. Naples)** NUOVE ISTITUZIONI d'ARITMETICA PRATICA, in questa nuova Impressione migliorate, ed accresciute, e da infiniti Errori che nelle passate Edizioni erano scorsi esattamente corrette, sm. 8vo. *old vellum*, 8s 6d *Napoli*, 1786
'Questo buon corso di aritmetica elementare è con lode registrato dal Torre'.—*Riccardi*. It was unknown to Prof. de Morgan, nor was there a copy of any edition in the Libri Collection.
- 11524 **MARUM (Martinus van):** [DISCOURS prononcé au Premier Congrès des Naturalistes et Médecins des Pays-Bas], par J. BOSSCHA, large impl. 8vo. (pp. 22), *sewn*, 3s *Haarlem*, 1899
'Prof. [Sir] T. E. Thorpe with kind regards from the Author'.—*Inscr. on title*.
According to the author, Martinus van Marum (A.D. 1750-1838) was the first to liquefy ammonia—the first known liquefaction of any gas—a fact not mentioned by Faraday in his account of the experiments of his predecessors.
- 11525 **MARY (—, ingénieur des ponts et chaussées)** NOTICE sur les VOITURES à VAPEUR employées en ANGLETERRE sur les Routes Ordinaires; *with folding plate containing constructional details*, 8vo. (pp. 23), *sewn (SCARCE)*, 8s 6d 1833
An interesting account of the steam-carriage of Sir Goldsworthy Gurney, which ran in 1831 for three months with passengers between Cheltenham and Gloucester; of Hancock's steam-omnibuses, which plied between London and Brighton, carried from 14 to 16 passengers, and attained a speed of 10 or 12 miles per hour, and Gibb's and Alexander Gordon's steam-carriages (*v. No 8524 ante*). It is a curiosity of invention that while England was the pioneer of steam locomotion not only on railways but on common roads, France after seventy years was the perfecter of road-locomotion by the internal combustion engine.

- 11527 **MARZARI-PENCATI** (Giuseppe [Conte]) DESCRIZIONE del TACHIGONIMETRO, nuovo Strumento Geodetico, accompagnata dal Metodo per delineare con una sorprendente Celerità una Carta Militare, per modellar nel più breve Tempo il Rilievo d'un Paese Montuoso, od in qualunque altra Operazione Geodetica, per cui non esigasi una Precisione maggiore di due Minuti degli Angoli; with 7 folding copperplates, 4to. hf. bound (binding damaged, and slightly waterstained), 10s 6d
Milano, 1811
The author was awarded for this invention its gold medal by the Government on the recommendation of the Institute of Milan.
- 11528 **MASCART** (Éleuthère; de l'Institut), et J. JOUBERT: LEÇONS sur l'ÉLECTRICITÉ et le MAGNÉTISME, 2^e [DERNIÈRE] ÉDITION, entièrement refondue par E. MASCART, TOME I: PHÉNOMÈNES GÉNÉRAUX et THÉORIE; with 126 illustrations, thick roy. 8vo. sewn, 10s 6d
(p. F. 25 nett) 1896
- 11529 **MASCHERONI** (Abate Lorenzo; Univ. Pavia) GÉOMÉTRIE du COMPAS, traduite par ANTOINE MICHEL CARETTE; with 14 folding plates, 8vo. sewn, or, hf. calf (rubbed, and last plate slightly damaged), 6s
1798
This curious work attempts to work problems for which Euclid, as is well known, presupposes the use of a ruler and a pair of compasses, by the latter instrument only. 'A curious tour-de-force.'—W. W. R. Ball.
- 11530 ——— PROBLÈMES pour les ARPEUTEURS, avec différentes Solutions; Ouvrage traduit de l'Italien; with 4 folding plates, 8vo. sewn, 5s
1803
'Pregiata raccolta di problemi di geometria pratica, elegantemente risolti. È notevole l'invenzione del quadrante per determinare meccanicamente il seno et il coseno dell'angolo misurato.'—Riccardi.
- 11531 ———: FRISCHAUF (J.) Die GEOMETRISCHEN CONSTRUCTIONEN von L. MASCHERONI und J. STEINER; with plate, 8vo. (pp. 23), sewn, 1s
Graz, 1869
- 11532 **MASERES** (Francis, F.R.S., *Cursitor-Baron of the Exchequer*) DISSERTATION on the USE of the NEGATIVE SIGN in ALGEBRA: containing a Demonstration of the Rules usually given concerning it; and shewing how Quadratic and Cubic EQUATIONS may be EXPLAINED, WITHOUT the Consideration of NEGATIVE ROOTS; with MR. MACHIN'S QUADRATURE of the CIRCLE, diagrams, 4to. old calf (joints cracked), with Chippendale bookplate of William Abbot, Fellow of St. John's Coll., Cantab. (RARE), £1. 10s
printed by SAMUEL RICHARDSON, 1758
The author's first published work, and especially interesting as having been printed by Samuel Richardson, the novelist.
'He rejected negative quantities and made war of extermination on all that distinguishes algebra from arithmetic'. He had followers in his rejection of negative and imaginary quantities in his friend William Friend, William Ludlam, Thomas Manning, and Robert Simson.
- 11533 ——— The DOCTRINE of PERMUTATIONS and COMBINATIONS, as delivered by JAMES BERNOULLI, in his 'Ars Conjectandi', and JOHN WALLIS, in his Treatise on Algebra, the former containing a Demonstration of Sir Isaac Newton's Binomial Theorem; with other useful MATHEMATICAL TRACTS, 8vo. prize calf gilt, 15s
1795
Containing a translation of the 3 first chapters of Book II of Jean Bernoulli's 'Ars Conjectandi'; THOMAS SIMPSON'S 'New and General Method of finding the Sum of any Series of Powers' (1740); JOHN WALLIS'S 'Discourse of Combinations, Alternations, and Aliquot Parts' (1685); THOMAS BRANCKER'S 'Table of Odd Numbers' (1668); DE LAGNRY'S 'Method of Approximation,' translated; Raphson's Method of resolving Equations by Approximation; CHARLES HUTTON'S 'Table of Square Roots, etc., from 1-1000', etc. etc.
- 11534 ——— ELEMENTS of PLANE TRIGONOMETRY, in which is introduced, a DISSERTATION on the Nature and Use of LOGARITHMS, with 13 folding plates, 8vo. old calf gilt, rebound (rare), 12s 6d
1760
Rare and interesting for the dissertation on logarithms which it contains (pp. 206-406).
- 11535 [———] SCRIPTORES LOGARITHMICI; or COLLECTION of several CURIOUS TRACTS on the Nature and Construction of Logarithms, with some TRACTS on the BINOMIAL THEOREM and other Subjects connected with the Doctrine of Logarithms, VOL. VI ONLY, with diagrams, thick 4to. contemporary calf gilt (SCARCE), with author's inscr. as below, £1. 1s
1807
'For the Right Reverend the Lord Bishop of Llandaff' [Richard Watson, *absentee*; F.R.S.].—*Inscr. on flyleaf.*
Containing reprints of 'Mirifici Logarithmorum Canonis Descriptio' (1614), by JOHN NAPIER, with Observation by the Editor, 'Tractatus de Logarithmicis' and 'De Limitibus Quantitatum et Rationum', both by ROBERT SIMSON, 'Tractatus de Limitibus Equationum', by F. DE BEAUNE, an Account of J. SPEIDELL'S New Logarithms, published in 1619 and 1628, and treatises by CHARLES HUTTON, F.R.S., SIR JAMES IVORY, F.R.S., ANDREW MACKAY, THOMAS MANNING, and the Editor.
- 11536 ——— TRACTS on the RESOLUTION of AFFECTED ALGEBRAICK EQUATIONS by Dr. Halley's, Mr. Raphson's, and Sir Isaac Newton's METHODS of APPROXIMATION, 8vo. nice copy in contemporary tree-calf, with inscr. to Richard Watson, F.R.S. (1737-1816), *absentee Bp. of Llandaff, and his Calgarth Park booklabel*, 8s 6d
1800
'For the Bishop of Llandaff from the Author.'—*Inscr. on title.*
- 11537 ——— ANOTHER COPY, prize calf gilt (uniform with No. 11533), with inscr. by William Knight (1786-1844), prof. natural philosophy, Aberdeen, 7s 6d
Including 'A New, Exact, and Easy Method of finding the Roots of Equations generally,' by EDMUND HALLEY, F.R.S., 'Remarks on the Number of Negative and Impossible Roots in Algebraick Equations', and 'Another Solution of Col. Titus's Arithmetical Problem', both by WILLIAM FRIEND, and 'Explanation of Simon Stevin's General Rule to extract Roots', by JOHN KERSEY.
- 11538 ——— TRACTS on the RESOLUTION of CUBICK and BIQUADRATICK EQUATIONS, thick 8vo. hf. calf (title and a few ll. water-stained), 5s
[1803]
- 11539 ——— ANOTHER COPY, contemporary calf gilt (back faded, otherwise a fine copy), with auto. RICHARD WATSON, F.R.S., *absentee Bp. of* Llandaff, from the author' on title, and his Calgarth Park booklabel, 6s 6d
Containing 'Ferrarius Redivivus; or, a Comparison between the Method invented by Lewis Ferrari, and that given by Descartes' (pp. 245): 'A Supplement to the Appendix of Mr. Friend's Principles of Algebra' (pp. 100): 'Remarks on the Doctrine of the Generation of Algebraick Equations Invented by Thomas Harriot' (pp. 74): 'Comparison between the Resolution by the Method of Dr. Warren and that of L. Ferrari' (pp. 44), and Preface (pp. 58).

MASSETTI (Gianbattista)—v. IDRAULICI (OPUSCOLI), No. 9658, ante.

MASKELYNE (Mervyn Herbert Nevil Story, F.R.S.)—v. STORY-MASKELYNE, post.

MASKELYNE (Nevil, *pr.*, F.R.S., *Astronomer Royal*) ACCOUNT of the GOING of MR. JOHN HARRISON'S WATCH (1767)—*v. No. 8970, ante.*

- 11541 — ACCOUNT of the PRINCIPLES on which the following COMPARATIVE TABLES of ENGLISH with FRENCH MEASURES and WEIGHTS have been constructed: a **Manuscript neatly written on 7 pages, 4to, sewn, 10s 6d** 1800

This manuscript formed part of the library of Dr. Nevil Maskelyne, and was probably written from his dictation.

- 11542 — An ANSWER to a PAMPHLET entitled 'A NARRATIVE of FACTS', lately published by MR. THOMAS MUDGE, JR., relating to some TIME-KEEPERS constructed by his Father MR. THOMAS MUDGE, wherein is given an Account of the Trial of his First Time-Keeper, and of the Three Trials of his Two other Time-Keepers, 1774-90, and also the Conduct of the Astronomer Royal, and the Resolutions of the Board of Longitude, are vindicated from Mr. Mudge's Misrepresentations, *Svo. sewn (rare), 10s 6d* 1792

Thomas Mudge, as well as John Harrison, accused Dr. Maskelyne of partiality and undue severity in testing their time-keepers with a view, as they thought, to advance his own imperfect method of finding the longitude by lunar distances only. See HARRISON, Nos. 8965-6 and 8970, *ante*, and MUDGE, *post*.

- 11543 — ANOTHER COPY, *roy. Svo. boards, uncut, 12s 6d*
The above copy belonged to Samuel Horsley, F.R.S., Bp. of St. Asaph, and bears the inscription 'From the Author in Dr. Maskelyne's handwriting.'

- 11544 — CONCERNING the LATITUDE and LONGITUDE of the ROYAL OBSERVATORY at GREENWICH; with Remarks on a Memorial of the late M. CASSINI DE THURY, 4to. (pp. 39), *sewn, with author's inscr., 4s* 1787

- 11545 — ANOTHER COPY, with **Roy (Major-Gen. William, F.R.S.)** ACCOUNT of the MODE proposed to be followed in DETERMINING the RELATIVE SITUATION of the ROYAL OBSERVATORIES of GREENWICH and PARIS, *with folding map and 2 folding tables*—in one vol. 4to. (pp. 76), *sewn, 6s* 1787

— On a DIFFICULTY in the THEORY of VISION—*v. No. 9196, ante.*

- 11546 — INSTRUCTIONS relative to the OBSERVATION of the ENSUING TRANSIT of the PLANET VENUS over the Sun's Disk, on the 3rd of June, 1769, *with 3 tables, sm. 8vo. (pp. 44), sewn, 5s 1768*

- 11547 — A PLAN for OBSERVING the METEORS called FIRE-BALLS, folio (pp. 3), *unbound, 1s 6d* [1783]

- 11548 — REMARKS on the [*sic*] HADLEY'S QUADRANT, tending principally to remove the Difficulties which have hitherto attended the Use of the BACK-OBSERVATION, and to obviate the Errors that might arise from a Want of Parellelism in the Two Surfaces of the Index-Glass, 4to. (pp. 24), *sewn, 8s 6d* 1772

- 11549 [—] TABLES REQUISITE to be used with the NAUTICAL EPHEMERIS, for finding the Latitude and Longitude at Sea, published by Order of the Commissioners of Longitude, 3rd Ed., corrected and improved, *roy. Svo. hf. maroon (rubbed), 5s* 1802

The last edition of the author's 'Requisite Tables', which were first published with the first volume of the Nautical Almanac in 1766. At end is 'The Explanation and Use of the Tables' (pp. 57).

- 11550 — HARRISON (John; '*Longitude Harrison*') REMARKS on a PAMPHLET lately published by the REV. MR. MASKELYNE, under the Authority of the Board of Longitude, *Svo. (pp. 34), sewn, 7s 6d* 1767

- 11551 **MASONRY** (PRACTICAL), BRICKLAYING, and PLASTERING, both Plain and Ornamental; containing a New and Complete System of Lines for Stone-Cutting; with the Theory and Practice of Constructing Arches, Domes, Groins, Niches, Stairs, Columns, etc. etc. etc., and Practical Treatises on Slating, Plumbing, Glazing, etc., etc., *with 60 plates, 4to. hf. morocco, 6s 6d* 1847

- 11552 **MASTERSON** (Thomas): THOMAS MASTERSON his FIRST BOOKE of ARITHMETICKE, shewing the ingenious Inventions, and figurative Operations, by which to calculate the true Solutions or Answers of Arithmetickall Questions: after a more perfect, plaine, brieve, well ordered Arithmetickall Way, than any other heretofore published; verie necessarie for all Men: His SECOND BOOKE of ARITHMETICK . . . no lesse pleasant and profitable to those which are given to be Marchants, than to others: His ADDITION to his FIRST BOOKE of ARITHMETICK, shewing the true understanding of the same booke, with the Examples therein, declared at large: also how the Solutions of the Questions propounded in his second Booke may be calculated by the said first Booke many severall Wayes, *with vignette on title, 3 vols. sm. 4to. in 1, boards (first title and some ll. soiled, a few blank top corners worn away, and somewhat water-stained throughout, but on the whole a SOUND COPY); very rare, £5. 5s*

Richard Field, dwelling in the Blackfriars neare Ludgate, 1592-4

'The first book and the addition are on abstract numbers and fractions: the second book is on commercial arithmetic . . . Masterson must have been a valuable help to the student: though he would have been more so had he used the modern method of division.'—*Prof. de Morgan.*

In his dedication to the Earl of Essex the author mentions that he intends to publish six books of arithmetic, the 4th and 6th of which were to contain 'arithmetickall questions and demaundes'. No more than three were ever published. In his address 'To the Reader' in the *Addition* the author inveighs against the ignorance of contemporary writers on arithmetic, more especially Simon Stevinus and Michel Coignet, 'both teaching (in the appearance of the unskillfull) with great shew of truth, other answers than mine of the questions of payments and interests, and notwithstanding in those answers they are very false: and so their followers', etc. etc. The work was unknown to Lowndes, and its author is not included in *D. N. B.*

- 11553 **MASTS**, THE ART of MAKING, YARDS, GAFFS, BOOMS, BLOCKS, and OARS, as practised in the Royal Navy, and according to the most approved Methods in the Merchant Service, including a Description of an Improved Rule for Mast Makers, also a New Method by which Large Yards may be made from Small Trees, and Repaired when Sprung in the Slings, *with 3 copperplates (2 folding), and numerous woodcuts, Svo. old calf (rare), 10s 6d* 1797

This work was unknown to Watt and Halkett and Laing.

- 11556 **MASSALOUPE** (J. V.) LOGARITHMISCH-TRIGONOMETRISCHE HÜLFSTAFELN: ein zur Horizontalprojection der auf schiefen Ebenen gemessenen Längen, wie auch zu nivellitischen und markscheiderischen Arbeiten unentbehrliches Handbuch, roy. 8vo. *hf. bound (back damaged)*, 2s (p. M. 10.80 sewn) Leipzig, 1847
- 11557 **MASTERS** (Thomas) The ICE BOOK: being a Compendious and Concise HISTORY of everything connected with ICE, from its First Introduction into Europe as an Article of Luxury, with the ARTIFICIAL MANNER of PRODUCING Pure and Solid ICE, and Recipes for making superior Water Ices and Ice Creams, *with 6 plates*, 8vo. *cl. (scarce)*, 10s 6d 1844
At end is an account of the author's patent rotary knife cleaner, *with plates*.
- 558 **MATHEMATICAL JOURNAL** (The **CAMBRIDGE** and **DUBLIN**), edited by WILLIAM THOMSON [LORD KELVIN] and N. M. FERRERS, D.D., F.R.S., from its beginning in 1846 to 1852 (Vols. 1-7), with INDEX to v. I—VI, *with plates*, 7 vols. 8vo. *roughly stitched in cl. cover, uncut (SCARCE)*, £5. 5s Cambridge, 1846-52
Containing contributions by the editors, George Boole, Robert Carmichael, Arthur Cayley, Sir James Cockle, Sir William Rowan Hamilton, Samuel Haughton, pr., C. Hermite, John Hewitt Jellet, D.D., Joseph Liouville, Augustus de Morgan, W. J. M. Rankine, George Salmon, pr., Sir G. G. Stokes, J. J. Sylvester, Richard Townsend, and many others.
- 11559 — **MAGAZINE** (The): and PHILOSOPHICAL REPOSITORY, containing a Variety of Original Pieces in all Parts of Mathematical Science, by G. WITCHELL, T. MOSS, etc., Vol. I, *with plate and diagrams*, sm. 8vo. (pp. 80), *sewn*, 3s 6d 1761
- 11560 — **PROBLEMS** and **EXAMPLES**, arranged according to SUBJECTS, from the [CAMBRIDGE] SENATE-HOUSE EXAMINATION PAPERS, 1821-36, 8vo. *boards*, 3s Cambridge, 1836
- 11561 — **QUESTIONS**, with their SOLUTIONS, from the 'EDUCATIONAL TIMES', with many Papers and Solutions not published therein, edited by W. J. C. MILLER, Vols. 16-61 and 63-4, *with numerous diagrams*, in all 43 vols. 8vo., *vv. 16-44 in 6 v. hf. calf, and the rest in boards*, £8. 15s 1872-96
- 11562 — A SERIES from 1876 to 1886 (Vols. 25-44), *with numerous diagrams*. 20 vols. 8vo. *boards*, £2. 10s (p. £6. 10s nett) 1876-86
- 11563 — ANOTHER SERIES, from 1872 to 1874 (Vols. 17-20), *with diagrams*, 4 vols. 8vo. *boards*, 10s (p. £1. 6s nett) 1872-4
- A NEWLY BOUND SET, COMPLETE TO DATE:
- 11564 — **SOCIETY** (LONDON), PROCEEDINGS OF THE, complete from the beginning in 1865 to 1913 (Vols. 1-35, with INDEX to vv. 30; and NEW SERIES, vols. 1-12), *with plates and diagrams*, 36 vols. post 8vo. in 25, and 11 vols. impl. 8vo. *newly and strongly bound in hf. calf (SCARCE)*, £45. 1865-1913
Complete sets, such as the above, are exceedingly difficult to get, the early volumes being out of print and VERY RARE.
- 11565 **MATHEMATICIAN** (The), edited by THOMAS STEPHENS DAVIES, F.R.S., WILLIAM RUTHERFORD, F.R.S., and STEPHEN FENWICK, COMPLETE with the Supplementary No. to v. III, *with 2 plates and numerous diagrams*, 3 vols. 8vo. *cl. (SCARCE)*, £1. 1s 1856
Vol. I is of special importance for containing the best and fullest account of WILLIAM GEORGE HORNER'S discovery of a method—still known by his name—of solving numerical equations of any degree by continuous approximation.
- 11566 — **VOLUMES II** and **III ONLY**, including the Supplementary No. to v. III, *with plates and diagrams*, 2 vols. 8vo. *cl.*, 10s 6d 1847-50
Besides the editors' own there are contributions by Col. A. R. Clark, F.R.S., Sir James Cockle, q.c., F.R.S., Robert Main, pr., F.R.S., Augustus de Morgan, Thomas Weddie, August Wiegand, and other well-known mathematicians.
- 11567 **MATHEMATICIENS** (L'INTERMÉDIAIRE des), dirigé par CHARLES ANGE LAISANT et EMILE LEMOINE; complete from the beginning in 1894 to 1902; *with diagrams*, 9 vols. 8vo. *sewn*, £1. 5s 1894-1902
- A NEWLY BOUND SET, COMPLETE TO 1902:
- 11568 **MATHEMATICS** (PURE and APPLIED), THE QUARTERLY JOURNAL OF, edited by J. J. SYLVESTER, F.R.S., and N. M. FERRERS, D.D., assisted by SIR G. G. STOKES, ARTHUR CAYLEY, F.R.S., and M. HERMITE, complete from its beginning in 1857 to April 1902 (Vols. I—XXXIII), *with numerous plates*, 32 vols. 8vo. *newly and strongly bound in hf. calf*, £35. 1857-1902
- 11569 — ANOTHER SET, complete from 1857 to 1871 (Vols. I—XI), *with plates*, 11 vols. 8vo. *hf. calf gilt (v. III cl.)*, £6. 15s 1857-71
- 11570 — The MESSENGER of—v. MESSENGER, post.
- 11571 **MATHEMATIK**, JAHRBUCH über die FORTSCHRITTE der, im Verein mit anderen Mathematikern herausgegeben von CARL OHRTMANN, FELIX MÜLLER, EMIL LAMPE, u. A.; complete from the beginning in 1868 to 1900 (Band I—XXXI), 31 vols. 8vo., 22 *vv. in hf. black morocco, with bookplate of Prof. H. W. Lloyd Tanner, F.R.S., and the rest in parts as issued* (NICE SET), £21. (p. M. 753.50 sewn) Berlin, 1868-1900
- 11572 — ANOTHER SET, complete from the beginning in 1868 to 1890 (Band I—XXII), 22 vols. 8vo. *in parts as issued*, £10. 10s *ibidem*, 1868-90
- 11573 **MATHEMATIQUES, NOUVELLES ANNALES** de: Journal des Candidats aux Écoles Polytechnique et Normale, redigé par O. TERQUEM et M. GERONO; from 1854 to 1893 (Tomes 13 à 20 et 11^e Série, t. 1-2), 10 vols. 8vo. *hf. calf*, £1. 15s (p. F. 150 sewn) 1854-60

- 576 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11575 **MATHESON** (Ewing, M.I.C.E.) AID BOOK TO ENGINEERING ENTERPRISE, 2nd Edition [enlarged and partly rewritten], *illustrated*, thick 8vo. *cl.*, 5s 6d (p. £1. 1s) 1889
- 11576 — ANOTHER COPY, *hf. calf neat*, or, *hf. morocco (title stamped)*, 6s
The first eight chapters of this work were translated into Chinese.
- 11577 — The DEPRECIATION OF FACTORIES, MINES, and INDUSTRIAL UNDERTAKINGS, and their VALUATION, 2nd Edition, *with front.*, 8vo. *cl.*, 2s 6d 1893
- 11578 — WORKS IN IRON: BRIDGE and ROOF STRUCTURES [with Technical Vocabulary in 6 Languages], *with front. and numerous woodcuts*, roy. 8vo. *cl.* (o. p.), 4s (p. 15s) 1873
- 11579 **MATHEWS** (George Ballard, F.R.S.) DIOPHANTINE INEQUALITIES, *with 12 diagrams*, 4to. (pp. 28), *sewn, with author's inscr.*, 2s [Cambridge], 1900
- 11580 — NOTE ON GEODESIC TORSION, *with plate*, 8vo. (pp. 2), *sewn*, 1s 1894
- 11581 **MATHIAS** (Émile) Sur la CONSTRUCTION et l'UTILIZATION des CARTES MAGNÉTIQUES: Application au Bassin de la Garonne; *with 3 folding plates*, roy. 8vo. (pp. 28), *sewn, with inscr. to Sir E. Thorpe, F.R.S.*, 2s 1897
- 11582 **MATHIAS** (Félix, *inspecteur du service des machines au Chemin de Fer d'Orléans*) ÉTUDES sur les MACHINES LOCOMOTIVES de SHARP et ROBERTS, comparées à celles d'autres Constructeurs, avec des Développements sur la THÉORIE de la DISTRIBUTION de la VAPEUR, et sur l'APPLICATION de la DÉTENTE FIXE et VARIABLE; *with large folding plate, and 3 folding tables*, 8vo. *sewn (Atlas wanting)*; *scarce*, 5s 1844
- 11583 — ANOTHER COPY (without Atlas), *hf. roan*, 6s 6d
- 11584 **MATHIEU** (Charles Léopold, *Professeur de Physique et de Chymie, Autun*) NOUVEAU SYSTÈME de l'UNIVERS, ou Abrégé Philosophique de la Physique et de la Chymie, avec de nouvelles Découvertes de l'Auteur, un Coup-d'Oeil sur les Rapports des ces deux Sciences aux autres, et leurs Applications aux Arts en grand, *with fine front. showing a BALLOON and PARACHUTE, and folding plates*, 8vo. *old calf (RARE)*, 16s 6d An VII [1799]
- *La nouveauté de ce système consiste dans la réunion de la chimie à la physique, dans l'exposition de la théorie, où le soleil est remarqué en rapport avec le phosphore, par sa densité, sa pesanteur spécifique et sa qualité lumineuse; tandis que les planètes sont en rapport avec le même corps appesanti par l'augmentation d'oxygène dans la combustion de ses éléments.—*Quérard.*
- 11585 **MATHIEU** (Emile, *Univ. Nancy*) COURS de PHYSIQUE MATHÉMATIQUE; *with 16 diagrams*, 4to. *hf. calf gilt*, 6s 6d (p. F. 15 *sewn*) 1873
- The introductory volume to the *Traité de Physique mathématique*, containing also the Methods of Integration. The complete work comprises 8 vols.
- 11586 — THÉORIE de la CAPILLARITÉ; *with 42 diagrams*, 4to. *hf. cl.*, 6s (p. F. 10 *sewn*) 1883
- 11587 **MATHIEU de DOMBASLE** (Christophe Joseph Alexandre) INSTRUCTION THÉORIQUE et PRATIQUE sur la FABRICATION des EAUX-DE-VIE de GRAINS, et de POMMES DE TERRE; *with folding plate of distilling plant*, 8vo. *sewn (scarce)*, 8s 6d 1820
- The author rejects the method of treating potatoes with sulphuric acid as a wasteful process.
- 11588 **MATSCHOSS** (Conrad, *Charlottenburg*) Die ENTWICKLUNG der DAMPFMACHINE: eine Geschichte der ortsfesten Dampfmaschine und der Lokomobile, der Schiffsmaschine und Lokomotive; *with 38 portraits and 1853 illustrations, including many reproductions from old prints*, 2 vols. 4to. *buckram*, 16s (p. M. 24) Berlin, 1908
- The most complete work on the history of the steam engine yet published in any tongue.
- 11589 — GESCHICHTE der DAMPFMACHINE: ihre kulturelle Bedeutung, technische Entwicklung und ihre grossen Männer; *with 5 portraits, 2 plates, and 188 smaller illustrations*, roy. 8vo. *cl.*, 6s (p. M. 10) *ibid.*, 1901
- 11590 **MATTEUCI** (Carlo, *Univ. Pisa*) LECTURES on the PHYSICAL PHENOMENA of LIVING BEINGS, translated under the Superintendence of JONATHAN PEREIRA, M.D., F.R.S., *with 26 woodcuts*, cr. 8vo. *cl.*, *with auto. of George Rennie, F.R.S.*, 4s 1847
- Including chapters on endosmosis, phosphorescence of organic beings, the muscular electric current, etc. etc.
- 11591 **MATTHES** (Karel Jan) DISSERTATIO MATHEMATICA de INVENIENDA AEQUATIONE CAUSTICARUM; *with 2 folding plates*, 4to. (pp. 70), *sewn*, 4s *Lugd. Bat.*, 1837
- 11592 **MATTHEWS** (G. F., *Peterhouse*) MANUAL of LOGARITHMS, treated in Connexion with Arithmetic, Algebra, Plane Trigonometry, and Mensuration, *diagrams*, 8vo. *cl.*, 3s (p. 5s *nett*) 1890
- 11593 **MATTHEWS** (Richard Borlase, A.M.I.C.E.) ELECTRICITY for EVERYBODY: a Popular Handbook dealing with the Uses of Electricity in Home and Business, *with numerous illustrations*, narrow 8vo. *purple roan, t. e. g.*, 3s (p. 5s *nett*) 1909
- 11594 **MATTHEWS** (William) HISTORICAL SKETCH of the ORIGIN, PROGRESS, and PRESENT STATE of GAS-LIGHTING, *with woodcut vignette*, post 8vo. *boards, uncut (title margined)*; *scarce*, 8s 6d 1827
- *The statement respecting the early attempts at Soho is given on the authority of a gentleman who has long been resident there, and intimately acquainted with the principal transactions and the persons named.—*Preace.*
- 11595 — SECOND EDITION, *with vignette*, post 8vo. *boards (broken, uncut (scarce)*, 8s 6d 1832
- The author was a witness of William Murdoch's exhibition of gas-lighting at Boulton and Watt's works at Soho, Birmingham, 'the first public display of the kind in this country.' The work is valuable for containing a large amount of historical information not elsewhere to be found.
- The above edition contains 'Notice of Wm. Winsor's First Pamphlet, 'An Account of the most ingenious and important National Discovery for some Ages'.
- 11596 — HYDRAULIA: an Historical and Descriptive ACCOUNT of the WATERWORKS of LONDON, and the Contrivances for supplying other great Cities, in different Ages and Countries, *with portrait of Sir Hugh Myddelton, and 17 plates and maps (some folding)*, 8vo. *cl.*, or, *hf. calf*, 8s 1835
- 11597 — ANOTHER COPY (without the portrait), 8vo. *cl.*, 7s 6d
- Interesting as an early treatise on water-supply engineering, and containing much historical information. It was unknown to Allibone.
- 11598 **MATTHEY** (Edward, F.C.S.) On the LIQUATION of METALS of the PLATINUM GROUP, *with diagrams*, 4to. (pp. 24), *sewn, with inser. to Sir E. Thorpe, F.R.S.*, 1s 6d 1892

- 11600 **MATTHIESSEN (Augustus; F.R.S.)** On an ALLOY which may be used as a STANDARD of ELECTRICAL RESISTANCE, 8vo. (pp. 9), *sewn, with inser. to Sir E. Frankland*, 1s 6d 1861
- 11601 — On the ELECTRIC CONDUCTING POWER of ALLOYS, with 2 plates, roy. 4to. (pp. 16), *unbound*, 3s 1860
- 11602 — Über die ELEKTRISCHE LEITUNGSFÄHIGKEIT der LEGIRUNGEN, 8vo. (pp. 32), *sewn*, 1s 6d [*Leipzig*, 1857]
- ‘His investigations on the physical properties of pure metals and alloys have become classical.’—*D. N. B.*
- 11603 — On the ELECTRIC CONDUCTING POWER of the METALS, roy. 4to. (pp. 5), *unbound*, 2s 1858
- 11604 — Ueber LEGIRUNGEN. I. Das spezifische Gewicht von Legirungen, 8vo. (pp. 17), *sewn*, 1s 6d [*Leipzig*, 1857]
- 11605 — NOTIZ über die ELEKTRISCHE LEITUNGSFÄHIGKEIT des GOLDES, 8vo. (pp. 3), *sewn*, with inser. to Sir E. Frankland, *F.R.S.*, 1s 6d [*ib.*, c. 1858]
- 11606 — On the SPECIFIC GRAVITY of ALLOYS, roy. 4to. (pp. 8), *unbound*, 2s 6d 1860
- 11607 — On the THERMO-ELECTRIC SERIES, with 4 woodcuts, roy. 4to. (pp. 13), *unbound*, 2s 6d 1858
- 11608 —, und M. von BOSE: Ueber den EINFLUSS der TEMPERATUR auf die ELEKTRISCHE LEITUNGSFÄHIGKEIT der METALLE; with folding plate, 8vo. (pp. 45), *sewn*, 2s [*Leipzig*, 1853]
- 11609 —, and [Sir] Maurice HOLZMANN: On the EFFECT of the PRESENCE of METALS and METALLOIDS upon the CONDUCTING POWER of PURE COPPER, with 2 woodcuts, roy. 4to. (pp. 8), *unbound*, 3s 1860
- Matthiessen's investigations into the electric conductivity of copper were of great importance from the rapid expansion of telegraphy.
- ‘He showed that the discrepancies of previous observations and the low conductivity of certain samples of copper supposed to be pure were due to the presence of minute quantities of other elements.’—*D. N. B.*
- 11610 —: Ueber die ELEKTRISCHE LEITUNGSFÄHIGKEIT des reinen KUPFERS und der Verminderung durch Metalloide und Metalle; with 2 folding plates, 8vo. (pp. 13), *sewn*, 2s [*Leipzig*, 1857]
- ‘Matthiessen's researches show remarkable acuteness, experimental skill, and conscientiousness, together with a distinct power of generalisation.’—*D. N. B.*
- He received the Royal Society's gold medal for his researches on the electric and other physical and chemical properties of metals and their alloys.
- MATY (Paul Henry, pr., F.R.S.)**—v. ROYAL SOCIETY, *post*.
- 11611 **MATZKA (Wilhelm, Univ. Prague)** Ein NEUER BEWEIS des KRÄFTENPARALLELOGRAMMS; with plate, roy. 4to. (pp. 11), *sewn*, 2s 6d *Prag*, 1856
- 11612 — Die CHRONOLOGIE in ihrem ganzen Umfange, mit vorzüglicher Rücksicht auf ihre Anwendung in der ASTRONOMIE, Weltgeschichte und Urkundenlehre, nebst einem Vorschlage zu einer streng wissenschaftlich geregelten Zeitrechnung, durch höhere Arithmetik begründet, 8vo. *hf. calf*, 3s 6d *Wien*, 1844
- 11613 **MAUCLINE (Robert)** The MINE FOREMAN'S HANDBOOK of Practical and Theoretical Information on the OPENING, VENTILATING, and WORKING of COLLIERIES, new Ed., enlarged, with 114 woodcuts, large 8vo. *cl.*, 9s (p. £1. 1s) *Philadelphia*, 1893
- 11614 [MAUDUIT (Antoine René; Collège de France)] EXPOSITION des MOYENS les plus FACILES de RÉSOUDRE plusieurs QUESTIONS dans l'ART de NAVIGATION, et démontrés à l'Aide des Principes de Géométrie Élémentaire, avec Table des Sinus Verses, et leurs Logarithmes; with plate; ÉLÉMENTS de GÉOMÉTRIE et de la TRIGONOMÉTRIE RECTILIGNE; with 3 folding plates—2 vols. 8vo. in 1, *hf. mottled calf gilt*, with bookplate of Philip 2nd Earl Stanhope, *F.R.S.*, 5s 1772
- ‘Mauduit est un des meilleurs professeurs de mathématiques qu'il y ait eu à Paris, et l'un des plus utiles.’—*Lalande*.
- 11615 — NEW and COMPLETE TREATISE of SPHERICAL TRIGONOMETRY; with the Orthographic, Analytical and Logarithmical Solutions of the several Cases of Spherical Triangles, whether right-angled or oblique; a comprehensive THEORY of the FLUXIONS of these Triangles; and a Variety of Curious and Interesting Particulars not to be met with in any other Treatise on this Subject, translated by WILLIAM CRAKELT, with 2 folding plates, 8vo. *old calf (fine copy)*, 7s 6d 1768
- 11616 — ANOTHER COPY, *old calf (binding rubbed and slightly damaged)*, 5s 6d
- 11617 **MAUNDER (Edward Walter, F.R.A.S., Greenwich Observatory)** The ASTRONOMY of the BIBLE: an Elementary Commentary on the Astronomical References of Holy Scripture, 3rd Ed., with 34 plates and other illustrations, cr. 8vo. *cl.*, 3s (p. 5s nett) 1909
- ‘The attitude of the sacred writers towards the heavenly bodies was perfect in its sanity and truth.’—*Preface*.
- 11618 — The BIBLE and ASTRONOMY, 8vo. (pp. 20), *sewn*, 1s *n. d.*
- 11619 —, The INDIAN ECLIPSE, 1898: REPORT of the EXPEDITIONS organized by the BRITISH ASTRONOMICAL ASSOCIATION to observe the Total Solar Eclipse of 1898, Jan. 22, edited by, with numerous plates and other illustrations, roy. 8vo. *buckram*, 2s 6d (p. 5s) 1899
- 11620 — MAGNETIC DISTURBANCES, as recorded at the ROYAL OBSERVATORY, GREENWICH, and their ASSOCIATION with SUN-SPOTS, with diagrams, 3 parts. 8vo. *sewn*, 1s 6d 1904-5
- 11621 — NOTE on the DISTRIBUTION of SUN-SPOTS in HELIOGRAPHIC LATITUDE, 1874 to 1902, with 8 diagrams, 8vo. (pp. 15), *sewn*, 1s 1904
- 11622 — NOTES on some recently published SPECTROSCOPIC OBSERVATIONS, 8vo. (pp. 8), *sewn*, 1s [1836]
- 11623 — The RECENT ECLIPSE, with 2 illustrations, 8vo. (pp. 10), *sewn*, 1s 1898
- 11624 —, and A. C. D. CROMMELIN: NOTES on the TOTAL ECLIPSE of the SUN, 1900, May 28, observed at Algiers, 8vo. (pp. 3), *sewn*, 1s 1900

- 11627 **MAUGHAM** (William) On a NEW COMPOUND of CARBON and HYDROGEN, impl. 4to. (pp. 3),
sewn, 1s 6d 1838
- 11628 **MAUMENÉ** (Edme Jules) TRAITÉ THÉORIQUE et PRATIQUE du TRAVAIL des VINS, 3^e [der-
 nière] Edition, augmentée; with 175 illustrations, 2 vols. impl. 8vo. *hf. red morocco, 17s 6d* (p. F. 30
sewn) 1890
- 11629 **MAUPERTUIS** (Pierre Louis Moreau de; de l'Académie des Sciences; F.R.S.) DISCOURS
 sur les DIFFÉRENTES FIGURES des ASTRES, où l'on donne l'Explication des Taches Lumineuses
 qu'on a observées dans le Ciel: Des Étoiles qui paroissent s'allumer et s'éteindre: De celles qui
 paroissent changer de Grandeur: De l'Anneau de Saturne: et des Effets qui peuvent produire
 les Comètes, 2^e Edition augmentée; with tinted front. and diagrams, 8vo. *old calf (rare)*,
 12s 1742

* Par son Discours il eut le mérite de répandre, l'un des premiers, en France la théorie newtonienne, ce qui lui valut l'inimitié de tous les physiciens exclusivement attachés aux doctrines de Descartes. Parmi ces partisans des tourbillons cartésiens on remarquait alors des savants bien connus, Cassini, Saurin, Mairan, Nollet, Fontenelle. Les deux parties s'injurieraient en s'accusant réciproquement de ne rien entendre à la physique. La dispute s'échauffa et passa de l'Académie dans les collèges. Au moins ses dissensions ne devaient pas être stériles: elles firent entreprendre une détermination plus exacte de la figure de la Terre' (q. v. *infra*).—Dr. R. Hoefler.

- 11630 ——— La FIGURE de la TERRE, déterminée par les Observations de MM. DE MAUPERTUIS,
 CLAIRAUT, CAMUS, LE MONNIER, et de l'ABBÉ OUTHIER, accompagnés de M. CELSIUS, faites
 au Cercle Polaire, première édition; with 9 folding plates, and fine map, 8vo. *fine copy in*
contemporary calf gilt, g. e., with auto. of J. M. Mersais on title (RARE), 18s 6d

Imprimerie Royale, 1738

The above fine copy is very interesting from its previous owners. According to an old MS. note in the book, it was bought at the Maupertuis sale by J. J. Le F. de Lalande, and passed afterwards into the possession of J. M. Mersais, who was astronomer of the Kerguelen Expedition in the South Seas, and died in his 22nd year, by throwing himself into the sea in a fit of fever.

- 11631 ——— NOUVELLE ÉDITION, dans laquelle on a mis les Figures aux Pages où elles se rapportent;
 with numerous diagrams, and map, 8vo. *contemporary Italian vellum*, 10s 6d 1739
- 11632 ——— ANOTHER COPY, *old hf. vellum, uncut*, 10s
- 11633 ——— The FIGURE of the EARTH, determined from Observations at the Polar Circle, trans.,
 with 9 folding plates, and map, 8vo. *old calf, newly and neatly rebounded (RARE)*, 16s 6d 1738
- 11634 ——— ANOTHER COPY, *old calf. or, old hf. calf*, 15s

'Maupertuis adopted and explained Newton's propositions on attraction and on the figure of the earth; and he conducted an expedition to Lapland, for the measurement of an arc of the meridian, the result of which was fatal to the Cassinian hypothesis.'—Prof. Todhunter.

This expedition worked simultaneously with another sent to Peru under Bouguer, La Condamine, Juan, and Ulloa, to measure 3 degrees of the meridian near the equator (v. Nos. 6368, 9949, 10364-5, *ante*).

- 11635 ——— FIGURA TELLURIS, determinata per Observaciones factas ad Circulum Polarem,
 transtulit Notisque præcæmialibus auxit ALARICUS ZELLER, M.D.; with vignette, 9 folding plates,
 and map, 12mo. boards (rare), 8s 6d Lipsiæ, 1742
- 11636 [———] LETTRE sur la COMÈTE, 16mo. boards (rare), 7s 6d s. l. (à la sphère), 1742
- 11637 ——— SAGGIO di COSMOLOGIA, col DISCORSO sulle diverse CONFIGURAZIONI delle STELLE,
 tradotti, e con Note illustrati, da ORAZIO DEGLI ARRIGHI LANDINI, sm. 8vo. *sewn, 4s 6d*

Venezia, 1768

A translation of the above Discours and the Essai de Cosmologie, in which the author propounds the theory of 'least action'.

- 11638 **MAUPIN** (—): MÉTHODE de MAUPIN sur la MANIÈRE de CULTIVER la VIGNE et l'ART de
 faire le VIN, nouvelle Édition, augmentée de deux Mémoires instructifs [de BUCHOZ] sur ce qui
 se pratique de plus intéressant dans les différents Vignobles de France; with 2 folding plates,
 8vo. *unbound, 7s 6d* An VII [1799]

A reissue of the author's more important memoirs. 'Sa méthode de cultiver la vigne se réduit à la planter par rangées, à l'espace suffisamment, pour qu'elle puisse jouir en plein des rayons du soleil, à la tailler courte, à ne pas provigner, et à ne fumer qu'à dernière extrémité'.—*Préface*.

- 11639 **MAUPIN** (Georges) OPINIONS et CURIOSITÉS touchant la MATHÉMATIQUE d'après les
 OUVRAGES FRANÇAIS des XVI^e, XVII^e et XVIII^e SIÈCLES; with portrait of Oronce Fine, and 12
 diagrams, 8vo. *cl.*, 3s 6d 1898
- 11640 **MAURICE** (George; Geneva) DISSERTATION sur les PREMIERS ÉLÉMENTS de la THÉORIE de
 la VISION; with plate, 8vo. *sewn, with auto. of Dr. P. M. Roget, F.R.S.*, 3s Genève, 1823
- 11641 ——— MÉMOIRE sur les APPARENCES VISIBLES, 4to. (pp. 28), *sewn*, 3s *ibid.*, 1825
- 11642 **MAURO** (Fra, Fiorentino, Theosebo, Phonasco, e Philopanareto) ANNOTAZIONI sopra la
 LETTONE della SPERA del SACRO BOSCO, dove si dichiarano tutti i Principii Mathematici e
 Naturali, che in quella si possan desiderare; con alcune Questioni Notabili . . . e rari Segreti
 . . . una NUOVA . . . TRADUZIONE di detta SPERA; una Spera Theologica Divina, e Christiana;
 una Spera Platonica, con alcune Eccezioni mathematiche, ecc.; una NUOVA INVENTIONE, et
 Astronomico Instrumento, per SUBITAMENTE FABRICARE le dodici CASE CELESTI della FIGURA
 ASTRONOMICA, senza altri Canon, o Calculo; with numerous woodcuts (some full-page), and
 diagrams, sm. 4to. *sound and clean copy in old calf gilt (VERY RARE)*, £1. 12s 6d

[colophon:] Firenze, 1550

- 11643 ——— ANOTHER COPY, *old Italian vellum (partly water-stained, and a few small holes in blank margin of title)*, £1. 5s

'In this volume we find the proof that the Spanish mathematician Ortega (v. No. 3397, *ante*) was in 1550 at Florence'.

—*Libri Catalogue*.
 Unknown to Poggenorff and *Biogr. Gén.* The above copies contain pp. 201-19, which are often wanting. The work is dedicated to Cosmo de Medici, Duca di Firenze.

- 11644 **MAWSON** (E. O., M.I.C.E.) PIONEER IRRIGATION: a Manual of Information for Farmers in
 the Colonies; with Additional Chapters on LIGHT RAILWAYS by EVERARD RICHARD CALTHROP,
 M.I.C.E., with 38 plates, and numerous other illustrations, 8vo. *cl.*, 6s (p. 10s 6d nett) 1904

- 11646 **MAUROLICO** [*Latine MAUROLYCUS*] (Francesco; *Abbas Messanenensis*) OPUSCULA MATHEMATICA, nunc primum in Lucem edita, cum Rerum omnium notatu dignarum INDICE locupletissimo; with numerous diagrams, 2 vols. sm. 4to. in 1, sound copy in old vellum (RARE), £1. 10s. Venetiis, 1575
- 11647 ——— VOL. I ONLY, with numerous diagrams, sm. 4to. sewn (large copy), 18s 6d
 'He is doubtless the greatest geometer of the XVI. century. From the notes of Pappus he attempted to restore the missing fifth book of Apollonius on maxima and minima. His chief work is his masterly and original treatment of the conic sections, wherein he discusses tangents and asymptotes more fully than Apollonius had done, and applies them to various physical and astronomical problems.'—*Prof. Cajori*.
 Vol. I contains: De Sphæra liber unus; Computus Ecclesiasticus in summam collectus; Tractatus Instrumentorum Astronomicorum; Tractatus de Lineis Horariis; Euclidis Propositiones Elementorum, etc.; Musicæ Traditiones; De Lineis Horariis libri III; and vol. II: Arithmeticonum Libri II.
- 'All the works of this eminent mathematician are of considerable rarity. His treatise on the properties of numbers, and on the doctrine of incommensurables is a very superior production to that of any of his contemporaries.'—*Libri Catalogue*. 'Opera rara ed apprezzata.'—*Riccardi*.
 'On trouve souvent d'heureuses innovations dans les nombreux ouvrages de Maurolico; telle est encore cette remarque, qui fut entre ses mains la base de nouveaux principes de gnomonique, que l'ombre de l'extrémité d'un style décrit chaque jour un arc de section conique. C'est à cette occasion qu'il comp. sa son *Traité des Coniques*, qui fait le sujet du 3^e livre de sa gnomonique, intitulée *De lineis horariis libri III*, et imprimée dans ses *Opuscula Mathematica*. Maurolico y fait dériver les propriétés des coniques de celles du cercle et de la considération du solide dans lequel ses courbes prennent naissance. . . . L'analyse est aussi très-redevable à Maurolico: c'est lui qui le premier introduisit l'usage des lettres, à la place des nombres, dans les calculs d'arithmétique, et qui donna les premières règles de l'algorithme de l'algebre.'—*E. Merlieux*.
- 11648 ——— THEOREMATA DE LUMINE ET UMBRA, ad PERSPECTIVAM, et RADIORUM INCIDENTIAM FACIENTIA. Diaphanorum Partes, seu Libri tres, in quorum I^o de Perspicuis Corporibus, in II^o de Iride, in III^o de Organi Visualis Structura et Conspicilliorum Formis agitur; Problemata ad Perspectivam et Iridem pertinentia, cum Notis CHRISTOPHORI CLAVII, S.J.; with woodcut and numerous diagrams, sm. 4to. sewn (large copy); RARE, £1. 1s Lugduni, Barth. Vincentius, 1613
 This is a reprint of the author's *Photismi de Lumine et Umbra*, first published in 1575, with the addition of valuable notes by Christoph Clavius, S.J.
 The work is important in the history of optics, and the first to call attention to the curves afterwards called caustics. The author also correctly describes the crystalline lens of the human eye, and based on it gives a physical explanation of myopia and hypermetropia.
 A full account of this rare work will be found in Wilde's *Geschichte der Optik*, pp. 120-134.
 — v. ARCHIMEDES, No. 148, ante.
- 11649 **MAURY** (Matthew Fontaine, U.S.N., National Observatory, Washington) EXPLANATIONS and SAILING DIRECTIONS to accompany the WIND and CURRENT CHARTS; 6th Edition, enlarged, with 17 plates and maps, 4to. (pp. 772), sewn, 12s 6d Philadelphia, 1854
 'A great undertaking, equally important to the practical navigator and for the advance of meteorology in general.'—*Humboldt*. The above edition contains the proceedings of the Maritime Conference at Brussels in 1853.
- 11650 ——— The PHYSICAL GEOGRAPHY of the SEA, new Edition, with 3 woodcuts, and 10 maps and charts, roy. 8vo. cl., 3s 1856
- 11651 ——— The PHYSICAL GEOGRAPHY of the SEA, and its METEOROLOGY, with 14 plates and woodcuts, 8vo. hf. morocco (worn), 3s 6d 1860
 A reconstruction and enlargement of the foregoing work.
- 11652 ——— TENTH EDITION, revised, being the Second Edition of the Author's Reconstruction of the Work, with woodcuts and 16 plates, cr. 8vo. cl., 4s 1861
 The author's most important work, which laid the foundation of oceanography. It also contains his invaluable wind and current charts, the first of their kind, which rendered such conspicuous service to navigation and meteorology.
- 11653 **MAW** (William Henry; P.R.A.S., M.I.C.E., editor of 'Engineering') DOUBLE STAR OBSERVATIONS, 1888-91, 4to. (pp. 38), sewn, with author's inser., 2s 1892
- 11654 ——— RECENT PRACTICE in MARINE ENGINEERING, with 176 plates (many folding), and 294 woodcuts, 2 vols. impl. 4to. hf. morocco gilt (binding slightly rubbed), 12s 6d (p. £3.) [1884]
- 11655 ——— ANOTHER COPY, 2 vols. hf. purple morocco gilt (fine copy), with auto. of Sir Frederick Bramwell, F.R.S., 16s 6d
- 11656 **MAY** (C.), and S. ROTHENFUSSER: The DETECTION of ADDED WATER in MILK by REFRACTOMETRICAL METHOD, roy. 8vo. (pp. 13), sewn, 1s 6d Berlin, 1908
- 11657 **MAY** (Oscar, Frankfurt a. M.) ERLÄUTERUNGEN zu den VORSICHTSBEDINGUNGEN für ELECTRISCHE LICHT- und KRAFT-ANLAGEN; with 13 woodcuts, 8vo. cl., 2s Leipzig, 1893
- 11658 ——— LEHRBUCH der ELEKTRODYNAMIK, I. TEIL (soweit erschienen); with 105 illustrations, roy. 8vo. boards, 1s 6d (p. M. 4) Stuttgart, 1888
- 11659 ——— LEHRBUCH der KONTAKTELEKTRICITÄT (GALVANISMUS), nebst Sammlung gelöster und ungelöster analoger Aufgaben; with 238 illustrations, roy. 8vo. boards, 3s (p. M. 8) *ibid.*, 1887
- 11660 ———, and Adolf KREBS: LEHRBUCH des ELEKTROMAGNETISMUS, nebst Sammlung gelöster Aufgaben; with 152 illustrations, roy. 8vo. boards, 2s (p. M. 4.50) *ib.*, 1889
- 11661 **MAYCOCK** (W. Perren, M.I.E.E.) ELECTRIC LIGHTING and POWER DISTRIBUTION, VOL. I, 6th Ed., with 229 illustrations, cr. 8vo. cl., 2s (p. 6s) 1904
- 11662 ——— ELECTRIC WIRING, FITTINGS, SWITCHES, and LAMPS, 3rd Ed., extended, with 362 illustrations, cr. 8vo. cl., 2s (p. 6s) 1902
- 11663 **MAYER** (Adolf Eduard, Univ. Heidelberg) BEITRÄGE zur LEHRE über den SAUERSTOFF-BEDARF und die GÄHRUNGSERREGENDE FÄHIGKEIT der HEFEPILZE; with 3 woodcuts, roy. 8vo. sewn, with author's inser., 1s 6d Heidelberg, 1876
- 11664 ——— LEHRBUCH der AGRIKULTURCHEMIE, mit ANHANG: LEHRBUCH der GÄHRUNGSHEMIE, 3. umgearbeitete Auflage; with 2 plates and numerous woodcuts, 3 vols. large 8vo. in 1, cl., 5s (p. M. 23 60 sewn) *ibid.*, 1886
- 11665 **MAYER** (Alfred Marshall) SOUND: a Series of Simple, Entertaining, and Inexpensive Experiments, with front. and 61 woodcuts, cr. 8vo. cl. (o.p.), 2s 6d 1879
- 11666 ———, and Charles BARNARD: LIGHT: Simple, Entertaining and Inexpensive Experiments, with 29 woodcuts, cr. 8vo. cl. (o.p.), 2s 6d 1878
 Two charming little books, forming part of the 'Nature Series', full of delightful experiments, performed by simple instruments that any one may make for himself.

- 11668 **MAXWELL** (James Clerk, F.R.S., *first Cavendish Prof. Experimental Physics, Cantab.*) SCIENTIFIC PAPERS, edited by SIR WILLIAM DAVIDSON NIVEN, F.R.S., with steel portraits on India paper of Clerk Maxwell, Faraday, and Helmholtz, by Stodart and Jeans, 14 plates, and diagrams, 2 thick vols. roy. 4to. cl., uncut, t. e. g. (SCARCE), £3. 10s Univ. Press, Cambridge, 1890
Including the numerous and important papers contributed by the author to various Learned Societies, chiefly on electro-magnetism and the electro-magnetic theory of light, the constitution of matter, and the theory of gases, also his lectures at the Royal Institution, etc., communications and addresses to the British Association, and his Adams prize essay on Saturn's rings.
- 11669 — On BOW'S METHOD of DRAWING DIAGRAMMS in GRAPHICAL STATICS, with Illustrations from PEAUCELLIER'S LINKAGE, with diagrams, 8vo. (pp. 8), unbound, 2s 6d [Cambridge, 1876]
- 11670 — On a DYNAMICAL TOP, for exhibiting the Phenomena of the MOTION of a System of Invariable Form about a Fixed Point; with some Suggestions as to the EARTH'S MOTION, with plate, 4to. (pp. 12), sewn, 4s 6d Edin., 1857
- 11671 — ELEMENTARY TREATISE on ELECTRICITY, edited by WILLIAM GARNETT, with 6 plates and 53 woodcuts, 8vo. cl., 3s 6d (p. 7s 6d) Clarendon Press, Oxford, 1881
- 11672 — EXPERIMENTS on COLOUR, as perceived by the EYE, with Remarks on COLOUR BLINDNESS, with plate, 4to. (pp. 24), sewn, with author's inscr. as below; scarce, 7s 6d Edin., 1855
[Sir] H[oward] W[arburton] Elphinstone from J. C. M.—*Inscr. on title.*
'Investigating the effects of combinations of various colours by means of the rapid rotation of discs coloured differently in different parts. Maxwell's colour-top is now well known.'—*Dr. R. T. Glazebrook, F.R.S.*
- 11673 — On the STABILITY of the MOTION of SATURN'S RINGS: an Essay which obtained the Adams Prize for 1856, in the University of Cambridge, with plate, 4to. sewn (SCARCE), 10s 6d Cambridge, 1859
Including an Appendix: 'On the Stability of the Steady Motion of a Rigid Body about a Fixed Centre of Force,' by PROF. W. THOMSON [LORD KELVIN, F.R.S.]
'His investigation from the groundwork of all that is at present known in the matter.'—*Miss Agnes M. Clerke.* The author formed the conclusion that 'the only system of rings which can exist is one composed of an indefinite number of unconnected particles, revolving round the planet with different velocities according to their respective distances.'—p. 67.
- 11674 — On the THEORY of COMPOUND COLOURS, and the Relations of the COLOURS of the SPECTRUM, with 2 plates by J. Basire, 4to. (pp. 28), sewn, 7s 6d 1860
'The main results of his work on colour are summed up in his paper 'On the Theory of Compound Colours'. His instrument, the colour-box, by which he investigated the effect of mixing in given proportions light taken from different parts of the spectrum, is first described, and then it is shown that any given colour sensation may be produced by combinations in due proportion of rays taken from three parts of the spectrum, and also that if we select three definite rays as standards, all other colours may be produced by proper combinations of these.'—*Dr. Glazebrook.*
- 11675 — THEORY of HEAT, first edition, with 41 diagrams, 12mo. cl., 2s 1871
- 11676 — FOURTH EDITION, with 41 diagrams, 12mo. cl., 1s 6d 1875
Containing additions to the chapters 'Heat Engines' and 'On the Intrinsic Energy of a System of Bodies'.
- 11677 — TENTH [FINAL] EDITION, with Corrections and Additions by LORD RAYLEIGH, F.R.S., with 41 diagrams, 12mo. cl., 2s (p. 4s 6d) 1891
Pp. 296-9 contain an addition on Superficial Viscosity by the Editor.
- 11678 — NEW EDITION, with Corrections and Additions by LORD RAYLEIGH, F.R.S. [and INDEX], with 41 diagrams, cr. 8vo. cl., 2s 6d (p. 4s 6d) 1894
- 11679 — TREATISE on ELECTRICITY and MAGNETISM, first edition, with 20 plates and 105 woodcuts and diagrams, 2 vols. 8vo. cl., 9s (p. £1. 11s 6d) Clarendon Press, Oxford, 1873
- 11680 — ANOTHER COPY, 2 vols. hf. calf (titles stamped), 8s
The first edition of this classic work, the embodiment of Faraday's work in mathematical language, with important original matter by the author himself, will always retain its special value. It is also the one most often referred to by scientists, especially in connexion with the author's electro-magnetic theory of light, of which the above work embodies the author's ideas.
- 11681 — SECOND EDITION [partly rewritten by the Author; edited, with Additions, by SIR W. D. NIVEN, F.R.S.], with 20 plates and 105 woodcuts and diagrams, 2 vols. 8vo. cl., 12s 6d (p. £1. 11s 6d) a. e. ibidem, 1881
The last edition revised by the Author. 'The first 9 chapters were in some cases wholly rewritten, much new matter being added, and the former contents rearranged and simplified.'—*Preface.*
- 11682 — The LIFE of, with select CORRESPONDENCE and OCCASIONAL WRITINGS, and his CONTRIBUTIONS to SCIENCE, by LEWIS CAMPBELL, pr., and WILLIAM GARNETT; LIBRARY EDITION, with 3 fine steel portraits by Stodart, 5 coloured plates, 7 fs. pp., and numerous woodcuts, thick 8vo. cl., uncut (scarce), with auto. letter from Prof. Lewis Campbell inserted, 14s 1882
The 'Contributions to Science' (pp. 465-576) consist of: Experiments on Colour Vision, etc.; Investigations respecting Elastic Solids; Pure Geometry; Mechanics; Saturn's Rings; Faraday's Lines of Force, and Maxwell's Theory of the Electro-magnetic Field, including the Electromagnetic Theory of Light, etc.; and Molecular Physics. They were left out in the new edition.
- 11683 — NEW EDITION, abridged and revised, with 2 steel portraits by Stodart, and woodcuts, post 8vo. cl., 4s (p. 7s 6d) 1834
The chief authority on Clerk Maxwell's life.
- 11684 **MAXWELL** (William Henry, A.M.I.C.E.) The REMOVAL and DISPOSAL of TOWN REFUSE, with special Supplement exhaustively dealing with the latest Practice in REFUSE DESTROYERS and Power Production, embodying the latest Developments and Working Results, with 6 plates, and 67 other illustrations, 8vo. cl., 7s 6d (p. 15s nett) [1898]
- 11685 — and J. T. BROWN: The ENCYCLOPÆDIA of MUNICIPAL and SANITARY ENGINEERING: a Handy Working Guide, edited by, with numerous illustrations, 4to. cl., £1. 10s (p. £2. 2s nett) 1910
The first encyclopedia on the subject published. It contains contributions by PROF. HENRY ADAMS, W. J. DIBDIN, F.I.C., H. M. HOBART, M.I.C.E., DR. S. RIDEAL, and many other authorities.

to the product of each multiplication add the numerator of this fraction, then divide the product of both those aggregates multiplied together by the product of both the denominators of the fractions multiplied together, &c the quotient will be your request.

Examples.

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 9 \quad \text{Fact 7 } \frac{1}{2}$$

$$\frac{1}{11} \text{ by } \frac{1}{11} = \frac{1}{121} \text{ by } 9 \quad \frac{7}{8}$$

$$\frac{3}{11} \text{ by } \frac{1}{5} = \frac{3}{55} \text{ by } 5 \quad \frac{8}{8}$$

$$\frac{7}{7} \text{ by } \frac{1}{2} = \frac{7}{14} \text{ by } 3 \frac{1}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } \frac{1}{4} = \frac{1}{8} \text{ by } 2 \quad \frac{2}{2}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 7 \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 9 \quad \frac{9}{9}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

$$\frac{1}{2} \text{ by } \frac{1}{2} = \frac{1}{4} \text{ by } 3 \frac{1}{2} \quad \frac{7}{7}$$

Abreuiation of the worke of some of the former examples,

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

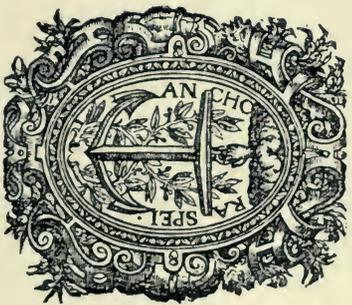
$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

$$\frac{1}{2} \text{ by } 9 = \frac{9}{2} \quad \text{Fact 15 } \frac{1}{2}$$

THOMAS MASTERSON HIS SECOND BOOKE OF ARITHMETICKE.

Shewing the ingenious inventions, and figurative operations, to calculate the true solution or answer of Arithmetick questions: after a more perfect, plaine, briefe, well ordered Arithmetick way, than any other heretofore published: no lesse plectant and profitable to those which are given to be marchants, then to others.

*Nothing without labour.
All things with reason.*



No. 11552 (page 574).

An early and rare work on Arithmetic.

Printed at London by Richard Field, dwelling in

the Blackefriers neare Ludgate.

- 11687 **MAYER** (Christian; s.j., *Univ. Heidelberg*, F.R.S.) NOUVELLE MÉTHODE pour LEVER en peu de Temps et à peu de Frais une CARTE GÉNÉRALE exacte de toute la RUSSIE, approuvée par l'Académie Impériale de St. Pétersbourg, 12mo. (pp. 26), *sewn*, 3s 6d *St. Pétersbourg*, 1770
- 11688 **MAYER** (Fritz) BEITRÄGE zur KENNNTNIS ALKYLIRTER BERNSTEINSÄUREN, Inaugural-Dissertation; with 5 plates, 8vo. (pp. 52), *sewn*, with *inscr. to Sir E. Thorpe*, F.R.S., 2s *Heidelberg*, 1898
- 11689 **MAYER** (Hermann) CLAVIS ANALYTICA zur BESTIMMUNG der MINERALIEN: nach einer einfachen und sichern Methode, nebst einer vollständigen Characteristik, 2 vols. 8vo. in 1, *hf. blue calf extra*, 4s *Prag*, 1839-40
- 11690 **MAYER** (Johann Tobias; *Univ. Göttingen*) TABULÆ MOTUUM SOLIS et LUNÆ novæ et correctæ, quibus accedit METHODUS LONGITUDINUM promotæ, editæ Jussu Præfectorum Rei Longitudinariæ [curâ NEVIL MASKELYNE, sac., S.R.S.]; with 2 plates, 4to. *hf. brown calf neat* (RARE), with *bookplate of Lord Blantyre*, 12s 6s *Londini*, 1770
- 11691 — ANOTHER COPY, *old half calf* [joints broken, and some ll. soiled or mended], with numerous additions to the Tables in a neat contemporary hand, 10s
Maskelyne's preface, and the explanatory matter, are given in both Latin and English.
FIRST EDITION of these celebrated tables, for which the author was recommended by Bradley as worthy to share in the prize offered by Parliament for finding the longitude at sea. By Act of Parliament Mayer's widow was awarded £3000.
'Mayer was the first who constructed lunar tables of sufficient accuracy for the great practical purpose of finding the longitude at sea. This he did by means of Euler's theory and a skilful discussion of observations.'—*Prof. R. Grant*.
- 11692 — THEORIA LUNÆ juxta SYSTEMA NEWTONIANUM, edita Jussu Præfectorum Rei Longitudinariæ; with diagrams, 4to. (pp. 58), *sewn*, 7s 6d *ibid.*, 1767
- 11693 **MAYER** (Johann Tobias, *Univ. Erlangen*; son of the above) GRÜNDLICHER und AUSFÜHRLICHER UNTERRICHT zur PRAKTISCHEN GEOMETRIE, 2. vermehrte Auflage; with 22 folding plates, 3 vols. 12mo. boards, 7s 6d *Goettingen*, 1792-5
A treatise on surveying and surveying instruments, and according to Prof. Moritz Cantor 'the most important work on its subject published during the second half of the 18th century'.
- 11694 **MAYER** (Julius Robert v.) BEITRÄGE zur DYNAMIK des HIMMELS, in populärer Darstellung, erste Ausgabe, 8vo. *hf. cl. (scarce)*, 5s *Heilbronn*, 1848
In this work the author shows that the sun would long have lost his radiating energy were it not renewed by swarms of meteorites constantly falling in. He also developed in it the theory of tidal friction independently of Kant, who first propounded it.
- 11695 — Die MECHANIK der WÄRME, erste Ausgabe, 8vo. *hf. morocco*, with *auto. of Prof. Lloyd Tanner*, F.R.S., 4s *Stuttgart*, 1867
A collection of the author's works, viz., the above *Beiträge*, 'Bemerkungen über die Kräfte der unbelebten Natur,' 'Die organische Bewegung in ihrem Zusammenhange mit dem Stoffwechsel,' 'Ueber das Fieber,' and 'Bemerkungen über das mechanische Äquivalent der Wärme'. The last, which was originally published in *Liebig's Annalen* in 1842, or 5 years before Helmholtz's paper (v. No. 9109, *ante*), first established the principle of the conservation of energy. It remained neglected (and partly ridiculed) by the scientific world, until Prof. Tyndall called attention to its importance in 1862, in a lecture before the Royal Institution.
So little was then known of its author that Poggendorff stated in his *Handwörterbuch* in 1863 that he was 'supposed to have died in a lunatic asylum in 1858.' Mayer actually died 20 years later in 1878, after a belated and tardy recognition of the merits of his work.
- 11696 **MAYNARD** (Henry N., *manager Viaduct Works, Crumlin, Mon.*) THE VIADUCT WORKS' HANDBOOK: a Collection of Examples from Actual Practice of Viaducts, Bridges, etc., with Tables of Prices, Weights, and other Information useful in designing and estimating Wrought and Cast-Iron Work, with tinted folding front. of the *Crumlin Viaduct*, and numerous full-page and other woodcuts, roy. 8vo. *cl.*, 7s 6d *1868*
Added is a Description and Illustration of the author's Patent Iron Abutment for Bridges (1871).
- 11697 **MAYOW** (John, M.D.; F.R.S.) MEDICO-PHYSICAL WORKS: a TRANSLATION of TRACTATUS V MEDICO-PHYSICI, with portrait, and 6 plates (2 folding), cr. 8vo. *cl.*, 4s *Edin.*, 1907
Mayow may be said to have laid the foundation of anti-phlogistic chemistry (although it was not fully developed until Lavoisier) by his theory of combustion contained in the first treatise. He was moreover the first to give a good physiological explanation of the function of breathing, and the discoverer of the double articulation of the ribs with the spine. He also gave a theory of chemical affinity, and a mechanical explanation of the act of jumping.
- 11698 [**MEAD** (—)] THE CONSTRUCTION of MAPS and GLOBES. I. Contains the various Ways of projecting Maps, exhibited in 15 different Methods, with their Uses. II. Treats of making divers Sorts of Globes, both as to the Geometrical and Mechanical Work; with Appendix wherein the present State of Geography is consider'd. Being a seasonable Enquiry into Maps, Books of Geography and Travel, with some necessary Cautions, Helps, and Directions for future Map-makers, Geographers, and Travellers, with 18 fine copperplates (some folding), sm. 8vo. *old hf. calf* (rare), 10s 6d *1717*
One of the chapters describes 'a new and more exact method than any of the former, for projecting particular maps', and another 'to make the magnetical globe'.
- 11699 **MEADE** (Richard) COAL and IRON INDUSTRIES of the UNITED KINGDOM: a Description of the Coal Fields, and the principal Seams of Coal, with Returns of their Produce and its Distribution, and Analyses of Special Varieties, also the Occurrence of Iron Ores in Veins or Seams; Analyses of each Variety, and a HISTORY of the Rise and Progress of the PIG IRON MANUFACTURE since 1740, with 2 folding maps, 8vo. (pp. 897), *cl.*, 10s 6d (p. £1. 8s) *1882*
- 11700 — ANOTHER COPY, *cl. (back slightly damaged, and one map wanting)*, 9s
- 11701 **MECHANIC** (The), from March 6th, 1869, to March 19th, 1870 (Vols. III and IV Nos. 1-12), with hundreds of woodcuts, folio, *hf. bound*, 6s *1869-70*
This volume is interesting for containing a long series of articles, copiously illustrated with hideous woodcuts, on 'Velocipedes and Manual Locomotives', running through 24 numbers.
- 11702 **MECHANICS' MAGAZINE** (The), and JOURNAL of ENGINEERING, AGRICULTURAL MACHINERY, MANUFACTURES, and SHIPBUILDING, from 1862 to July, 1867 (vols. 7-17), with numerous woodcuts, 11 vols. 4to. in 7, *hf. bound*, 12s 6d *1862-7*

A FINE COMPLETE SET TO JUNE, 1912 :

- 11704 **MECHANICAL ENGINEERS, PROCEEDINGS** of the INSTITUTION of, complete from its beginning in 1847 to June, 1912, *with many plates, diagrams, tables, etc.*, with GENERAL INDEX, 1847-1910, 4 vols. : BRIEF SUBJECT INDEX of PAPERS, 1847-1910, and LIBRARY CATALOGUE—in all 66 vols. 8vo. *cl.*, and the rest [1901-12] in parts, *sewn as issued* (FINE SET) ; VERY SCARCE, £35. *Birmingham and London, 1847-1912*

The above is a very good set of this valuable publication, founded under the Presidency of GEORGE STEPHENSON, and containing a great number of contributions by leading men during sixty of the most important years in the history of English mechanical development. It is of equal importance to the railway and to the general mechanical engineer.

Complete sets are now exceedingly difficult to get, none having been sold by auction during the last ten years.

- 11705 — ANOTHER SET, COMPLETE from 1856 to July, 1909, *with hundreds of plates and other illustrations*, with General Indexes, 1847-84—in all 47 vols. 8vo. *cl.*, and the rest (1897-1909) in parts, *sewn as issued* (VERY SOUND LIBRARY SET), £15. 15s 1856-1909

- 11706 **MEDINA (Pedro de) L'ART de NAVIGUER**, contenant toutes les règles, secrets, et enseignemens nécessaires à la bonne navigation, traduit de Castillan en François, avec augmentation et illustration de plusieurs figures et annotations, par NICOLAS DE NICOLAI : *with fine woodcuts, and numerous diagrams*, 4to. *old limp vellum (map wanting, but a large and very sound copy)* ; RARE, £3. 3s *Lyon, Guillaume Rouille, 1569*

A finely printed edition.

- 11707 — NOUVELLE ÉDITION, reuene et corrigée de nouveau outre les precedentes impressions ; *with woodcuts and diagrams, and folding map showing America (defective)*, sm. 4to. *old vellum (some ll. stained)*, £4. 4s *Rowen, R. Mallard, etc., 1577*

The map included in the above edition is remarkable for its large amount of information on AMERICA.

- 11708 — L'ARTE del NAVEGAR, in laqual si contengono le Regole, Declarationi, Secreti, et Avisi, alla bona Navigation necessarij, tradotta in volgar Italiano [da VICENZO PALETINO DA CORZULA] ; *with woodcuts, diagrams, and map (including AMERICA)*, sm. 4to. *white vellum (sound copy)* ; very rare, £4. 10s *Venetia, G. Pedrezano, 1555*

THE FIRST ITALIAN EDITION.

- 11709 — NUOVA EDIZIONE, di nuovo ampliata e corretta ; *with woodcuts, diagrams, and map (showing AMERICA)*, sm. 4to. *sound copy in contemporary vellum* (RARE), £2. 17s 6d

ib., T. Baglioni, 1609

The sixth book contains an interesting account of the mariner's compass, in which however the author still denies that the declination of the magnetic needle differs at different places. The third book contains a copious account of winds, while the second teaches how to foretell storms by the sun and the moon.

- 11710 **MEDLEY (Lt.-Col. Julius George, R.E.)** THE ROORKEE TREATISE ON CIVIL ENGINEERING in INDIA (Vol. I 3rd Ed., by MAJOR A. M. LANG, R.E., '78 ; Vol. II 2nd Ed., '71 ; Vol. III : APPLIED MECHANICS, by CAPT. ALLAN CUNNINGHAM, R.E., '77), *with 180 plates (mostly folding), and numerous woodcuts*, 3 vols. roy. 8vo. *cl. (cover of v. I stained)*, 12s 6d (p. Rs. 34)

Roorkee, 1871-78

- 11711 **MEDLOCK (Henry)** On the RECIPROCAL ACTION of METALS and the CONSTITUENTS of WELL- and RIVER-WATERS, 2 parts 8vo. (pp. 25), *sewn, with inser. to Sir E. Frankland, F.R.S.*, 2s *1857-8*

- 11712 — RESEARCHES on the AMYL SERIES, 8vo. (pp. 12), *sewn*, 1s 6d *n. d.*

- 11713 **MEES (Charles Edward Kenneth, F.C.S.)**, and Samuel Edward SHEPPARD : Über APPARATE zu SENSITOMETRISCHEN UNTERSUCHUNGEN, mit einer geschichtlichen Zusammenfassung, übersetzt von E. ELLENBERGER ; *with 23 illustrations*, roy. 8vo. (pp. 34), *sewn*, 2s

Leipzig [1904]

- 11714 **MEES (G. J.)** On SHAFTS for TRIPLE EXPANSION ENGINES, roy. 8vo. (pp. 34), *sewn*, 1s 6d *Paris [1886]*

A formula for the Bureau Veritas Rules for the diameter of shafts in triple-expansion engines.

- 11715 **MEIBAUER (R. O.)** Über die PHYSISCHE BESCHAFFENHEIT der SONNE, 8vo. (pp. 45), *sewn*, 1s 6d *Berlin, 1866*

- 11716 **MEILINK (B.)** On the MEASUREMENT of VERY LOW TEMPERATURES : VII-VIII, *with plate*, 8vo. (pp. 26), *sewn*, 1s 6d *Leiden, 1904*

- 11717 **MEISSEL (Ernest)** Über die ABSOLUTEN MAXIMA der BESSEL'SCHEN FUNKTIONEN, 4to. (pp. 11), *sewn*, 1s 6d *Kiel, 1892*

- 11718 — Über die ANZAHL der DARSTELLUNGEN einer GEGEBENEN ZAHL A durch die Form $A = \sum p_n x_n$ in welcher die 'p' gegebene, unter sich verschiedene Primzahlen sind, 4to. (pp. 8), *sewn*, 1s 6d *ibidem, 1886*

- 11719 — ENTWURF einer TAFEL, aus welcher die sechs Elemente einer beliebigen Menge sphärischer Dreiecke sofort entnommen werden können, 4to. (pp. 7), *sewn*, 1s *ib.*, 1894

- 11720 — Über die RELATIVE MENGE gewisser FORMPRIMZAHLEN innerhalb beträchtlicher ZAHLENRÄUME, 4to. (pp. 8), *sewn*, 1s *ib.*, 1884

- 11721 — Über RESTSUMMEN, 4to. (pp. 13), *sewn*, 1s 6d *ib.*, 1888

- 11722 **MELCHER (Arthur C.)** The SOLUBILITY of SILVER CHLORIDE, BARIUM SULPHATE, and CALCIUM SULPHATE at HIGH TEMPERATURES, *with diagrams*, roy. 8vo. (pp. 17), *sewn*, 1s 6d

[New York,] 1909

- 11723 **MELLONI (Macedonio ; Univ. Parma)** SAGGI di una ANALISI CALORIFICA dello SPETTRO SOLARE, 4to. (pp. 20), *sewn*, 3s 6d *[Napoli, c. 1850]*

The author found that radiant heat was as much subject to the laws of reflexion and refraction as light, and therefrom assumed it to be the invisible ether accompanying light.

- 11725 **MEIBOM** (Johann Heinrich; M.D.; Lübeck) De CERVISIIS, POTIBUSQUE et EBRIAMINIBUS EXTRA VINUM alii Commentarius; accedit ADRIANI TURNEBI LIBELLUS de VINO; sm. 4to. boards (rare), 15s
Helmstedtii, 1668
A learned treatise, full of quotations from Greek and Latin authors, which was reprinted by Gronovius in his *Theaurus*. It was unknown to Poggendorff.
- 11726 **MEIBOM** [recte **MAYBAUM**] (Marcus sive Marqvard): ANTIQUE MUSICÆ AUCTORES VII, Græce et Latine, MARCUS MEIBOMIUS restituit et Notis explicavit; with 5 folding tables and 8 pp. of music, besides diagrams, 2 vols. 4to. in 1, white vellum (FINE COPY); RARE, £3. 3s
Amstelodami, apud Ludov. Elzevirium, 1652
- 11727 — ANOTHER COPY, calf gilt [joints cracked, and one table wanting], with bookplate of Henry B. H. Beaufoy, F.R.S., £2. 7s 6d
Including:—ARISTOXENI Harmonicon Elementa; EUCLIDIS Introductio Harmonica; NICOMACHI GERASINI Pythagorici Harmonices Manuale; ALEPHI Introductio Musica; GAUDENTII Philosophi Introductio Harmonica; BACCHII SENIORIS Introductio Artis Musicæ; ARISTIDIS QUINTILIANI de Musica Libri III; MARTIANI CAPELLÆ de Musica Liber nonus.
‘Collection très-estimée, et que l’on rencontre difficilement’.—A. Willems.
‘On y trouve de bonnes choses concernant la musique des anciens; particulièrement sur l’obscur description de l’orgue hydraulique donné par l’auteur latin. Cette collection, dont l’utilité ne peut pas être contestée, est un service important rendu à la littérature musicale’.—Féris.
The author was a well-known crank, who in turn offered for sale his supposed discovery of constructing the trineines of the ancients to the French government, and his revision of the Old Testament, after a novel method of his own, to the British government for the paltry sum of £20,000. He also pretended to have discovered the authentic text of St. Jerome’s commentary on the Book of Job, supposed to have been lost, for which he refused an offer of 10,000 florins.
Following an invitation to Sweden by the learned and eccentric Queen Christina, Meibom caused the musical instruments of the ancients to be made from instructions contained in the above work in order to revive the ancient Greek music before the Swedish court. As he further insisted on improving the performance by the accompaniment of his own harsh voice, the attempt caused great merriment. He considered himself insulted, and in a fit of rage boxed the ears of the Queen’s physician, which at once put a stop to the revival of ‘classic’ music, and to his further stay in Sweden.
- 11728 **MELANCHTHON** [hic MELANTHON, germanicè SCHWARZERD] (Philipp) DOCTRINÆ PHYSICÆ ELEMENTA, sive INITIA, dictata in Academia Vuitebergensi, ex postrema ANTONII Recognitione, cum Rerum et Verborum Indice; editio princeps [col.] Basileæ, ex offic. Joa. Oporini, 1550; LIBER de ANIMA recognitus ab Autore; Witebergæ, hæredes Petri Seitzii, 1544; both works neatly printed in italics, with woodcut initials, and the second with vignette on title—2 vols. 12mo. in 1, VERY SOUND AND CLEAN COPIES in contemporary German pressed vellum on oaken boards, ornamented with biblical figures, and dated 1545, with autos. ‘F. Cornelii Curtii 1621’, and ‘Bibliotheca Augustiniane Ingolstadtii’ on title, and numerous marginal notes in a very neat XVI. Century hand (very rare), £3. 15s
1550-4
The above first edition of the *Doctrina*, the only independent scientific work published by Luther’s fellow-labourer in the Reformation, is excessively rare, and was unknown to Graesse, Poggendorff, and Kästner. The former quotes the editions of 1555, 1559, and 1557, while the other two only knew an edition of 1551. The work is not mentioned at all by Brunet and Ebert.
According to Kästner, the first book of the *Doctrina* contains a more lucid exposition of astronomy than is to be found in many treatises published during the XVIII. Century.
Melanchthon also wrote prefaces to Arati Phænomena, 1521, Purbachii Theoriae, 1534 [v. No. 3562, ante], Schoneri Tabulae Astronomicæ, 1530, Alfragani Rudimenta Astronomicæ, 1537, Joannis de Sacro Bosco Libellus de Sphæra [v. No. 4174, ante], and Stifel’s Arithmetica Integra, 1544 [v. p. post], wrote a commentary on Ptolemy’s de Predictionibus Astronomicis, 1553, and described some eclipses in Bonincontri de Rebus Cælestibus, 1540.
‘Il admettait cinq facultés de l’âme: *potentiam vegetativam, sentientem, appetitivam, locomotivam et rationalem*. La révélation divine était pour lui l’un des *critériis* de la certitude. Dans ses *Initia Doctrinæ Physicæ*, il n’admettait pas l’opinion d’Aristarque, démontrée depuis par Copernic: ‘C’est, dit-il, une doctrine contraire à la Bible, et qu’on peut d’ailleurs refuter par la physique, que la Terre et les planètes tournent autour du Soleil’. . . Il était convaincu avec Platon ‘que les étoiles ont été créés pour les yeux de l’homme’.—Dr. F. Hoefler.
- 11729 **MELDOLA** (Raphael; F.R.S.) CHEMISTRY of PHOTOGRAPHY, with 14 diagrams, cr. 8vo. cl., 3s (p. 6s) 1889, or 1901
A course of lectures, admirably illustrating the chemical principles underlying the subject.
- 11730 — The CHEMICAL SYNTHESIS of VITAL PRODUCTS and the INTER-RELATIONS between ORGANIC COMPOUNDS, Vol. I (all pub.): Hydrocarbons, Alcohols and Phenols, Aldehydes, Ketones, Carbohydrates and Glucosides, Sulphur and Cyanogen Compounds, Camphor and Terpenes, and Colouring-Matters of the Flavone Group, roy. 8vo. cl., 12s (p. £1. 1s nett) 1904
- 11731 — COAL, and what we get from it: Lectures at the London Institution, Jan. 20th, 1890, with 11 woodcuts, 12mo. cl., 1s 6d 1891
- 11732 — The POSITION and PROSPECTS of CHEMICAL RESEARCH in GT. BRITAIN, 8vo. sewn. 1s 1907
- 11733 **MELDRUM** (Andrew Norman) The DEVELOPMENT of the ATOMIC THEORY, PARTS 4-7, 8vo. sewn, 2s 6d Manchester, 1911
- 11734 **MELLANBY** (J.) GLOBULIN, with 16 diagrams, roy. 8vo. (pp. 36), sewn, 1s 6d [1905]
‘Globulin as used in this paper indicated a proteid insoluble in water but soluble in dilute solutions of electrolytes.’
- 11735 **MELLOR** (Joseph William, D.S.C.) CHEMICAL STATICS and DYNAMICS, including the Theories of Chemical Change, Catalysis, and Explosions, with 50 diagrams, cr. 8vo. cl., 4s (p. 7s 6d) 1904
- 11736 — HIGHER MATHEMATICS for STUDENTS of CHEMISTRY and PHYSICS, with special Reference to Practical Work, with 142 diagrams, 8vo. cl., 6s 6d (p. 12s 6d nett) 1902
- 11737 [MELVILLE (Rear-Adml. George Wallace, U.S.N.) ANNUAL REPORT of the CHIEF of the BUREAU of STEAM ENGINEERING for 1890, and ’98-1902, with numerous folding plates and other illustrations, 6 vols. 8vo. sewn, 10s 6d Washington, 1890-1902
- 11738 — REPORT of the U.S. NAVAL ‘LIQUID FUEL’ BOARD of TESTS conducted on the HOHENSTEIN WATER TUBE BOILER, showing the relative Evaporative Efficiencies of Coal and Liquid Fuel under Forced and Natural Draft Conditions, with 144 illustrations (including many folding plates), large impl. 8vo. sewn, with author’s inscr. to Francis Elgar, P.I.N.A., F.R.S., 8s 6d *ibid.*, 1904

- 584 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 11740 **MELSENS** (Louis Henri Frédéric) NOUVEAU PROCÉDÉ pour L'EXTRACTION du SUCRE de la CANNE et de la BETTERAVE, 8vo. (pp. 30), *sewn*, 2s
Bruxelles, 1849
- 11741 ——— SUR les PARATONNERRES, et sur quelques Expériences faites avec l'Étincelle d'Induction et les Batteries de Leyde, 8vo. (pp. 22), *sewn*, with *inscr. to Dr. Phipson*, 1s 6d [c. 1863]
- MELVILL** (Thomas) OBSERVATIONS on LIGHT and COLOURS—v. EDINBURGH ESSAYS, *ante*.
- 11742 **MÉMOIRES de MATHÉMATIQUE** et de **PHYSIQUE**, présentés à l'ACADÉMIE ROYALE des SCIENCES, par divers Scavans, et lus dans ses Assemblées; with numerous copperplates, 11 vols. 4to. *old calf (newly and neatly rebacked)*, £4. 4s 1750-86
Comprising a large number of original contributions, some by Lavoisier, Laplace, Monge, Coulomb, Lagrange, Sabatier, etc.
- ARAGO'S COPY:
- 11743 ——— de **PHYSIQUE** et de **CHIMIE**, de la SOCIÉTÉ d'ARCEUIL; with 2 plates and 3 folding tables, complete in 3 vols. 8vo. cl. (very rare), with bookplate of Prof. M. H. N. Story-Maskelyne, F.R.S., £5. 5s 1807-17
This society was originally founded by Laplace, Berthollet, Gay-Lussac, Biot, Humboldt, de Candolle, and Collet-Descostils at Berthollet's country house in Arcueil, near Paris, where its members were to meet twice a month.
The work contains memoirs by Laplace (1), Berthollet (20), Gay-Lussac (10), Thénard (10), Biot (9), Humboldt (3), Malus (3), Dulong (2), de Candolle (2), Descostils (2), Berard (1), and Arago (1). That by Laplace is 'Sur le mouvement de la lumière dans les milieux diaphanes'; among Gay-Lussac's is the important one 'Sur la combinaison des substances gazeuses' (vol. II, p. 207), in which he first expounded the law of volumes named after him. One of Dulong's memoirs gives an account of his discovery of chloride of nitrogen (the most powerful and unstable explosive known), which cost him an eye and three fingers.
The above copy belonged to F. J. D. Arago, a MS. note in vol. I, in Prof. Story-Maskelyne's handwriting, reading: 'M. Arago's sale. 1854. N.S.M.'
- 11744 **MEMOIRS (SCIENTIFIC)**, selected from the TRANSACTIONS of FOREIGN ACADEMIES of SCIENCE, and Learned Societies, and from FOREIGN JOURNALS, edited by RICHARD TAYLOR, F.S.A., with 59 plates (mostly folding and some coloured), besides woodcuts, 5 thick v., '37-52 [with the NEW SERIES]: ———: NATURAL PHILOSOPHY, edited by JOHN TYNDALL, F.R.S., and WILLIAM FRANCIS, F.R.A.S., with 5 plates, '53: ———: NATURAL HISTORY, edited by ARTHUR HENFREY and T. H. HUXLEY, F.F.R.S., with 12 plates, '53—7 vols. 8vo. *hf. calf gilt* (NICE COPY); VERY SCARCE, £5. 5s 1837-53
A COMPLETE SET of this IMPORTANT PUBLICATION, containing translations (in many cases the only ones) of a number of rare and important memoirs, some of which are now practically unobtainable, in the originals. They include, among others, the following authors: Arago, E. Becquerel, J. J. Berzelius, F. W. Bessel, J. B. Biot, R. W. Bunsen, A. L. Cauchy, R. J. E. Clausius, H. W. Dove, J. F. Encke, A. J. Fresnel, K. F. Gauss, P. A. Hansen, H. L. F. v. Helmholtz, Joseph Henry, M. H. Jacobi, J. Lamont, M. Melloni, O. F. Mossotti, Johannes Müller, F. E. Neumann, J. A. F. Plateau, H. V. Regnault, A. Seebeck, and Wilhelm Weber.
- 11745 ——— VOLS. I AND II ONLY, with numerous plates, 2 thick vols. 8vo. *hf. calf (binding rubbed)*; VERY SCARCE, £2. 2s 1837-41
The first two volumes contain some of the most important memoirs included in this publication.
- 11746 ——— of SCIENCE and the ARTS; or a GENERAL ABRIDGEMENT of the TRANSACTIONS published by the PRINCIPAL LEARNED and ECONOMICAL SOCIETIES of different Parts of the WORLD, by an M.R.C.P.L., 2nd Edition, with 39 copperplates, thick 4to. *old calf (one joint cracked)*, 10s 6d 1798
- MENABREA** (General Federigo Luigi, Minister of Victor Emanuel)—v. BABBAGE, *ante*.
- 11747 **MÉNARD** de la GROYE (François Jean Baptiste) OBSERVATIONS avec RÉFLECTIONS sur l'ÉTAT et les PHÉNOMÈNES du VÉSUVÉ, pendant une Partie des Années 1813 et 1814, 4to. (pp. 102), *sewn*, 3s 6d 1815
- 11748 **MEÑDELEJEFF** (Dmitri Ivanovitch; F.R.S.) GRUNDLAGEN der CHEMIE, aus dem Russischen übersetzt von L. JAWEIN und A. THILLOT, I. LIEFERUNG; with woodcuts, roy. 8vo. *sewn*, with author's *inscr.* as below, 2s 6d St. Petersburg, 1890
'Herrn Prof. Dr. Thorpe hochachtungsvoll D. MENDELEEFF.'—*Inscr. on cover*.
- 11749 **MENDENHALL** (Walter Curran) RECONNAISSANCE from FORT HAMLIN to KOTZEBUE SOUND, Alaska, by way of Dall, Kanuti, Allen, and Kowak Rivers, with 4 folding maps (3 coloured), and 6 plates, 4to. *sewn*, 3s 6d Washington, 1902
- 11750 ———, and Frank Charles SCHRADER: The MINERAL RESOURCES of the MOUNT WRANGELL DISTRICT, Alaska, with 4 maps (2 coloured, and folding), 6 plates, and 5 woodcuts, 4to. *sewn*, 3s 6d *ibidem*, 1903
- 11751 **MENELAI** [Alexandrini] SPHERICORUM Libri III, quos olim, collatis MSS. Hebræis et Arabicis, curavit EDMUNDUS HALLEY, S.R.S., Prefationem addidit GEORGIUS COSTARD, Sac., 8vo. *fine copy in contemporary calf*, 7s 6d Oxonii, sumptibus academicis, 1758
'... In it are also found the theorems that the sum of the three sides of a spherical triangle is less than a great circle, and that the sum of the three angles exceeds two right angles.'—Prof. Cajori.
- 11752 **MENGOLI** (Abate Pietro; da Bologna) NOVE QUADRATURE ARITHMETICÆ, seu de ADDITIONE FRACTIONUM, 4to. *old limp vellum (back slightly damaged and a few ll. water-stained, otherwise a sound and clean copy)*; RARE, £1. 1s Bononiæ, Jac. Montius, 1650
The author's first published work. It is rare, and was unknown to Poggendorf, Prof. de Morgan, Graesse, Brunet, and the author's biographer in *Biogr. Gén.*, nor was there a copy in the Libri Library.
The work is of interest as being entirely devoted to fractions. According to G. Libri, the author's *Geometrie Speciosa Elementa*, published in 1659, dealt with Newton's binomial theorem—a palpable mistake, as Sir Isaac Newton did not publish it until 1669 in his *De Analysis per Aequationes*.
- 11753 **MENNELL** (Henry T.), George Clayton ATKINSON, Robert Faulding WHEELER, pr., and Robert Eli HOOPPELL, pr.: METEOROLOGICAL REPORTS for 1860-1 and 1863-72, with folding tables, 15 parts in 1 vol. 8vo. *hf. maroon morocco gilt, uncut, t. e. g.*, 10s 6d Newcastle-on Tyne, 1858-73
Bound in is: Monthly Register of the Rain-Fall for 1856, and Notes on that for 1858 and 1859, 2 parts.
- 11754 **MERFIELD** (Charles J.; F.R.A.S.) DEFINITIVE ORBIT ELEMENTS of COMET 1899 I.: COMET 1899 I.—4to. (pp. 24), *sewn*, with author's *inscr.*, 2s 6d [Kiel], 1901
- 11755 ——— ORBIT ELEMENTS COMET 1., 1899 (SWIFT), 8vo. (pp. 16), *sewn*, 1s 1899

- 11757 **MENSCHUTKIN** (Nikolai Alexandrovitch, *Univ. St. Petersburg*) ANALYTICAL CHEMISTRY, translated from the 3rd German Edition, under the Supervision of the Author, by JAMES LOCKE, 8vo. *cl.* (o. p.), 12s (p. 17s nett) 1895
Not a practical treatise, but a severely theoretical one by this celebrated Russian chemist, written with a view to induce the student 'to draw logical conclusions from observed phenomena'.
'The author made valuable experiments on ethers and ether-acids, which furnished information with regard to the chemical equilibrium existing between different substances and to the time-rate of reaction.'—*Prof. E. v. Meyer.*
- 11758 ——— Über die AFFINITÄTSKOEFFIZIENTEN der ALKYLHALOIDE und der AMINE, 2 parts 8vo. (pp. 29), *sewn*, 2s Leipzig, 1890
- 11759 ——— Zur CHEMIE des STICKSTOFFS: über die BILDUNGSGESCHWINDIGKEITEN der AMINE und der ALKYLAMMONIUMSALZE, 8vo. (pp. 41), *sewn*, 2s *ibid.*, 1895
- 11760 ——— Zur FRAGE über den EINFLUSS CHEMISCH INDIFFERENTER LÖSUNGSMITTEL auf die REAKTIONSGESCHWINDIGKEITEN, 8vo. (pp. 11), *sewn*, 1s 6d *ib.*, 1900
- 11761 ——— THE VELOCITY of CHEMICAL CHANGE in the POLYMETHYLENE SERIES, 8vo. (pp. 21), *sewn*, with *author's inser.*, 2s 1906
- 11762 ———: N. A. MENSCHUTKIN. Nachruf von B. MENSCHUTKIN; with *portrait*, 8vo. (pp. 12), *sewn*, with *author's inser.*, 1s Berlin, 1908
- 11763 **MENZIES** (William, *Deputy Surveyor of Windsor Forest*) TREATISE on the SANITARY MANAGEMENT and UTILISATION of SEWAGE: comprising a System applicable to Cottages, Dwelling Houses, Public Buildings, and Towns; Suggestions relating to the Arterial Drainage of the Country, and the Water Supply of Rivers, with 9 coloured plates, 4to. *cl.*, 3s 6d (p. 12s 6d) 1865
- 11764 **MERAY** (Charles; *Univ. Dijon*) LEÇONS NOUVELLES sur l'ANALYSE INFINITÉSIMALE et ses APPLICATIONS GÉOMÉTRIQUES, PARTIES I à III, 3 vols. large 8vo. *hf. calf neat*, £1. 2s 6d (p. F. 33 nett *sewn*) 1894-7
CONTENTS:—I. Principes généraux: II. Étude monographique des principales Fonctions d'une seule Variable: III. Questions Analytiques Classiques.
- MERCATOR** (Nicolas) INSTITUTIONES ASTRONOMICÆ—v. KAUFMANN, No. 10013, *ante.*
- 11765 [MEREDITH (Nicholas)] DESCRIPTION and USE of a POCKET-CASE of MATHEMATICAL or DRAWING INSTRUMENTS: containing particularly a familiar Explanation of the Use of the Protractor, Plain Scale, Sector, Gunter's Scales, Marquoï's Parallel Scales, and the Proportional Compasses, with Plain Instructions for making several Kinds of SUN-DIALS, with 2 folding plates (one of SUN-DIALS), 8vo. (pp. 49), *sewn (title mounted)*, RARE; 6s [1791]
- 11766 **MERIDIAN CONFERENCE** (INTERNATIONAL), held at WASHINGTON, for the Purpose of FIXING a PRIME MERIDIAN and a UNIVERSAL DAY, October, 1884: PROTOCOLS of the PROCEEDINGS, large impl. 8vo. *sewn*, 4s Washington, 1884
- 11767 **MERRETT** (Henry S.) PRACTICAL TREATISE on LAND and ENGINEERING SURVEYING, LEVELLING, ESTIMATING QUANTITIES, etc., with the various INSTRUMENTS required, etc., 3rd Edition, with 41 plates (many folding), roy. 8vo. *cl.*, 5s (p. 12s 6d) 1881
- 11768 ——— FOURTH [FINAL] EDITION, with Appendix by GEORGE W. USILL, A.M.I.C.E., with 42 plates, roy. 8vo. *cl.*, 6s (p. 12s 6d) 1885
- 11769 ——— FIFTH [LAST] EDITION [unchanged], with Appendix by GEORGE W. USILL, with 42 plates, roy. 8vo. *cl.*, 6s 6d (p. 12s 6d) 1893
One of the best treatises on the subject.
- 11770 **MERRILL** (George Perkins, *U.S. National Museum*) TREATISE on ROCKS, ROCK-WEATHERING, and SOILS, with 25 plates and 42 illustrations, 8vo. *cl.*, 10s (p. 17s nett) New York, 1897
- 11771 **MERRILL** (Lt.-Col. William Emery, *U.S. Army*) IRON TRUSS BRIDGES for RAILROADS: Methods of calculating Strains, with a Comparison of the most prominent Truss Bridges, Bridge Computations, and the Economical Angles for Struts and Ties; 2nd Edition, with 9 lithographs, and 20 diagrams, 4to. *cl.*, 6s (p. £1. 5s) New York, 1870
The cheap truss bridge has on the whole taken the largest share in providing the literal holocaust of railway victims in the United States. Colonel Merrill of course writes in favour of a safe margin of strength.
- 11772 **MERRIMAN** (Mansfield, *Lehigh Univ.*) ELEMENTS of the METHOD of LEAST SQUARES, with diagrams, post 8vo. *cl.* (cover damaged, also somewhat browned and wormed); scarce, with *auto.* and *MS. notes* of Col. H. W. Hime, R.A., 4s 1877
- 11773 ——— TEXT-BOOK of the MECHANICS of MATERIALS, and of Beams, Columns, and Shafts, 9th Edition, with 84 diagrams, 8vo. *cl.*, 7s 6d (p. 17s nett) New York, 1901
- 11774 ——— TREATISE on HYDRAULICS, 5th Edition, enlarged, with 116 illustrations, 8vo. *cl.*, 6s 6d (p. 17s nett) *ibidem*, 1898
- 11775 ——— SEVENTH EDITION, revised, with 122 illustrations, 8vo. *cl.*, 7s 6d (p. 17s nett) *ib.*, 1901
- 11776 ———, and Henry Sylvester Jacoby, *Cornell Univ.*: TEXT BOOK on ROOFS and BRIDGES: Part I. STRESSES in SIMPLE TRUSSES, 4th Edition, with 105 diagrams: Part II. GRAPHIC STATICS, 3rd Edition, with 5 folding plates, and 38 diagrams: Part III. BRIDGE DESIGN, with 18 folding plates, and 68 other illustrations, 3 vols. 8vo. *cl.*, 16s 6d (p. £2. 2s nett) *ib.*, 1896-7-4
- 11777 **MERRYWEATHER** (George, M.D.) ESSAY explanatory of the TEMPEST PROGNOSTICATOR in the Building of the GREAT EXHIBITION, with *front.* of the 'prognosticator', 8vo. *cl.*, with *author's inser.*, 4s 6d 1851
- 11778 ——— ANOTHER COPY. *front missing*, but ORIGINAL SKETCH of the 'prognosticator' by the AUTHOR inserted instead, 8vo. *cl.* (cover stained), with *inscr.* to Sir Richard Westmacott, R.A., 6s 6d
- 11779 **MERZ** (Theodor) Über die RÜCKKEHR eines PLANETEN an den nämlichen geocentrischen Punct des Himmels: Inaugural-Dissertation, 4to. (pp. 20), *sewn*, 2s Göttingen, 1862
- 11780 **METALS** (INSTITUTE of), The JOURNAL of the, edited by G. SHAW SCOTT, Vols. I-II, with *portrait* of Sir W. H. White, plates, and other illustrations, 2 vols. 8vo. *sewn*, 12s (p. £2. 2s) 1909

- 11782 **MERSENNE** (Marin; *Ord. Min.*) *COGITATA PHYSICO-MATHEMATICA*, in quibus tam Nature quam Artis Effectus admirandi certissimis Demonstrationibus explicantur; with numerous woodcuts, 3 vols. 4to. *old calf, rebound (some ll. of v. I wormed, otherwise a sound and clean copy); rare, £5. 15s*
Parisii, A. Bertier, 1644-7
 'An exceedingly interesting collection, which is of very rare occurrence, and seldom to be found complete. Father Mersenne was in constant correspondence with all the most celebrated men of his time, e. g., Galileo, Torricelli, Pascal, Descartes, Fermat, Roberval, and others, and in this collection has published, besides his own writings, most important works and letters of his friends not to be found elsewhere, and including not only their discoveries but also their scientific quarrels.'—*Libri Catalogue*.
 The work consists of the following independent treatises, with separate titles: De Mensuris, Ponderibus et Nummis; Hydraulica Pneumatica; Ars Navigandi; Harmonia Theorica, Practica [Musical, et] Mechanica Phenomena; Ballistica et Acontismologia; Universæ Geometricæ, Mixtæque Mathematicæ Synopsis, et bini Refractionum Demonstratarum Tractatus; Novæ Observationes Physico-Mathematicæ, quibus accessit ARISTARCHUS SAMNUS de Mundi Systemate.
 Of special importance is his suggestion (Phænomena Hydraulico-Pneumatica, p. 96) of a reflecting telescope, by recommending the use of two concave mirrors opposed to each other.
 'The preface to the *Cogitata* contains a statement (possibly due to Fermat), that, in order that $2p-1$ may be prime, the only values of p , not greater than 257, which are possible are 1, 2, 3, 5, 7, 13, 17, 19, 31, 67, 127, and 257; the number 67 is probably a misprint for 61. With this correction the statement appears to be true, and has been verified for all except 21 values of p . . . The theory of perfect numbers depends directly on that of Mersenne's numbers.'—*W. W. R. Ball*.
- 11783 **MESSENGER** (The) of **MATHEMATICS**, edited by W. ALLEN WHITWORTH, pr., CHARLES TAYLOR, D.D., R. PENDLEBURY, and J. W. L. GLAISHER, F.R.S., from May, 1877 to April, 1899 ([NEW SERIES] Vols. VII—XXVIII), with plates, 22 vols. 8vo., v. 3-12 in 3 v. *hf. calf*, v. 13-26 in buckram, and the rest sewn (wanting No. 2 of v. XXVIII); SCARCE, £8. 8s 1878-99
- 11784 ——— VOL. I, with 3 plates (2 folding), and diagrams, 8vo. *hf. cl., uncut* (SCARCE), 10s 6d 1872
 Containing contributions by Arthur Cayley, Sir James Cockle, N. M. Ferrers, D.D., John Hopkinson, E. J. Routh, Sir G. G. Stokes, F.R.S., and the Editors.
- METEOROLOGICAL MAGAZINE** (Monthly)—v. SYMONS, post.
- 11785 ——— **OBSERVATIONS** recorded at SEVEN STATIONS in INDIA in 1888, corrected and reduced, published under the Direction of HENRY F. BLANFORD, F.R.S., folio, sewn, 3s 6d *Calcutta*, 1889
- 11786 ——— THE SAME for 1891, published under the Direction of JOHN ELIOT, F.R.S., folio, boards, 4s 6d *ibidem*, 1892
- 11787 ——— at STATIONS of the SECOND ORDER for 1878 and 1879, published by Direction of the Meteorological Council, 2 vols. roy. 4to. *hf. calf neat*, 10s 6d (p. £2. unbound) 1880-2
- 11788 ——— for the Year 1901, with map, roy. 4to. sewn, 8s 6d (p. £1. 2s 6d nett) *Edin.*, 1906
- 11789 ———, RESULTS of, in CEYLON, during 1892, folio, *hf. calf*, 3s *Colombo*, 1892-3
- 11790 ——— and RESULTS, 1893-1902 [made at the U.S. NAVAL OBSERVATORY, WASHINGTON, by D. HORIGAN, N. CAHILL, and W. HENDERSON], roy. 4to. *cl.*, 6s 6d *Washington*, 1903
- 11791 ——— **RECORD** (The): MONTHLY RESULTS of OBSERVATIONS made at the Stations of the Meteorological Society, with Remarks on the Weather, by WILLIAM MARRIOTT, from Dec. 1882 to June 1909 (Nos. 8-114), with charts and diagrams, 100 parts roy. 8vo. sewn (wanting nos. 74, 99, 101-2, 107, 109 and 111), 17s 6d (p. £7. 10s) 1882-1909
- AN UNUSUALLY COMPLETE SET:
- 11792 ——— **SOCIETY** (Royal), PUBLICATIONS of the (as under), COMPLETE from the beginning in 1861 to Jan., 1913, with the Meteorological Record, and INDEX to Q. J., 1882-1900, copiously illustrated with plates (including portraits), woodcuts, maps and charts, 85 vols. and several parts roy. 8vo. (5 v. 8vo.), everything to 1901 in 24 v. *hf. calf*, and the rest in parts as issued, £14. 14s (p. £50. unbound) 1861-1913
- CONTENTS:—PROCEEDINGS of the BRITISH METEOROLOGICAL SOCIETY, 5 vols. 8vo. *hf. calf gilt*, '61-71: QUARTERLY JOURNAL of the [later ROYAL] METEOROLOGICAL SOCIETY, Vols. I—XXXIX No. 1, roy. 8vo., v. 1-27 in 19 vols. *hf. calf*, and the rest in parts, '71-1913: THE METEOROLOGICAL RECORD, COMPLETE in 31 vols. roy. 8vo., v. 1-21 bound up with the Quarterly Journal and the rest in parts, '81-1911: INDEX to Q. J., 1882-1900, sewn: INDEX to the PUBLICATIONS of the ENGLISH METEOROLOGICAL SOCIETY, 1839-81, '81: LIBRARY CATALOGUE, 8vo. *cl.*, '91: Extra Publications: METEOROLOGY of ENGLAND, by JAMES GLAISHER, F.R.S., '68-85 and '96-1901, bound up with Q. J.: THE SNOW STORMS of Jan. 17th to 21st, 1881: HINTS to METEOROLOGICAL OBSERVERS, by W. MARRIOTT, '81, '87, '92: THE HISTORY of ENGLISH METEOROLOGICAL SOCIETIES, 1823-80, by G. J. SYMONS, F.R.S.: INSTRUCTIONS for the OBSERVATION of PHENOLOGICAL PHENOMENA, 2nd Ed., '83: LISTS of FELLOWS, etc. etc.
- 11793 ——— **ANOTHER SET**, COMPLETE from 1867 to 1904, copiously illustrated with plates (including portraits), woodcuts, and charts, 33 vols. roy. 8vo. and 8vo. in parts, sewn as issued, £7. 7s 1867-1904
- CONTENTS:—PROCEEDINGS of the BRITISH METEOROLOGICAL SOCIETY, Vols. IV—V, 8vo. '67-71: QUARTERLY JOURNAL of the [later ROYAL] METEOROLOGICAL SOCIETY, ed. by JAMES GLAISHER, F.R.S., 30 v. roy. 8vo., '71-1904. R.M.S.'s LIBRARY CATALOGUE, '91.
- 11794 ———, QUARTERLY JOURNAL of the, edited by a Committee of the Council, complete from 1877 to 1909 (Vols. III-XXXV), illustrated—in all 33 vols. roy. 8vo., vv. III-XIII in 8 vols. *hf. calf*, and the rest in parts as issued, £6. 6s (p. £33. unbound) 1877-1909
- 11795 ——— **ANOTHER SET**, from 1881 to 1899 and from 1906 to 1908 (Vols. VII-XXV and XXXII-XXXIV), with INDEX to v. VII-XXVI—23 vols. roy. 8vo., the first 6 vols. in 2, *hf. calf* (damaged) and *cl.*, and the rest in parts as issued, £1. 15s (p. £21. 7s) 1881-1908
- 11796 ——— A SERIES from 1877 to 1899 (Vols. III-XXV), illustrated, 23 vols. roy. 8vo., the first 10 v. *cl.*, and rest in parts as issued (wanting 6 parts), £2. 2s 1877-99

- 11798 **METCALFE** (Eng. Commander H. W., R.N.) ELEMENTARY STEAM ENGINEERING, with 144 diagrams. 8vo. *cl.*, 4s (p. 7s 6d nett)
- 11799 **METCALFE** (Capt. Henry, U.S. Army) COURSE OF INSTRUCTION IN ORDNANCE AND GUNNERY; 2nd Edition, thick cr. 8vo., with Atlas, containing 39 plates, atlas 4to.—2 vols. *cl.*, New York, 1891
(*o. p.*), 10s 6d
- 11800 **METEORS and SUNSETS**, observed by the ASTRONOMERS of the LICK OBSERVATORY, 1893-5, with 17 plates, 8vo. *cl.*, 3s 6d
Sacramento, 1895
- 11801 **METIUS** (Adrianus; recte ADRIAEN ADRIAENZON, nicknamed METIUS) ARITHMETICÆ ET GEOMETRIÆ PRACTICÆ, editio princeps; with fine portrait of General Count Tilly, by L. KILIAN, 1621 (ADDED), folding plate, woodcuts, and folding sexagesimal table, 4to. old boards (somewhat browned, otherwise a LARGE AND FINE COPY); RARE, £1. 5s
Francoeur, 1611
'There is no profligacy about this book. Sexagesimal fractions are taught, but not decimal ones.'—Prof. de Morgan.
The above edition is very rare, and was unknown to Prof. M. Cantor and Pogendorf (who both mention the edition of 1625 as the first), and to Prof. de Morgan and G. Libri, who only knew those of 1640 and 1646 respectively.
The last chapter treats of the making and use of the author's measuring staff ('visier-roed').
- 11802 ——— MAET-CONSTIGH LINIAEL, ofte PROPORTIONALEN RY ende PLATTEN PASSER, als mede de Stercken-Bouwinghe, ofte Fortificatie, onlanghs nyet het Latijn in onsen Nederlandschen Sprake overgheset door PETRUM BAARDT, by den Autheur vele vermeerderd; with 2 folding plates, woodcuts, and numerous diagrams, 2 vols. sm. 4to. in 1, boards (rare), 16s 6d
ibidem, 1626
An early variety of the slide rule, which differed somewhat from that of Edmund Gunter, published a few years later (*r. Nos.* 8745-50, ante).
'Statt der beyden Schenkel des galliänschen Proportionalzirkels auf deren jedem eine Linie der Absicht nach getheilt ist, braucht er nur eine Platte mit solchen getheilten Linien, legt an solche eine andre Linie in gehörigen Winkel und verrichtet, was die beyden Schenkel des Proportionalzirkel geben.'—A. G. Kästner.
- 11803 ——— PRIMUM MOBILE, Astronomicæ, Sciographicæ, Geometricæ, et Hydrographicæ, nova Methodo explicatum, Editio nova, INSTRUMENTIS MATHEMATICIS AUCTA a GUIL. BLÆU, Amsterdam, G. Bleu, 1633-2, 4 vv.: DE THEORIA ET MOTU SOLIS, *ib.*, *a. c.*, '33-5 vols. 4to. in 1, with very numerous woodcuts and diagrams; old vellum (RARE), £1. 2s 6d
Amsterdam, Guil. Blæu, 1633-2-3
These works have as collective title 'Opera omnia astronomica', and contain illustrations of scientific instruments of the author's own invention.
Vol. I of the first work treats of the 'Doctrina Sphaerica', pp. 100-142 of which deal with DIALLING; v. II. contains the Astrolabe, with a Canon of trigonometrical functions, v. III 'de Historia Astronomica', and v. IV 'de Astronomica Geometrica', containing on pp. 186-215 further chapters on DIALLING.
- 11804 **MEUSEL** (Eduard) DIE ZUSAMMENSETZUNG DER CHEMISCHEN ELEMENTE theoretisch und experimentell unter Beweis gestellt, 8vo. sewn, with inscr. to Sir E. Thorpe, F.R.S., 2s 6d
Liegnitz, 1902
'Diese Schrift will gegenüber den 76 Elementen der Chemie den Beweis für die Einheitlichkeit des Stoffs erbringen.'—Vorwort.
- 11805 **MEYER** (Antoine; Univ. Liège) CALCUL DES PROBABILITÉS, publié sur les Manuscrits de l'Auteur par FRANÇOIS FOLIE, roy. 8vo. *hf. green calf gilt* (scarce), 10s 6d
[Liège, 1874]
'Cet ouvrage de Meyer est un résumé très-complet des plus importants travaux de Bernoulli, Moivre, Laplace, Poisson, Gauss, Encke, Bienaymé, etc., sur le calcul des probabilités; et l'on peut hardiment affirmer qu'il n'existe aucun traité aussi vaste sur la matière, si l'on excepte la Théorie analytique des probabilités.'—Éditeur.
- 11806 ——— Quelques DÉVELOPPEMENTS D'ANALYSE COMBINATOIRE; with folding table, roy. 4to. (pp. 64), *hf. bound* (scarce), 6s 6d
Bruxelles, 1838
The author's first published work. He introduces in it a new system of symbols for the trigonometrical functions.
- 11807 **MEYER** (Edward) THE STRUCTURE AND INHERENT MOTIONS OF THE UNIVERSE, 8vo. (pp. 19), sewn, 1s 6d
Adelaide, 1901
- 11808 **MEYER** (Ernst v., Dresden) HISTORY OF CHEMISTRY from the earliest Times to the present Day, translated, with the Author's Sanction, by GEORGE MCGOWAN, thick 8vo. *cl.*, 6s 6d (p. 15s nett)
1891
The best modern history of chemistry.
- 11809 **MEYER** (Heinrich) DAS FRANZÖSISCHE DECIMAL-SYSTEM in Hinsicht auf Münzen, Maasse und Gewichte, nebst einer gründlichen Anweisung über die richtige Berechnung der Münzsorten gegen einander, 8vo. boards, 3s 6d
Halberstadt, 1808
The outcome of the proclamation that French weights and measures had henceforward to be used in the newly conquered Kingdom of Westphalia.
- 11810 **MEYER** (J.) GEOLOGISCHE BRIEFE aus und über die SCHWEIZ, 8vo. (pp. 366), *hf. calf neat*, as good as new (last l. stained), 4s
Leipzig, 1858
- 11811 **MEYER** (Julius; Univ. Breslau) DAS ATOMGEWICHT DES FLUORS; with 3 illustrations, roy. 8vo. (pp. 12), sewn, 1s
Hamburg [1903]
- 11812 **MEYER** (Lothar Julius, Univ. Tübingen) DIE MODERNEN THEORIEN DER CHEMIE und ihre Bedeutung für die chemische Statik, 2. umgearbeitete Auflage; with plate, 2 parts 8vo. sewn, 2s (p. M. 8.50)
Breslau, 1872
- 11813 ——— MODERN THEORIES OF CHEMISTRY, trans. from the 5th German Edition by P. PHILLIPS BEDSON and W. CARLETON WILLIAMS, with folding chart, thick 8vo. *cl.* (*o. p.*) 8s 6d (p. 18s) 1888
- 11814 ——— ANOTHER COPY, with the folding chart linen-mounted, *hf. calf neat* (title stamped), 9s
A standard work of well-known merit, and especially valuable for the chapters on the Periodic Law and the atomic weights of elements, in the investigation of which the author collaborated with Prof. Mendelejeff.
- 11815 **MEYER** (M. Wilhelm) DIE LEBENS-GESCHICHTE DER GESTIRNE in Briefen an eine Freundin; with 3 plates and 46 other illustrations, cr. 8vo. sewn, 2s (p. M. 4)
Jena, 1887
- 11816 **MEYER** (Oskar Emil, Univ. Breslau) DIE KINETISCHE THEORIE DER GASE, in elementarer Darstellung mit mathematischen Grundsätzen, 2. umgearbeitete [neueste] Auflage, 8vo. boards, 8s (p. M. 12 unbound)
Breslau, 1899
Latest edition of one of the best modern text-books on the subject.

- 11818 **MEYER (Victor; Univ. Heidelberg)** PROBLEME der ATOMISTIK, roy. 8vo. (pp. 15), *sewn, with inscr. to Sir E. Thorpe, F.R.S.*, 1s 6d Leipzig, 1895
- 11819 —, und Paul **JACOBSON**: LEHRBUCH der ORGANISCHEN CHEMIE; *with woodcuts, 2 thick vols.* 8vo. in 3, *vol. I in hf. German calf gilt, and the rest sewn as issued*, £2. 2s (p. M. 70.50 *ibid.*, 1893-1903 sewn)
- INHALT:—I. Allgemeiner Teil. Verbindungen der Fettreihe. II. Cyclische Verbindungen, Naturstoffe, bearbeitet von C. Harries und A. Reissert. 1. Einkernige isocyclische Verbindungen. 2. Die Gruppe der mehrkernigen Benzolderivate.
- 11820 —: **LUNGE (Georg) VICTOR MEYER** [Nekrolog]; *with portrait*, 4to. (pp. 3), *unbound, with Berlin, 1897*
- 11821 **MEYER (Wilhelm)** MÉMOIRE sur la GRANDE COMÈTE AUSTRALE du Mois de Février, 1880, roy. 4to. (pp. 36), *sewn, 2s 6d Genève, 1882*
- The author identified the comet of 1880 with that of 1843, and assigned it a 37-year period.
- 11822 **MIALL (Louis Compton, F.R.S., Univ. Leeds)** The GEOLOGY, NATURAL HISTORY, and PRE-HISTORIC ANTIQUITIES of CRAVEN in YORKSHIRE, *with coloured plate of sections, and geological map*, roy. 4to. *cl.*, 4s Leeds, 1878
- 11823 **MICHAËLIS (W.)** APPAREILS servants à déterminer la RÉSISTANCE à la TRACTION et à la COMPRESSION des CEMENTS et des MORTIERS; *with 2 plates*, roy. 8vo. (pp. 16), *sewn, 1s 6d Liège, s. d.*
- 11824 **MICHAUD (L.)** HISTOIRE COMPLÈTE des TÉLÉGRAPHES depuis leur Origine jusqu'à nos Jours: Origine, Télégraphes Aériens, Electricité et Magnétisme, Piles Voltaïques, Divers Systèmes de Télégraphes Electriques, Télégraphes Suisses; *with 2 folding plates and map*, 12mo. *hf. cl.*, 6s 6d Genève, 1853
- Interesting as an early history of the subject, beginning with Guillaume Amontons's heliograph, discovered c. 1690.
- 11825 **MICHELL (Lorenzo, Bolognese)** NUOVA INVENZIONE di una MACCHINA MARITTIMA per trovare l'ANGOLO di DERIVA; *with folding etched plate*, 8vo. (pp. 10), *sewn (rare)*, 8s 6d Bologna, 1776
- 'L'angolo di deriva è quello che fa la chiglia colla linea segnata dalla nave (route)'.—Riccardi. There was no copy of this pamphlet in the Scott Library—one of the most complete collections of books on naval architecture.
- 11826 **MICHELL (John; pr., Queen's Coll., Cantab., F.R.S.)** CONJECTURES concerning the CAUSE, and Observations upon the PHENOMENA of EARTHQUAKES, particularly the great one of Nov. 1, 1755, at LISBON, etc., *with folding plate*, 4to. (pp. 71), *sewn (rare)*, 8s 1760
- 'Putting forward the theory of their origin through the elastic force of subterraneanly generated steam'.—D. N. B.
- 'As far back as 1700, in a remarkable and well-known paper on Earthquakes, John Michell gave a clear account of the stratified arrangement of the rocks of England'.—Sir A. Geikie.
- 11827 — TREATISE of ARTIFICIAL MAGNETS; in which is shewn an easy and expeditious Method of making them, superior to the best Natural ones, and a Way of improving the Natural ones, and of changing their Poles, with Directions for MAKING the MARINER'S NEEDLES, etc. etc., 2nd Edition, improved, *with folding plate*, 8vo. (pp. 78), *sewn (rare)*, 10s 6d Cambridge, 1751
- 'Describing the mode of making artificial magnets by 'double touch', and enunciating the law of variation of magnetic action according to inverse squares of distances'.—D. N. B.
- 11828 **MICHELL (Stephen)** MINE DRAINAGE: a Complete and Practical Treatise on Direct-Acting Underground Steam Pumping Machinery, with Description of the best known Engines . . . and their Merits compared with other Pumping Machinery, etc., *with 137 illustrations (including many linen-mounted folding plates)*, 8vo. *hf. morocco neat, 6s* (p. 15s in *cl.*) 1881
- 11829 — SECOND [LATEST] EDITION, rewritten and enlarged, *with 247 illustrations (including 15 folding plates)*, roy. 8vo. *cl.*, 15s (p. £1. 5s nett) 1899
- 11830 **MICHELOTTI (Francesco Domenico)**, *Univ. Turin, teacher of Daniel Bernoulli* SPERIMENTI IDRAULICI, principalmente diretti à confermare la Teorica, e facilitare la Pratica del MISURARE le ACQUE CORRENTI, con VOLUME SECONDO, in cui, oltre alle Nuove Sperimente, si contengono le Risposte dell' Autore ad alcuni celebri Matematici d'Italia, e due Esercitazioni Analitiche: una Nuova Teoria delle Progressioni e Proporzioni Geometriche, ed un Esame delle Equazioni dette Irreducibili di Terzo Grado; *with fine portrait on copper of King Charles Emanuel I. of Sardinia, 11 folding copperplates, and 7 folding tables*, 2 vols. 4to. *fine copy in contemporary hf. calf (rare)*, 16s Torino, 1767-71
- 11831 — ANOTHER COPY, 2 vols. *contemporary tree-calf gilt (fine copy)*, 17s 6d
- 'Re Carlo Emanuele gli procurò il modo di eseguire con appositi apparecchi gli sperimenti esposti in questa pregevole opera. Fra i quali meritano speciale menzione l'esperienze fatte cogli strumenti usati per misurare la velocità dell'acque, rilevandone i difetti e proponendo all' uopo utili perfezionamenti'.—Riccardi.
- 11832 **MICHELSON (Albert Abraham, Univ. Chicago)** LIGHT WAVES and their USES, *with 3 coloured spectrum plates and 108 smaller illustrations*, 8vo. *cl.*, *with auto. of F. J. Jervis-Smith, pr., F.R.S.*, 6s 6d (p. 10s nett) Univ. Press, Chicago, 1903
- Containing valuable chapters on interference methods, and their application, light waves as standards of length, the ether, etc. etc.
- The author, in conjunction with Prof. Frank Morley, made the famous experiment on ether in relation to motion, from which Einstein, Lorenz and Minkowski developed the Principle of Relativity.
- 11833 **MIETHE (Adolf, Charlottenburg)** OPTIQUE PHOTOGRAPHIQUE sans Développements Mathématiques; traduit par A. NOAILLON et V. HASSREIDTER; *with 2 plates, and 72 other illustrations*, roy. 8vo. *sewn, 2s* 1896
- 11834 **[MIGNOT de MONTIGNY (Étienne, de l'Académie des Sciences)]**, RECUEIL de MÉMOIRES et d'OBSERVATIONS sur la FORMATION et sur la FABRICATION du SALPÊTRE, par les Commissaires nommés par l'Académie pour le Jugement du Prix du Salpêtre, publié par; *with 3 folding copper-plates, 8vo. old calf gilt (RARE)*, £1. 1s 1776
- A collection of memoirs by L. Lemery, F. Pourfour du Petit, Elie Bertrand, etc. etc., and one by LAVOISIER, 'Sur l'Existence de l'Air dans l'Acide Nitreux, et sur les Moyens de décomposer et de recomposer cet Acide'. There are also Extracts from the Works of Glauber and Stahl, and Instructions on the Construction and Working of Nitrate Works by the Swedish Ministry of War.

- 11836 **MICROSCOPICAL JOURNAL** (Monthly): TRANSACTIONS of the ROYAL MICROSCOPICAL SOCIETY, and Record of Histological Research at Home and Abroad, complete from its beginning in 1869 to its conclusion in 1877, edited by HENRY LAWSON, M.D., F.R.M.S., with numerous fine plates, and woodcuts, 18 vols. 8vo. in 10, *hf. calf*, £1. 12s 6d 1869-77
- 11837 ——— ANOTHER SET, 18 vols. *cl.* (SOUND SET), £1. 15s
This forms the forerunner of the Journal of the Royal Microscopical Society (*q. v. infra*), and contains contributions by JOHN MAYALL, JUN. (on Immersion Objectives), M. NACHET, F. H. WENHAM (on the Construction of Object Glasses), etc. etc. etc.
- 11838 ——— SOCIETY (ROYAL), JOURNAL OF THE, containing its TRANSACTIONS and PROCEEDINGS, with other Microscopical Intelligence, complete from the beginning in 1878 to 1909, with numerous fine lithographs and woodcuts, 32 vols. 8vo. uniformly bound in *hf. calf gilt, cl. sides (mostly newly bound)*; A FINE SET (SCARCE), £14. 14s (p. £52. 15s nett unbound) 1878-1909
- 11839 ——— ANOTHER SET, COMPLETE from the beginning in 1878 to April, 1902, 31 vols. 8vo. uniformly bound in *hf. morocco gilt*, and 50 parts, *sewn as issued*, £9. 9s 1878-1902
- 11840 ——— THE SAME, from the beginning in 1878 to April, 1910 (No. 195), *vol. I in cl., and the rest in parts as issued (wanting nos. 91, 95, 96, and 177)*, £6. 6s (p. £52. 10s nett) 1878-1910
A publication of well-known importance, valuable for its numerous contributions to microscopical optics. These include the classic articles by Prof. Ernst Abbe on the relation between numerical aperture and resolution, which caused a revolution in the manufacture of microscopical objectives, gave the death-blow to the high-power objectives with empty magnification then in vogue, and formed the starting-point of modern microscopical optics. Vol. I contains also a description of Prof. Abbe's Apertometer by Dr. Carl Zeiss.
- 11841 ——— : QUARTERLY JOURNAL OF MICROSCOPICAL SCIENCE, edited by EDWIN LANKESTER, M.D. and GEORGE BUSK, F.F.R.S., COMPLETE from its beginning in 1853 to 1868 [1ST SERIES, 8 v., and 2ND SERIES, vv. 1-8], with numerous plates (many finely COLOURED), and woodcuts, 16 v.: TRANSACTIONS of the MICROSCOPICAL SOCIETY of LONDON, NEW SERIES, Vols. 1-16, with numerous plates (many finely COLOURED), 16 v., 53-68—in all 32 vols. 8vo. in 16, *hf. calf gilt, mostly newly bound (VERY SCARCE)*, £7. 10s 1853-68
A complete set of the New Series of the Transactions. They were incorporated after 1868 with the Monthly Microscopical Journal.
They contain original contributions by Dr. L. Beale, Dr. W. B. Carpenter, F.R.S., Dr. W. Gregory and R. K. Grenville (on Diatoms), S. Highly (on microphotography, etc.), T. H. Huxley, F.R.S., Lord Lister, F.R.S., T. Maltwood (on his 'Finder'), M. Nacet, J. T. Quekett, F.R.S., J. Ralfe (on Diatoms), F. H. Wenham (on his Binocular Microscope, etc.), Sir Charles Wheatstone, F.R.S. (on Binocular Microscopes), and many other authorities.
- 11842 **MIDDLETON** (Conyers, *pr.*; *Woodwardian Prof., Cantab.*) ORATIO de NOVO PHYSIOLOGIÆ EXPLICANDÆ MUNERE, ex celeberrimi Woodwardi Testamento instituto; sm. 4to. (pp. 29), *sewn, Londini, 1732* 6s 6d
In 1731 Middleton was appointed first Woodwardian professor by the executor of the founder, and delivered an inaugural address in Latin, pointing out the services which might be expected from a study of fossils in confirming the history of the Deluge.—D. N. E.
- 11843 **MIDDLETON** (Reginald Empson, M.I.C.E.) WATER SUPPLY: a Student's Handbook on the Conditions governing the Selection of Sources and the Distribution of Water, with 4 folding plates and 66 diagrams, sq. 8vo. *cl.*, 5s 6d (p. 8s 6d nett) 1903
- 11844 **MIERS** (Sir Henry Alexander, F.R.S.; *Principal Univ. London*) ENQUIRY into the VARIATION of ANGLES observed in CRYSTALS; especially of Potassium-Alum and Ammonium-Alum, with plate and 21 other illustrations, roy. 4to. (pp. 65), *sewn, with author's inscr.*, 3s 1903
- 11845 ——— NOTE on the CRYSTALLIZATION of POTASSIUM BICHROMATE, plate, 8vo. (pp. 3), *sewn, with author's inscr.*, 1s 1908
- 11846 ——— RAMMELSBERG MEMORIAL LECTURE, with portrait, 8vo. (pp. 43), *sewn*, 1s 6d 1900
- 11847 ———, and Jacques CHEVALIER: On the CRYSTALLIZATION of SODIUM NITRATE; On the CRYSTALLIZATION of POTASH ALUM, 8vo. (pp. 20), *sewn, with author's inscr.*, 1s 6d 1906
- 11848 ———, and Florence ISAAC: The REFRACTIVE INDICES of CRYSTALLISING SOLUTIONS with especial Reference to the Passage from the Metastable to the Labile Condition, with 10 diagrams, 8vo. (pp. 42), *sewn, with author's inscr.*, 1s 6d 1906
- 11849 ——— The SPONTANEOUS CRYSTALLIZATION of BINARY MIXTURES: EXPERIMENTS on SALOL and BETOL, with 2 diagrams, impl. 8vo. (pp. 30), *sewn, with author's inscr.*, 2s 1903
- 11850 ——— On the SPONTANEOUS CRYSTALLISATION of MONOCHLORACETIC ACID, and its MIXTURES with NAPHTHALENE, with 9 illustrations, roy. 4to. (pp. 41), *sewn*, 2s 1909
- 11851 ——— The SPONTANEOUS CRYSTALLISATION of SUBSTANCES which form a CONTINUOUS SERIES of MIXED CRYSTALS, MIXTURES of NAPHTHALENE and β -NAPHTHOL, 8vo. (pp. 10), *sewn*, 1s 1908
- 11852 **MIGOUT** (J. C.), and Claude Lucien BERGERY: ESSAY upon the THEORY of GUN CARRIAGES, and all Wheel Carriages in Use with Artillery, translated by MAJOR P. J. BEGBIE, with 2 folding plates, 8vo. *cl.*, 5s Madras, 1849
- 11853 **MILITÄR-GEOGRAPHISCHES INSTITUT**, MITTHEILUNGEN des k. k., herausgegeben auf Befehl des k. k. REICHS-KRIEGS-MINISTERIUMS, BAND IV-XIV, XVII und XXII; with numerous plates of geodetic instruments etc., and maps, 13 vols. roy. 8vo. *sewn (wanting plates to v. VII)*, 10s 6d Wien, 1884-1902
- 11854 **MILLAR** (James) NEW COURSE of CHEMISTRY . . . delivered in a Familiar and Intelligible Manner: the Furnaces, Vessels, and Instruments described, and the Preparations of several Medicines laid down, etc. etc., with 5 copperplates, 8vo. *old hf. calf*, 7s 6d 1754
Containing at end 'Experiments of Curiosity and Amusement' (pp. 51).

- 11856 **MILLER** (Dayton Clarence, *Case School, Cleveland*) LABORATORY PHYSICS, with 182 illustrations. 8vo. *cl.*, 5s (p. 8s 6d) Boston [Mass.], 1903
- 11857 **MILLER** (George Abram; *Univ. Illinois*) A NEW CHAPTER IN TRIGONOMETRY, 8vo. (pp. 9), 1s 6d 1906
 'Exhibiting useful points of view by employing some elementary theorems of group theory in the study of trigonometric functions.'
- 11858 **MILLER** (Hugh) The CRUISE of the BETSEY; or a Summer Ramble among the Fossiliferous Deposits of the Hebrides; with RAMBLES of a GEOLOGIST, first edition, with map, post 8vo. *cl.*, 3s 6d Edin., 1858
- 11859 — My SCHOOLS and SCHOOLMASTERS; or the Story of my Education, 7th Edition, post 8vo. *cl.*, 3s ibidem, 1857
 'There is a real genial fire in the book, everywhere nobly tempered down into peaceful, radical heat, which is very beautiful to see. Luminous, memorable. All wholesome, strong, and breezy.'—*T. Carlyle*.
- 11860 — SKETCH BOOK of POPULAR GEOLOGY; with Preface on the Progress of Geological Science within the last Two Years, by MRS. [LYDIA] MILLER, first edition, with 4 woodcuts, post 8vo. *cl.*, 3s ib., 1859
- 11861 — The TESTIMONY of the ROCKS; or Geology in its Bearings on the Two Theologies, Natural and Revealed, first edition, with numerous woodcuts, post 8vo. *cl.*, 4s ib., 1857
- 11862 **MILLER** (John A.) The PRACTICAL HANDBOOK for the WORKING MINER and PROSPECTOR, and MINING INVESTOR [with Glossary of Mining Terms], with 34 woodcuts, cr. 8vo. *cl.*, 3s 6d (p. 7s 6d) 1897
- 11863 **MILLER** (Patrick, of *Dalswinton*). A SHORT NARRATIVE of FACTS relative to the INVENTION and PRACTICE of STEAM-NAVIGATION by the late, drawn up by his Eldest Son PATRICK MILLER, 8vo. (pp. 15), *hf. cl.*, uncut, with *inscr.* and MS. CORRECTIONS by the Editor (SCARCE), 12s 6d [Edin., 1825]
 This pamphlet claims for Patrick Miller the invention of practical steam navigation against the rival claims of James Taylor and William Symington.
 'He made his celebrated experiment on the lake of Dalswinton House with a double boat, 25 feet long and 7 feet broad, fitted with a steam engine made by Andrew Symington'.—*D. N. B.* Symington's engine had two brass cylinders 4 inches in diameter, and is now stated to be in Glasgow University Museum. Added are two pamphlets: Symington's own account, and one on a proposed Symington Memorial.
- 11864 **MILLER** (S.) An INQUIRY into the CAUSE of MOTION; or a General Theory of Physics, grounded upon the Primary Qualities of Matter, with 7 folding plates, 4to. boards, uncut (rare), 12s 6d 1781
 A mechanical paradox directed against Newton's laws. Matter the author supposes to consist of two kinds of particles, one inert and the other elastic, and that the heavenly bodies act by the continual emission of elastic matter—an Eighteenth Century adumbration of radioactivity.
- 11865 **MILLER** (Willet G.) MINERALS, and how they occur, with front., and 193 illustrations, cr. 8vo. *cl.*, 2s 6d Toronto [1906]
- 11866 **MILLER** (William) THE HEAVENLY BODIES; their Nature and HABITABILITY, cr. 8vo. *hf. polished morocco gilt. t. e. g.* (as good as new), with bookplate of *Wilson Noble*, 6s 1883
 'The irresistible conclusion is that we can hold life to exist only upon the Earth.'—p. 843.
- 11867 **MILLER** (William Allen, F.R.S.) ELEMENTS of CHEMISTRY, copiously illustrated, 3 thick vols. 8vo. *hf. calf*, 6s 6d (p. £3. 16s 6d) 1867-78-67
 CONTENTS:—Part I: CHEMICAL PHYSICS, 4th Ed., '67; Part II: INORGANIC CHEMISTRY, 6th [last] Ed., with Additions, by CHARLES E. GROVES, '78; Part III: Organic Chemistry, 3rd Ed., '67.
- 11868 — Part III: ORGANIC CHEMISTRY, Section I [all pub.]: Hydro-carbons, Alcohols, Ethers, Aldehydes, and Paraffinoid Acids, 5th [last] Ed., revised and re-written by H. E. ARMSTRONG and CHARLES E. GROVES, F.R.S., with woodcuts, 8vo. (pp. 1079), *cl.* (o. p.), with auto. of *W. J. Russell, F.R.S.*, 6s (p. £1. 11s 6d) 1880
- 11869 — NOTE on the SPECTRUM of THALLIUM, 8vo. (pp. 4), *sewn*, 1s 1863
- 11870 — On SPECTRUM ANALYSIS, with 4 woodcuts, 8vo. (pp. 16), *sewn*, with *inscr.* to *Sir E. Frankland, F.R.S.*, 3s 6d 1862
 The author, in conjunction with Sir William Huggins, was one of the pioneers of spectrum analysis in this country.
- 11871 —, August Wilhelm v. HOFMANN, and Sir Edward FRANKLAND; F.R.S.: REPORT on Tenders for the Supply of PERCHLORIDE of IRON, and on Drs. Odling and Letheby's Observations on its Use as a Deodorising Agent, 8vo. (pp. 8), *sewn*, 1s 6d 1860
- 11872 **MILLIKAN** (Robert Andrews, *Univ. Chicago*), and John MILLS: SHORT UNIVERSITY COURSE in ELECTRICITY, SOUND, and LIGHT, with 253 illustrations, 8vo. *cl.*, 4s 6d (p. 8s 6d) Boston [Mass., 1908]
 'An attempt to present a complete logical development, from the standpoint of theory as well as experiment.'—*Preface*.
- 11873 **MILLINGTON** (John, C.E.) ELEMENTS of CIVIL ENGINEERING: an Attempt to consolidate the Principles of the various Operations of the Civil Engineer into one Point of View, with 9 folding plates containing 273 illustrations, roy. 8vo. *cl.*, uncut, 5s Philadelphia, 1839
 'This work is of high authority.'—*Allibone*. See also MAHAN, No. 11279, ante.
- 11874 — EPITOME of the ELEMENTARY PRINCIPLES of MECHANICAL PHILOSOPHY, divested of Mathematical Demonstrations, and a copious Account of the INVENTION, Progress, and present State of the STEAM ENGINE, with many practical Remarks on the Construction of Machinery, 2nd Edition, considerably augmented, with folding front., and 167 woodcuts, 8vo. boards, or, *cl.*, 5s 1830
 The author, who was an original fellow of the Astronomical Society, and vice-president of Dr. Birkbeck's London Mechanics' Institution, emigrated in 1829 to America, where he became professor of chemistry and natural philosophy at the William and Mary College, Williamsburg, Va.
- 11875 **MIREMONT** (Comte Meredyth de, F.R.S.) PRACTICAL METHODS in MODERN NAVIGATION for the ready SOLUTION of DAILY PROBLEMS at SEA, with coloured plate of signals, and diagrams, 8vo. *cl.*, 2s 6d (p. 4s nett) 1905

- 11877 **MILLER** (William Hallowes, F.R.S., *Prof. Mineralogy, Cantab.*) On the CONSTRUCTION of the NEW IMPERIAL STANDARD POUNDS; on the Comparison of the New Standards with the KILOGRAMME des ARCHIVES; and on the Construction of Secondary Standard Pounds, a Ten-Pounds Weight, a Kilogramme, and a Series of Troy Ounce Weights, roy. 4to (pp. 196), *sewn, with author's inscr. to K. A. Steinheil*, 8s 6d 1857
 'Another important work in which Miller had a large share was the reconstruction of the standards of length and weight which had been destroyed in 1834 when the Houses of Parliament were burnt. He gave an account of the operations for restoring the value of the standard of weight in the 'Philosophical Transactions' [*supra*].'—D. N. B.
- 11878 ——— ELEMENTARY TREATISE on the DIFFERENTIAL CALCULUS, 2 plates, 8vo. *hf. cl., or, cl., Cambridge*, 1833
 2s 6d
- 11879 ——— The ELEMENTS of HYDROSTATICS and HYDRODYNAMICS, 4th Edition, *with woodcuts, ibid.*, 1850
 8vo. boards, 2s
- 11880 ——— On the FORMS of some COMPOUNDS of THALLIUM, *with 4 diagrams*, 8vo. (pp. 3), 1865
sewn, 1s
- 11881 ——— TREATISE on CRYSTALLOGRAPHY, first edition, *with 10 plates*, 8vo. boards, *uncut Cambridge*, 1839
(scarce), 6s 6d
 'Miller developed a system of crystallography which was far more simple, symmetrical, and adapted to mathematical calculations than any which has yet been devised. Miller's system was published in 1839; it quickly obtained favour, and has more than maintained its ground with mineralogists.'—*Prof. Bonney, pr., F.R.S.*
 'His system gave expressions adapted for working all the problems that a crystal can present, and it gave them in a form that appealed at once to the sense of symmetry and appropriateness of the mathematician. . . He thus placed the keystone into the arch of the science of crystallography.'—*Prof. Maskelyne, F.R.S.*
- 11882 **MILLS** (Abraham, F.R.S.) Some ACCOUNT of the STRATA and VOLCANIC APPEARANCES in the NORTH of IRELAND and WESTERN ISLANDS of SCOTLAND, *with folding plate of views in Mull*, 4to. (pp. 28), *sewn*, 3s 6d 1790
- 11883 **MILLS** (Edmund James, F.R.S.) On the DETACHED COLORIMETER, and on COLORIMETRY, 8vo. (pp. 5), *sewn*, 1s 1879
- 11884 ——— DESTRUCTIVE DISTILLATION: a Manualette of the Paraffin, Coal Tar, Rosin Oil, Petroleum, and kindred Industries, 8vo. *cl.*, 1s 6d 1877
- 11885 ——— On the FIRST PRINCIPLES of CHEMISTRY, 8vo. (pp. 16), *sewn, with author's inscr.*, 1s 6d 1876
- 11886 ——— On a PORTABLE COLORIMETER, *with 2 illustrations*: On the RETARDING ACTION of SULPHATES, 8vo. (pp. 8), *sewn, with author's inscr.*, 1s 6d 1877
- 11887 ——— On STATICAL and DYNAMICAL IDEAS in CHEMISTRY, PART III: The ATOMIC THEORY, 8vo. (pp. 18), *sewn*, 1s 6d 1871
- 11888 ——— PART IV: On the IDEA of MOTION, 8vo. (pp. 8), *sewn, with author's inscription*, 1873
 1s 6d
- 11889 ———, and Frederick J. ROWAN, C.E.: FUEL and its APPLICATIONS, edited by C. E. GROVES, F.R.S., *with 3 plates (2 coloured)*, and 607 woodcuts, thick roy. 8vo. *cl.*, 12s (p. £1. 10s) 1889
- 11890 ——— ANOTHER COPY, *hf. brown calf gilt*, 13s
 Forming vol. 1 of Groves and Thorpe's 'Chemical Technology.'
- 11891 **MILLS** (John, F.R.S.) ESSAY on the WEATHER; with Remarks on the Shepherd of Banbury's Rules for judging of it's Changes, and Directions for preserving Lives and Buildings from the fatal Effects of Lightening, first edition, sm. 8vo. *contemporary hf. calf gilt (fine copy)*, 17s 6d 1770
 Bound up with the above is: Observations on Mount Vesuvius, Mount Etna, and other Volcanos, in a Series of Letters from SIR WILLIAM HAMILTON, F.R.S., with Explanatory Notes by the Author, hitherto unpublished, *with 5 copperplates and folding map*, 1772.
- 11892 ——— SECOND EDITION, improved, 12mo. *old calf (joints cracked)*, or, *sewn*, 8s 6d 1773
 Including Prognostics of the Weather taken from Vegetables and Animals; the Sun, Moon, and Stars; the Clouds, Mist; Rain; the Winds; and Changes of the Seasons. In his preface the author states that he delayed the publication of the book until the appearance of the work by 'my highly respected friend, Dr. Benjamin Franklin', of 'what he had before imparted to me concerning the affinity between lightning and the electrical fire', etc. etc.
- 11893 **MILNE** (David, F.R.S.E.) ESSAY on COMETS, which gained the First of Dr. Fellowes's Prizes, proposed to those who had attended the University of Edinburgh within the last Twelve Years, 4to. (pp. 190), boards, *uncut*, 4s
Edin., 1828
- 11894 **MILNE** (John, teacher of Mechanical Drawing, *Edin.*) PRACTICAL VIEW of the STEAM ENGINE, with Account of a MERCURIAL STATICAL DYNAMOMETER, and Results of the Draught of Horses, Quantum of FRICTION on RAILWAYS, etc., as proved by it [in English and French], *with 2 copper-plates (numbered III and IV)*, 8vo. *hf. cl., uncut (SCARCE)*, 10s 6d
Edin., 1830
 The author received the gold medal of the Highland Society of Scotland for the invention of his dynamometer.
- 11895 **MILNE** (John; F.R.S.) EARTHQUAKES, and other EARTH MOVEMENTS, *with 38 illustrations, and folding map*, cr. 8vo. *cl.*, 2s 6d (p. 5s) 1886
 This work first contains the now generally accepted classification of earthquakes, *i.e.*, earthquakes, earth tremors, earth pulsations, and earth oscillations.
- 11896 ——— NOTES on CRYSTALLOGRAPHY and CRYSTALLO-PHYSICS, *with diagrams*, 8vo. *cl.* (o. p.), *with MS. notes and correction by PROF. N. STORY MASKELYNE, F.R.S.*, 3s 6d 1879
- 11897 **MILNE** (John James, *pr.*) WEEKLY PROBLEM PAPERS, with Notes, for the Use of Students preparing for Mathematical Scholarships, etc., *with diagrams*, 16mo. *cl.*, 2s (p. 4s 6d) 1886
- 11898 ——— COMPANION to the WEEKLY PROBLEM PAPERS, *with diagrams*, cr. 8vo. *cl.*, 4s 6d (p. 10s 6d) 1888
- 11899 ——— SOLUTIONS of the WEEKLY PROBLEM PAPERS, cr. 8vo. *cl.*, 4s 6d (p. 10s 6d) 1885
- 11900 ———, and R. F. DAVIS: GEOMETRICAL CONICS: The Parabola, and the Central Conic, *with 103 diagrams*, cr. 8vo. *cl.*, 2s 6d (p. 4s 6d) 1894

- 11902 **MILNE** (Joshua; *actuary to the Sun Life Office*) TREATISES on the LAW of MORTALITY, and on ANNUITIES (Encyclopædia Britannica, 7th Edition), 4to. (pp. 50 + 39), *sewn, with author's inscription, 4s 6d*
 Joshua Milne's great work was the revision of the long-standing Northampton Tables on the basis of Dr. Heysham's Carlisle Tables, the result of which was a revolution in actuarial science. The above treatise is seemingly overlooked by D. N. B., which only speaks of his articles in the fourth edition of the Encyclopædia Britannica—unless that is a mistake.
- 11903 **MILNER** (Thomas, *pr.*) The GALLERY of NATURE: a Pictorial and Descriptive Tour through Creation, illustrative of the Wonders of ASTRONOMY, PHYSICAL GEOGRAPHY, and GEOLOGY, with 8 fine steel plates, 7 folding star-maps, and hundreds of woodcuts, roy. 8vo. *cl. gilt, uncut, 6s* 1846
- 11904 **MINCHIN** (George Minchin, F.R.S.) The STUDENT'S DYNAMICS; comprising Statics and Kinetics, with 145 diagrams, cr. 8vo. *cl.*, 2s 1900
- 11905 ——— TREATISE on STATICS, containing the Fundamental Principles of Electrostatics and Electricity, 2nd Ed., enlarged, with 273 diagrams, 8vo. *cl.*, 5s (p. 14s) Clarendon Press, Oxford, 1880
- 11906 ——— THIRD EDITION, greatly enlarged, with 315 diagrams, 2 vols. 8vo. *cl.*, 8s 6d (p. £1. 5s) *apud eandem, ibidem, 1884-6*
- 11907 ——— ANOTHER COPY, 2 vols., with auto. and numerous MS. notes, additions, and problems by F. J. JERVIS-SMITH, *pr.*, F.R.S., also the author's signature pasted in, 10s 6d
- 11908 ——— VOL. I ONLY: EQUILIBRIUM of COPLANAR FORCES, with 226 diagrams, 8vo. *cl.*, 3s (p. 9s) *a. e., ib., 1884*
 The third edition contains the following new chapters: Non-Coplanar Forces, Astatic Equilibrium, Green's Equation and Spherical Harmonics, and Electrostatics.
- 11909 ———, and J. B. DALE: MATHEMATICAL DRAWING, with 102 diagrams, 8vo. *cl.*, 5s (p. 7s 6d nett) 1906
- 11910 **MINERAL INDUSTRY** (The): its STATISTICS, TECHNOLOGY, and TRADE in the United States and other Countries, from the earliest Times to the End of 1893 (Vols. I-II), edited by RICHARD P. ROTHWELL, 2 vols. sq. roy. 8vo. *cl.* (SCARCE), £2. 2s *New York, 1893-4*
 An invaluable publication. The first volume is now out of print and SCARCE.
- 11911 ——— RESOURCES of the UNITED STATES, 1905, edited by DAVID T. DAY, 8vo. (pp. 1403), *U.S. Geol. Survey, Washington, 1906*
cl., 3s 6d
- 11912 ——— ——— ——— 1907, with 2 large folding maps in pockets, 2 vols. 8vo. (pp. 1640), *cl.*, 6s 6d *a. e., ib., 1908*
- 11913 **MINERALOGISCHE GESELLSCHAFT** zu ST. PETERSBURG (Russisch-Kaiserliche) VERHANDLUNGEN [in Russian and German], II. SERIE, Bd. I-IV und VI; with numerous plates (some folding), besides woodcuts, 5 vols. roy. 8vo. *sewn, £1. 1s* *St. Petersburg, 1866-71*
- 11914 ——— II. SERIE, IV. BAND; with 17 plates (some folding), and 25 woodcuts, roy. 8vo. *sewn, 5s* *ibidem, 1869*
- 11915 ——— : GEOLOGICAL SERIES (Materialyi dlya Geologii Rossii); with numerous plates and maps (many coloured and folding), besides woodcuts, 2 vols. roy. 8vo. *sewn, 7s 6d* *ib., 1869-70*
- 11916 **MINES**: CONGRÈS INTERNATIONAL des MINES et de la MÉTALLURGIE; with 60 illustrations (including coloured diagrams and plates), 8vo. *sewn, with auto. and MS. notes by Prof. Hilary Bauerman, F.G.S., 5s* *St.-Étienne [1900]*
 Containing: 'Progrès de la métallurgie du fer et de l'acier', by H. Humbert, G. Rocour, L. Babu, A. Tissot, etc.; 'L'aluminium à bon marché', by Heroult; and 'La cyanuration au Transvaal', by J. G. Bousquet, J. R. Williams, S. H. Pearce, etc.
- 11917 **MINIATURA**, TRATTATO di; per IMPARARE facilmente a DIPINGIERE SENZA MAESTRO, e la Dichiarazione di MOLTI SECRETI per FARE i più bei COLORI, con la MANIERA di FAR l'ORO BRUNITO, l'ORO in CONCHIGLIE, e la VERNICE della CHINA, etc., 12mo. *contemporary boards, uncut (rare), 15s* *Venezia, 1755*
 Valuable for containing many old receipts for making varnishes.
- 11918 **MINING**, The SCIENCE and ART of: Handbooks for Mining Students and Colliery Managers [with Mining Dictionary], 12 parts (Pt. I, 3rd Ed., and Pts. II-V, 2nd Ed.), in 2 vols. 8vo. *cl.*, 4s (p. 8s) *Wigan [1900]*
- THE COMPLETE SET:
- 11919 **MINING and MECHANICAL ENGINEERS** (NORTH OF ENGLAND INSTITUTE of), TRANSACTIONS of the, COMPLETE from the beginning in 1852 to its Conclusion in 1891, with numerous plates and woodcuts, 38 vols. roy. 8vo. *new hf. morocco neat (NICE SET)*; VERY SCARCE, £27. 10s *Newcastle-on-Tyne, 1852-91*
 After 1891 the above Transactions were merged in those of the Federated Institution of Mining Engineers (v. Nos. 11924-7, post)..
- 11920 ——— and **METALLURGY** (INSTITUTION of), TRANSACTIONS of the, Vols. XV-XVII, ed. by S. HERBERT COX and WILLIAM GOWLAND, with plates and numerous other illustrations, 3 vols. 8vo. *sewn, £1. 1s (p. £3. 3s nett)* 1906-8
- 11921 ——— and **QUARRIES**, 1902: SPECIAL REPORTS, prepared under the Supervision of WILLIAM M. STEWART, with numerous plates (some coloured), and maps, 4to. (pp. 1152), *cl.*, 9s *Washington, 1905*
- 11922 ———, **CIVIL**, and **MECHANICAL ENGINEERS** (CHESTERFIELD and DERBYSHIRE INSTITUTE of), TRANSACTIONS of the, complete from its beginning in 1871 to its Conclusion in 1889, with numerous plates of mining machinery and tools, and folding diagrams, etc., 17 vols. 8vo. *half calf gilt (NICE SET)*; SCARCE, £9. 9s [1871]-89
 After 1889 the above Transactions were merged in those of the Federated Institution of Mining Engineers (v. Nos. 11924-7, post)..

A VERY FINE SET, COMPLETE TO 1912:

- 11924 **MINING ENGINEERS (INSTITUTION** [*originally FEDERATED INSTITUTION*] of), **TRANSACTIONS** of the, edited by M. WALTON BROWN and others, complete from the beginning in 1889/90 to 1912 (Vols. I—XLIII), with *hundreds of plates (mostly folding), and numerous other illustrations*, with GENERAL INDEX to vols. I—XL—in all 45 vols. roy. 8vo., *the first 33 vv. in whole calf gilt, and the rest in parts as issued (a very fine set)*, £21. Newcastle-on-Tyne, 1890-1912
- 11925 ——— **ANOTHER SET**, COMPLETE from the beginning in 1889/90 to 1911 (Vols. I—XLI), with INDEX to vv. I—X—in all 42 vols. roy. 8vo., *the first 11 vv. in hf. calf neat, cl. sides, and the rest in parts as issued*, £16. 16s *ibidem*, 1890-1911
- 11926 ——— **ANOTHER SET**, COMPLETE from the beginning in 1889/90 to 1901/2 (Vols. 1-23), 23 vols. roy. 8vo., *the first 7 vv. hf. calf gilt, and the rest sewn as issued*, £10. *ib.*, 1890-1902
- 11927 ——— **ANOTHER SERIES**, from 1891/2 to 1901/3 (Vols. 3-23), with *numerous plates and other illustrations, and maps*, 21 vols. roy. 8vo. in parts, *sewn as issued*, £7. *ib.*, 1892-1902

This important periodical is one of the most valuable records of current work in mining, and is published in a great district where the most modern methods have always been employed.

- 11928 ——— **ENGINEERS (AMERICAN INSTITUTE of)**, **TRANSACTIONS** of the, from 1891-1901 and 1906-12 (Vols. 20-31 and 36-43), with *numerous fine folding diagrams, and woodcuts*, 20 v.: INDEX to vv. XXI—XXV, 1 v.—21 thick vols. 8vo. *original hf. morocco*, £10. 10s. New York, 1891-1912
- 11929 ——— Vol. XXX, thick 8vo. *original hf. morocco*, 7s 6d *ibid.*, 1900
- 11930 ——— **STUDENTS, JOURNAL** of the BRITISH SOCIETY of, COMPLETE from Jan., 1879 to 1910 (Vol. III No. 7—XXIX), with *numerous plates*, with INDEX to Titles of Papers in Vol. I—XX—26 vols. and 6 parts cr. 4to., vv. 3-13 in 3 vols. *hf. roan neat, and the rest in parts as issued* Sheffield, 1879—Bristol, 1910

Sets of this publication very seldom happen for sale, as only a very limited number are printed. It contains contributions by H. F. Bulman, W. S. Gresley, H. W. Hughes, Sir W. S. Harris, F.R.S., J. H. Merivale, R. A. S. Redmayne, L. F. Walker, and many other well-known mining engineers.

'The Journal is of great value as a book of reference and as a text-book to all concerned in the science and art of mining'.

Added to the above is a lithographed number of The Criterion Society, May 1st, 1878.

- 11931 ———, The **JOURNAL** of the BRITISH FEDERATED SOCIETY of, from the beginning in Oct., 1907 to June, 1909, with *plates and other illustrations*, 2 vols. cr. 4to. in 11 parts, *sewn as issued*, 7s 6d Bristol, 1907-9
- 11932 **MINKOWSKI (Hermann; Univ. Göttingen)** GESAMMELTE ABHANDLUNGEN unter Mitwirkung von ANDREAS SPEISER und HERMANN WEYL, herausgegeben von DAVID HILBERT, II. BAND; with *photogravure portrait, folding plate, and 34 other illustrations*, roy. 8vo. *sewn*, 9s (p. M. 16) Leipzig, 1911

Including the author's celebrated lecture 'Raum und Zeit'.

- 11933 ——— **GEOMETRIE der ZAHLEN, I. LIEFERUNG**, roy. 8vo. *sewn, with auto. of Prof. Lloyd Tanner, F.R.S.*, 4s (p. M. 8) *ibid.*, 1896

The author was the inventor of a quadrilinear system of coordinates, to correspond to the three dimensions of space and one of time, which has become of great importance in calculations in connexion with the Principle of Relativity, and problems of space and time.

- 11934 **MINNESOTA GEOLOGICAL and NATURAL HISTORY SURVEY: GEOLOGY, VOL. I of the FINAL REPORT**, by N. H. WINCHELL and WARREN UPHAM, with 43 *plates and maps (some coloured)*, and 52 *woodcuts*, roy. 4to. *cl., uncut*, 8s 6d Minneapolis, 1884
- 11935 ———: **PALEONTOLOGY**, by LEO LESQUEREUX, ANTHONY WOODWARD, N. H. WINCHELL, and others, with 40 *plates, 32 woodcuts, and coloured map*, roy. 4to. *cl., uncut*, 10s 6d *ib.*, 1895
- 11936 **MITCHELL (Alexander, M.I.C.E.)** ON SUBMARINE FOUNDATIONS, particularly the SCREW-PILE and MOORINGS, and an ACCOUNT of the MAPLIN SAND LIGHTHOUSE, by JOHN BALDREY REDMAN, M.I.C.E., with Abstracts of the Discussions, revised by CHARLES MANBY, SEC. I.C.E., with 5 *folding plates*, and 14 *woodcuts*, 8vo. (pp. 61), *sewn, with auto. of George Kenne, F.R.S. (scarce)*, 6s 6d 1848

'He became known as the inventor and patentee of the Mitchell screw-pile and mooring, a simple yet effective means of constructing durable lighthouses in deep water, on mud-banks and shifting sands, of fixing beacons, and of mooring ships. For a paper on his own invention [*supra*] he received the Telford silver medal. His system was generally approved of by engineers of eminence.—D. N. B.

- 11937 **MITCHELL (Charles Ainsworth, F.I.C.)** MINERAL and AERATED WATERS [with BIBLIOGRAPHY, 1684-1911], with 114 *illustrations*, 8vo. *cl.*, 5s 6d (p. 8s 6d nett) 1913

'Giving an outline of the early methods of making artificial mineral water, and tracing the gradual evolution of the primitive forms of apparatus first invented into the carbonating plant of the present day.'—Preface.

- 11938 **MITCHELL (John, F.C.S.)** MANUAL of PRACTICAL ASSAYING, first edition, 8vo. *cl.*, 3s 1846
- 11939 ——— **FOURTH EDITION** [greatly enlarged and partly rewritten], by SIR WILLIAM CROOKES, F.R.S., with 199 *illustrations*, thick 8vo. *cl.*, 5s (p. £1. 11s 6d) 1873
- 11940 ——— **FIFTH EDITION** [enlarged], with 188 *woodcuts*, thick 8vo. *cl.*, 8s 6d (p. £1. 11s 6d) 1881
- 11941 ——— **SIXTH [LAST] EDITION** [greatly enlarged and partly rewritten], with 201 *woodcuts*, thick 8vo. *cl.* (o. p.) 12s 6d (p. £1. 11s 6d) 1888

Still one of the best treatises on the subject.

- 11943 **MISCELLANEA CURIOSA**: a COLLECTION of some of the PRINCIPAL PHÆNOMENA in NATURE, accounted for by the Greatest Philosophers of this Age, being the most valuable DISCOURSES, read before the ROYAL SOCIETY, for the Advancement of Physical and Mathematical Knowledge; 2nd Edition, with Discourse of the Influence of the Sun and Moon on Humane Bodies, etc., by R. MEAD, F.R.S., also FONTENELLE'S Preface of the Usefulness of Mathematical Learning, with front. by v. d. Gucht, and numerous folding plates and map, 3 vols. post 8vo. *fine copy in old contemporary tree-calf* (RARE), £1. 15s

1708-27

Containing the following 'discourses' by EDMUND HALLEY, F.R.S.: Estimate of the Quantity of Vapours raised out of the Sea; True Theory of the Tides: Theory of the Variation of the Magnetic Needle, and the Cause of the Change; Historical Account of the Trade Winds and Monsoons; The Rule of the Decrease of the Height of the Mercury in the Barometer; the Measure of Gold upon Gilt Wire; Account of Dr. R. Hooke's Invention of the Marine Barometer; Proportional Heat of the Sun in all Latitudes; Degrees of the Mortality of Mankind; Discourse concerning Gravity; the Excellency of the Modern Algebra; Analogy of the Logarithmick Tangents to the Meridian Line; Facile Method for constructing the Logarithms; New Methods of finding the Roots of any Equations; Synopsis of the Astronomy of Comets; etc. etc., besides contributions by JOHN COLLINS, J. CRAIG, DAVID GREGORY, A. DE MOIVRE, SIR ISAAC NEWTON, JOHN WALLIS, and many others.

The map included in v. I is the earliest wind and current chart ever published.

- 11944 ——— ANOTHER COPY (Vol. I 3rd Ed., Vol. II 1st Ed., and Vol. III 3rd Ed.) with numerous folding plates, and map, 3 vols. post 8vo. *new hf. calf gilt (front. wanting)*, £1. 7s 6d 1726-03-27
- 11945 ——— VOLS. I AND II ONLY (Vol. I 3rd Ed. and Vol. II 2nd Ed.), with front. by v. d. Gucht, folding plates, and map, 2 vols. post 8vo. *contemporary calf extra (joints cracked) with bookplate of Prof. H. W. Lloyd Tanner, F.R.S.*, £1. 1s 1726-23

Containing the following meteorological contributions besides those mentioned above: Experiment on the Refraction of the Air, by J. Lowthrop; Scale of the Degrees of Heat; Letter concerning the Generation of Hail, Thunder, and Lightning, by John Wallis; Geometrical Dissertation concerning the Rainbow, by Edmund Halley.

- 11946 ———: or Entertainments for the Ingenious of both Sexes, containing ENIGMAS, PARADOXES, and MATHEMATICAL QUESTIONS, complete for 1734 and 1735, with 4 folding plates, and diagrams, 6 nos. in 1 vol. 8vo. *old calf (joints cracked)*, 7s 6d T. Gent, York, 1734-5

This publication was unknown to Lowndes and Watt. It includes: 'Of the Invention of the Method of Fluxions'.

- 11947 **MITCHEL** (Major-Gen. Ormsby Macknight, U.S. Army, Director Cincinnati Observatory) THE ORBS OF HEAVEN: a Popular Exposition of the great DISCOVERIES and THEORIES of MODERN ASTRONOMY, 4th Edition, with portrait of Galileo, and numerous plates and woodcuts, post 8vo. *cl.*, 2s 6d 1853

- 11948 ——— The PLANETARY and STELLAR WORLDS: the Great Discoveries and Theories of Modern Astronomy, first American edition, with 17 plates of nebulae, post 8vo. *cl.*, 5s New York, 1848

- 11949 ——— POPULAR ASTRONOMY: a Concise Elementary Treatise, on the Sun, Planets, Satellites, and Comets, revised by L. TOMLINSON, with plates and diagrams, post 8vo. *cl.*, 2s 6d 1860

His lectures on celestial phenomena stirred an impressionable audience to the pitch of providing him with the means of erecting at Cincinnati the first astronomical observatory worthy of the name in that great country.'—Miss Agnes M. Clarke.

- 11950 **MITFORD** (Bertram) PLAIN and POPULAR EXPLANATION of the PENDULUM-EXPERIMENT, with 5 diagrams, 8vo. (pp. 23), sewn, 2s 1851

- 11951 **MITSCHERLICH** (Eilhard; Univ. Berlin, F.R.S.) LEHRBUCH der CHEMIE, 2. Auflage; with numerous woodcuts by Unzelmann, 2 vols. 8vo. *hf. calf*, 4s Berlin, 1834-40

- 11952 ——— DRITTE AUFLAGE (Bd. II 2. Auflage); with numerous woodcuts, 2 vols. 8vo. boards (sound copy), 5s *ibid.*, 1837-40

- 11953 ——— VIERTE [stark vermehrte und umgearbeitete] AUFLAGE; with numerous woodcuts, 2 vols. roy. 8vo. sewn, 6s *ib.*, 1844-7

LAST EDITION of the author's most important work, containing 'his important investigation of manganic and permanganic acids, his work on selenic acid, and on benzene and its derivatives. His successful attempts to prepare minerals artificially give further proof of the many-sidedness of the man, his greatest achievement of all being the discovery of isomorphism [to which he added that of dimorphism and polymorphism]. His *Lehrbuch der Chemie* is marked by originality both of form and contents.'—Prof. E. v. Meyer.

- 11954 **MITTHEILUNGEN** über Gegenstände des ARTILLERIE- und GENIE-WESENS, herausgegeben vom k. k. technischen und administrativen Militär-Comité, II—X. JAHRGANG; with numerous plates and woodcuts, 9 vols. 8vo. in 11, *hf. morocco gilt*, 17s 6d (p. M. 168 sewn) Wien, 1871-9

- 11955 **MIZAULD** [Latine MIZALDUS] (Antoine; M.D., 'le divin', astrologer, friend of Oronce Fine) AESCULAPII et URANIAE MEDICUM simul et ASTRONOMICUM ex Colloquio CONIUGIUM, Harmoniam Microcosmi cum Macrocosmo, siue Humani Corporis cum Cælo, paucis figurans, et perspicuè demonstrans: PLANETOLOGIA, REBUS ASTRONOMICIS, MEDICIS et PHILOSOPHICIS erudite referta: ex qua, Coelestium Corporum cum Humanis, et Astronomiæ cum Medicina Societas, et Harmonia (quam Prisci *ἰσσοπαθητικῆς* perappositè nuncuparunt—2 vols. 4to. in 1, with mystic vignettes on tiles, and woodcut initials; old white vellum (slightly browned, otherwise a FINE COPY); RARE, £1. 10s Lugd., Joa. Tornæsius, 1550—*ibidem*, M. Roy et L. Pesnot, 1551

- 11956 ——— HARMONIA COELESTIUM CORPORUM et HUMANORUM, Dialogis XI ASTRONOMICIS et MEDICE elaborata et demonstrata, editio princeps; handsomely printed in italics, large 12mo. boards (slightly wormed, otherwise a LARGE AND FINE COPY); RARE, £1. 1s

Lutetiae, Jacobus Kerver, 1555

The above first edition is very rare, the earliest mentioned by Graesse being 1558. It was reprinted in 1559 and 1592.

'De Thou dit que 'les écrits de Mizauld font paraître sa rare doctrine et son jugement exquis et qu'ils seront toujours estimés de ceux qui sont juges compétents en ces sortes de matières.' Dans le siècle suivant telle était la réputation de Mizauld qu'un libraire parisien eut le projet de réimprimer ses œuvres. . . La plupart des écrits de Mizauld est devenue extrêmement rare.'—Biogr. Gén.

- 11957 **MODEL** (Johann Georg, St. Petersburg) VERSUCHE und GEDANKEN über ein NATÜRLICHES oder GEWACHSENES SALMIAK, nebst Erörterung einiger von [Théodor] Baron [de Hénonville] gemachten Einwürfe über das persische Salz, 8vo. sewn, 4s Leipzig, 1758

- 11958 **MOEDEBECK** (Hermann W. L.) TASCHENBUCH zum praktischen Gebrauch für FLUGTECHNIKER und LUFTSCHIFFER; with 17 diagrams, 16mo. *cl.*, 2s Berlin, 1895

- 11960 **MOEBIUS (August Ferdinand; Univ. Leipzig)** De COMPUTANDIS OCCULTATIONIBUS FIXARUM per PLANETAS : Dissertatio Astronomica ; sm. 4to. boards, 5s 6d *Lipsiæ*, 1815
The author's first published work, which procured him the chair of professor-extraordinary in the University of Leipzig.
- 11961 — Die ELEMENTE der MECHANIK des HIMMELS, auf neuem Wege ohne Hülfe höherer Rechnungsarten dargestellt ; with 2 folding plates, 8vo. boards, uncut, 5s *ibidem*, 1843
An attempt to calculate planetary perturbations without the use of the calculus.
By his barycentric calculus he was a forerunner of Sir W. R. Hamilton in the invention of quaternions, and he 'generalised spherical trigonometry by letting the sides or angles of triangles exceed 180'.—*Prof. Cajori*.
- 11962 — LEHRBUCH der STATIK, II. THEIL (Gesetze des Gleichgewichts zwischen Kräften, welche auf mehrere mit einander verbundene feste Körper wirken) ; with folding plate, 8vo. sewn, 5s *ib.*, 1837
- 11963 **MOGGE (Jacob)** ALGEMEENE MANIER tot de PRACTIJK-OEFFENINGH der SONNE-WYSERS : nyt d'onfeylbare Gronden derselve Wetenschap, kort en klaerlijck voorgesteld ; title in red and black, and over 100 woodcuts and diagrams ; Lansberg [recte Laensbergh] (Philips van) BESCHRIJVINGH der VLACKE SONNE-WYSERS : in welke de waere Manier, om deselve op allerhande Vlackten te betrekken, volgens Wiskonstige Regulen geleert, ende door een groot Getal Vertoog-schetszen aangewesen werdt ; nieuwelijx oversien ende met noodige Byvoeging verrijckt door JACOB MOOGE ; title in red and black, and many woodcuts and diagrams—2 vols. folio in 1, old vellum (a few ll. browned, but a sound and tall copy copy) ; RARE, £2. 2s *Middelburgh*, 1675
Houzeau and Lancaster, who mention the first work under No. 11,524, mistakenly give the size as 8vo. It is quite distinct from the same author's 'Inleydinge der Sonne-Wysers', published in 1666 and 1671. The above work was never reprinted.
- 11964 — INLEYDINGE der SONNE-WYSERS, ende het BESCHRIJVEN van dien, hoemen op alderley Verboegeven Vlack, dat van de Son kan beschenen worden, een Sonne-wijser beschrijven sal, eerste druk ; with woodcuts and numerous diagrams, sm. folio, hf. bound (a few bottom lines shorn, but a sound and clean copy) ; RARE, £1. 1s *ibidem* [1666]
Houzeau-Lancaster No. 11510. It is not noticed by Poggendorff, Brunet, or Graesse.
— v. LANSBERG, No. 10,492-3, ante.
- 11965 **MÖHLAU (Richard, Dresden)** ORGANISCHE FARBSTOFFE, welche in der Textilindustrie Verwendung finden. Uebersicht ihrer Zusammensetzung, Gewinnung, Eigenschaften, Reactionen, und ihrer Anwendung zum FÄRBen und BEDRUCKEN von SEIDE, WOLLE und BAUMWOLLE ; with 175 samples of dyed stuffs, roy. 8vo. hf. morocco, 8s 6d (p. M. 25) *Dresden*, 1890
- 11966 **MOHN (Henrik; Univ. Christiania)** Om KOMETANERNES INDBYRDES BELIGENHED, udgivet, med Indledning af C. FEARNLEY ; with 2 folding plates, 4to. (pp. 60), sewn, 2s 6d *Christiania*, 1861
- 11967 **MOIGNO (Abbé François Napoléon Marie)** OPTIQUE MOLÉCULAIRE : Effets de Précipitation, de Décomposition, d'Illumination produits par la Lumière, post 8vo. sewn, 1s 6d 1873
- 11968 — PRATIQUE et THÉORIE du SACCHARIMÈTRE-SOLEIL, Ancien et Nouveau Modèle, Evaluation de la Richesse du Sucre, ou d'une Dissolution Sucrée quelconque ; with 2 folding plates, 8vo. sewn, with inser. (as below), 5s 1853
'A Mr. Thomas Phipson, Docteur ès-Sciences Naturelles, hommage affectueux de l'auteur l'ABBÉ F. MOIGNO'.—*Inscr. on cover*.
- 11969 — RÉPERTOIRE d'OPTIQUE MODERNE, ou Analyse complète des Travaux modernes relatifs aux Phénomènes de la Lumière ; with diagrams, 4 vols. 8vo. in 2, hf. calf (VERY SCARCE), £2. 2s 1847-50
A valuable historical account of modern optical theories, chiefly from the beginning of the XIX. Century to the date of its publication, and containing complete analyses of memoirs on this subject published in French, English, German, American, and Italian scientific journals. Pp., 692-898 treat of PHOTOGRAPHY.
- 11970 — TRAITÉ de TÉLÉGRAPHIE ÉLECTRIQUE, renfermant son Histoire, sa Théorie et la Description des Appareils, avec les Deux Mémoires de M. WHEATSTONE sur la Vitesse et la Détermination des Courants de l'Électricité, et un Mémoire Inédit d'AMPERE sur la Théorie Electro-Chimique, première édition ; with 16 folding plates, 8vo. sewn, 5s 1849
- 11971 — ANOTHER COPY, boards, uncut, 6s
One of the earliest and fullest histories of the subject.
- 11972 **MOINET (Louis; prés. de la Société chronométrique)** NOUVEAU TRAITÉ GÉNÉRAL, ASTRONOMIQUE et CIVIL d'HORLOGERIE, théorique et pratique, d'après les plus habiles Auteurs et les Progrès récents de l'Art, contenant une NOUVELLE MÉTHODE pratique et universelle d'ENGRENAGE, etc., première édition ; with fine lithographic portrait by G. Staal, and frontispiece, 2 vols., with Atlas, containing 51 folding plates—3 vols. impl. 8vo. hf. red morocco extra (FINE COPY), £1. 5s [1841]
- At end is : 'Notice Biographique de M. LOUIS MOINET, par DELMAS, 1853.
- 11973 — TROISIÈME [DERNIÈRE] ÉDITION, avec Appendice, contenant de nouvelles ÉTUDES sur les ÉCHAPPEMENTS anciens et modernes, le Pendule ordinaire, le Pendule conique et le Balancier annulaire, avec la THÉORIE du SPIRAL RÉGLANT de M. PHILLIPS, les APPLICATIONS de l'ÉLECTRICITÉ à l'Horlogerie, et la Description d'une Série d'Appareils spéciaux se rattachant à l'Art de l'Horloger, par A. DEBIZE ; with 2 fronts. and 70 folding plates—2 thick vols. impl. 8vo. sewn (SCARCE), £1. 5s 1875
The best work on clock- and watch-making, by a native of Bourges who devoted his whole time to his art, had to sell the copyright and fine first edition of the above treatise for £120, and died in his eighty-fifth year a poor man.
- 11974 **MOLINS (H., Univ. Toulouse)** De la DÉTERMINATION, sous Forme Intégrale, des ÉQUATIONS des DÉVELOPPÉES des COURBES à DOUBLE COURBURE, 4to. (pp. 12), unbound, 2s [1845]
- 11975 — Sur les TRAJECTOIRES qui coupent sous un ANGLE DONNÉ les TANGENTES à une COURBE à DOUBLE COURBURE, 4to. (pp. 13), unbound, 2s [1845]

- 11977 **MOISSAN (Henri ; de l'Institut)** Sur la DISTILLATION des CORPS SIMPLES ; with woodcuts, roy. 8vo. (pp. 37), *sewn, with inscr. to Sir Edward Thorpe, F.R.S. (as below)*, 3s [1906]
 'A mon cher Collègue Monsieur Thorpe. Hommage de l'auteur HENRI MOISSAN'.—*Inscr. on half-title.*
- 11978 ——— Le FLUOR et ses COMPOSÉS ; with illustrations, roy. 8vo. *sewn, with author's inscr. (as below)*, 8s 6d (p. F. 15. nett) 1900
 'A Monsieur Russell. Hommage de l'auteur HENRI MOISSAN'.—*Inscr. on half-title.*
 A well-known standard work. It contains at end a valuable bibliography (pp. 86).
- 11979 ——— Sur la PRÉPARATION des GAZ PURS : Sur les POINTS de FUSION et d'ÉBULLITION des FLUORURES de PHOSPHORE, de SILICIUM et de BORE, 8vo. (pp. 17), *sewn, 1s 6d* [1906]
- 11980 ——— Sur quelques RÉACTIONS fournies par les HYDRURES ALCALINS et ALCALINO-TÉREUX : ACTION d'une TRACE d'EAU sur la DÉCOMPOSITION des HYDRURES ALCALINS par l'ANHYDRIDE CARBONIQUE et l'ACÉTYLÈNE, roy. 8vo. (pp. 45), *sewn, 2s* [1905]
- 11981 ———, and Sir JAMES DEWAR ; F.R.S. : The LIQUEFACTION of FLUORINE, 8vo. (pp. 3), *sewn, 1s 6d* 1897
 The authors were the first to liquefy fluorine at a temperature of -187°C and a pressure of 325 mm. of mercury.
- 11982 ———, et Paul LEBEAU : ACTION du FLUOR sur les COMPOSÉS OXYGÉNÉS de l'AZOTE. FLUORURE d'AZOTYLE, roy. 8vo. (pp. 14), *sewn, 1s 6d* [1906]
 'SURE AS DEMOIVRE, WITHOUT RULE OR LINE' :
- 11983 **MOIVRE (Abraham de, F.R.S. ; friend of Newton)** ANNUITIES on LIVES, with several TABLES, exhibiting at one View, the Values of Lives, for different Rates of Interest ; 4th Edition, with TABLES for 3 and $3\frac{1}{2}\%$: SIMPSON (Thomas ; F.R.S.) The DOCTRINES of ANNUITIES and REVERSIONS, deduced from General and Evident Principles, with useful Tables, shewing the Values of Single and Joint Lives, etc. at different Rates of Interest, with a Method of investigating the Value of Annuities by Approximation, without Tables, with diagrams—2 vols. 8vo. in 1, *old calf, rebacked, 8s 6d* 1752-42
 The first work contains the author's celebrated hypothesis, that the decrements of life are in arithmetical progression. The appearance of Simpson's *Doctrine of Annuities* in 1742 gave occasion to a groundless imputation of plagiarism made by De Moivre in the second edition of his work.—*D. N. B.*
- 11984 ——— The DOCTRINE of CHANCES ; or a Method of Calculating the PROBABILITY of EVENTS in PLAY, first edition, with vignette, 4to. *old calf (binding damaged, and corner of title and first 10 ll. cut off)* ; RARE, 14s 1718
- 11985 ——— ANOTHER COPY, large copy in old calf gilt, newly and neatly rebacked, with auto. of W. Spottiswoode, P.R.S., £1. 1s
- 11986 ——— THE SAME, hf. calf gilt (one joint cracked, and wanting pp. 145-8), 10s 6d
 The first edition is dedicated to his friend Sir Isaac Newton, and indicates in the preface the nature of recurring series.
- 11987 ——— THIRD EDITION, fuller, clearer, and more Correct than the Former, with medallion portrait by J. Dassier, and vignette, roy. 4to., LARGE PAPER ; *old calf (joints cracked)*, £1. 5s 1756
- 11988 ——— ANOTHER LARGE PAPER COPY, contemporary brown calf extra (FINE COPY), with book-plate of Lord Arundell of Wardour, £1. 10s
 The last and best edition ; dedicated to Lord Carpenter, the victor over the Old Pretender.
 'He introduced the principle that the probability of a compound event is the product of the probabilities of the single events composing it, and the whole subject, Todhunter remarks, 'owes more to him than to any other mathematician, with the single exception of Laplace'.'—*Miss Agnes M. Clerke.*
 'His work on the theory of probability surpasses anything done by any other mathematician except Laplace. His principal contributions are his investigations respecting the Duration of Play, his Theory of Recurring Series, and his extension of the value of Bernoulli's theorem by the aid of Stirling's theorem.—*Prof. Cajori.*
 A very full account of the above third edition will be found in Todhunter's *History of the Theory of Probability.*
- 11989 [——] MISCELLANEA ANALYTICA de SERIEBUS et QUADRATURIS, accessere variae Considerationes de Methodis Comparationum, Combinationum, et Differentiarum, Solutiones difficultiorum aliquot Problematum ad Sortem spectantium, itemque Constructiones faciles Orbium Planetarum, una cum Determinatione Maximarum et Minimarum Mutationum quæ in Motibus Corporum Cælestium occurrunt ; with numerous diagrams, 4to. *old hf. calf, or, old calf, 15s Londinæ, 1730*
- 11990 ——— ANOTHER COPY, contemporary calf (sound copy), with auto. of W[illiam] Hanbury, pr. (1725-78), 17s 6d
- 11991 ——— A LARGE PAPER COPY, *old calf (rubbed), with (? author's) inscr. 'pour Monsieur l'Abbé Sallier', and initials of BENJAMIN ROBINS, F.R.S., on title, £1. 1s*
 'Ce volume étoit à Mauduit. C'est un Exempleaire grd. papier, de souscripteur'.—*Inscr. on title.*
 'De Moivre's most important work. He demonstrated in it his method of recurring series, created 'imaginary trigonometry', through the invention of the theorem known by his name, and generalised Cotes's 'Theorem on the Property of the Circle' (p. 17). Naudé's presentation of the book to the Berlin Academy of Sciences produced the election by acclamation of its author as a member. Leibnitz, who made de Moivre's acquaintance in London, vainly endeavoured to secure for him a professional position in Germany ; and his foreign origin similarly barred the way to his promotion in England. So he continued all his life to support himself by teaching, and answering questions on the chances of play and the values of annuities. Yet he was one of the commissioners appointed by the Royal Society in 1712 to arbitrate on the claims of Newton and Leibnitz to the invention of the infinitesimal calculus'.—*Miss Agnes M. Clerke.*
- 11992 **MOLESWORTH (Caroline)** The COBHAM JOURNALS : Abstracts and Summaries of her METEOROLOGICAL and PHRENOLOGICAL OBSERVATIONS, 1825-50, with Introduction, Tables, etc. by ELEANOR A. ORMEROD [Entomologist], roy. 8vo. *cl., 4s (p. 10s 6d)* 1880
 Miss Molesworth was one of the earliest and most remarkable of those amateur observers whose labour of love practically founded the science of meteorology in England. Carried on for over forty years at her place at Cobham in Surrey, the observations amounted to over seventy-five thousand, which have been abstracted with the greatest care by Miss Ormerod.
- 11993 **MOND (Ludwig, F.R.S.)** On NICKEL CARBON OXIDE, and its Application in Arts and Manufactures, 8vo. (pp. 7), *sewn, 2s* 1891
 The author's discovery of a volatile nickel compound (nickel carbonyl), which he used for a new process of manufacturing the pure metal.
- 11994 **MONDINI (E.)** ELEMENTI di COMPUTISTERIA, 2da Edizione, impl. 8vo. *sewn, 3s Como, 1894*



No. 12158 (page 605).

Portrait of Sir Samuel Morland.

- 11996 **MOLETTI** [*hic MOLETO*] (*Giuseppe, matematico*) L'EFEMERIDI per ANNI XVIII, legali cominciano dall' Anno corrente di Cristo Salvatore, 1563, e si terminano alla fine dell' Anno 1580, con ogni Diligenza, al MERIDIANO della Magnifica e Felice Città di VINEGIA calculate, aggiuntoui i CANONI . . . ne' quali, oltre il Modo di operare le dette Efemeridi, si trattano tutte le vere REGOLE della SCIENZA ASTROLOGICA, con molte Cose non mai trattate nell' altre Efemeridi; *with diagrams*, thick 4to. *very sound and clean copy in contemporary limp vellum (back of binding damaged)*; RARE, £1. 5s
Calculus d'après les Tabule prutenice de Reinhold'.—Houzeau et Lancaster. The work is specially valued for its introduction (pp. 240), which contains a complete treatise on astrology.
Venetia, Vincenzo Valgriso, 1563
- 11997 **MÖLLER** (*Axel*; *Lund Observatory*) NYA ELEMENTER för PLANETEN PANDORA, härledda ur Observationerna under 16 Oppositioner 1858-77, 8vo. (pp. 38), *sewn*, 1s
Stockholm, 1879
- 11998 ——— PLANET- och KOMET-OBSERVATIONER, 1869, 1871-2, på Lunds Observatorium, 3 vols. 4to. *sewn*, 4s
Lund, 1870-3
- 11999 ——— UNDERSÖKNING af FAYESKA KOMETENS BANA, roy. 4to. (pp. 90), *sewn*, 3s
Stockholm, 1862
'Faye's comet was proved by the admirable researches of Prof. Axel Möller to exhibit no trace of a resisting medium.'
—Miss Agnes M. Clerke.
- 12000 ——— UNDERSÖKNING af PLANETEN PANDORAS RÖRELSE, 2 vols. roy. 4to. *sewn*, 5s
ibidem, 1870-7
- 12001 **MÖLLER** (*Johann*) Die ELEKTROCHEMISCHE REDUKTION der NITRODERIVATE ORGANISCHER VERBINDUNGEN in experimenteller und theoretischer Beziehung, roy. 8vo. *sewn*, 2s 6d (p. M. 4)
Halle a. S., 1904
- 12002 **MÖLLER** (*Johannes*) BESTIMMUNG der BAHN des COMETEN 1897 I., 4to. (pp. 24), *sewn*, 2s
Kiel, 1901
- 12003 **MOLLET** (*Joseph*) GNOMONIQUE GRAPHIQUE, ou Méthode simple et facile pour tracer les Cadrans Solaires sur toute Sorte de Plans, et sur les Surfaces de la Sphère et du Cylindre Droit, sans aucun Calcul, et en ne faisant Usage que de la Règle et du Compas, 2^e Edition, suivie de la GNOMONIQUE ANALYTIQUE, ou Solution par la seule Analyse, de ce Problème général: Trouver les Intersections des Cercles Horaires avec une Surface donnée; *with 8 folding plates*, 8vo. *sewn* (rare), 12s 6d
1820
An early treatise on Dialling made Easy.
- 12004 ——— HYDRAULIQUE PHYSIQUE, ou Connaissances des Phénomènes que présentent les Fluides, soit dans l'Etat de Repos, soit dans celui de Mouvement; *with 11 folding plates*, 8vo. *old calf*, *with booklabel of George Rennie, F.R.S.*, 5s
1810
- 12005 **MOLLOY** (*Gerald, D.D., Rector Catholic Univ. Ireland*) GLEANINGS in SCIENCE, *with 51 woodcuts*, 8vo. *cl.*, 3s (p. 7s 6d)
1888
Including 'The Latent Heat of Liquids and Vapours' (pp. 1-52): 'Lightning, Thunder, and Lightning Conductors' (pp. 53-140); 'Glaciers of the Alps'; 'Recent Controversy on Lightning Conductors, etc.'
- 12006 **MOLYNEUX** (*William, F.R.S.*) DIOPTRICA NOVA: a Treatise of Dioptricks, wherein the various Effects and Appearances of SPHERICK GLASSES, both Convex, Concave, Single and Combined, in TELESCOPES and MICROSCOPES, with their Usefulness in many Concerns of Humane Life, are explained, 2nd Edition, *with 43 plates*, 4to. *old calf*, *roughly rebaked* (rare), 10s 6s 1709
The author was helped by FLAMSTEED in the composition of this work, which was for a long time the standard one on optics (D. N. E.). Its appendix first contains the celebrated theorem for finding the foci of optic glasses by EDMUND HALEY, who also revised the proof sheets during publication.
'The Geometrical Method of calculating a Ray's Progress is wholly new, and never before published. And to the first Intimation thereof, I must acknowledge myself obliged to Mr. Flamsteed, who had it from some unpublished Papers of Mr. Gascoigne.'—*reface*. Pp. 251-86 contain an interesting account 'of the Invention of Optick-Glasses.'
- 12007 **MONCEL** (*Comte Théodore Achille Louis du*) ELEMENTS of CONSTRUCTION for ELECTRO-MAGNETS; translated by C. J. WHARTON, post 8vo. *cl.*, 2s
1883
- 12008 ——— NOTICE HISTORIQUE et THÉORIQUE sur le TONNERRE et les ÉCLAIRS, 8vo. (pp. 54), *sewn*, 3s
1857
- 12009 ——— PROJECTION des PRINCIPAUX PHÉNOMÈNES de l'OPTIQUE, à l'Aide des Appareils de M. DUBOSCQ, 8vo. (pp. 46), *sewn*, *with auto. of Sir E. Frankland, F.R.S.*, 2s
1855
- 12010 ———, and Frank GERALDY: ELECTRICITY as a MOTIVE POWER, translated, and edited with Additions, by C. J. WHARTON, *with 113 woodcuts*, cr. 8vo. *cl.*, 2s 6d (p. 7s 6d)
1883
- 12011 **MONCKHOVEN** (*Désiré van*) TRAITÉ POPULAIRE de PHOTOGRAPHIE sur COLLODION; le Procédé Négatif et Positif, le Collodion Sec, le Stéréoscope, etc.; *with 115 woodcuts*, cr. 8vo. *sewn*, 3s 6d
1862
The collodion process of photography had been invented by Le Gray in 1849 (v. No. 10686, ante).
- 12012 **MONCRIEFF** (*Col. Sir Alexander, F.R.S.*) ON HARBOUR DEFENCE, 8vo. (pp. 20), *sewn*, *with author's inser. to Sir Richard R. Holmes, F.S.A.*, 3s 6d
1875
A further elaboration of the author's system of coast defence by disappearing guns, which he first conceived when watching the bombardment of the Mamelon.
- 12013 ——— SUGGESTIONS for SUPPLEMENTING our COAST DEFENCES, on the MONCRIEFF SYSTEM, in Harmony with the New District Organization, *woodcuts*, 8vo. (pp. 80), *sewn* (scarce), 7s 6d 1873
In this pamphlet the author first advocated his system of disappearing guns for coast defence. 'He conceived the idea of mounting guns on curved elevators, which would allow them to recoil backwards and downwards, the energy of recoil being used to raise a counterweight which would bring the gun up again to the firing position. This method had the further advantage, that it lessened the strain on the platform.'—*Col. E. M. Lloyd, R.E.*
- 12014 **MONGIARDINI** (*Lazarus et Joannes Baptista, S.J.*), et Bartholomæus MARTINI, S.J.: EXERCITATIONES MATHEMATICÆ de PHYSICO RADIORUM LUMINIS PARALLELISMO ad Tironum Usum accomodatae, PARS ALTERA; *with plate*, 4to. (pp. 54), *sewn*, 5s
Florentia, 1759
Unknown to Riccardi, Poggendorf, and other bibliographers.
- 12015 **MONKSWELL** (*Robert Alfred Hardcastle Collier, third Lord*) FRENCH RAILWAYS, *with frontispiece and 31 illustrations*, 8vo. *cl.*, 2s 6d
1911

12017 **MONGE** (Gaspard; COMTE DE PÉLUSE, *de l'Institut*) APPLICATION DE L'ANALYSE à la GÉOMÉTRIE, première édition; with 4 plates, 4to. old hf. calf, with auto. of Samuel Roberts, F.R.S., 7s 6d 1807

'He introduced into analytic geometry the methodic use of the equation of a line. He made important contributions to surfaces of the second degree, and discovered between the theory of surfaces and the integration of partial differential equations, a hidden relation which threw new light upon both subjects. He gave the differential of curves of curvature and applied it to the ellipsoid,' etc. etc.—*Prof. Cajori*.

The first part of the work, 'Surfaces du premier et second Degré', was written in collaboration with Hachette.
12018 ——— DESCRIPTION DE L'ART DE FABRIQUER les CANONS, faite en Exécution de l'Arrêté du COMITÉ de SALUT PUBLIC, du 18 Pluviôse de l'An 2 de la Républ. que française, une et indivisible; with 60 folding copperplates, and 4 folding tables, 4to. old hf. calf gilt (RARE), £1. 5s
Imprimerie du Comité de Salut Public, l'an 2 [1794]

Applied Science under the Terror. 'Dans la guerre que la république française, naissante, est forcée de soutenir contre la coalition impie des principaux tyrans de l'Europe, un des malheurs qu'elle avoit le plus à redouter étoit de manquer de poudre.'—p. 1. The author managed to keep his head on.

'Monge y consigna des détails extrêmement précieux pour les directeurs d'usines et les artistes, et y jeta, sur les différents états du fer, des considérations générales qui ne sont pas indignes de l'attention des savants.'—*Querard*.
12019 ——— GÉOMÉTRIE DESCRIPTIVE, 5^e Édition, augmentée d'une THÉORIE des OMBRES et de la PERSPECTIVE, extraite des Papiers de l'Auteur, par M. BRISSON; with 28 plates, 4to. calf gilt, 8s 1827

The work which created descriptive geometry. 'It contains propositions on the form and relative position of geometrical figures deduced by the use of transversals, and includes the art of representing in two dimensions geometrical objects which are of three dimensions.'—*W. W. R. Ball*.

'He was the first who proved that the square of any surface is equal to the sum of the squares of its projections on the 3 co-ordinate planes.'—*Pott's Euclid*.
12020 ——— TRAITÉ ÉLÉMENTAIRE de STATIQUE, 8^e Édition, revue par J. N. P. HACHETTE, avec Note contenant une Nouvelle Démonstration du Parallélogramme des Forces par AUGUSTIN CAUCHY; with 5 folding plates, 8vo. sewn (scarce), 4s 1846

Last edition, and the only one containing the note by Cauchy.

12021 **MÖNNICHMEYER** (Karl; *Bonn Observatory*) ALLGEMEINE STÖRUNGEN der THEMIS durch MARS und SATURN, 4to. (pp. 38), sewn, with author's inser., 2s Berlin, 1893

12022 **MONS** (Jean Baptiste van, *de l'Institut*) GRUNDSÄTZE der ELECTRICITÄTSLEHRE zur BESTÄTIGUNG der FRANKLIN'SCHEN THEORIE, in einem Briefe an Herrn Brugnatelli, übersetzt von FERDINAND WURZER, sm. 8vo. sewn, 3s Marburg, 1812

12023 **MONTAGU** (Lord Robert; M.P.) NAVAL ARCHITECTURE: a Treatise on Shipbuilding and the Rig of Clippers, with Suggestions for a NEW METHOD OF LAYING DOWN VESSELS, with diagrams, post 8vo. cl. (scarce), 7s 6d 1852

'Treating an important subject in the most comprehensive and masterly manner.'—*United Service Mag*.
It was Lord Robert Montagu's first publication. He worked much for the Navy, and advocated ironclads in 1862, when the whole fleet was still wooden! He was a man of unpartisan independence, and opposed in the Commons the recognition of the Confederate States when all Good Society was for them.

12024 **MONTAGU** of Beaulieu (John Walter Edward 2nd Lord), [MOTOR] CARS and HOW to DRIVE THEM, edited by, PART I, 4th Ed., with numerous illustrations, roy. 8vo. cl., 2s (p. 3s 6d nett) n. d.

12025 **MONTANARI** (Geminiano; *Univ. Bologna*) DISCORSO sopra la TROMBA PARLANTE, con TRATTATO postumo de MARE ADRIATICO, e sua CORRENTE esaminata, co la Naturalizza de Fiumi scoperta, e con Nove Forme di Riparici corretta; with plate, large 12mo. Old painted boards (rare), 15s Venetia, 1715

An elaborate description of the speaking trumpet, invented by Sir Samuel Morland [q. v. post] in 1670, which is already mentioned in Father Kircher's *Ars Magna*, 2nd Edition, 1670 (v. No. 10161). The second work is, according to Riccardi, 'una delle più pregevoli opere del autore. Fu egli il primo a combattere l'opinione dei Castelli, il quale voleva che non solo dovessero conservarsi i fiumi che entravano nella laguna, ma che altre acque correnti vi si dovessero aggiungere per tenerla libera e aperta al corso.'

12026 ——— La FIAMMA VOLANTE: GRAN METEORA veduta sopra l'Italia la Sera de 31. Marzo, 1676; Speculazioni Fische et Astronomiche; with plate, sm. 4to. old boards (fine copy); rare, 15s Bologna, 1676

'Raro opuscolo. Montanari impugnò con questo libretto le osservazioni fatte in proposito da Pietro Maria Cavina,'—*Riccardi*.

12027 ——— Le FORZE d'EULO: Dialogo fisico-matematico sopra gli Effetti del VORTICE, ò sia TURBINE, detto negli Stati Veneti la BISCIABUOVA, che il 29 Luglio 1686 hà scorso, e flagellato molte Ville, e Luoghi di Mantova, Padova, Verona, ecc.; with 2 plates, thick 16mo. boards (corner stained), 10s Parma, 1694

12028 **MONTEREY** (Louis) ARMES de GUERRE: ÉTUDES sur le CHARGEMENT par la CULASSE, roy. 8vo. hf. calf, 2s 1868

12029 **MONTFERRIER** (Alexandre André Victor Sarrazin de) DICTIONNAIRE des SCIENCES MATHÉMATIQUES pures et appliquées [avec le SUPPLÉMENT], 2^e Edition; with woodcuts and 80 plates, 3 vols. colombier 8vo. in 2, hf. calf (SCARCE), £1. 1s 1845

'Cet ouvrage résume par ordre alphabétique l'histoire de toutes les découvertes faites dans ces sciences, leurs procédés actuels et leur application aux arts industriels, ainsi que la biographie des hommes qui ont agrandi le cercle des connaissances positives.'—*Biogr. Gén.*

12030 **MONTGÉRY** (— de, *Capitaine de Frégate*) TRAITÉ des FUSÉES de GUERRE, nommées autrefois Rochettes, et maintenant Fusées à la Congrève; with 6 folding plates, post 8vo. hf. bound (binding damaged); rare, 8s 6d 1826

A good historical account of rockets, and especially a description of those in use at the time of its publication.

12031 **MONTGOMERY** (James) The THEORY and PRACTICE of COTTON SPINNING; or the CARDING and SPINNING MASTER'S ASSISTANT; showing the Use of each Machine employed in the Whole Process, how to adjust and adapt them to the various Kinds of Cotton, and the Different Qualities of Yarn, and how to perform the various Calculations, with an Historical Sketch of Cotton Spinning; 3rd Edition, greatly enlarged and improved, with 10 plates (5 folding), 8vo. cl., uncut, 7s 6d Glasgow, 1836

According to the preface, the first practical treatise on cotton spinning published.

- 12033 MONTE (Guido Ubaldo de' Marchesi del; *patron of Galileo*) In Duos ARCHIMEDIS ÆQUEPONDERANTUM Libros PARAPHRASIS, Scholiis illustrata; with numerous diagrams, folio, old calf (back slightly damaged, and some ll. badly wormed on blank bottom margin, otherwise a sound and tall copy), 12s 6d
Pisauri, Hieron. Concordia, 1583
- 12034 ——— MECHANICORUM LIBER, editio princeps; with woodcuts and numerous diagrams, folio, boards (blank bottom of title and a few ll. at end mended and wormed; also slightly water-stained, but a large and clean copy); RARE, £1. 5s
ibidem, apud eundem, 1577
'Raro. Bella Edizione'.—Riccardi. It was reprinted in 1615 and 1629.
'C'est le premier ouvrage où l'on ait tenté de déduire rigoureusement des principes de la géométrie, la statique et la détermination de l'effet des machines. Dans la préface, l'auteur fait l'historique des recherches des anciens sur la mécanique'.—G. Libri.
'Cet ouvrage contient sur plusieurs points une doctrine judicieuse et solide. Ubaldo y fait usage de la méthode employée, au rapport de Pappus, par les mécaniciens anciens, savoir, de réduire toutes les machines au levier, et il l'applique heureusement à quelques puissances mécaniques, entr'autres aux poulies, dont il examine avec soin la plupart des combinaisons'.—Montucla.
- According to Lagrange, the author was the first to discover the principle of virtual velocities in the lever and the pulley.
- 12035 ——— Le MECHANICHE, tradotte in Volgare da FILIPPO PIGAFETTA: nellequali si contiene la vera DOTTRINA di tutti gli ISTRUMENTI principali da MOVER PESI grandissimi con picciola Forza, et si dichiarano i Vocaboli et Luoghi più difficili, prima edizione; with numerous woodcuts and diagrams, sm. 4to. old white vellum (title slightly stained, otherwise a VERY TALL AND FINE COPY), 15s
Venetia, Francesco di Franceschi Sanese, 1581
First edition of the translation of *Mechanicorum Liber*. It was reprinted in 1615.
- 12036 ——— PLANISPHERIORUM UNIVERSALIUUM THEORICA; with woodcuts and numerous diagrams, 4to. fine copy in old limp vellum (RARE), £1. 1s
Pisauri, Hier. Concordia, 1579
'Raro et pregiato'.—Riccardi.
'On trouve dans ce livre des indications et des théorèmes qui méritent d'être cités. M. Chasles a remarqué à la vérité qu'un mode de construction de l'ellipse que Stévin attribue à Guido Ubaldo del Monte, et qui est exposé dans cet ouvrage (p. 124 et seq.) a été connu des anciens; mais on rencontre aussi dans le même ouvrage l'emploi de l'optique, et des projections pour démontrer des propriétés relatives à la transformation des figures'.—G. Libri.
- 12037 MONTICELLI (Teodoro; o.s.b., *Univ. Naples*), et Niccola COVELLI: OBSERVATIONS et EXPÉRIENCES faites au VÉSUVÉ pendant 1821 et 1822, 8vo. (pp. 66), sewn, 3s
Naples, 1822
- 12038 MONTILLOT (Louis) La TÉLÉGRAPHIE ACTUELLE en FRANCE et à l'ÉTRANGER: Lignes, Réseaux, Appareils, Téléphones; with 131 woodcuts, cr. 8vo. hf. morocco, 2s
1889
- 12039 ——— TÉLÉPHONE PRATIQUE, with 4 folding plates (3 linen-mounted), and 414 woodcuts, roy. 8vo. hf. morocco (rubbed), 6s 6d (p. F. 20 nett sewn)
1893
- 12040 MONTEPELLIER (SOCIÉTÉ ROYALE DES SCIENCES DE), HISTOIRE de la, avec les MÉMOIRES de MATHÉMATIQUES et de PHYSIQUE, tirés des Registres de cette Société; with folding copperplate, 4to. old calf gilt (joints cracked), 10s 6d
Lyon, 1766
Including original memoirs by F. X. Bon de St.-Hilaire, Jean de Clapèts, Antoine Gauteron, Jean Matte, François de Plantade, Dominique de Senés, and others.
- 12041 MONTEPELLIER (Jules Armand, editor of 'L'Électricien'). LES DYNAMOS: Principes, Descriptions, Installation, Conduite, Entretien, Dérangements; with 302 illustrations, large 8vo. cl., 6s (p. F. 16 nett)
1897
- 12042 MONTUCLA (Jean Étienne, de l'Institut) HISTOIRE des MATHÉMATIQUES, leur Progrès jusqu'à nos Jours, le Développement des principales Découvertes, les Contestations qui se sont élevées entre les Mathématiciens, et les principaux Traits de la Vie des plus célèbres; nouvelle [2^{DE} ET DERNIÈRE] ÉDITION, considérablement augmentée et prolongée jusque vers l'Époque actuelle, achevée et publiée par JÉRÔME DE LALANDE; with fine portrait by Vieil, and 45 folding plates, 4 vols. 4to. hf. calf gilt (portrait of Lalande wanting, but a fine copy); RARE, £4. 17s 6d
An VII [1799]-1802
- 12043 ——— TOME I ET II SEULS; with 26 plates, 2 vols. 4to. boards (portrait wanting), £1. 15s
An VII [1799]
- These two volumes comprise the contents of the original edition of the work in a much enlarged form. Vols. III and IV contain the continuation from the middle of the XVIII. Century to 1800 by Montucla and Lalande, with several supplements (including one on circle squaring, pp. 25), and a life of Montucla by Lalande.
It is still a work of great value and indispensable to the historian of mathematics, and contains much interesting information not elsewhere to be found.
'Cette œuvre se recommande, en effet, par des qualités éminentes: une grande impartialité, une grande justesse de vues, une grande érudition, un travail opiniâtre et une bonhomie extrême'.—M. Marie.
- 12044 [——] HISTOIRE des RECHERCHES sur la QUADRATURE du CERCLE; Ouvrage propre à instruire des découvertes réelles faites sur ce problème célèbre, et à servir de preservatif contre de nouveaux Efforts pour le résoudre: avec une Addition concernant les PROBLÈMES de la DUPLICATION du CUBE et de la TRISECTION de l'ANGLE; with 8 folding plates, 12mo. old calf, 5s
1754
'This is the history of the subject . . . Montucla is an admirable historian when he is writing from his own direct knowledge'.—Prof. de Morgan.
- 12045 MOON (Henry, *Mining Engineer*) The 'QUICKSILVER-WAVE' GOLD AMALGAMATOR, 8vo. (pp. 15), sewn, 1s 6d
1884
- 12046 MOON (Robert, *Queen's Coll., Cantab.*) FRESNEL and his FOLLOWERS: a Criticism, with the Outlines of THEORIES of DIFFRACTION and TRANSVERSAL VIBRATION, with folding plate, 8vo. hf. cl. (scarce), with author's inscr., 7s 6d
Cambridge, 1849
A violent attack on Sir G. B. Airy, George Green, James McCullagh, Sir G. G. Stokes, and other followers of Fresnel, in order to refute 'errors without a parallel in the history of science' (Preface).
- 12047 ——— On the INTEGRATION of the GENERAL LINEAR PARTIAL DIFFERENTIAL EQUATION of the SECOND ORDER, 8vo. (pp. 16), sewn, 1s 6d
1868
- 12048 [MORA (Felice di)] Il COMPUTISTA PERFETTO, ossia la SCIENZA del CONTEGGIARE ridotta a Pochi, e Facili Precetti; sm. 8vo. boards, uncut, 8s 6d
Rimino, 1786
This work was unknown to Prof. de Morgan, Poggendorf, and other bibliographers, but is mentioned by Riccardi.

- 12050 **MOOR** (Cresacre George, F.I.C.) THE RECOGNITION OF MINERALS; a Collection of Notes and Simple Tests for the Use of Travellers and Prospectors; with Monographs on Geology, Ore Deposits, etc., by DONALD A. MACALISTER, F.G.S., printed on one side only, 8vo. cl., 4s 6d (p. 7s 6d nett) [1909]
- 12051 **MOORE** (Clarence L. E., *Mass. Inst. Technology*) INFINITESIMAL PROPERTIES OF LINES in S_4 with Applications to Circles in S_3 , roy. 8vo. (pp. 20), *sewn*, 1s Boston [Mass.], 1911
- 12052 **MOORE** (Lt.-Col. E. C. S., R.E.) NOTES ON THE MANUFACTURE AND DISTRIBUTION OF COAL GAS, with 29 folding plates and 280 woodcuts, 8vo. *sewn*, 4s (p. 6s 6d nett) Chatham, 1894
- 12053 ——— SANITARY ENGINEERING: a Practical Treatise on the Collection, Removal and Final Disposal of Sewage, and the Design and Construction of Works of Drainage and Sewerage, etc. etc. etc., with 70 folding plates, and 534 other illustrations, thick roy. 8vo. cl., 12s (p. £1. 10s nett) 1893
- 12054 **MOORE** (Eliakim Hastings), Ernest Julius WILCZYNSKI, and Max MASON: THE NEW HAVEN MATHEMATICAL COLLOQUIUM: Lectures delivered before Members of the American Mathematical Society in Connection with the Summer Meeting, held Sept. 5th to 8th, 1912, inpl. Svo. cl., 8s 6s (p. 15s nett) New Haven, 1910
- 12055 **MOORE** (Gideon E.), und V. von ZEPHAROVICH: KALLAIT PSEUDOMORPH nach APATIT aus Kalifornien; with 2 diagrams, roy. 8vo. (pp. 12), *sewn*, 1s 6d Leipzig, 1885
- 12056 **MOORE** (Sir Jonas, *Surveyor-Gen. of Ordnance; Governor of Christ's Hospital; F.R.S.*): CONTEMPLATIONES GEOMETRICÆ, in TWO TREATISES. I. A NEW CONTEMPLATION GEOMETRICAL upon the ELLIPSIS, plainly setting out the Nature of that Figure. II. CONICAL SECTIONS, or the several Sections of a Cone: being an ANALYSIS of the Two First Books of MYDORGIUS, with 7 plates (5 folding), 12mo. *sewn* (rare), 10s 6d J. G. for Nath. Brook, 1660
The second part has a separate title and pagination, and, according to the former, has been 'translated and drawn from the Papers of the Learned Mr. W[ILLIAM] O[GIGHTRED].'
- 12057 ——— NEW SYSTEME of the MATHEMATICKS, containing Arithmetick, Algebra, Geometry, Trigonometry, Cosmography, Navigation, the Doctrine of the Sphere, Astronomical Tables, Tables of Logarithms, and a new Geography, with very numerous plates, maps, and smaller engravings on copper, 2 thick vols. 4to. old calf, newly rebound (front. and pp. 27-34 of 'Doctrine of the Sphere' wanting; also stamped and v. II partly water-stained); RARE, 15s A. Godbid and J. Playford, 1681
'His principal work. It appeared posthumously in 1681, under the supervision of his sons-in-law, WILLIAM HANWAY and JOHN POTENGER. The sections on Algebra, Euclid, and Navigation were written by PERKINS, master of the mathematical school of Christ's Hospital: while FLAMSTEED communicated the astronomical tables.'—Miss Agnes M. Clerke.
The preface contains interesting particulars concerning the author's life. Of special interest is the chapter on Geography, which contains 9 maps on America, viz., New England; Virginia; New Mexico; Florida; New Spain [Mexico]; Guiana; Brazil and La Plata; Peru, Chili, and Magellanica; and the Leeward Islands. Some of these are remarkable for their wealth of detail. Australia and New Zealand are also crudely given in a map of the Antarctic.
- 12058 **MOORE** (William, *Royal Military Academy, Woolwich*) TREATISE on the MOTION OF ROCKETS: with ESSAY on NAVAL GUNNERY, in Theory and Practice [and TABLE of HYPERBOLIC LOGARITHMS], with diagrams, Svo. hf. calf (joints rubbed), with auto. of, and MS. notes by, THOMAS STEVENSON, F.R.S.E., father of Robert Louis Stevenson (scarce), 12s 6d 1813
Largely an original treatment of ballistics in which the author uses the fluxional calculus, and written in consequence of a prize offered in 1810 by the Academy of Copenhagen.
- 12059 **MOORE** (Willis Luther; *Chief of U.S. Weather Bureau*) DESCRIPTIVE METEOROLOGY, with 45 charts (many coloured), and 81 text illustrations, sq. roy. 8vo. cl., 8s 6d (p. 12s 6d nett) New York, 1910
- 12060 **MOORSOM** (G.) BRIEF REVIEW and ANALYSES of the LAWS for the ADMEASUREMENT of TONNAGE, showing their Effects on the Construction of the Vessels of the British Mercantile Navy; also of a Mode proposed for the more Correct Admeasurement of Vessels, with Examples of its Application to the purposes of Naval Architecture generally, as well as to the Cubature of all Bodies, with 6 plates (3 folding), roy. 8vo. cl., 6s 6d 1852
- 12061 **MORAND** (Marius) RAPPORT sur les SOIES et les TISSUS de SOIES à l'Exposition Universelle Internationale de 1889 à Paris, folio (pp. 41), *sewn*, 2s Imprimerie Nationale, 1891
- 12062 **MORANDIERE** (Romain, *inspecteur général des ponts et chaussées*) TRAITÉ de la CONSTRUCTION des PONTS et VIADUCS, en Pierre, en Charpente, et en Métal, pour Routes, Canaux et Chemins de Fer, avec un APPENDIX pour la CONSTRUCTION des SOUTERRAINS; LIVRAISONS 1 à 4; with numerous woodcuts, thick 4to. hf. red morocco neat, and Atlas, containing 221 large plates, folio, in portfolio, £1. 5s (p. F. 155 nett *sewn*) 1874-82
- 12063 **MORANDOTTI** (E., *maggiore d'artiglieria*) MANUALE RAGIONATO del LABORATORIO di PRECISIONE; with 23 plates (3 folding and linen-mounted), 8vo. hf. morocco neat, 4s Roma, 1886
An account of instruments of precision, chiefly for the manufacture of fire arms and ordnance.
- 12064 **MORDECAI** (Major Alfred, *Ordnance Dept., U.S. Army*), MILITARY COMMISSION to EUROPE in 1855 and 1856. REPORT of, of the ORDNANCE DEPARTMENT, with large folding view of the Vienna Arsenal, and 20 plates, 4to. cl. (cover torn), 7s 6d Washington, 1860
Containing as appendix: Brief Description of the Modern System of Small Arms as adopted in the various European Armies, by CAPT. J. SCHEIN, 2nd Ed., trans. by CAPT. J. GORGAS, U.S. Army, with 13 plates (including the Prussian needle gun).
- 12065 ——— REPORT of EXPERIMENTS on GUNPOWDER at the WASHINGTON ARSENAL, 1843-4, with 6 plates, 8vo. (pp. 328), cl. (scarce), 8s 6d *ibid.*, 1845
Including Experiments with the Cannon Pendulum and its Ballistic Pendulum (pp. 12-115), and with the Musket Pendulum (pp. 116-63).
- 12066 **MORET** (Théodore, s.j.) TRACTATUS PHYSICO-MATHEMATICUS de ÆSTU MARIS; with woodcuts, 4to. boards (3 ll. mended and one defective); VERY RARE, £1. 1s Antverpia, 1665
Interesting as an early work treating exclusively on the theory of the tides. The work is not noticed by Brunet, Graesse, or Ebert, and is RARE.

- 12069 **MOREL (A. M. Th.)** TRAITÉ PRATIQUE des FEUX D'ARTIFICE, pour le SPECTACLE, et pour la GUERRE, avec les Petits Feux de Table, et l'Artifice à l'Usage des Théâtres, première édition; with 11 folding copperplates, illustrating a great variety of Fireworks, 8vo. contemporary calf gilt (rare), 10s 6d Didot, 1800
- 12070 **MORELOT (Simon, Professeur de Chimie Pharmaceutique à l'École de Médecine de Paris)** COURS ÉLÉMENTAIRE théorique et pratique de PHARMACIE-CHIMIQUE, ou Manuel du Pharmacien-Chimiste; with folding table, 3 vols. 8vo. old calf gilt, with auto. of William Thomas Brande, F.R.S. (1788-1866), 6s 6d 1803
- 12071 **MOREWOOD (Samuel, Surveyor of Excise)** ESSAY on the INVENTIONS and CUSTOMS, of both Ancients and Moderns, in the USE of INEBRIATING LIQUORS [and OPIUM], with interesting Anecdotes, illustrative of the principal Nations of the World, and Historical View of the Extent and Practice of DISTILLATION, as to its COMMERCE, and as a SOURCE of NATIONAL INCOME; with much curious Information respecting the Application and Properties of several parts of the Vegetable Kingdom, woodcuts, 8vo. boards, uncut (SCARCE), 10s 1824
A rare and interesting work, unknown to Lowndes and Allibone.
- 12072 ——— PHILOSOPHICAL and STATISTICAL HISTORY of the INVENTIONS and CUSTOMS of ANCIENT and MODERN NATIONS in the MANUFACTURE and USE of INEBRIATING LIQUORS; with the PRESENT PRACTICE of DISTILLATION in all its Varieties; with an extensive Illustration of the CONSUMPTION and EFFECTS of OPIUM, and other Stimulants used in the East, as Substitutes for Wine and Spirits, with front., and woodcuts, thick 8vo. cl. (scarce), 15s Dublin, 1838
A new edition of the *Essay*, much enlarged 'by the addition of new, original and valuable matter' (Preface). The chapter on opium is also much enlarged, 'while the evil consequences of undue or irregular indulgence have been carefully depicted and illustrated by appropriate anecdotes.'
- 12073 **MORFET (Campbell, Univ. Maryland)** PRACTICAL TREATISE on PURE FERTILIZERS; and the Chemical Conversion of Rock Guanos, Marlstones, Coprolites, and the Crude Phosphates of Lime and Alumina generally, into various Valuable Products, with 28 folding plates, and 24 woodcuts, thick 8vo. cl., uncut, 7s 6d (p. £4. 4s) New York, 1872, or London, 1873
- 12074 **MORGAN (—, late Master of Clare Hall)** SIX PHILOSOPHICAL DISSERTATIONS on the MECHANICAL POWERS, ELASTIC BODIES, FALLING BODIES, the CYCLOID, the PARABOLA, and the RAINBOW, published by SAMUEL CLARKE, in his Notes upon Rohault's Physics, done into English by JOHN CLARKE, with 3 folding plates, 4to. (pp. 50), sewn, 4s Cambridge, 1770
- 12075 **MORGAN (Alexander)** ELEMENTARY PHYSIOGRAPHY treated experimentally, with 244 illustrations, cr. 8vo. cl., 1s 6d 1898
- 12076 **MORGAN (E.)** The TAVERN-KEEPER'S GUIDE; or, the Butler's Assistant: containing RECEIPTS for the managing, colouring, and flavouring of FOREIGN WINES, and for making and managing BRITISH WINES and COMPOUNDS, with Directions for the making of YEAST, etc. etc., 3rd Edition, with Additions, cr. 8vo. boards (slightly stained), 7s 6d [c. 1810]
Specially interesting for giving on pp. 30-98 receipts for making 30 different varieties of British Wines.
- 12077 **MORGAN (John H., Cambridge Observatory), and John T. BARBER:** ACCOUNT of the AURORA BOREALIS seen near Cambridge, Oct. 24th, 1847, with those of Sept. 21, 1846, and March 19, 1847, seen at the Cambridge Observatory, with 12 coloured plates, impl. 8vo. hf. calf, g. e., with bookplate of Henry B. H. Beaufoy, F.R.S. (SCARCE), 18s 6d Cambridge [1847]
Valuable for giving coloured illustrations of aurora. There is no copy of this work in the Royal Meteorological Society's Library Catalogue, 1891.
- 12078 **MORGAN (Silvanus; writer on heraldry)** HOROLOGIOPHIA OPTICA: DIALLING Universal and Particular: Speculative and Practical . . . with diverse Propositions of the Use and Benefit of Shadows, serving to prick down the Signes, Declination, and Azimuths, on Sun-Dials, etc., illustrated by diverse OPTICALL CONCEITS; lastly TOPOTHESIA, or a feigned Description of the Court of Art, full of Benefit for the making of Dials, Use of the Globes, Difference of Meridians, and most Propositions of Astronomie, with many usefull Instruments and Dials in Brasse, made by WALTER HAYES, in More Fields, with finely engraved title, engravings on copper, and numerous woodcuts, sm. 4to. old panelled calf (corner of engraved title missing and mended, otherwise a FINE AND LARGE COPY); rare, £3. 3s R. and W. Leybourn, 1652
One of the most valued early English works on dialling. It contains a 'Table of Right and Contrary Shadows, to every Degree and tenth Minute of the Quadrant.'
- MORGAN (William; actuary to the Equitable Society, F.R.S.)** ELECTRICAL EXPERIMENTS to ascertain the NON-CONDUCTING POWER of a PERFECT VACUUM (1785)—v. KIRWAN, No. 10207, ante.
- 12079 ——— EXAMINATION of DR. [ADAIR] CRAWFORD'S [F.R.S.] THEORY of HEAT and COMBUSTION, with plate, 8vo. (pp. 70), sewn (scarce), 6s 1781
Controverting Dr. Crawford's theory of heat (v. No. 894 ante), which was still based on the phlogiston theory.
- 12080 ——— On the METHOD of DETERMINING, from the real Probabilities of Life, the VALUES of CONTINGENT REVERSIONS, in which THREE LIVES are involved in the Survivorship, 4to. (pp. 32), sewn, 3s 6d 1791
Added to it is: The Longitude of Duukirk and Paris from Greenwich, deduced by Triangular Measurement, 1787-8, by ISAAC DALBY, with plate, 1791.
- 12081 ——— [SECOND PAPER], 4to. (pp. 39), sewn, 3s 6d 1794
- 12082 ——— The PRINCIPLES and DOCTRINE of ASSURANCES, ANNUITIES on LIVES, and CONTINGENT REVERSIONS, stated and explained, 8vo. boards, uncut, 8s 6d 1821
'Morgan takes high rank among the pioneers of life assurance in England. The phenomenal success of the EQUITABLE Society in the midst of so many contemporary failures was mainly due to his careful administration and sound actuarial advice. The details which he published as to the mortality experience of that society furnished data for the amendment of the Northampton tables, and the construction of others by various actuaries.'—D. N. L.
The above forms the 2nd edition of the *Doctrine of Annuities* (1779), greatly enlarged, and with 'the different problems derived from the real probabilities of life rather than from an hypothesis.'

- 12084 **MORGAN** (Augustus de; F.R.A.S., *Prof. Mathematics, Univ. Coll., London*) On ANCIENT and MODERN USAGE in RECKONING, 12mo. (pp. 30), *unbound*, 2s [1849]
- 12085 — ARITHMETICAL BOOKS, from the INVENTION of PRINTING to the PRESENT TIME: Brief Notices of a large Number of Works, drawn up from Actual Inspection, 8vo. *cl.*, *uncut (scarce)*, 12s 6d 1847
- 12086 — ANOTHER COPY, *hf. calf neat, with inscr. 'From the Author' on flyleaf, 14s*
An invaluable work, containing over 1500 titles, with valuable critical and historical notes, copious introduction, and 'Index of 1580 Names of reported Authors, Editors, etc. of Works on Arithmetical'. 'Few contemporaries were as profoundly read in the history of mathematics.'—*Prof. Cajori*.
'The most worthless book of a bygone day is a record worthy of preservation. Like a telescopic star, its obscurity may render it unavailable for most purposes; but it serves, in hands which know how to use it, to determine the places of more important bodies.'—*Preface*.
- 12087 — On ARITHMETICAL COMPUTATION, 12mo. (pp. 22), *unbound*, 1s 6d [1843]
- 12088 — On the BEATS of IMPERFECT CONSONANCES, with 2 diagrams, 4to. (pp. 19), *sewn*, 2s 6d
Cambridge, 1858
- 12089 — The BOOK of ALMANACS, with INDEX of REFERENCE, by which the Almanac may be found for every Year, whether in Old Style or New, from any Epoch, ancient or modern, to A.D. 2000, with Means of Finding the Day of any New or Full Moon from B.C. 2000 to A.D. 2000; 2nd Edition, oblong 8vo. *cl.*, 3s (p. 6s) 1871
- 12090 — A BUDGET of PARADOXES, reprinted, with the Author's Additions, from the Athenæum [edited by his Wife SOPHIA], thick 8vo. *cl.*, *uncut (SCARCE)*, £2. 10s 1872
- 12091 — ANOTHER COPY, *new hf. morocco gilt, t. e. g.* £2. 15s
One of the most interesting and witty books ever written, and invaluable for its history and bibliography of some scientific fallacies, e.g. 'circle-squaring'. It contains besides a large number of anecdotes, etc. on mathematical and scientific subjects. 'He had a love of puns, and all ingenious puzzles and paradoxes, which makes his 'Budget of Paradoxes' as amusing as it is learned.'—*Sir Leslie Stephen*.
'It is by far the most individual book of the age—individual, not merely in its own singularity as a book, but as presenting with a marked degree of clearness and exactness the personality of one who was never quite a man among other men. . . . To sum up, this is a book that should be read by those who care about circle squarers and all manner of jokes, mathematical and other; by those who care to make the acquaintance of Augustus de Morgan, which it is well worth while to do; but above all by those who care to be led into right thinking and warned from wrong.'—*Prof. W. K. Clifford*.
- 12092 — On the CALCULATION of SINGLE LIFE CONTINGENCIES: On LIFE CONTINGENCIES, No. II—2 papers 12mo. (pp. 44), *unbound*, 2s 6d [1839-41]
- 12093 — CALCULUS of FUNCTIONS (Encyclopædia Metropolitana), 4to. (pp. 88), *unbound*, 4s 6d [1836]
- 12094 — ANOTHER COPY, *hf. cl.*, 5s
'His articles on the calculus of functions and on the theory of probabilities (*v. Nos. 12129-30 post*) are worthy of special note. The former contains an investigation of the principles of symbolic reasoning, but the applications deal with the solution of functional equations rather than with the general theory of functions.'—*W. W. R. Ball*.
They have never been republished in any form.
- 12095 — On DECIMAL COINAGE, 12mo. (pp. 17), *unbound*, 1s 6d [1847]
- 12096 — The DIFFERENTIAL and INTEGRAL CALCULUS, containing Differentiation, Integration, Development, Series, Differential Equations, Differences, Summation, Equations of Differences, CALCULUS of VARIATIONS, and Definite Integrals, with Applications, and with ELEMENTARY ILLUSTRATIONS, 8vo. (pp. 869), *cl.*, or, *calf*, 10s 6d
S. D. U. K., 1842
- 12097 — ANOTHER COPY, *hf. morocco gilt*, 12s
- 12098 — ANOTHER COPY, *prize morocco extra, g.e. (back faded), with prize inscr. by P. Kelland, F.R.S.*, 12s 6d
'Still a standard work, and containing much that is original with the author.'—*Prof. Cajori*. 'A work of great ability, and noticeable for the rigorous treatment of infinite series.'—*W. W. R. Ball*.
- 12099 — On the EARLIEST PRINTED ALMANACS, 12mo. (pp. 31), *unbound*, 2s [1845]
- 12100 — On the EARLY HISTORY of the SIGNS + and —, 4to. (pp. 10), *sewn*, 3s Cambridge, 1865
- 12101 — On the ECCLESIASTICAL CALENDAR, 12mo. (pp. 44), *unbound*, 2s [1844]
- 12102 — The ELEMENTS of ALGEBRA, preliminary to the Differential Calculus, first edition, with diagrams, large post 8vo. *cl.*, with *MS. notes*, 3s 1835
- 12103 — SECOND EDITION [revised], with diagrams, large post 8vo. *cl.*, 3s 6d 1837
Still a very useful elementary text-book, and one of those—not too common—which contain reasoning and not rules.
- 12104 — ELEMENTS of ARITHMETIC [5th and LAST EDITION, with eleven New Appendices], large post 8vo. *cl.*, 3s 6d 1850, 57, or '61
- 12105 — ELEMENTS of SPHERICAL TRIGONOMETRY, with woodcuts, 8vo. (pp. 32), *sewn, with auto. of Prof. N. S. Maskelyne, F.R.S.* [1836]
- 12106 — ESSAY on PROBABILITIES, and on their Application to Life Contingencies and INSURANCE OFFICES, with vignette by Finden, and diagrams, fcap. 8vo. *cl.*, 4s 6d [1838]
A work of well-known excellence.
'The best popular, and at the same time most profound English work on the subject [of probability] is De Morgan's 'Essay on Probabilities.'—*Prof. W. S. Jevons, F.R.S.*
- 12107 — EXPLANATION of the GNOMONIC PROJECTION of the SPHERE: a Description of the Construction and Use of the Larger and Smaller MAPS of the STARS; as also of the Six Maps of the Earth, illustrated, 8vo. *cl.*, 3s 6d 1836
- 12108 — FORMAL LOGIC: or, the CALCULUS of INFERENCE, Necessary and Probable, 8vo. *cl.* (cover very slightly damaged); SCARCE, 15s 1847
- 12109 — ANOTHER COPY, *cl. (cover slightly damaged), with author's inscr. as below*, 16s
'H. C. Standert Esq. from the Author.'—*Inscr. on flyleaf*.
One of the first works attempting to place logic on a mathematical basis. It caused an attack from Sir William Hamilton, the metaphysician, who accused the author of having appropriated therein his doctrine of the 'quantification of the predicate'. Prof. de Morgan's reply may be found in his *Budget of Paradoxes*.

- 12111 **MORGAN** (Augustus de; F.R.A.S., *Prof. Mathematics, Univ. College, Lond.*) On the GENERAL EQUATION OF CURVES of the SECOND DEGREE, 4to. (pp. 8), *sewn, with author's inser. to Dionysius Lardner, pr., LL.D., F.R.S., 3s* Cambridge, 1831
- 12112 — On the GENERAL PRINCIPLES of which the COMPOSITION or AGGREGATION of FORCES is a CONSEQUENCE, 4to. (pp. 17), *sewn, 3s* *ib.*, 1859
- 12113 — On INFINITY; and on the SIGN of EQUALITY, 4to. (pp. 45), *sewn, 4s* *ib.*, 1865
 'I cannot imagine, said a good mathematician, what people mean by writing about first principles; it seems to me like *poking into nothing*: I have no doubt he truly described his own state.'—p. 2.
- 12114 — LETTER to the PRESIDENT, on the FOUNDATION of the [ASTRONOMICAL] SOCIETY, 8vo. (pp. 2), *sewn, 1s* *n. d.*
 — NEWTON: his Friend and his Niece (1885)—v. NEWTONIANA, *post.*
 — On a POINT connected with the DISPUTE between KEIL and LEIBNITZ about the INVENTION of FLUXIONS (1846)—v. NEWTONIANA, *post.*
- 12115 — RECURRENCE of ECLIPSES and FULL MOONS, 12mo. (pp. 3), *unbound, 1s* [1846]
- 12116 — REFERENCES for the HISTORY of the MATHEMATICAL SCIENCES, 12mo. (pp. 26), *unbound, 2s* [1842]
- 12117 — SHORT ACCOUNT of some RECENT DISCOVERIES in England and Germany relative to the Controversy on the INVENTION of FLUXIONS, 12mo. (pp. 16), *unbound, 2s* [1851]
- 12118 — SHORT SUPPLEMENTARY REMARKS on the FIRST SIX BOOKS of EUCLID'S ELEMENTS, 12mo. (pp. 12), *unbound, 1s 6d* [1848]
- 12119 — On SOME POINTS in the HISTORY of ARITHMETIC, 12mo. (pp. 18), *unbound, 2s* [1850]
- 12120 — STATEMENT in ANSWER to an ASSERTION made by SIR WILLIAM HAMILTON, Prof. of Logic, Univ. Edin., 8vo. (pp. 16), *sewn, 2s 6d* [1847]
 His answer to a charge of 'breach of confidence' and 'false dealing' in appropriating Sir William Hamilton's ideas on logic.
- 12121 — On the STRUCTURE of the SYLLOGISM, and on the APPLICATION of the THEORY of PROBABILITIES to Questions of ARGUMENT and AUTHORITY, 4to. (pp. 30), *sewn, with author's inser. to John Hoppus, F.R.S. (scarce), 10s 6d* Cambridge, 1847
 This tract, which formed No. I of the Series on Syllogism, together with his work on *Formal Logic*, started the famous controversy with Sir William Hamilton on the latter's doctrine of the quantification of the predicate.
- 12122 — On the STUDY and DIFFICULTIES of MATHEMATICS, 8vo. (pp. 96), *sewn (no title), 2s 6d* [1831]
- 12123 — ANOTHER COPY, with EXAMPLES of the PROCESSES of ARITHMETIC and ALGEBRA, 2 vols. 8vo. in 1, *boards, 3s 6d* [1832]
- 12124 — On the SYLLOGISM, No. III, and on LOGIC in GENERAL, 4to. (pp. 60), *sewn, 5s* Cambridge, 1858
- 12125 — —, No. IV, and on the LOGIC of RELATIONS, 4to. (pp. 32), *sewn, 4s* *ib.*, 1860
- 12126 — —, No. V, and on the various Points of the ONYMIATIC SYSTEM, 4to. (pp. 60), *sewn, 4s* *ib.*, 1863
 The last paper published of the series. No. I is entitled 'On the Structure of Syllogism' (No. 12121), and No. II 'On the Symbols of Logic' (No. 12127).
- 12127 — On the SYMBOLS of LOGIC, the THEORY of the SYLLOGISM, and in particular of the COPULA, and the Application of the Theory of Probabilities to some Questions of Evidence, 4to. (pp. 51), *sewn, 5s* *ib.*, 1850
 Forming No. II of the Syllogism Series.
- 12128 — A THEOREM relating to NEUTRAL SERIES, 4to. (pp. 13), *sewn, with auto. of John Hoppus, F.R.S., 2s* *ib.*, 1865
- 12129 — THEORY of PROBABILITIES (*Encyclopædia Metropolitana*), 4to. (pp. 93), *unbound, 4s* [1836]
- 12130 — ANOTHER COPY, *hf. cl., 4s 6d*
- 12131 — TRIGONOMETRY and DOUBLE ALGEBRA, *with front. and diagrams, 8vo. cl. (SCARCE), 12s 6d* 1849
 'His 'double algebra' was the forerunner of quaternions, and contained the complete geometrical interpretation of $\sqrt{-1}$.—*R.A.S. Monthly Notices.* Sir W. R. Hamilton acknowledged the suggestions he received from the above work in inventing Quaternions in his *Lectures on Quaternions (q. v. ante)*.
 'Double algebra means algebra in which each symbol stands for an object of thought having two distinct and independent qualities'.—*Preface.*
- 12132 — On the USE of SMALL TABLES of LOGARITHMS in COMMERCIAL CALCULATIONS, and on the PRACTICABILITY of a DECIMAL COINAGE, 12mo. (pp. 17), *unbound, 1s 6d* [1840]
- 12133 — MEMOIR of, by his Wife SOPHIA ELIZABETH, with select LETTERS, *autotype portrait, 8vo. cl. (o. p.), 8s 6d* 1882
 Not only of great interest as a biography, but valuable for the author's interesting correspondence with Sir William Hamilton, Sir John Herschel, Dean Peacock, John Stuart Mill, Admiral Smyth, Dr. Whewell, and many others.
 — v. Nos. 10796-7, *ante.*
- 12134 **MORGAN** (Major F. C.) HANDBOOK of ARTILLERY MATÉRIEL, 5th Edition, *with 23 plates and 4 folding tables (linen-mounted), 12mo. hf. morocco, 2s 6d* 1892
- 12135 **MORGAN-BROWN** (William), LETTERS PATENT to, for the INVENTION of 'IMPROVEMENTS in ELECTRIC TELEPHONY (Transmitting or Causing Sounds for Telegraphing Messages) and TELEPHONIC APPARATUS': a Communication from abroad by ALEXANDER GRAHAM BELL, *with 5 plates (4 folding), impl. 8vo. (pp. 21), sewn (scarce), 6s 6d* 1877
 The patent specification of the invention of Graham Bell's magneto-telephone.
- 12136 **MOROZZI** (Fernando) Dello STATO ANTICO e MODERNO del FIUME ARNO, e delle Cause e de' Rimedi delle sue INONDAZIONI: Ragionamento Istoricco Mattematico; *with 2 plates (1 folding), other engravings, and folding plan of Florence, 2 vols. 4to. in 1, old white vellum (fine copy); with booklabel of George Rennie, F.R.S., 8s 6d* Firenze, 1762-6

- 12138 **MORGANS** (William, *Bristol School of Mines*) MANUAL OF MINING TOOLS, fcap. 8vo., with Atlas, containing 20 folding plates with 235 figures, 4to. hf. calf, 4s 1871
- 12139 **MORIN** (Gén. Arthur Jules; de l'Institut) AIDE-MÉMOIRE de MÉCANIQUE PRATIQUE, 2^e Edition, augmentée de Résultats nouveaux d'Expériences sur les TURBINES, etc. etc.; with 61 illustrations, 8vo. hf. calf (rubbed), 2s 6d Metz, 1838
- 12140 ——— TROISIÈME EDITION, augmentée de Tables relatives au Mouvement de l'Eau dans les Tuyaux de Conduite, etc. etc.; with 59 woodcuts, 8vo. hf. calf, 3s 1843
- 12141 ——— QUATRIÈME ÉDITION, augmentée de RÉSULTATS d'EXPÉRIENCES sur les TURBINES, etc. etc.; with 70 woodcuts, 8vo. hf. green morocco gilt, 3s 6d 1847
- 12142 ——— CINQUIÈME EDITION [considérablement augmentée]; with 74 woodcuts, 8vo. hf. calf (binding damaged), 3s 6d 1864
- 12143 ——— FUNDAMENTAL IDEAS of MECHANICS and EXPERIMENTAL DATA, revised, translated, and reduced to English Units of Measure by JOSEPH BENNETT, with 124 woodcuts, 8vo. cl. (scarce), 6s New York, 1860
- The chapter on friction is of special interest, as the author was the first to investigate that of gliding and rolling bodies.
- 12144 ——— MACHINES et APPAREILS destinés à l'ÉLEVATION des EAUX; with 9 folding plates, 8vo. cl. (nice copy), with auto. of O. Henrici, F.R.S., 4s 1863
- Treating of pumps and hydraulic rams. Mr. P. Björling, in his work on Pumps, refers to the author as 'that great and justly celebrated French Hydraulic Engineer'.
- 12145 ——— NOUVELLES EXPÉRIENCES sur le FROTTEMENT, faites à Metz en 1832 [SECOND MÉMOIRE, avec Rapport par F. ARAGO]; with 4 folding plates, 4to. sewn, 5s 6d 1834
- A classic work on friction, 'présentant des résultats précieux pour la physique et pour les arts.'—F. Arago.
- 12146 ——— RÉSISTANCE des MATÉRIAUX, 2^e Edition; with 6 folding plates; and diagrams, 8vo. hf. calf, 3s 1857
- 12147 **MORIN** (Jean Baptiste, M.D., *Parisiis Regius Mathematicum Professor*) ASTROLOGIA GALICA Principiis et Rationibus propriis stabilitata, atque in XXVI Libros distributa, non solum ASTROLOGIÆ JUDICARIÆ studiosis, sed etiam Philosophis, Medicis, et Theologis omnibus per-necessaria: quippe multa complectens eximia ad Scientias illas spectantia; with fine portrait on copper by N. Poilly after A. B. Flamen (brilliant impression), and numerous diagrams and horoscopes, thick folio, contemporary white vellum extra, g. e. (slightly foxed, but a FINE AND LARGE COPY); RARE, £1. 12s 6d Hage-Comitus, Adrianus Vlacq, 1661
- The author enjoyed a great reputation as an astrologer, and the fulfilment of his horoscopes (e.g. the deaths of Gustavus Adolphus, Cardinal de Richelieu, Cinq-Mars, etc.) gained him the patronage of many eminent personages of the time. He was often consulted by Cardinals Richelieu and Mazarin, the latter of whom allowed him a pension of 2,000 livres, which (contrary to his usual practice) was paid regularly. His most eminent service to science was an attempt to determine the longitude by lunar and stellar distances.
- The above work contains the author's Life (pp. 21), which is still the chief authority on him.
- 'Cet ouvrage, auquel il travailla pendant 30 ans, fut publié par les soins de Louise-Marie de Gonzague, reine de Pologne, qui fit les frais de l'impression. . . . Morin peut être regardé comme le dernier des astrologues. . . . Son aveuglement l'empêcha de rendre justice aux découvertes de Kopernic, et il soutint, avec une sorte de rage, contre Gassendi et Bernier, l'immobilité de la terre.'—*Biogr. Gén.*
- 12148 ——— TABULÆ RUDOLPHINÆ, or the RUDOLPHINE TABLES, supputed to the Meridian of Uraniburge, first, by JOHN KEPLER, from the Observations of TICHO BRAHE, afterwards digested into a most ACCURATE, and EASIE COMPENDIUM, 12mo. sewn, 7s 6d 1675
- 12149 **MORITZ** (Edward Ralph, F.I.C.), and T. A. GLENDINNING: NOTES on DIASTATIC ACTION, 8vo. (pp. 7), sewn, with inser. to Prof. Meldola, F.R.S., 1s 6d 1892
- 12150 ———, and George Harris MORRIS, FF.I.C.: TEXT-BOOK of the SCIENCE of BREWING, based on a Course of Six Lectures delivered by E. R. MORITZ at the Finsbury Technical College, with 10 plates and 13 woodcuts, thick 8vo. cl. (name on title); VERY SCARCE, £2. 2s 1891
- The first English theoretical text-book on brewing, treating the subject as part of chemical science, and intended as a scientific companion volume to E. R. Southby's 'Practice of Brewing'. The work soon went out of print, and is now very scarce.
- 12151 **MORLEY** (Christopher Love): COLLECTANEA CHYMICA LEYDENSIA, id est, MAETSIANA, MARGRAVIANA, LE MORTIANA, sc. trium in Academia Lugduno-Batavâ Facultatis Chemicæ Professorum, qui isthæc Discipulis suis, ex omni Europa illo confluentibus, per hos Annos, non solum ostenderunt, verum etiam suis Verbis dictarunt, Opus, quingentis, et amplius, Processibus adornatum, omnibus et MEDICIS, et CHIMICIS, et PHARMACOPÆIS, imprimis utile; cum ob insignem plerumque usitatorum Processuum Varietatem, tum novam, atque elegantem in singulis operandi Rationem, tribus his, tantisque Viris, in Usu habitam. Collegit, digessit et edidit C. L. M., sm. 4to. old calf gilt, 12s 6d Lugd. Bat., Henr. Drummond, 1684
- 12152 ——— EDITIO NOVA, plurimis novis elegantioribus et accuratioribus Experimentis instructa et aucta, meliorem in Ordinem redacta, ubi correctæ, a superfluis Processibus munda per THEODORUM MUYKENS, M.D., 12mo. sound copy in contemporary calf gilt, 7s 6d Antverpiæ, 1702
- 'Morley was accustomed to take copious notes of lectures, cases, etc. . . . He was evidently of remarkably wide knowledge in medicine and other sciences. He published Collectanea Chymica Leydensia (1684), which is evidently extracted from the note-books above referred to. It consists of a large number of chemical and pharmaceutical receipts taken from the lectures of van Maëts, [Christiaan] Marggrav, and Le Mort.—D. N. B. The preface contains biographical information.
- 12153 **MOROGUES** (Sébastien François Bigot, Vicomte de; Lt.-Gén. des Armées navales) ESSAY de l'APPLICATION des FORCES CENTRALES aux EFFETS de la POWDRE à CANON, d'où l'on déduira une Théorie propre à perfectionner les différentes Bouches à Feu; with folding plate, post 8vo. old calf joints broken, 7s 6d 1737
- Bound up with the above are: Procès-Verbal des Épreuves faites aux Écoles d'Artillerie de Douay, sur les Portées des Pièces de quatre longues, et de celles de quatre courtes du nouveau Modèle, Amst., 1772: Réponse de l'Auteur de l'Essai sur l'Usage de l'Artillerie dans la Guerre de Campagne et dans celle de Sieges, à l'Auteur d'un Livre intitulé: Artillerie Nouvelle, etc. (pp. 35), s.d. [c. 1772].

12155 **MORLAND (Sir Samuel)** The DESCRIPTION and USE of TWO ARITHMETICK INSTRUMENTS, together with a Short Treatise, explaining and demonstrating the ORDINARY OPERATIONS of ARITHMETICK, as likewise a PERPETUAL ALMANACK, and several Useful Tables, with 13 copperplates (4 folding), 10 tables on copper, and diagrams, 16mo. contemporary calf (joints weaker); RARE, £2. 7s 6d
Moses Pitt, at the White-Hart in Little-Britain, 1673

12156 ——— ANOTHER COPY, with the RARE ENGRAVED PORTRAIT 'in a wig'; FINE AND LARGE COPY in contemporary calf gilt (back slightly damaged), £3. 3s

The above work includes, with a separate title, dated 1672: 'A New and most useful Instrument for Addition and Subtraction of Pounds, Shillings, Pence, and Farthings, without charging the Memory, disturbing the Mind, or exposing the Operator to any Uncertainty: which no Method heretofore published, can justly pretend to. Invented and presented to . . . Charles II. 1666 by S. Morland'.

'The arithmetical machines, originally presented to Charles II. in 1668 [sic], were manufactured for sale by Humphry Adanson, who lived with Jonas Moore in the Tower of London. By means of them the four fundamental rules of arithmetic were readily worked. This calculating machine appears to have been a modification of one constructed by Blaise Pascal about 1642. One of Morland's machines [which were the prototype of Thomas's arithmometer] is now at South Kensington'.—D. N. B.

12157 ——— ELEVATION des EAUX par toute Sorte de MACHINES, reduite à la Mesure, au Poids, à la Balance, par le Moyen d'un nouveau Piston, et Corps de Pompe, et d'un nouveau Mouvement Cyclo-Elliptique en rejettant l'Usage de toute Sorte de Manivelles ordinaires; avec 8 PROBLEMES de MECHANIQUE proposez aux plus habiles et aux plus scavans du Siècle; printed in red and black, with 33 fine copperplates, and folding table, 4to. old calf gilt, newly and neatly rebaked (VERY RARE), £1. 10s

12158 ——— ANOTHER COPY, with fine portrait by PIERRE LOMBART after Sir P. Lely, FINELY BOUND in OLD ENGLISH CRIMSON MOROCCO EXTRA, gilt backs, Harleian gold tooling on sides, g. e. (bands of back slightly rubbed, nevertheless a very fine copy), £5. 5s

This copy is from the library of George Rennie, C.E., F.R.S., and belonged originally to WILLIAM LUDLAM, PR., mathematician (1717-58), who has written on the flyleaf an account of the author's water engine at Windsor, which 'raised water from the Thames 60 feet above the top of Windsor Castle at the rate of 60 barrels per hour by eight men' (D. N. B.).

The above is a very rare, if not unique, issue, not only from having a portrait added, but also for having, in place of the 'Almanac Perpetuel' usually occurring, a 'Table des Pieds Quarrez et Pieds Cubiques'.

This is the author's most important work (no English edition of which has ever been published), and includes his invention of the plunger pump, containing the gland and stuffing box—a contrivance often erroneously attributed to James Watt. The appendix contains 'Reflexions très-curieuses sur la Proportion Continue', 'Table pour la Quadrature du Cercle', and huit Problèmes de Mechanique proposez aux plus habiles Machinistes du Siècle'.

'Morland was one of the chief mechanicians of his time. His most important discoveries were in connexion with hydrostatics. The problems connected with raising water to a height by mechanical means were receiving a great amount of attention during the middle of the XVII. century, and to the discoveries in this field (in which Morland bore an important part) are largely attributed the subsequent rapid development of the steam-engine and the accelerated rate of evolution in mechanical science generally'.—D. N. B.

In the original MS. of the above work (preserved in the British Museum) the author made an important suggestion for employing steam for working pumps, which made him one of the first to demonstrate the practical utility of steam-power.

'The plunger pump was invented by Sir Samuel Morland, and patented by him in 1675. The best feature in Sir Samuel's invention is the stuffing-box. This last-named contrivance, whose universal utility is testified by its very general use, and without which the steam engine could scarcely exist, is undoubtedly the invention of this distinguished and ingenious man, and alone ought to render his name immortal'.—William Pole, F.R.S.

12159 ——— HYDROSTATICKS: or, INSTRUCTIONS concerning WATER WORKS collected out of the Papers of SIR SAMUEL MORLAND [with Preface by his Son JOSEPH MORLAND], containing the Method which he made Use of in this Curious Art, with 5 woodcuts, 16mo. contemporary sheep (RARE), £1. 5s
John Lawrence, 1697

'Containing an account of various methods of raising water, and tables of square and cube roots. It appears from the preface that a number of mathematical papers, left by Morland, were then in his son's possession'.—D. N. B.

'He told me particularly that they [the papers printed in the above work] contained the Mystery of that Art and nimble Dispatch, which he was Master of in the Making and Managing of (more especially) such Mechanical Engines as relate to the Water'.—Preface.

12160 **MORRISON OBSERVATORY, Glasgow, Mo.**, PUBLICATIONS of the, No. I, containing Description of the Instruments, and Details of Determination of the Geographic Co-ordinates of the Meridian Pier, miscellaneous Observations, and Notes, prepared by the Director, CARR WALLER PRITCHETT, with plates, roy. 4to. sewn, 4s
Lynn, Mass., 1887

12161 **MORRISON (G. James, M.I.C.E.)** MAPS, their USES and CONSTRUCTION, with 45 diagrams, 1901
cr. 8vo. cl., 3s (p. 5s nett)

12162 **MORRISON (Commr. Richard James, R.N.; 'ZADKIEL')** The COMET: a large LITHOGRAPHIC MAP of the TRUE COURSE of ENCKE'S COMET, with a LETTER to the MEMBERS of the ROYAL ASTRONOMICAL SOCIETY, with 2 folding plates, 8vo. (pp. 45), sewn, 6s 6d [1860]

This paradox (which is not budgeted by Prof. de Morgan) attempts to explain the course of comets in agreement with the author's geocentric system.

'Zadkiel Tao Sze' as a Lieutenant in the Navy seems queer nowadays, but such he was before he took up with astrology. Whether he was a fool or a charlatan can never be proved; but he showed much bravery on active service before he was twenty, and was equally brave in saving life afterwards. He became a stubborn paradoxer as well as the most popular prophetaster of his time.

12163 ——— The NEW PRINCIPIA; or TRUE SYSTEM of ASTRONOMY, in which the EARTH is proved to be the STATIONARY CENTRE of the SOLAR SYSTEM; and the SUN is shown to be only 365,000 Miles from the Earth, and the MOON only 32,828.5 Miles distant; while the Sun travels yearly in an Ellipse around the Earth, the other Planets moving about the Sun in Ellipses also, with 2 folding plates and 8 woodcuts, 8vo. (pp. 64), sewn (scarce), 7s 6d [1868]

Avowedly written to supersede the Principia, and to show up 'the absurdity of the whole system taught by Newton'.—Intro.

'Dedicated to the Schoolmasters of Great Britain. Gentlemen, You can all understand this work. You have in your hands the forming the minds of the next generation of men. If you learn hereby the TRUTH, as to Astronomy, you are responsible for informing your Pupils' minds in conformity therewith. Your respectful servant, The Author'.

- 12195 **MOSELEY** (Benjamin, M.D., *Physician to Chelsea Hospital*) TREATISE ON SUGAR, with Miscellaneous Medical Observations; 2nd Edition, with considerable Additions, 8vo. boards, uncut, with author's inscr. (scarce), 10s 6d 1800
 'Containing the exciting story of the death of Three-fingered Jack, a famous negro outlaw slain by three Maroons, who described their encounter in 1781 to Dr. Moseley'.—D. N. B.
- 12196 [**MOSELEY** (Henry, F.R.S.; *Canon of Bristol*)] DEFINITE INTEGRALS (Encyclopaedia Metropolitana), 4to. (pp. 54), sewn, 3s 6d [1837]
 One of the author's more important works (D. N. B.), and never reprinted.
- 12197 ——— ILLUSTRATIONS OF MECHANICS, with 85 woodcuts, fcap. 8vo. cl., 3s 1839
- 12198 ——— LECTURES ON ASTRONOMY at King's College, London, 2nd Edition, with front. and woodcuts, post 8vo. cl., 2s 6d 1846
- 12199 ——— THIRD EDITION, revised, with front., and woodcuts, post 8vo. cl., 3s 1850
- 12200 ——— FOURTH [LAST] EDITION, revised, with front., and woodcuts, 12mo. cl., 3s 1854
- 12201 ——— The MECHANICAL PRINCIPLES OF ENGINEERING and ARCHITECTURE, with numerous woodcuts, etc., 8vo. cl., with auto. of George Kenzie, F.R.S., 4s 1843
- 12202 ——— SECOND [LAST] EDITION [enlarged], with numerous woodcuts, 8vo. hf. morocco (title stamped); scarce, 8s 6d 1855
 'A standard text-book on the subject.'—Prof. Mahan.
 This edition contains four additional articles in the Appendix, which include one 'On the Rolling of Ships', containing the formula by which the dynamical stability of all ships of war has since been calculated, and 'one of the most extensively useful results of Moseley's mathematical labours' (D. N. B.).
 Another is the article on the observed motion of the lead on the roof of Bristol Cathedral under changes of temperature, 'which caused him to advance the theory that the motion of glaciers might be similarly explained.'—D. N. B.
 'Moseley's chief merit is the introduction into English of the methods of the French elasticians, notably Poisson's conception of work. . . . The book contains a good deal which might be useful even to the practical student of to-day, for many of the problems considered are not to be found in the ordinary text-books.'—Todhunter & Pearson's *History of Elasticity*.
- 12203 ——— RESEARCHES in the THEORY OF MACHINES, with diagrams, 4to. (pp. 21), unbound, 2s 6d 1841
- 12204 ——— On the ROLLING MOTION of a CYLINDER, roy. 4to. (pp. 18), sewn, with author's inscr., 3s 6d 1851
 Interesting in connexion with railway engineering, as giving algebraical formulæ for the driving wheel of the engine and its slip.
- 12205 ——— TREATISE on HYDROSTATICS and HYDRODYNAMICS, with 4 folding plates, 8vo. cl., 3s Cambridge, 1830
- 12206 ——— ANOTHER COPY, hf. calf gilt (nice copy), 3s 6d
- 12207 ——— TREATISE on MECHANICS, applied to the ARTS, including Statics and Hydrostatics, illustrated, fcap. 8vo. cl., 2s 6d 1834
- 12208 ——— SECOND EDITION, improved, illustrated, post 8vo. cl., 3s 1839
- 12209 **MOSSOTTI** (Ottaviano Fabrizio; *Univ. Pisa*) DISCUSSIONE ANALITICA sull' INFLUENZA che l'Azione di un MEZZO DIELETTRICO ha sulla DISTRIBUZIONE dell' ELETTICITÀ alla SUPERFICIE di più Corpi Elettrici disseminati in esso, roy. 4to. (pp. 26), sewn (scarce), 6s 6d Modena, 1846
 This memoir contains important investigations on the distribution of electricity in the dielectric medium, which were also made six years afterwards, but independently, by R. Clausius, to whom they are generally ascribed. The author's name is not even mentioned in Hoppe's 'Geschichte der Elektrizität.'
- 12210 ——— FORMOLA per rappresentare la TENSIONE del VAPOR ACQUEO, 4to. (pp. 11), cl. cover, with author's inscr. to the Duca di Rignano, 4s 6d ibidem, 1837
- 12211 ——— Sur les FORCES qui RÉGISSENT la CONSTITUTION INTÉRIEURE des CORPS: Apercû pour servir à la Détermination de la CAUSE et des LOIS de l'ACTION MOLÉCULAIRE, 4to. (pp. 34), sewn, with inscr. (scarce), 8s 6d Turin, 1836
 An important memoir on molecular physics treated mathematically, which became of authority in the modern analytical treatment of the theories of matter and space.
 'Considérant l'éther comme une masse continue, et les molécules comme des corps isolés, j'ai trouvé que si ces dernières sont sphériques, elles s'environnent d'une atmosphère dont la densité décroît suivant une fonction de la distance, qui contient un facteur exponentiel.'—P. 9.
- 12212 ——— On the VARIATION in the MEAN MOTION of the COMET of ENCKE, produced by the RESISTANCE of an ETHER, translated by DR. OLINTHUS GREGORY, 4to. (pp. 8), sewn, 4s 1824
 Interesting as an early attempt (treated mathematically) at ascribing a frictional property to the ether—a subject experimented on within recent years with negative results.
 Although one of the first to treat analytically such subjects as molecular physics and ether problems, the author received unmerited neglect by his contemporaries, and is not even noticed in the *Biographie Générale*.
- 12213 **MOTT** (T. F.) TWO PAPERS on the ORIGIN of ORGANIC COLOUR, 8vo. (pp. 14), sewn; 1s 6d Leicester, 1898
 Suggesting a physiological origin of colour in plants and animals.
- 12214 **MOUAT** (Frederic J., M.D.), and H. Saxon SNELL, F.R.I.B.A.: HOSPITAL CONSTRUCTION and MANAGEMENT, with numerous plates and woodcuts, and folding map (linen mounted), 4to. hf. morocco (rubbed); o. p., 8s 6d (p. £1. 10s) 1883
- 12215 **MOULIN** (Alfred) CORRÉLATION des LOIS NATURELLES, 8vo. (pp. 40), sewn, 1s 6d s. d.
- 12216 **MOUNTAINE** (William, F.R.S.) The SEAMAN'S VADE-MECUM and DEFENSIVE WAR at SEA, containing the Proportions of Rigging, Masts and Yards, Weight of Anchors, Sizes and Weight of Cables and Cordage, List of the Navy, Exercise of the Small-Arms, Bayonet, Granadoes and Great Guns, Duty of Officers, etc., also, shewing how to prepare a Merchant-Ship for a Close Fight, etc., etc., and Essay on Naval Bookkeeping, the Method of forming Signals, etc., with 2 folding plates, 12mo. old calf (joints cracked, and some ll. soiled), 8s 6d 1761
- 12217 **MOUSSON** (Albert, Zürich) Die PHYSIK auf GRUNDLAGE der ERFAHRUNG; 3. [neueste] umgearbeitete Auflage; with 5 folding plates and 1258 woodcuts, 3 vols. 8vo. hf. calf (slightly browned), 10s (p. M. 36 sewn) Zürich, 1879-1882

- 608 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 12219 **MOUREAUX (Thomas)** Sur la CONSTRUCTION des CARTES MAGNÉTIQUES ; with 2 woodcuts, 8vo. (pp. 42), *sewn* (o. p.), 1s 6d 1890
- 12220 ——— DÉTERMINATION des ÉLÉMENTS MAGNÉTIQUES en FRANCE, accompagnée de Nouvelles Cartes Magnétiques dressées pour le 1^{er} Janvier 1885 ; with 4 maps, roy. 4to. *sewn*, 4s 6d (p. F. 10 nett) 1886
- 12221 ——— DÉTERMINATIONS MAGNÉTIQUES dans le BASSIN OCCIDENTAL de la MEDITERRANÉE. — CARTES MAGNÉTIQUES de cette Région au 1^{er} Janvier 1888, 4to. (pp. 5), *sewn*, 1s 6d 1888
- 12222 ——— DÉTERMINATIONS MAGNÉTIQUES faites en FRANCE pendant l'Année 1889, impl. 4to. (pp. 80), *sewn*, with author's inser., 3s 6d 1889
- 12223 **MOXLEY (Joseph Henry Sutton, pr.)** TIDES SIMPLY EXPLAINED ; with Practical Hints to Mariners, diagrams, large post 8vo. cl., 3s 6d 1899
Directed against the 'extraordinary fallacies' of Sir George Airy, Lord Kelvin, Sir Robert Ball, and Sir G. H. Darwin, and establishing a tidal theory of the author's own making.
- 12224 **MOXON (Joseph, F.R.S., hydrographer to the King)** COMPENDIUM EUCLIDIS CURIOSI [sic] : or, GEOMETRICAL OPERATIONS, shewing how with one SINGLE OPENING of the COMPASSES and a STRAIGHT RULER all the PROPOSITIONS of EUCLID'S FIRST FIVE BOOKS are PERFORMED, translated out of Dutch, sm. 4to. (pp. 34), *sewn* (rare), 8s 6d J. C. for J. Moxon, 1677
This work was unknown to Allibone and the author's biographer in D. N. B., while Poggenдорff omits the author altogether from his *Handwörterbuch*. At end is a 6-p. Catalogue (*last l. defective*) of the author's globes, maps, mathematical instruments, and books, with prices.
- 12225 ——— MATHEMATICKS MADE EASIE : or, a MATHEMATICAL DICTIONARY, explaining the Terms of Art, and Difficult Phrases used in Arithmetick, Geometry, Astronomy, ASTROLOGY, and other Mathematical Sciences, with Appendix of Weights and Measures, the Marks, Symbols, or Abbreviations commonly used in ALGEBRA, etc., with 3 plates and diagrams, 12mo. *old calf*, (back of binding damaged, and title scribbled on) ; RARE, 17s 6d *apud auctorem*, 1679
First edition of the first mathematical dictionary ever published in any language. It was followed by Ozanam's, v. No. 3422, ante, published in 1601. At end is a Catalogue of Globes, etc., made and sold by the Author (pp. 7).
- 12226 ——— SECOND EDITION, corrected and much enlarged by HEN. COLEY, with 4 plates, 12mo. *sound copy in contemporary calf*, 10s 6d a. e., 1692
- 12227 ——— [THIRD EDITION :] collected from Monsieur Ozanam's Dictionaire Mathématique, Vitals, and others, etc. etc. etc., with fine portrait by F. H. van Hove, and 5 plates (2 folding), large 12mo. *sound copy in contemporary calf* (rebacked), 15s W. Hawes, 1701
This edition contains at end 'The Description and Explanation of Mathematical Instruments', with a separate title. As appears from the title, this edition was rewritten, and based on Ozanam's work.
The terms are arranged alphabetically. The editor, Henry Coley, was 'Teacher of the Mathematicks in Baldwins Gardens', which a hundred years after sank into the terrible slum which was chosen by Lord Addington as the site of St. Alban's, Holborn.
- 12228 ——— PRACTICAL PERSPECTIVE ; or Perspective made easie. Teaching by the Opticks, Catoptricks, and Dioptricks [sic], with 42 large copperplates (some folding), folio, *old calf* (RARE), £1. 5s *apud auctorem*, 1670
According to the author this was the first English work on practical perspective. Some of the plates give interesting views of interiors of houses.
- 12229 ——— A TUTOR to ASTRONOMIE and GEOGRAPHIE : or an Easie and speedy Way to know the Use of both the Globes, Cœlestial and Terrestrial, with the Antient Poetical Stories of the Stars, collected from DR. HOOD, and a Discourse of the Antiquity, Progress and Augmentation of Astronomie, first edition, with front., including portraits of Ptolemy and Tycho Brahe, and view of London with London Bridge, numerous engravings on copper and wood, and diagrams, sm. 4to. hf. calf (slightly water-stained, but a sound copy), £1. 1s a. e., 1659
The work professes to teach the subject 'more fully and amply than hath ever been set forth either by Gemma Frisius, Metius, Hues, Wright, Blaew, or any others that have taught the Use of the Globes : And that so plainly and methodically that the meanest Capacity may at first reading apprehend it.' The work is still based on the system of Tycho Brahe. Another work by the author, based on the Copernican system, was published in 1665, but does not appear to have been successful, for it was never reprinted.
- 12230 ——— THIRD EDITION, corrected and enlarged, with APPENDIX shewing the Use of the Ptolomaick [sic] Sphere, engravings on copper, and woodcuts, sm. 4to. *old calf*, 10s 6d T. Roycroft, 1674
- 12231 ——— ANOTHER COPY, *old calf* (newly and neatly rebacked), 12s
The above edition is dedicated to Samuel Pepys, 'Principal Officer of the Navy'. Pp. 136-181 treat of DIALLING, and contain a description of the Dial at Leadenhall Corner, made by John Leek.
- 12232 [**MOYA (Juan Perez de, Canonigo de Granada)**] TRATADO de GEOMETRIA PRACTICA y SPECULATIVA : TRATADO de ASTRONOMIA ; with woodcuts and numerous diagrams, 2 vols. folio in 1, *old limp vellum* (titles missing and last 10 ll. of Table of 'Astronomia' in MS.) ; very rare, £2. 2s [Alcala de Henares, 1573]
Two very rare works which were unknown to Poggenдорff (who does not even mention the author's name), Brunet, Ebert, Montucla, and others, while Prof. M. Cantor only mentions the author's *Arithmetica*.
The second book of the *Geometria* treats of surveying, and describes and illustrates some surveying instruments ; pp. 171-2 of the *Astronomia* give a description of AMERICA, pp. 194-5 the latitude and longitude of 119 towns of Europe, Africa and Asia, while book III deals with DIALLING.
- 12233 **MUCK (F.)** CHEMISCHE APHORISMEN über STEINKOHLLEN ; with folding tables, 4to. (pp. 24), *sewn*, 3s Bochum, 1873
- 12234 ——— GRUNDZÜGE und ZIELE der STEINKOHLLEN-CHEMIE ; with folding tables, roy. 8vo. cl. (scarce), 4s Bonn, 1881
- 12235 **MULCAHY (John, Queen's Coll., Galway)** PRINCIPLES of MODERN GEOMETRY, with numerous Applications to Plane and Spherical Figures, and Appendix of Questions, diagrams, 8vo. cl., 4s Dublin, 1852
- 12236 ——— ANOTHER COPY, with auto. of, and 10 pp. of MS. matter by, Sir Howard Warburton *Elphinstone*, 4s 6d
- 12237 ——— SECOND [LATEST] EDITION, revised, with numerous diagrams, 8vo. cl., 6s *ibid.*, 1862

- 12239 **MUDGE** (John; M.D., F.R.S., *brother of Thomas Mudge; friend of Dr. Johnson*) DIRECTIONS for making the best COMPOSITION for the METALS of REFLECTING TELESCOPES, with Description of the Process for GRINDING, POLISHING, and giving the great Speculum the true PARABOLIC CURVE, *with folding copperplate by Basire*, 4to. (pp. 50), *sewn* (RARE), 15s 1777
 'Mudge was awarded the Copley medal of the Royal Society for his *Directions*. . . . Sir John Pringle, the president, in making the presentation, remarked: 'Mr. Mudge hath truly realised the expectation of Sir Isaac Newton, who, about one hundred years ago, presaged that the public would one day possess a parabolic speculum, not accomplished by mathematical rules, but by mechanical devices'.—D. N. B.
- 12240 **MUDGE** (Thomas), DESCRIPTION of the TIME-KEEPER invented by, with a Narrative by THOMAS MUDGE, his Son, of Measures taken to give Effect to the Invention since the REWARD bestowed upon it by the HOUSE of COMMONS. 1793; a Republication of a TRACT on the IMPROVEMENT of TIME-KEEPERS, and Letters written by him to Count Bruhl [*sic*], 1773-87, *with fine portrait by SCHIAVONETTI, after Dance, and 9 folding plates, 4to. boards, uncut (portrait foxed and its lower margin water-stained)*; VERY RARE, £2. 2s 1799
 A full account of the author's chronometer—an improvement on Harrison's—for which he received a parliamentary grant of £2500. Mudge was the inventor of the lever escapement, and made Dr. Johnson his first watch in 1768. One of his watches is still preserved in going order in the Soane Museum.
- 12241 ——— REGISTER of the GOING of MR. MUDGE'S FIRST TIME-KEEPER, from April 18th, 1780, to May 7th, 1781: with 2 other Registers of the said Time-Piece, 4to. (pp. 16), *sewn*, 6s 6d [1781]
 Including the favourable report by Dr. Hornsby, Savilian prof. astronomy, Oxon., 1776, and the unfavourable one by Dr. Nevil Maskelyne, the Astronomer Royal, which caused a long controversy.
- 12242 ——— MUDGE JR. (Thomas, of Lincoln's Inn) A NARRATIVE of FACTS, relating to some TIME-KEEPERS, constructed by MR. THOMAS MUDGE, for the Discovery of the Longitude at Sea: with Observations on the Conduct of the Astronomer Royal respecting them, 8vo. (pp. 104), *sewn*, 1792
 DR. NEVIL MASKELYNE'S COPY:
- 12243 ——— A REPLY to the ANSWER of the REV. DR. MASKELYNE, Astronomer Royal, to a Narrative of Facts, relating to some Time-Keepers, constructed by MR. THOMAS MUDGE, for the Discovery of the Longitude at Sea, etc., with a Short Explanation of the most proper Methods of Calculating a Mean Daily Rate, with Remarks on some Passages in Dr. Maskelyne's Answer, by the COUNT DE BRUHL [*sic*], 8vo. boards (*back torn*), *uncut*, £1. 1s 1792
 This copy belonged to DR. NEVIL MASKELYNE, the Astronomer Royal, and contains in his handwriting 'From the author of the Appendix' on flyleaf, as well as corrections and numerous long pencil notes on margin, in which he replies to the objections advanced against him.
 'These [Mudge's green and blue chronometers] were submitted to the same rigorous tests as the first, but like it, they were described by the astronomer royal as not having satisfied the requirements of the act. A controversy ensued, in which it was stated that Maskelyne had not given the timekeepers fair trial, but that they had gone better in other hands both before and after the period during which they had been under observation. Mudge's case was strongly urged in a pamphlet issued by his eldest son, entitled 'A Narrative of Facts', 1792. Maskelyne retorted in 'An Answer to a Narrative of Facts' (v. No. 11542 *ante*), and the controversy closed with the younger Mudge's 'Reply to the Answer' (1792). . . . It is curious that Harrison entertained similar grievances against Maskelyne (v. Nos. 8965-6 and 8970, *ante*), and it was currently supposed that the astronomer royal had a scheme of his own for finding the longitude by lunar tables which disposed him to apply ultra-rigorous tests to the chronometers'.—D. N. B.
- 12244 **MUDGE** (Major-Gen. William, F.R.S., *son of John Mudge*) ACCOUNT of the MEASUREMENT of an ARC of the MERIDIAN, extending from Dunnose in the Isle of Wight to Clifton, Yorks., in the Course of the Operations carried on for the Trigonometrical Survey of England, 1800-2, *with 7 fine copperplates (5 folding) of geodetic instruments, and folding map, large 4to. hf. calf (binding slightly damaged)*, 5s 1804
- 12245 ——— ANOTHER COPY; also: Mudge (Major-Gen. William, F.R.S.), Isaac Dalby, and Major-Gen. Thomas Frederick Colby, F.R.S.: ACCOUNT of the OPERATIONS for accomplishing a TRIGONOMETRICAL SURVEY of ENGLAND and WALES, from its beginning in 1784 to 1809, *with 43 folding plates and maps on copper, 4 vols. 4to. in 3, contemporary russia gilt (a few joints weak, but a nice copy)*, 17s 6d 1799-1801-11
 A continuation of General Roy's survey, which only included Kent, and the first ordnance survey of England and Wales. It also includes the measurement of an arc of the meridian between Dunnose Point, Isle of Wight, and a station near the mouth of the Tees. Its protagonist was the 'Lieutenant Colonel Mudge, The Tower', whose old-world legend we have so often noticed at the base of the finely-engraved first issue of the Ordnance Maps.
- 12246 **MULDER** (E., *Univ. Utrecht*) De METHODE bij SCHEIKUNDIG ONDERZOEK te volgen, opgespoord uit de Geschiedenis, roy. 8vo. *sewn*, 1s 6d *Utrecht*, 1863
- 12247 **MULDER** (Gerard Jan) CHEMISCHE UNTERSUCHUNGEN [über die GALLE, PROTEIN, BEHENÖL und AMORPHE CHININ, Proteinverbindungen u. A. m.], unter des Verfassers Mitwirkung übersetzt von A. VÖLCKER, 3 parts 8vo. *sewn* (*scarce*), 7s 6d *Frankfurt a. M.*, 1847-8
 Containing the author's important investigations on proteids, which involved him in an acrimonious controversy with Liebig. He refers to the latter in the preface: '. . . so sehr wünsche ich, dass diese Untersuchungen nicht in die Hände des Mannes gelangen möchten, der statt Wahrheitsinn grobe Selbstsucht, statt Wissenschaft Gewinnsucht nährt, dessen Bestreben Vernichtung und Rache erfüllt. . . . Wo ich darauf hingeleitet werde, werde ich auf diesen Schandfleck der Wissenschaft dieses Zeitalters jederzeit zurückkommen'.
- 12248 ——— SCHEIKUNDIGE ONDERZOEKINGEN gedaan in het LABORATORIUM der UTRECHTSCHER HOOGESCHOOL; Deel I-V en VI. I. (zoover verschenen); *with plates*, 6 vols. 8vo. boards (*scarce*), 12s 6d *Rotterdam*, 1842-51
- 12249 **MULERIUS** [*sive* MULIERS, *vel* MÜLLER] (Nicolas; *Univ. Groningen*) IUDÆORUM ANNUS LUNÆ-SOLARIS: et TURC-ARABUM ANNUS mere LUNARIS, recens uterque cœsui Fontibus deductus, et cum Anno Romano facili Methodo connexus; *with arms on last l., folio, old limp vellum (a few ll. slightly browned, otherwise a FINE COPY)*; RARE, 15s *Groningæ*, 1630
 The date is given on the colophon in the Christian, Jewish, and Muslim eras.
- 12250 **MUNCKE** (Georg Wilhelm, *hic* G. H.; *Univ. Heidelberg*) Über die AUSDEHNUNG der TROFFBAREN FLÜSSIGKEITEN durch WÄRME, 4to. (pp. 165), *sewn*, 5s o. O., 1828
 Unknown to Poggendorf.

- 610 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 12252 **MUIR** (James, *Trinity Coll., Cantab.*) *THE RECOVERY OF IRON FROM OVERSTRAIN, with diagrams*, roy. 4to. (pp. 46), *sewn*, 2s 1899
- 12253 **MUIR** (Matthew Moncrieff Pattison, *Cairns Coll., Cantab.*) *THE ALCHEMICAL ESSENCE and the CHEMICAL ELEMENT: an Episode in the Quest of the Unchanging*, 8vo. *cl. (scarce)*, 6s 6d 1894.
- 12254 ——— *On the SOLVENT ACTION of VARIOUS SALINE SOLUTIONS upon LEAD*, 8vo. (pp. 5), *sewn*, 1s 1877
- 12255 ——— *TREATISE on the PRINCIPLES of CHEMISTRY, with plate*, 8vo. *cl.*, 4s (p. 15s) *University Press, Cambridge*, 1884
 'Treating the principal theories of modern chemistry to some extent from an historical point of view.'—*Preface.*
- 12256 ———, and David Muir WILSON: *THE ELEMENTS of THERMAL CHEMISTRY, with folding plate and 13 woodcuts*, 8vo. *cl.*, or, *hf. calf*, 4s (p. 12s 6d) 1885
- 12257 **MUIR** (Thomas; F.R.S.) *THE DIFFERENTIAL EQUATION of a CONIC*, 8vo. (pp. 3), *sewn, with author's inscr.*, 1s 1886
- 12258 ——— *THE PROMOTION of RESEARCH, with special Reference to the present State of the Scottish Universities and Secondary Schools*, 8vo. *sewn, with author's inscr.*, 2s 6d *privately printed, Paisley*, 1884
- 12259 ——— *THE THEORY of DETERMINANTS in the HISTORICAL ORDER of DEVELOPMENT, PART I: DETERMINANTS in GENERAL, LEIBNITZ (1663) to CAYLEY (1841), with folding table*, 8vo. *cl.*, 5s (p. 10s 6d) 1890
 The only work on the history of determinants published in any language.
- 12260 ——— *TREATISE on the THEORY of DETERMINANTS, with Graduated Sets of Exercises, cr. 8vo. cl. (o. p.)*, 7s 1882
- 12261 **MÜLLER** (Arthur, *Vienna*) *DIE THEORIE der KOLLOIDE: Übersicht über die Forschungen, betreffend die Natur des Kolloidalzustandes; with diagrams*, 8vo. *sewn*, 1s 6d *Wien*, 1903
- 12262 **MÜLLER** (Johann Heinrich Jacob; *Univ. Freiburg i. B.*) *GRUNDRISS der PHYSIK und METEOROLOGIE*, 8. vermehrte Auflage; *with 581 woodcuts*, 8vo. *hf. calf*, 2s *Braunschweig*, 1862
- 12263 ——— *PRINCIPLES of PHYSICS and METEOROLOGY* [translated by E. C. O.], *with 2 coloured plates, and 530 woodcuts*, 8vo. *hf. calf neat*, 3s 6d 1847
 ——— *LEHRBUCH der Kosmischen Physik—v. DIENGER, No. 7294, ante.*
- 12264 **MÜLLER** (Johann Heinrich Traugott) *ALLGEMEINE ABLEITUNG der KRISTALLOMETRISCHEN GRUNDGLEICHUNGEN; with 2 diagrams*, roy. 8vo. (pp. 14), *sewn*, 1s 6d [*Wien*], 1854
- 12265 ——— *DARSTELLUNG der GRUNDEIGENSCHAFTEN der PRISMOIDE*, 4to. (pp. 20), *sewn*, 2s *Gotha*, 1842
- 12266 ——— *DISQUISITIONES de POLYGONIS SOLIDIS et POLYEDRIS SIMPLICIBUS*, 4to. (pp. 18), *sewn (title soiled)*, 2s *ibidem*, 1841
- 12267 ——— *Über diejenigen KUGELN, welche die KANTEN eines beliebigen TETRAEDERS BERÜHREN;* roy. 8vo. (p. 30), *sewn*, 1s 6d [*Wien*], 1856
- 12268 **MULLER** (John; *first Headmaster R. M. Academy, Woolwich*) *THE ATTACK and DEFENCE of FORTIFY'D PLACES, with a TREATISE of MINES, and TABLES of their Proper Charges, deduced from a New Theory, with 25 folding copperplates*; 8vo. *old calf (joints broken)*, 5s 1747
 This work is dedicated to William Augustus, Duke of Cumberland [the Butcher].
- 12269 ——— *MATHEMATICAL TREATISE: containing a SYSTEM of CONIC SECTIONS; with the DOCTRINE of FLUXIONS and FLUENTS, applied to various Subjects, viz. to the finding the Maximums and Minimums . . . as also to the Resolution of . . . many new Physico-Mathematical Problems, with 14 folding plates*, 4to. *old calf gilt*, 8s 6d 1736
 The author, who was born in Germany, was 'the scholastic father of all the great engineers this country employed for forty years' (*Dr. G. Birkbeck Hill*). He gives a new explanation of fluxions by considering 'a curve-line to be generated by the motion of a point urged by two powers acting in two different directions, the one parallel to the Abscissas and the other parallel to the Ordinates.'—*Preface.*
- 12270 ——— *A TREATISE of ARTILLERY: containing Constructions of Brass and Iron Guns, Mortars, Howitzes, Carriages used in the Artillery, etc. etc., with the THEORY of POWDER applied to Fire-Arms, with front. and 28 folding plates on copper*, 8vo. *old calf (newly rebacked); rare, with auto. of Maj.-Gen. Sir Thomas Blomefield (1744-1822)*, 10s 1757
- 12271 ——— *SECOND EDITION, with large Additions, with 28 folding plates*, 8vo. *old calf*, 8s 6d 1768
 Interesting for giving copious details of the construction of contemporary artillery.
- 12272 ——— *TREATISE containing the ELEMENTARY PART of FORTIFICATION, Regular and Irregular, with Remarks on the Constructions of de Vauban and Coehorn, 2nd Edition, with 34 folding plates*, 8vo. *old calf*, 5s 6d 1756
- 12273 ——— *TREATISE containing the PRACTICAL PART of FORTIFICATION, 3rd Edition, with 26 folding plates and 4 tables on copper*, 8vo. *old sheep (joints cracked)*, 5s 1774
 The author was appointed in 1741 headmaster of the Royal Military Academy, Woolwich, then 'a mere school', and on its enlargement professor of fortification and artillery. He was a colleague of Thomas Simpson, F.R.S., professor of mathematics in the same institution.
- 12274 **MÜLLER** (Major William, *Royal Hanoverian Engineers*) *TREATISE on COSMOSPHERICALLY-MOUNTED TERRESTRIAL and CELESTIAL GLOBES, with Appendix on their Use, of an Orbograph, a Loxodromograph, and a Spherometer, Instruments for calculating the Latitude and Longitude at Sea*, 8vo. *sewn, uncut*, 3s 1829
- 12275 ——— *ANOTHER COPY, smooth red morocco, g. e.*, 4s
 'In 1828 he patented in England an instrument he called a 'cosmosphere', consisting of 'cosmically' (equatorially?) mounted terrestrial and celestial globes 'for the solution of problems in navigation, spherics, and other sciences.'—*D.N.B.*
- 12276 [**MULLER** (William)] *PHOTOGRAPHIC MANIPULATION: the CALOTYPE, COLLODION, and WAX-PAPER PROCESSES, with full Directions for Printing from the Negatives, and the Method of Colouring Photographs*, fcap. 8vo. (pp. 18), *sewn (last p. defective)*, 3s 1856
 Including a price list of photographic cameras, etc. (pp. 28).

- 12279 **MÜLLER** (Philipp); *Prof. Mathematics and Physics, Univ. Leipzig*, HYPOTYPOSIS COMETÆ NUPERIME VISI, una cum brevi Repetitione DOCTRINÆ COMETICÆ, ex Recentiorum Fundamentis Stabiliendæ Veritatis ergo in Disputationem Publicam oblatâ; with engravings on copper illustrating the course of the Comet of Nov. 26th-Dec. 14, 1618, 4to. *sewn* (rare), 10s 6d
[col.] Lipsie, G. Liger, 1619

Interesting as an early work on cometary astronomy. It is not noticed by Brunet, Grasses, or Ebert, but mentioned by Poggenorff as 'Hypothesis Comete'.

According to *Allgemeine Deutsche Biographie*, where there is a very meagre account of the author, he occupied himself chiefly with attempting to explain the nature of comets.

- 12280 ——— **MIRACULA CHYMICA et MYSTERIA MEDICA**, Libris V enucleata, ex Recensione GERARDI BLASII; with engraved title and woodcuts of chemical apparatus, 18mo. *sound copy in contemporary white vellum* (rare), 10s 6d
Amstelodami, 1659

According to H. Kopp the author was the first to mention in the above work dry acetate of potassium (before him only known in solution) under the name of *terra foliata*.

- 12281 **MUNBY** (Alan Edward, F.C.S.) INTRODUCTION to the CHEMISTRY and PHYSICS of BUILDING MATERIALS, with woodcuts, large cr. 8vo. cl., 4s (p. 6s nett) 1909

- 12282 **MÜNCHHAUSEN** (C. W. E. v.) SCHEDIASMA PHILOLOGICO-MATHEMATICUM, quo TETRACTYS PYTHAGORÆORUM et QUADRATURA CIRCULI EXPLICANTUR et RESOLVUNTUR; with plate, 4to. (pp. 20), *sewn* (rare), 8s 6d
Erfordiæ, 1739

The author was really related to the famous 'Baron Münchhausen'.

- 12283 **MURCHISON** (Sir Roderick Impey, F.R.S., P.G.S.) On the COALFIELD of BRORA in SUTHERLANDSHIRE, and some other Stratified Deposits in the North of Scotland, with 2 plates (1 folding and coloured), 4to. (pp. 34), *sewn*, with inscr. to Thomas Allan, F.R.S., 4s 1827

- 12284 ——— OUTLINE of the GEOLOGY of the NEIGHBOURHOOD of CHELTENHAM, with coloured front., and woodcuts, 8vo. (pp. 40), *sewn*, 4s
Cheltenham, 1834

- 12285 ——— The SILURIAN SYSTEM, founded on Geological Researches in the Counties of Salop, Hereford, Radnor, Montgomery, Caermarthen, Brecon, Pembroke, Monmouth, Gloucester, Worcester, and Stafford, with Descriptions of the COAL-FIELDS and OVERLYING FORMATIONS, with 54 plates (11 folding and coloured), including 31 fine lithographs of fossils, 112 woodcuts, A VERY LARGE COLOURED FOLDING MAP in 3 sections, and 3 smaller ones, 2 vols. roy. 4to. *new hf. black morocco gilt* (VERY SCARCE COMPLETE); with auto. of L. W. DILLWYN [naturalist, 1778-1855], £4. 14s 6d 1839

- 12286 ——— ANOTHER COPY, with the large folding map linen-mounted on one sheet, 2 vols. roy. 4to. in 1, *hf. russia gilt* (joints cracked), with the map in *hf. russia portfolio*, £4. 4s

The publication of this splendid monograph forms a notable epoch in the history of modern geology, and well entitles its author to be enrolled among the founders of the science. For the first time, the succession of fossiliferous formations below the Old Red Sandstone was shown in detail. Their fossils were enumerated, described, and figured. It was now possible to carry the vision across a vast series of ages, of which hitherto no definite knowledge existed, to mark the succession of their organisms, and thus to trace backward, far further than had ever before been possible, the history of organized existence on this globe.—*Sir A. Geikie*.

Both the above copies contain the large folding map, 'The Silurian Region and adjacent Counties of England and Wales geologically illustrated', which is often missing.

- 12287 ———, James BUCKMAN, and Hugh Edwin STRICKLAND, F.R.S.: LIST of FOSSIL REMAINS found near CHELTENHAM, 8vo. (pp. 44), *sewn*, with J. Buckman's inscr., 3s
s. l. [c. 1840]

Forming the appendix to the 'Geology of Cheltenham', *supra*.

- 12288 ——— SILURIA: a HISTORY of the OLDEST ROCKS in the BRITISH ISLES, and other Countries, with the Origin and Distribution of Native Gold, the General Succession of Geological Formations, and Changes of the Earth's Surface; 4th [FINAL] EDITION, including the Silurian System, with coloured front., 41 lithographs of Silurian Fossils, numerous woodcuts, and large coloured map in pocket, thick 8vo. cl. (o.p.), 12s 6d 1867

The Murchison Prize Book, 1868, with LONG AUTOGRAPH INSCRIPTION BY THE AUTHOR.

- 12289 ——— FIFTH [LATEST] EDITION [unaltered], with coloured front., 41 lithographs, numerous woodcuts, and large coloured map, 2 vols. 8vo. cl. (o.p.), 12s 1872

'Eminently useful as a compendium and indispensable *vade mecum* for students of the older rocks all over the world.'

—*Sir A. Geikie*.

- 12290 ———, LIFE of, based on his Journals and Letters, with Notices of his Scientific Contemporaries, and Sketch of the Rise and Growth of PALÆOZOIC GEOLOGY in BRITAIN by SIR ARCHIBALD GEIKIE, F.R.S., with 20 portraits and 2 plates, 2 vols. 8vo. cl. (o.p.), 12s 6d (p. £1. 10s) 1875

Containing a full account of the Murchison-Sedgwick controversy on the respective claims of the Silurian and Cambrian systems.

- 12291 [MURDOCH (Patrick, Rector of Stradishall; F.R.S.)] CANONS, for COMPARING the PARALLAXES of the SUN and MOON; their Densities; and their DISTURBING FORCES on the EARTH and OCEAN, with diagram, 8vo. (pp. 16), *sewn* (rare), 5s [c. 1750]

'To The Hon. Edward Montagu Esq., Hill Street, Berkeley Square'.—*Inscr. on title*.

The above pamphlet was unknown to the author's biographer in D. N. B.

- 12292 ——— MERCATOR'S SAILING, applied to the True Figure of the Earth, with Introduction, concerning its Discovery and Determination, plates, 4to. *sewn*, 8s 6d 1741

'To [Sir] Andrew Mitchel [British Envoy to Frederick the Great] from the Author'.—*Inscr. on flyleaf*.

'The most distinctive part of the work is the treatment of the hypothesis that the earth is not homogeneous, but has a central nucleus denser than the surrounding fluid'.—*Prof. Todhunter*.

— v. MACLAURIN, Nos. 11220-2, *ante*.

- 12293 **MURMANN** (A.), und L. ROTTER: ÜNTERSUCHUNGEN über die PHYSIKALISCHEN VERHÄLTNISSE KRYSTALLISIRTER KÖRPER. III. Orientierung der Schwingungsaxen des Lichtes in Krystallen des monoklinödrischen Systemes; with 3 folding plates and 21 woodcuts, 8vo. (pp. 63), *sewn*, 2s 6d
Wien, 1859

- 12294 **MURDOCK (William)** AN ACCOUNT OF THE APPLICATION OF THE GAS OF COAL TO ECONOMICAL PURPOSES, read before the Royal Society, on the 25th February, 1808 (Philosophical Transactions), 4to. (pp. 9), *unbound (RARE)*, 18s 1808
- 12295 ——— REPRINT, 8vo. (pp. 9), *sewn (rare)*, 12s 6d [1809]
The account of the author's discovery of gas-lighting. 'In February 1808 Murdock read a paper before the Royal Society, in which he gave a full account of his investigations, and also of the saving effected by the adoption of gas lighting at Philips & Lee's mill. This paper is the earliest practical essay on the subject. The Rumford gold medal, bearing the inscription 'ex fumo dare lucem', was awarded to Murdock for this paper, which concludes with these words: 'I believe I may, without presuming too much, claim both the first idea of applying and the first actual application of this gas to economical purposes'. As to the justice of this claim there can be no doubt.'—*D. N. B.*
- AN ALL BUT UNIQUE WORK:
- 12296 ——— A LETTER to a MEMBER OF PARLIAMENT, in VINDICATION of his CHARACTER and CLAIMS; in Reply to a Recent Publication, by the Committee for Conducting through Parliament a Bill for Incorporating a Gas-Light & Coke Company, 8vo. (pp. 15), *sewn (VERY RARE)*, £3. 10s 1809
'By this time [1808] gas-lighting had fallen into the hands of company promoters, and in 1809 application was made to incorporate the Gas Light and Coke Company. It was opposed by James Watt the younger on behalf of Boulton & Watt, who feared that their trade might be interfered with. . . . In answer to a statement put forth by the promoters of the bill, charging Murdock with plagiarism, he issued on 4 May 1809 'A Letter to a Member of Parliament.' This tract and the paper in the 'Philosophical Transactions' comprise the whole of Murdock's literary efforts. *Only two or three copies of the tract seem to have survived.*—*D. N. B.*
- The above copy originally belonged to George Rennie, C.E., F.R.S.
- 12297 ——— REMARKS upon the BILL for INCORPORATING the GAS LIGHT and COKE COMPANY, 8vo. (pp. 19), *sewn (very rare)*, 18s 1809
This pamphlet contains the statement, referred to above, in which the Gas Light & Coke Co. charged Murdock with plagiarism. It provoked Murdock's reply in 'A Letter to a Member of Parliament.' The pamphlet was apparently unknown to Murdock's biographer in *D. N. B.*
- 12298 **MURPHY (Patrick; weather prophet)** THE WEATHER ALMANAC, for the Year 1838, 4th Edition, post 8vo. *sewn (scarce)*, 6s 6d [1837]
'Under the date of 20 Jan. he said 'Fair, prob. lowest deg. of winter tem.' By a happy chance this proved to be a remarkably cold day, the thermometer at sunrise standing at 4° below zero. This circumstance raised his celebrity to a great height as a weather prophet, and the shop of his publishers was besieged with customers, while the winter of 1837-8 became known as Murphy's winter. The 1838 almanac ran through 45 editions, and the prophet made £3,000.'—*D. N. B.*
- 12299 **MURPHY (Robert, pr., Caius Coll., Cantab.)** ELEMENTARY PRINCIPLES OF THE THEORIES OF ELECTRICITY, HEAT, and MOLECULAR ACTIONS, PART I [all pub.]: ELECTRICITY, 8vo., *cl.*, 3s Cambridge, 1833
- The author introduces in this work Laplace's functions in the mathematical treatment of electrical phenomena.
- 12300 ——— FIRST MEMOIR on the THEORY of ANALYTICAL OPERATIONS, 4to. (pp. 32), *sewn*, 2s 6d 1837
The first and only memoir ever published on this subject.
- 12301 ——— TREATISE on the THEORY of ALGEBRAICAL EQUATIONS, 8vo. *cl.*, 3s *S. D. U. K.*, 1831
'He had a true genius for mathematical invention, and his works on the theory of equations and on electricity are all of high genius.'—*Prof. de Morgan.*
- 12302 **MURPHY (Sir Shirley Forster; F.R.C.S.)** OUR HOMES, and how to make them HEALTHY, with coloured front., and 410 plates and other woodcuts, thick 8vo. *hf. morocco neat (title stamped)*; o. p., 7s 6d (p. 15s in cl.) 1833
An excellent work, edited by the Consulting Medical Officer of Health of the London County Council, and containing contributions by F. S. B. F. de Chaumont, F.R.S., W. H. Corfield, M.D., Sir Douglas Galton, F.R.S., Sir Malcolm Morris, F.R.C.S., Benjamin Ward Richardson, M.D., F.R.S., and others.
- 12303 **MURRAY (Andrew, M.I.C.E., Chief Engineer, Portsmouth Dockyard)** THE THEORY and PRACTICE of SHIP-BUILDING, with Portions of the Treatise on NAVAL ARCHITECTURE by AUGUSTIN F. B. CREUZE: STEAM-SHIPS, by ROBERT MURRAY, C.E., with 27 plates (mostly folding) and numerous woodcuts, 4to. *cl.*, with auto. of Sir F. J. Bramwell, F.R.S., 7s Edin., 1861
- 12304 ——— SECOND EDITION [enlarged; entitled:] SHIP-BUILDING in IRON and WOOD, etc., with 27 plates (mostly folding), and many woodcuts, 4to. *cl.*, 7s 6d *ibidem*, 1863
Containing a good historical account.
- 12305 **MURRAY (D. A.)** ATOMS and ENERGIES [with Introduction by FREDERICK STARR, Univ. Chicago], with diagrams, cr. 8vo. *cl.*, 3s (p. 5s nett) 1901
'It is long since I read a work in Physical Science which has given me so much pleasure.'—*Professor F. Starr.*
- 12306 **MURRAY (George, F.R.S.)** THE ANTARCTIC MANUAL for the Use of the Expedition of 1901, with Preface by SIR CLEMENTS R. MARKHAM, F.R.S., with 3 folding maps (in pocket), and numerous woodcuts, thick 8vo. *cl.*, 7s 6d (p. 15s nett) 1901
Including contributions on the Antarctic Climate by R. H. Scott, F.R.S., Atmospheric Electricity by Lord Kelvin, the Aurora by Arthur Schuster, F.R.S., Ice Observations by J. W. Gregory and T. G. Bonney, pr., F.R.S., an interesting Antarctic Bibliography, etc. etc.
- 12307 **MURRAY (J. Alan)** SOILS and MANURES, with 33 illustrations, large cr. 8vo. *cl.*, 4s (p. 6s nett) 1910
- 12308 **MURRAY (Johann Andreas, Univ. Göttingen)** APPARATUS MEDICAMINUM, tam Simplicium quam Præparatorum et Compositorum in Praxeos Adiumentum consideratus, VOLL. I-III, 3 vols. 8vo. *hond copy in contemporary white parchment*, 10s 6d Göttingae, 1776-84
'Die hervorragendsten unter seinen Arbeiten . . . eine vortrefflich bearbeitete Compilation, aus welcher spätere Pharmakologen reichliches Material geschöpft haben.'—*Allg. Deutsche Biographie.*
- 12309 **MURRAY (Kenneth Sutherland, Engr. Brin's Oxygen Co., M.I.MECH.E.)** HANDBOOK on the USE of COMPRESSED OXYGEN; 2nd Edition, with numerous woodcuts and coloured map, 8vo. (pp. 73), *sewn*, 2s 1894
- 12310 ——— On the MECHANICAL APPLIANCES employed in the MANUFACTURE and STORAGE of OXYGEN, with 7 plates, 8vo. (pp. 36), *sewn*, 3s 1890
The first published account of the earliest manufacture of oxygen on a commercial scale, and its successful distribution in steel cylinders, at the Brix oxygen works in the Horseferry Road, Westminster, only established three years before in 1887, with such immediately successful and far-reaching results.

- 12312 **MURRAY (John; M.D., F.R.S.E.; d. 1820)** A SYSTEM OF CHEMISTRY, first edition, with plates, 4 thick vols. 8vo. boards (backs torn), uncut, 10s 6d
Edin., 1806-7
- 12313 **MURRAY (John, F.S.A., F.G.S., F.L.S.)** EXPERIMENTAL RESEARCHES on the LIGHT and LUMINOUS MATTER of the GLOW-WORM, the LUMINOSITY of the SEA, the PHENOMENA of the CHAMELEON, the Ascent of the Spider into the Atmosphere, and the Torpidity of the Tortoise, etc., 12mo. boards, uncut (SCARCE), 12s 6d
Glasgow, 1826
'The luminosity of the sea is a phenomenon dependent on the presence of luminous marine animals.'—*P.* 84. The writer thus comes very near to the present-day explanation by bacteriological action. This work was unknown to the author's biographer in *D. N. B.*
- 12314 ——— MANUAL of EXPERIMENTS illustrative of CHEMICAL SCIENCE, systematically arranged, 3rd Edition, with front. and woodcuts, post 8vo. boards, uncut, 4s 6d
1833
Including 'Remarks on the New Nomenclature, and Theory of Definite Proportions, with a Definition of the Gases, and Method of preparing them' (pp. 1-25).
- 12315 ——— PRACTICAL REMARKS on MODERN PAPER, with Introductory Account of former Substitutes; also Observations on WRITING INKS, the Restoration of illegible MSS., and the Preservation of important Deeds from the destructive Effect of DAMP, fcap. 8vo. original boards, uncut (scarce), 8s 6d
Edin., 1829
Containing many original investigations, and warning against the cheap substitutes then coming into use in paper making, which may now be trusted quickly to pulverise the paragraphic banalities of present-day popular journalism.
- 12316 ——— TREATISE on ATMOSPHERIC ELECTRICITY; including LIGHTNING RODS, and PARAGRÈLES, with frontispiece of a 'paragrèle', post 8vo. original boards, uncut (scarce), 10s 6d
1830
The barbarously named paragrèles are small lightning rods stuck into the ground and supposed to prevent hailstorms, the author starting from the assumption that hail is caused by the action of atmospheric electricity.
The above John Murray, not to be confused with many others, was a native of Stranraer, and began as a scientific populariser at the old Surrey Institution, which led to a long lecturing career at mechanics' institutes, in connexion with which he was referred to as 'one of the best lecturers in the world' by Lord Brougham.
- 12317 **MURRAY (Mungo; Deptford Dockyard, and H.M.S. Magnanime)** TREATISE on SHIP-BUILDING and NAVIGATION: is the Theory, Practice and Application of all the necessary Instruments, with the Construction and Use of the new Invented SHIPWRIGHT'S SECTOR, TABLES of the Sun's Declination, etc. etc., with an ENGLISH ABRIDGMENT of another TREATISE on NAVAL ARCHITECTURE, by M. DUHAMEL, 2nd [BEST] EDITION, with SUPPLEMENT, containing a Translation of what M. BOUGUER has written on that Subject, and M. DUHAMEL'S Method of finding the Center of Gravity, with some Remarks by the AUTHOR, with 23 folding plates, thick 4to. sound copy in old calf, 15s
1765
One of the earliest systematic treatises in the language on Shipbuilding.
- 12318 **MUSGRAVE (Samuel, M.D., F.R.S.)** REASONS for DISSENTING from the REPORT of the Committee appointed to consider of MR. WILSON'S EXPERIMENTS; including Remarks on some of the EXPERIMENTS exhibited by MR. NAIRNE, 4to. (pp. 22), sewn, 6s
1779
Turning on the question of the action of needles in the electric discharge. The author declares himself against their employment in the lightning conductor.
- 12319 **MUSHET (David)** PAPERS on IRON and STEEL, Practical and Experimental, with original Communications made to the Philosophical Magazine, chiefly on those Subjects, and copious illustrative Notes, 6 plates (chiefly folding), roy. 8vo. (pp. 980), cl., uncut (SCARCE), 15s
1840
The author is perhaps best known for his process of making steel by melting in crucibles iron-ore mixed with a suitable proportion of carbonaceous matter—practically the same as the ancient Hindoo process for *wootz*—which he sold for £3000 to a Sheffield firm. The work contains also important papers on the hot-blast furnace, the reduction of iron ores, and on iron alloys.
'The chief of Mushet's inventions was perhaps one patented in 1800 for the preparation of steel from bar iron by a direct process. His other patents relate to the extraction of iron from cinder and to improvements in the process of puddling iron.'—*D. N. B.*, which does far too little credit to his long career as an experimenter.
- 12320 **MUSPRATT (James Sheridan, F.R.S.)** CHEMISTRY, Theoretical, Practical, and Analytical, as applied and relating to the ARTS and MANUFACTURES, with 32 fine steel portraits of chemists, by C. Cook, S. Freeman, and W. C. Sharpe, chiefly after photographs, and hundreds of woodcuts, 2 thick vols. impl. 8vo. hf. calf gilt, 12s 6d (p. £3. 13s 6d)
[1854-62]
- 12321 ——— ANOTHER COPY, 2 vols. cl., or, hf. morocco, 11s 6d
A work still in demand for the fine series of portraits of celebrated chemists which it contains.
- 12322 **MUSSCHENBROEK (Pieter van; Univ. Leyden, F.R.S.)** BINÆ DISSERTATIONES Physicæ Experimentales de TUBIS CAPILLARIBUS et ATTRACTIONE SPECULORUM PLANORUM; with 2 folding plates, sm. 4to. sewn, 5s
Viennæ, 1753
On y trouve d'excellents travaux sur les tubes capillaires et la cohésion des corps.'—*Biogr. Gén.*
- 12323 ——— ELEMENTA PHYSICÆ conscripta in Usus Academicos; with numerous plates, 8vo. old calf (joints cracked), 4s
Lugd. Bat., 1734
- 12324 **MUSTON (E., surgeon, H. E. I. Co.)** AN ANALYSIS of the ART of DYEING; and an ESSAY on LIGHT and COLOUR, 8vo. (pp. 84), sewn (title soiled), with author's inser. (scarce), 10s 6d
not published, 1830
A paradox in which the author believes himself to have discovered an 'entirely new system of colour', mainly based on the assumption that 'oxygen is the principle of colour in colouring matter.' The author still believes in the phlogiston theory, and that light is a phenomenon of phlogiston.
- 12325 **MUTER (John, F.R.S.E.)** SHORT MANUAL of ANALYTICAL CHEMISTRY: Qualitative and Quantitative; Inorganic and Organic, 3rd Edition, with 45 woodcuts, roy. 8vo. cl., 2s (p. 6s 6d) 1887
- 12326 ——— FIFTH EDITION, with 51 woodcuts, roy. 8vo. cl., 2s 6d
1892
- 12327 **MUZZI (Muzio),** Alcuni DOCUMENTI sull' AERONAVE RETTIRÈMIGA inventa da; with folding plate, 8vo. (pp. 23), sewn (VERY SCARCE), £1. 1s
Firenze, 1839
VERY SCARCE and quite unknown to Hatton Turner. The frontispiece illustrates the airship described above, as well as another, invented by the author in 1834, on which the 'aeronave rettirèimiga' is based.
- 12328 **MYLNE (A., Minister of Dollar)** ELEMENTARY TREATISE on ASTRONOMY; or an easy Introduction to a Knowledge of the Heavens; 2nd Edition, with 5 folding plates, 8vo. hf. calf, or, cl., 3s
Edin., 1819

- 614 HENRY SOTERHAN & CO. 140, STRAND, W.C. AND 43, PICCADILLY, R.W.
- 12330 **NABER (H. A., Hoorn)** Das THEOREM des PYTHAGORAS, wiederhergestellt in seiner URSPRÜNGLICHEN FORM und betrachtet als GRUNDLAGE der ganzen PYTHAGOREISCHEN PHILOSOPHIE; with 3 plates and 104 text-illustrations, roy. 8vo. *sewn*, 4s (p. M. 7) *Haarlem*, 1908
- 12331 **NAGAOKA (Hantaro)**, Shinzo **SHINJO**, und **R. OTANI**: ABSOLUTE MESSUNG der SCHWERKRAFT in Kyôto, Kanazawa, Tôkyô, und Mizusawa, mit REVERSIONSPENDELN ausgeführt; with 2 folding plates and diagrams, 4to. (pp. 91), *sewn*, 3s *Tokyo*, 1902
- 12332 **NAGEL (A.)** BESTIMMUNG von ZWISCHENPUNKTEN LANGER GERADER LINIEN, 4to. (pp. 14), *sewn*, 1s 6d *Leipzig*, 1882
- 12333 [**NAIRNE (Edward, F.R.S.)**] The DESCRIPTION and USE of NAIRNE'S PATENT ELECTRICAL MACHINE; with the Addition of some Philosophical Experiments and Medical Observations, with 5 folding plates, 8vo. (pp. 68), *sewn* (rare), 10s 6d 1787
- He constructed, on plans supplied by Priestley, the first considerable electrical machine made in England. In the specification of the patent it is described as a 'new invention and most usefull improvement in the common electrical machine (which I call the insulated medical electrical machine) by insulating the whole in a particular manner, and constructing the conductors so that either shocks or sparks may be received from them'. Nairne published a description of this machine [*supra*], which reached an eighth edition in 1796. It is still known as *Nairne's electrical machine*.—D.N.B.
- At end is a list of mathematical, optical, and philosophical instruments, made by Nairne and Blunt, with PRICES.
- 12334 ——— EXPERIMENTS on ELECTRICITY: an Attempt to shew the ADVANTAGE of ELEVATED POINTED CONDUCTORS, with 4 folding plates, 4to. (pp. 40), *sewn*, with author's inscr. (rare), 1779
- A refutation of Benjamin Wilson, F.R.S., who advocated ball points for lightning conductors. It finally settled the question of ball versus needle points. The memoir also described and illustrated the author's electrical machine.
- 12335 **NAPIER (David)**: ENGINEER, 1790-1869: an AUTOBIOGRAPHICAL SKETCH, with Notes [and Introduction by DAVID NAPIER], with 36 portraits, plates, and other illustrations, and map, 4to. *Glasgow*, 1912
- cl., uncut, t. e. g., 6s* (p. 10s nett)
- Interesting in connexion with the early history of steam-navigation on the Clyde and Thames. It contains the Parliamentary Report on Steam Navigation, and an account of the author's inventions, including that of the steeple engine.
- 12336 [**NAPIER, or NEPER (John, LAIRD OF MERCHISTON)**]: ARCANUM SUPPUTATIONIS ARITHMETICÆ: quo Doctrina et Praxis Sinuum ac Triangulorum mirè abbreviatur [*sic*]: Opus curiosis omnibus, Geometricis præsertim, et Astronomicis utilissimum. Inventore, nobilissimo BARONE MERCHISTONIO Scoto-Britanno; with vignette on title, and numerous diagrams, large 8vo. large copy in old calf (back of binding slightly damaged); RARE, £1. 1s *Lugdunî, Huguetan et Ravaud*, 1658
- Including a reprint of the author's famous work 'MIRIFICI LOGARITHMORUM CANONIS DESCRIPTIO' (c. Nos. 3186-7 ante), containing his invention of Logarithms, with the 'Canon' or Table, and his posthumous 'MIRIFICI LOGARITHMORUM CANONIS CONSTRUCTIO', explaining the method of their construction.
- This edition is a reprint of the Lyonese one of 1620 (in itself a facsimile reprint of the original), and rare, being unknown to Brunet.
- 12337 ——— De ARTE LOGISTICA Libri qui supersunt [edited, with Introduction (pp. 92), by MARK NAPIER], with fine mezzotint portrait et. 66 by Hodgetts, and aquatint view of Merchiston Castle, 4to. boards, uncut, £1. 1s *Edinburgi [Mailland Club]*, 1839
- His earliest mathematical investigations seem to have been directed to systematising and developing the sciences of algebra and arithmetic, and the fragments published for the first time in 1839, under the title *De Arte Logistica*, were the result of his initial studies. Here he mentions that he was considering imaginary roots, a subject he refers to as an algebraic secret, and that he had discovered a general method for the extraction of roots of all degrees'.—*W. Rae Macdonald*.
- 12338 ——— THE CONSTRUCTION of the WONDERFUL CANON of LOGARITHMS, translated, with Notes, and CATALOGUE of the VARIOUS EDITIONS of NAPIER'S WORKS, by WILLIAM RAE MACDONALD, *ibidem*, 1889
- Dedicated to Lord Napier and Etrick, Napier of Merchiston's representative. It contains a very complete and valuable biography of the author's works, as well as a biographical introduction. Only 250 copies were printed.
- 12339 ———: RABDOLOGIÆ, seu NUMERATIONIS per VIRGULAS Libri II: cum Appendice de expeditissimo MULTIPLICATIONIS PROMPTUARIO; quibus accessit & ARITHMETICÆ LOCALIS Liber unus. Autore & Inventore JOANNE NEPERO, Barone Merchistonii, &c. Scoto, editio princeps; with 4 engraved folding tables, and other engravings on copper, 16mo. original limp vellum (A FINE OLD COPY); VERY RARE, £5. 15s *ib., Andreas Hart*, 1617
- A very fine and tall copy, measuring $5\frac{1}{2} \times 3\frac{1}{2}$ inches.
- 12340 ——— ANOTHER COPY, hf. green Levant morocco neat (A FINE AND TALL COPY, measuring $5\frac{1}{2} \times 3\frac{1}{2}$ inches), £5. 5s
- 12341 ——— ANOTHER COPY, contemporary vellum (AN EXCEPTIONALLY TALL COPY, measuring $5\frac{7}{8} \times 3\frac{3}{4}$ inches), £6. 6s
- With dedication to Chancellor Seton, Earl of Dunfermline, in which Napier explains the title as numeration by little rods. 'These rods, being usually made of bone or ivory, were familiarly called "Napier's bones". By means of them multiplication and division could be performed by methods which were received throughout Europe as a valuable aid to the rude arithmetic of the day. The extraction of the square and cube root could also be performed by their help, in conjunction with two larger rods, the method of constructing which is described. In an appendix 'de expeditissimo Multiplicationis Promptuario' he explains another invention for the performance of multiplication and division — 'the most expeditious of all' — by means of metal plates arranged in a box. This is the earliest known attempt at the invention of a calculating machine. There is also added his 'Local Arithmetic', wherein he describes how multiplication and division, and even the extraction of roots, may be performed on a chess board by the movement of counters.'—D. N. B.
- 12342 ——— EDITIO SECUNDA; with 9 folding plates on wood, 16mo. large and sound copy in contemporary limp vellum (RARE), £1. 15s *Lugdunî [Batav.], Petrus Rammasenius*, 1622
- This edition, published at Leyden, contains exactly the same matter as that of the Edinburgh edition of 1617. None of the plates, however, are engraved on copper. The decimal fractions are printed according to Simon Stevius' notation'.—*W. R. Macdonald*.
- 12343 ———: BUCHAN (David Stewart, 11th Earl of), and WALTER MINTO: ACCOUNT of the LIFE, WRITINGS, and INVENTIONS of JOHN NAPIER, of Merchiston, with portrait by Beugo after Brown, and 5 plates. roy. 4to. boards, uncut (rare), 12s 6d *Perth*, 1787
- 12344 ——— ANOTHER COPY, calf (back damaged, and portrait wanting), 8s 6d
- With appendix containing 'Analytical Theory of Logarithms', 'The Hyperbola as connected with the Logarithms', etc. etc.

as to the *first application* of the gas, as an *economical substitute* for oils and tallow, in the production of light for public and private purposes. This is what I have claimed, and for which I have been honoured with the Royal Society's gold medal; disgraced, I should rather say, if I have *no claim* to the merit thus imputed to me.

But how has this committee stripped me of my claim? Did the German *Diller*, by his philosophical fire-works at the Lyceum, by "his large lustres of little flames in the centre of the room," exhibited for the amusement of the curious and ignorant, make the application of gas to purposes of public and private *utility*; guarding, as I am informed he did, at the same time, his mode of proceeding, with all the mercenary caution of a juggler? Can the Gas-Committee set this puppet-

In Parliament.

REMARKS

UPON THE

BILL

FOR

INCORPORATING

THE

GAS LIGHT

AND

COKE COMPANY.

LONDON:

Printed by GEORGE SIDNEY, Northumberland-street, Strand.

1809.

A
LETTER,
TO A
MEMBER OF PARLIAMENT,
FROM
Mr. William Murdock,
IN
VINDICATION
OF HIS
CHARACTER AND CLAIMS,
IN
REPLY
TO A
RECENT PUBLICATION,
BY THE
Committee
FOR
CONDUCTING THROUGH PARLIAMENT
A BILL
FOR INCORPORATING A
GAS-LIGHT & COKE COMPANY.

LONDON:

PRINTED BY GALABIN AND MERCHANT, INGRAM-COURT,
FENCURCH-STREET.
1809.

An account of the application of the Gas from Coal to economical purposes, by Mr. WILLIAM MURDOCK, read before the Royal Society, on the 25th February, 1808, and printed in the Philosophical Transactions for that year.

The facts and results intended to be communicated in this paper, are founded upon observations made during the present winter at the Cotton Manufactory of Messrs. Philips and Lee at Manchester, where the light obtained by the combustion of the Gas from Coal is used upon a very large scale; the Apparatus for its production and application having been prepared by me at the Works of Messrs. Boulton, Watt, and Co. at Soho.

The whole of the rooms of this Cotton Mill which I believe, the most extensive in the united Kingdom, as well as its counting houses and store rooms; and the adjacent dwelling house of Mr. Lee, are lighted with the Gas from Coal. The total quantity of light used during the hours of burning, has been ascertained by a comparison of shadows, to be about equal to the light which 2500 mould candles, of six in the pound, would give; each of the candles with which the comparison was made, consuming at the rate of $\frac{1}{10}$ of an ounce, (175 grs.) of tallow per hour.

The quantity of light is necessarily liable to some variation, from the difficulty of adjusting all the flames so as to be perfectly equal at all times. But the admirable precision and exactness with which the business of this Mill is conducted, afforded as excellent an opportunity of making the comparative trials I had in view, as is perhaps likely to be ever obtained in general practice. And the experiments being made upon so large a scale, and for a considerable period of time, may I think be assumed as a sufficiently accurate standard for determining the advan-

Nos. 12294-7 (page 612).

The invention of gas lighting.



RABDOLOGIÆ, SEV NVMERATIONIS PER VIRGULAS LIBRI DVO:

Cum APPENDICE de expeditif-
simo MULTIPLICATIONIS
PROMPTUARIO.

Quibus accessit & ARITHMETICÆ
LOCALIS LIBER VNVS.

Auctore & Inventore IOANNE
NEPERO, Barone MER-
CRISTONII, &c.
SCOTO.



EDINBURGI,
Excudebat Andreas Hart, 1617.

CAPVT PRIMVM.

4^a Facies quinqve virgule

	1	2	3	4	5
1		2	3	4	5
2	2		4	5	6
3	3	3		5	6
4	4	4	4		5
5	5	5	5	5	
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

4^a Facies sex virgule

	1	2	3	4	5	6
1		2	3	4	5	6
2	2		4	5	6	7
3	3	3		5	6	7
4	4	4	4		5	6
5	5	5	5	5		6
6	6	6	6	6	6	
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

4^a Facies septem virgule

	1	2	3	4	5	6	7
1		2	3	4	5	6	7
2	2		4	5	6	7	8
3	3	3		5	6	7	8
4	4	4	4		5	6	7
5	5	5	5	5		6	7
6	6	6	6	6	6		7
7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

4^a Facies octo virgule

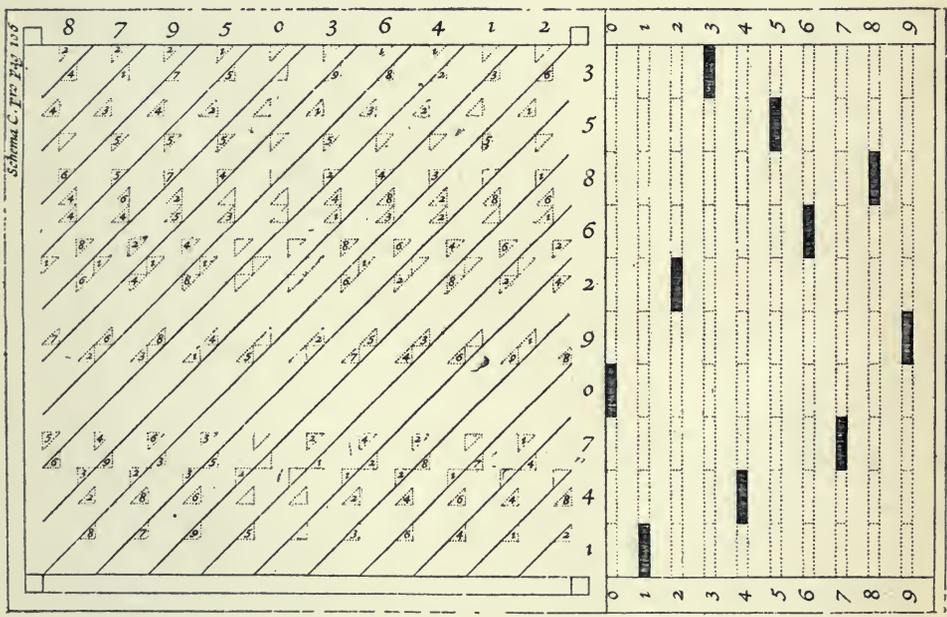
	1	2	3	4	5	6	7	8
1		2	3	4	5	6	7	8
2	2		4	5	6	7	8	9
3	3	3		5	6	7	8	9
4	4	4	4		5	6	7	8
5	5	5	5	5		6	7	8
6	6	6	6	6	6		7	8
7	7	7	7	7	7	7		8
8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	9

9

III

A

4



Nos. 12339-41 (page 614).

Counting by rods ('Napier's Bones').

- 12346 **NAIBOD** [*sive* **NABOD**] (**Valentin**) **ASTRONOMICARUM INSTITUTIONUM Libri III**, quibus **DOCTRINÆ SPHAERICÆ ELEMENTA METHODO NOVA**, facili, et ad **Captum Tyronum aptissima** traduntur; *with woodcuts and numerous diagrams*, 12mo. *old vellum extra (wormed on blank margin, and some ll. browned, otherwise a fine copy)*; **RARE**, 15s
Venetis, 1580
The author was professor of mathematics in the University of Cologne, and according to *Allgemeine Deutsche Biographie*, an adept in astrology, who had found a new method of casting the horoscope.
- Towards the end of his life he never left his room for fear of meeting a violent death elsewhere. Curiously enough his decaying body was found after all in his room, he having been murdered there in spite of all his precautions.
- 12347 **NAQUET** (**Alfred**, M.D.) **CONSIDERATIONS on the TWO MEMOIRS of SIR B. C. BRODIE on the CALCULUS of CHEMICAL OPERATIONS** [with Notes by **SIR B. C. BRODIE**, F.R.S.], 8vo. (pp. 15), *sewn*, with **Sir B. C. Brodie's inscr.**, 2s
1879
- 12348 ——— **PRINCIPES de CHIMIE fondée sur les THÉORIES MODERNES**, 2^e Éd., considérablement augmentée, Tome II: **CHIMIE ORGANIQUE**; *with 16 woodcuts*, thick cr. 8vo. *sewn*, 2s 6d
1867
- 12349 ——— **PRINCIPLES of CHEMISTRY**, founded on **MODERN THEORIES**, translated by **WILLIAM CORTIS**, revised by **SIR THOMAS STEVENSON**, M.D., *with 51 woodcuts*, thick 8vo. cl., 6s 6d (p. £1. 5s)
1868
Naquet's work is valuable in connexion with the doctrine of valency. He and Wurtz maintained that many elements had a varying valency, against the views of Kekulé, that the valency was as unalterable as the atomic weights. Naquet also held that the atoms were 'furnished with small hooks by which they catch hold of one another' (*Prof. E. v. Meyer*).
- 12350 **NARRIEN** (**John**, F.R.S.) **HISTORICAL ACCOUNT of the ORIGIN and PROGRESS of ASTRONOMY**, *with 5 plates illustrating the ancient systems*, 8vo. *calf gilt (scarce)*, 8s 6d
1833
- 12351 ——— **ANOTHER COPY**, cl. (*slightly soiled*); *cheap*, 6s
- 12352 ——— **REPRINT**, *with 5 plates*, 8vo. cl., *with bookplate of G. F. Chambers, F.R.A.S.*, 7s 6d 1850
'A work of considerable merit and research.'—*Miss Agnes M. Clerke*. 'The chapters on the Hindu and other Asiatic systems are particularly valuable, and embody much matter that is nowhere else accessible to the English reader.'
- 12353 ——— **PRACTICAL ASTRONOMY and GEODESY**, including the **Projections of the Sphere** and **Spherical Trigonometry**, *with diagrams*, 8vo. cl. (*rubbed*), 4s (p. 14s)
1845
- 12354 **NASINI** (**Raffaello**, direttore) **RICERCHE SPERIMENTALI**, esiguite nell' Anno 1892, nell' **ISTITUTO di CHIMICA GENERALE**, della R. UNIVERSITÀ di PADOVA, 15 parts in 1 vol. impl. 8vo. *sewn*, with *author's inscr.*, 4s
Padova, 1893
Including contributions by G. Carrara, F. Zecchini, F. Anderlini, A. Volpi, A. Ghira, and others.
- 12355 ——— **ANNO 1893**. 8vo. *sewn*, with *editor's inscr.*, 6s 6d *ibidem*, 1894
12356 ——— **ANNO 1894-5**, roy. 8vo. *sewn*, with *editor's inscr. to Sir E. Thorpe*, *ib.*, 1896
F.R.S., 6s 6d
- 12357 ——— **ANNI 1898-1900**. 8vo. *sewn*, with *inscr. to the same*, 6s 6d *ib.*, 1901
- 12357 ———, e **T. COSTA**: **Sulle VARIAZIONI del POTERE RIFRANGENTE e DISPERSIVO dello ZOLFO**, nei suoi **COMPOSTI**, roy. 8vo. *sewn*, with *Prof. Nasini's inscr. to Sir E. Thorpe*, 5s
Roma, 1891
- 12358 **NASKE** (**Carl**) **Die PORTLAND-CEMENT-FABRIKATION**: ein Handbuch für Ingenieure und Cementfabrikanten; *with 3 folding plates, and 183 other illustrations*, roy. 8vo. *sewn*, 5s (p. M. 10)
Leipzig, 1903
- 12359 **NASMYTH** (**James**; *inventor of the steam-hammer*) **On the STRUCTURE of the LUMINOUS ENVELOPE of the SUN**, *with plate*, 8vo. (pp. 5), *sewn (scarce)*, 4s 6d
1861
The account of the author's supposed discovery that the luminous stratum of the sun consists of numberless elongated stripes, crossing each other, and shaped like willow leaves, which were placed over a darker background. It gave rise to a prolonged controversy.
- 12360 ———, and **James CARPENTER**, F.R.A.S.: **The MOON**: considered as a **PLANET**, a **WORLD**, and a **SATELLITE**, **first edition**, with **24 fine plates (one coloured)**, and **numerous woodcuts**, 4to. cl., *t. e. g.*, with **AUTO. LETTER FROM NASMYTH to Edward Whymper**, 14s (p. £1. 10s)
1874
First and best edition, with superior impressions of the beautiful plates, 'consisting of photographs of carefully constructed models placed in strong sunlight, which give a better idea of the telescopic aspect of the moon than photographs taken direct.'—*D. N. B.*
- 12361 ——— **SECOND EDITION** [unchanged], *with 24 fine plates (1 coloured)*, and **numerous woodcuts**, 4to. cl., *t. e. g. (worn)*, with *bookplate of Prof. Lloyd Tanner, F.R.S.*, 10s 6d (p. £1. 10s)
1874
- 12362 ——— **POPULAR [FOURTH] EDITION**, *with 26 plates and numerous diagrams*, large cr. 8vo. cl., *t. e. g.*, 3s 6d (p. 5s nett)
1903
- 12363 ———: **JAMES NASMYTH, ENGINEER**: an **AUTOBIOGRAPHY**, edited by **SAMUELSMILES**; **LIBRARY EDITION**, *with fine etched portrait by Rajon (on India paper)*, and **numerous illustrations**, 8vo. cl., 5s (p. 16s)
1883
Including a chronological list of the author's numerous mechanical inventions.
- 12364 **NATURAL HISTORY MUSEUM (The)**: **Guide to the MINERAL GALLERY**, with **Student's Index**:—Collection of **METEORITES**; **FOSSIL FISHES**; Department of **GEOLOGY** and **PALÆONTOLOGY**, etc. etc., *illustrated*, in 1 vol. 8vo. cl., 3s
1881-5
- 12365 ——— **REVIEW (The)**, and **QUARTERLY JOURNAL of SCIENCE**, edited by **W. H. HARVEY**, **SAMUEL HAUGHTON**, pr., **ARTHUR R. HOGAN**, pr., **E. PERCIVAL WRIGHT**, and others, vv. I—VII, *with numerous plates (some COLOURED)*, *maps, and woodcuts*, 7 vols. 8vo. *hf. calf gilt*, £2. 10s
Dublin, and London, 1854-60
The above series embraces the Transactions of the Belfast Natural History and Philosophical Society, Cork Cuvierian Society, Dublin N.H.S., Dublin University Zoological Association, and the Literary and Scientific Institution of Kilkenny.
- 12366 **NAUMANN** (**Carl Friedrich**) **ELEMENTE der MINERALOGIE**, S. vermehrte Auflage; *with 836 woodcuts*, large 8vo. cl., 2s 6d (p. M. 10 sewn)
Leipzig, 1871
- 12367 ——— **ZEHNTE gänzlich neubearbeitete AUFLAGE von FERDINAND ZIRKEL**; *with 891 woodcuts*, 8vo. *hf. calf*, 4s (p. M. 14 sewn)
ibidem, 1877
- 12368 **NAVILLE** (**Ernest**; *Univ. Geneva*) **MODERN PHYSICS**: **Studies Historical and Philosophical**, translated by **HENRY DOWNTON**, pr., post 8vo. cl., 2s 6d (p. 5s)
Edin., 1884

- 12370 **NATURE**: a WEEKLY ILLUSTRATED JOURNAL of SCIENCE, containing Articles and Reviews by many eminent Writers; complete from its beginning in November, 1869 to October, 1909 (Vols. 1-81), with many thousand excellent woodcut illustrations, 81 vols. impl. 8vo. binder's cl., £12. 1870-1909
- 12371 ——— ANOTHER SET, COMPLETE from its beginning to February, 1909 (Vols. 1-80), 80 vols. impl. 8vo., the first 67 vv. in the original cl., and the rest in parts as issued, £12. 12s 1870-1909

This important publication is indispensable to any good public library, being the only English general scientific periodical (embracing biology as well as the exact sciences) in existence. It contains many valuable original contributions by the foremost scientists of the time.

A SET TO 1912 OF THIS INVALUABLE PUBLICATION:

- 12372 **NAVAL ARCHITECTS' INSTITUTION, TRANSACTIONS** of the: edited by SIR EDWARD J. REED, M.P., GEORGE HOLMES, etc., complete from the beginning in 1860 to 1912, with INDEX to vv. I—XXI, illustrated with over 400 large folding plates, 54 vols. 4to. in 55, cl. (SCARCE), £25. 1860-1912
- 12373 ——— ANOTHER SET, from its beginning in 1860 to 1906 (wanting vv. 12-15), 45 vols. 4to. cl., £16. 16s 1860-1906

This is a very difficult set to get, as only enough copies for the members themselves are issued of each part, and the early volumes are very scarce, while as the chief record of this great branch of engineering it is of international importance, and should be found in every good scientific library.

The progress of shipbuilding in this country is recorded in a manner worthy of so great an industry. There is no more splendid volume of transactions than that which the Institute of Naval Architects issues yearly.—*Saturday Review*.

- 12374 ——— **ARCHITECTURE, A COLLECTION** of PAPERS on, originally communicated through the EUROPEAN MAGAZINE, with folding plates and numerous woodcuts, thick 8vo. hf. calf (binding damaged), with auto. of GEORGE RENNIE, C.E., F.R.S., on title (SCARCE), £1. 1s 1805
- Containing contributions by George Atwood, F.R.S., Adml. F. H. of Chapman, John Charnock, William Emerson, Thomas Henry, F.R.S., F. Hopkinson, of Philadelphia, Samuel Vince, pr., F.R.S., and others, as well as reprints of some old and rare pamphlets and papers on the subject.
- There was no copy of the above work in the Scott Library, nor is there one in that of the Institution of Naval Architects.

- 12375 ———, PAPERS on, and other Subjects connected with NAVAL SCIENCE, conducted by WILLIAM MORGAN and AUGUSTIN CREUZE, Naval Architects, with 25 folding plates, COMPLETE in 4 vols. 8vo. calf (v. IV sewn); SCARCE. £1. 5s 1826-32

Including original contributions by George Atwood, F.R.S., Lt.-Gen. Sir Philip Bainbrigge, Robert Bill, Adml. F. H. of Chapman, Charles Dupin, Adml. Sir George Elliot, John Fincham, Sir William Snow Harris, F.R.S., John Knowles, F.R.S., Capt. H. E. Napier, R.N., F.R.S., Sir Robert Seppings, F.R.S., etc. etc. etc. The work is very scarce complete as above, vol. IV being often missing.

- 12376 ——— REPRINT of VOL. IV ONLY, with 2 folding plates, 8vo. sewn, 4s 1832 [reprinted 1865]
- 12377 ——— (SOCIETY for the IMPROVEMENT of), PREMIUMS offered by the, and a List of the Committee of the Society, with Account of MR. JOHN READ'S METHOD of STOPPING the PROGRESS of FIRE on BOARD of SHIPS, with copperplate, 8vo. (pp. 16), unbound, 6s 1793
- 12378 ———, REPORT of the COMMITTEE appointed to Manage the Experiments of the [edited by JOSEPH BROCKBANK], with 2 large folding plates, 8vo. (pp. 12), unbound, 6s 6d 1794
- 12379 ———, Some ACCOUNT of the INSTITUTION. PLAN, and PRESENT STATE of the, with the PREMIUMS offered by it, LIST of MEMBERS, and its Rules and Orders, with some PAPERS on SUBJECTS of NAVAL ARCHITECTURE received by the Committee, with folding plate and diagrams, 8vo. hf. calf (loose in binding); rare, 12s 6d 1792
- The papers include: Observations on the Resistance of Fluids, and on the Methods to be made Use of to ascertain those Forms or Lines which meet with the Least Resistance, etc. etc., by CHARLES GORE: Hints to ascertain the best Manner of Constructing Masts for Ships of the Line, by ADML. CHARLES MIDDLETON [LORD BARHAM]: On the Method of Ascertaining a Ship's Burthen, by [ADML.] F. H. of CHAPMAN.

- 12380 ——— **ARTILLERY (MODERN)**, with 19 photogravure plates of Armstrong guns and mountings, 8vo. (pp. 96), parchment wrapper (scarce), 5s [1890]
- An extended Guide to the Armstrong Gallery of the Naval Exhibition. At end is a descriptive list of war ships built at the Elswick Works.

- 12381 ——— **ENGINEERING, QUESTIONS and ANSWERS** in, with plate and numerous other illustrations, 8vo. cl., 3s (p. 5s nett) [1910]

- 12382 ———: TRANSACTIONS of the WORLD'S COLUMBIAN EXPOSITION ENGINEERING CONGRESS. Section G. Division of Marine and Naval Engineering and Naval Architecture, with numerous plates (many folding), and woodcuts, 2 vols. roy. 8vo. cl., 15s (p. £2. nett) [New York, 1893]

A collection of valuable memoirs by Sir Nathaniel and S. W. Barnaby, Henry Benbow, R.N., E. S. Cramp, Prof. W. F. Durand, Nelson Foley, Ira N. Hollis, James Howden, M.I.C.E., B. F. Isherwood, U.S.N., Robert Mansel, W. J. Millar, C.E., Lewis Nixon, J. R. Oldham, A. E. Seaton, M.I.C.E., and others.

- 12383 ——— **MOBILIZATION and IMPROVEMENT** in MATÉRIEL [ed. by LT. R. P. RODGERS, U.S.N.], with 24 folding plates, and numerous other plates and woodcuts, 8vo. hf. calf, 5s Washington, 1889

- 12384 ——— ANOTHER COPY, with the plates linen-mounted; hf. calf neat, 6s
- An account of the English, French, German, and Italian Navies in 1888 by the U.S. Navy Intelligence Department.

- 12385 ——— **SCIENCE**: a QUARTERLY MAGAZINE for promoting the Improvement of NAVAL ARCHITECTURE, MARINE ENGINEERING, STEAM NAVIGATION, and SEAMANSHIP, edited by SIR EDWARD JAMES REED, F.R.S., and JOSEPH WOOLLEY, F.R.A.S., VOLS. I to IV, with numerous plates, besides diagrams, 4 vols. roy. 8vo. hf. calf gilt (SCARCE), £1. 10s 1872-5

Besides the numerous valuable contributions by Sir E. J. Reed, there are articles by William Froude, F.R.S., Sir J. K. Laughton, Robert Mallet, F.R.S., C. W. Merrifield, F.R.S., Sir Andrew Noble, Vice-Adml. P. F. Shortland, etc. etc.

- NATURWISSENSCHAFTEN**, ENCYCLOPÆDIE der, herausgegeben von G. JÄGER, A. KENNGOTT, A. LADENBURG, T. v. OPPOLZER, A. SCHENK, O. SCHLÖMILCH, G. C. WITTSTEIN und P. ZECH, viz:
- 12387 **Handwörterbuch der Chemie**, herausgegeben von A. LADENBURG, 13 vols.; mit GENERALREGISTER, bearbeitet von ALBERT MÄTZDORF; with numerous woodcuts—14 vols. large roy. 8vo. in parts as issued (wanting parts 41, 45, 49, 51, and 72), £1. 10s (p. M. 216)
Breslau, 1882-95
- 12388 **Handbuch der Mathematik**, herausgegeben von OSKAR SCHLÖMILCH, unter Mitwirkung von F. REIDT und RICHARD HEGER; with numerous diagrams, 2 thick vols. roy. 8vo. cl. 15s (p. M. 39 sewn)
ibidem, 1879-81
- 12389 **Handwörterbuch der Mineralogie, Geologie und Palæontologie**, herausgegeben von A. KENNGOTT, unter Mitwirkung von A. v. LASAULX und F. ROLLE; with 4 plates and 392 woodcuts, 3 vols. roy. 8vo. cl., 17s 6d (p. M. 48 sewn)
ib., 1882-7
- 12390 **Handbuch der Physik**, herausgegeben von A. WINKELMANN, II. BAND, I. ABTHEILUNG: OPTIK; with 1 plate and 190 woodcuts, large roy. 8vo. in parts as issued, 6s (p. M. 20) ib., 1891-3
- 12391 ——— III. BAND, I.—II. ABTHEILUNG: ELEKTRIZITÄT und MAGNETISMUS; with 314 woodcuts, 2 vols. large roy. 8vo. in parts as issued, 10s (p. M. 33) ib., 1891-4
- 12392 **NAUMANN (Alexander, Univ. Giessen)** Die HEIZUNGSFRAGE mit besonderer Rücksicht auf WASSERGASERZEUGUNG und WASSERGASHEIZUNG, 8vo. calf (back rubbed), 2s 6d Giessen, 1881
The author advocates converting solid fuel into combustible gases by means of superheated steam.
- 12393 **NAUTICAL ALMANAC (The)**, and ASTRONOMICAL EPHEMERIS, for the Meridian of the Royal Observatory at Greenwich, for 1883-8, 1892-1908, and 1910-11, with maps, 25 vols. roy. 8vo. sewn, £1. 1s (p. £3. 2s 6d) 1879-1907
- 12394 ——— ANOTHER SET, from 1880 to 1909, with charts, 30 vols. 8vo. sewn, £1. 5s (p. £3. 15s) 1876-1905
- 12395 ——— ANOTHER SET, from 1881 to 1893, with charts, 13 vols. 8vo. cl., 10s 6d 1877-89
- 12396 ——— PART I ONLY, from 1896 to 1912, with charts, 17 vols. 8vo. sewn, 6s 1892-1908
- 12397 ——— for 1814 [with Preface by NEVIL MASKELYNE, pr., F.R.S., Astronomer Royal], 8vo. old calf, 2s 6d 1810
- 12398 **NAVIER (Claude Louis Marie Henry, de l'Institut)** CONSIDÉRATIONS sur les PRINCIPES de la POLICE du ROULAGE, 8vo. (pp. 15), sewn, with author's inser. to George Rennie, F.R.S., 3s 6d [1830]
'Mr. Gerges [sic] Rennie offert par l'auteur.'—Inscr. on first l. Treating of wear and tear. 'Il conclut que le tirage, ainsi que la dégradation des routes, augmente dans un bien plus grand rapport que la charge.'—B. de St.-Venant.
- 12399 ——— De l'EXÉCUTION des TRAVAUX PUBLICS, et particulièrement des CONCESSIONS, 8vo. (pp. 32), sewn, 2s 1832
- 12400 ——— NOTE sur la COMPARAISON des AVANTAGES RESPECTIFS de diverses LIGNES de CHEMINS de FER, et sur l'EMPLOI des MACHINES LOCOMOTIVES, 8vo. (pp. 51), sewn (scarce), 8s 6d 1835
'Ce mémoire a obtenu en 1837, après la mort de Navier, la première grande médaille d'or donnée par les suffrages des ingénieurs au meilleur article envoyé aux *Annales*.'—B. de St.-Venant.
- 12401 ——— NOTE sur le MOUVEMENT UNIFORME des WAGGONS [sic] dans les Parties des CHEMINS de FER qui sont tracées en LIGNE COURBE; with plate, post 8vo. (pp. 16), unbound (scarce), 7s 6d 1835
Treating the subject mathematically, and quite an early French railway book.
- 12402 ——— NOTICE sur M. [LOUIS] BRUYÈRE, Inspecteur Général des Ponts et Chaussées, etc. etc., 8vo. (pp. 24), unbound, 1s 6d 1833
- 12403 ——— RAPPORT et MÉMOIRE sur les PONTS SUSPENDUS, 4to. hf. russia gilt (rare), 15s
Imprimerie Royale, 1823
A mathematical treatment of suspension bridges, in which the author first applied the principle of the conservation of forces to the study of hydraulics. 'Savant mémoire qui lui ouvrit les portes de l'Académie des Sciences.'—Biogr. Gén.
Bound up with the above is: 'Des Ponts en Fil de Fer, par [Charles] SÉGUIN Aîné, 2^e Edition; with 4 folding plates, 4to. with author's inser. to George Rennie, F.R.S., 1826.
- 12404 ——— RÉSUMÉ des LEÇONS de MÉCANIQUE données à l'École Polytechnique; with 4 folding plates, 8vo. hf. morocco gilt, 10s 6d 1841
- 12405 ——— RÉSUMÉ des LEÇONS sur l'APPLICATION de la MÉCANIQUE à l'ÉTABLISSEMENT des CONSTRUCTIONS et des MACHINES, première édition; with 14 folding plates, 2 vols. 8vo. calf (backs damaged); SCARCE, 12s 6d 1826-38
'Ouvrage estimé.'—Biogr. Gén. The author was the first to apply the science of mechanics to building and engineering, and thus to lay the foundation of the science of technical mechanics.
Bound up with the above copy is: *Traité des Roues Hydrauliques et des Roues à Vent*, par L. M. P. COSTE; with plate (pp. 168), 1830.
- 12406 ——— DEUXIÈME ÉDITION, augmentée. I^e PARTIE: Résistance des Matériaux. Constructions en Terre, en Maçonnerie et en Charpente; with 5 folding plates, 8vo. sewn, with author's inser. to George Rennie, F.R.S., 3s 6d 1833
- 12407 ——— TROISIÈME [DERNIÈRE] ÉDITION. I^e SECTION [toute parue]: De la RÉSISTANCE des CORPS SOLIDES, avec des Notes et des Appendices par BARRÉ DE SAINT-VENANT; with plate and numerous diagrams, thick 8vo. (pp. 1163), hf. morocco neat, cl. sides, 12s 6d (p. F. 25 nett unbound) 1864
This edition contains a very copious and valuable history of the subject (pp. 221), biographical notices, and a 'Notice sur les Ouvrages de Navier' (p. 89).
- 12408 ——— RÉSUMÉ des LEÇONS d'ANALYSE données à l'École Polytechnique, suivi de Notes, par J. LIOUVILLE; with 3 plates, 2 vols. 8vo. in 1, hf. calf, 6s 6d 1840
'Il a, le premier, introduit résolument dans les éléments les procédés indispensables d'intégration des équations aux dérivées partielles, avec des conditions aux limites, par séries trigonométriques.'—B. de St.-Venant.
- 12409 ——— NOTICE BIOGRAPHIQUE sur, par le BARON G. C. F. M. R. PRONY, 8vo. (pp. 23), sewn, 1s 6d 1837

- 618 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 12411 **NAVIGATION**, EXPOSITION des MOYENS les plus faciles de RÉSOUDRE plusieurs QUESTIONS dans l'ART de la, et démontrés à l'Aide des Principes de Géométrie Élémentaire, avec une TABLE des SINUS VERSES, et de leurs Logarithmes; *with 4 plates*; ÉLÉMENTS de GÉOMÉTRIE et de la TRIGONOMÉTRIE Rectiligne—2 vols. 8vo. in 1, *contemporary French calf gilt*, 8s 6d 1772
- 12412 **NEESEN (Friedrich; Univ. Berlin)** KATHODEN- und RÖNTGEN-STRAHLEN, sowie die STRAHLUNG AKTIVER KÖRPER; *with 50 illustrations*, cr. 8vo. cl., 2s 6d (p. M. 4) *Wien*, 1904
- 12413 **NEILSON (Robert M.)** AEROPLANE PATENTS, *with 77 illustrations*, 8vo. cl., 3s (p. 4s 6d nett) 1910
- 12414 **NEISON (Edmund, F.R.A.S.)** The MOON, and the Condition and Configurations of its SURFACE, *with front., 4 coloured plates, and 126 maps, thick sq. 8vo. cl. (cover worn), o.p.*, 8s (p. £1. 11s 6d) 1876
- 'Nasmyth and Carpenter's beautifully illustrated volume, 1874 (No. 12360 ante) was succeeded by a still more weighty contribution to lunar science in Mr. Neison's well-known book, accompanied by a map based on the survey of Beer and Mädler, but adding some 500 measures of positions, besides the representation of several thousand new objects.'*—*Miss Agnes M. Clerke.*
- 12415 **NEISON (Francis Gustavus Paulus, actuary to the Medical Invalid and General Life Office)** CONTRIBUTIONS to VITAL STATISTICS: a Development of the Rate of Mortality and the Laws of Sickness, from Original and Extensive Data procured from FRIENDLY SOCIETIES, showing the INSTABILITY of FRIENDLY SOCIETIES, 'Odd Fellows', 'Rechabites', etc.; with an Inquiry into the Influence of Locality on Health, 4to. *calfs (back badly rubbed), with author's inscr.*, 6s 6d 1845
- According to Allibone, where the date of the above work is correctly given, the author was born in 1847!
- 12416 **NELL (Adam)** GEODÄTISCHE BESTIMMUNG der GEOGRAPHISCHEN BREITE und LÄNGE aus LINEAR-COORDINATEN; *with 2 diagrams*, 8vo. (pp. 14), *sewn*, 1s *Hannover*, 1884
- 12417 **NELTHROPP (Henry Leonard, pr., F.S.A.)** TREATISE on WATCH-WORK, past and present, *illustrated*, cr. 8vo. cl., 3s (p. 6s 6d) 1873
- 12418 ——— ANOTHER COPY, 8vo. cl. (*title missing*), 2s
Including an 'Historical Summary', from 1500 to 1872 (pp. 78).
- 12419 **NERI (Antonio)** De ARTE VITRARIA Libri VII, et in eosdem CHRISTOPHORI MERRETTI, M.D. [S.R.S.] Observations et Notæ, in quibus omne GEMMARUM ARTIFICIALIUM, ENCAUSTORUM et LACCARUM Artificium explicatur; *with engraved title, and 6 folding copperplates, illustrating appliances, furnaces, and tools then used in glassmaking and blowing*, 18mo. *contemporary limp vellum extra (RARE)*, 18s 6d *Amstelodami*, 1668
- This is the first Latin edition of this well-known work on glass-making, and contains copious additions, equalling the original in bulk, by CHRISTOPHER MERRET, M.D., F.R.S., who also translated the work into English in 1662.
- 12420 **NERNST (Walter, Univ. Berlin)** Die ZIELE der PHYSIKALISCHEN CHEMIE, 8vo. (pp. 18), *sewn*, 1s *Göttingen*, 1896
- 12421 **NERZ (F.)** SEARCHLIGHTS: their Theory, Construction and Applications, translated by CHARLES RODGERS, *with 47 illustrations*, large 8vo. cl., 4s 6d (p. 7s 6d nett) 1907
- 12422 **NESBIT (Anthony)** COMPLETE TREATISE on PRACTICAL LAND SURVEYING, 9th Edition, greatly enlarged, with PLANE TRIGONOMETRY, and RAILWAY ENGINEERING by T. BAKER, C.E., *with 5 folding plates, numerous diagrams, and Field Book of 16 lithographed pp.*, 8vo. cl., 4s 1847
- 12423 ——— TWELFTH EDITION [enlarged and rewritten], by WILLIAM BURNES, F.R.A.S., *with 5 folding plates, woodcuts, and numerous diagrams and folding table*, 8vo. cl., 5s (p. 12s) 1870
- 12424 ——— THIRTEENTH [LAST] EDITION [without the Appendix], edited by WILLIAM BURNES, F.R.A.S., *with 5 folding plates, woodcuts, numerous diagrams, and folding table*, 8vo. cl., 5s 6d 1877
- 12425 ——— TREATISE on PRACTICAL MENSURATION, new Ed., enlarged, with TREATISE on LEVELLING, *with nearly 300 woodcuts*, with the **Key**, 2 vols. fcap. 8vo. cl., 2s 6d 1868—*n. d.*
- 'His books had a considerable reputation in their day, and his 'Land Surveying' still retains its popularity.'*—*D. N. B.* He describes therein a quadrant of his own construction.
- 12426 ——— NEW EDITION, thoroughly revised and improved by JOHN HUNTER, pr., *with woodcuts*, fcap. 8vo. cl., 1s 6d [1875]
- 12427 **NESBIT (John Collis, F.C.S.; son of Anthony)** On AGRICULTURAL CHEMISTRY, and the Nature and Properties of PERUVIAN GUANO, 6th Ed., *with pastoral vignettes*, 8vo. cl., 2s 6d [1856]
- 12428 **NETTLETON (J. A.)** The MANUFACTURE of SPIRIT, as conducted at the various Distilleries of the United Kingdom, *with 47 full-page and other woodcuts*, roy. 8vo. cl., 6s 6d 1893
- 12429 **NETTO (Friedrich August Wilhelm)** Das KALEIDOTYP, oder, KATADIOPTRISCH-CHEMISCHE MASCHINE, um für alle Gewerbtreibende eine unberechenbare Anzahl von Mustern jeder Art zu erfinden und zu bilden, welche sich von sich selbst erzeugen und von selbst auf dem Papier abbilden; *with 3 folding plates, 8vo. sewn (water-stained); scarce*, 8s 6d *Quedlinburg*, 1843
- The author's invention was a combination of the kaleidoscope and the daguerreotype to produce industrial designs mechanically.
- 12430 **NEUMAYER (Georg Balthasar v.; F.R.S., Director, Flagstaff Observatory, Melbourne)** Über die BEDEUTUNG und ZIELE ERDMAGNETISCHER LANDESVERMESSUNGEN, roy. 8vo. (pp. 17), *sewn, with author's inscr. to Sir E. Thorpe*, F.R.S., 2s *Berlin*, 1891
- 12431 ——— DISCUSSION of the METEOROLOGICAL and MAGNETICAL OBSERVATIONS at the FLAGSTAFF OBSERVATORY, MELBOURNE, 1858-63. *with 25 plates and charts*, roy. 4to. boards (*back torn off*); *scarce, with inscr. to Lt.-Gen. Sir William Thomas Denison*, 9s *Mannheim*, 1867
- 12432 **NEWBOLD (Capt. Thomas John, Madras Army, F.R.S.)** On the TEMPERATURE of the SPRINGS, WELLS and RIVERS of INDIA and EGYPT, and of the Sea and Tablelands within the Tropics, 4to. (pp. 25), *unbound*, 2s 1844

- 12434 **NEUBERG** (Joseph, *Univ. Liège*) MÉMOIRE sur le TÉTRAÈDRE, 8vo. *sewn, with inscr. to Samuel Roberts, F.R.S., and numerous MS. notes by the latter, 2s 6d* Bruxelles, 1884
- 12435 — Sur le POINT de STEINER. 8vo. *sewn, with inscr. to the same, 1s* 1886
- 12436 — Sur les PROJECTIONS et CONTRE-PROJECTIONS d'un TRIANGLE FIXE, et sur le Système de Trois Figures directement Semblables; *with diagrams, 8vo. sewn, with inscr. to the same, 2s* Bruxelles, 1890
- 12437 — Sur le QUADRILATÈRE HARMONIQUE; *with 3 diagrams*: Sur le POINT de TARRY—roy. 8vo. (pp. 23), *sewn, with inscr. to the same, 1s 6d* s. l. *ni d.*
- 12438 — Sur QUELQUES SYSTÈMES de TIGES ARTICULÉES: Tracé Mécanique des Lignes; *with 2 folding plates, roy. 8vo. (pp. 48), sewn, 2s 6d* Liège, 1886
Containing an interesting historical account of drawing lines by link motion.
- 12439 — Sur les TÉTRAÈDRES de MÖBIUS, 8vo. (pp. 14), *sewn, with inscr. to S. Roberts, F.R.S., 1s 6d* Bruxelles, 1884
- 12440 — Sur les TANGENTES COMMUNES à un Cercle et à une CONIQUE, 8vo. (pp. 18), *sewn, with inscr. to the same, 1s* 1885
- 12441 —, et Antoine GOB: Sur les AXES de STEINER et l'HYPERBOLE de KIEPERT: Sur les FOYERS de STEINER d'un TRIANGLE; *with 11 diagrams, roy. 8vo. sewn, 1s 6d* [1890]
- 12442 **NEUMANN** (Carl Gottfried; *Univ. Leipzig*) ALLGEMEINE UNTERSUCHUNGEN über das NEWTON'SCHE PRINCIP der FERNWIRKUNGEN, mit besonderer Rücksicht auf die elektrischen Wirkungen, roy. 8vo. *sewn, 6s* (p. M. 10) Leipzig, 1896
- 12443 — Ueber die ENTWICKELUNG einer FUNCTION mit imaginärem Argument nach den Kegelfunctionen erster und zweiter Art. 8vo. (pp. 14), *sewn, 1s* Halle, 1862
- 12444 — Ueber die nach KREIS-, KUGEL- und CYLINDER-FUNCTIONEN fortschreitenden Entwicklungen, unter durchgängiger Anwendung des du Bois-Reymond'schen Mittelwerth-satzes, 4to. *hf. cl., 4s 6d* (p. M. 7. 20 *sewn*) Leipzig, 1881
- 12445 — Die MAGNETISCHE DREHUNG der POLARISATIONSEBENE des LICHTES: Versuch einer mathematischen Theorie; *with diagrams, 8vo. sewn, 3s 6d* Halle, 1863
Developing James McCullagh's differential equations on the theory of polarisation and the luminiferous ether (v. No. 11164 ante).
- 12446 — Über die METHODE des ARITHMETISCHEN MITTELS; *with diagrams, 2 vols. large impl. 8vo. sewn, 6s* (p. M. 9.20) Leipzig, 1887-8
- 12447 — UNTERSUCHUNGEN über das LOGARITHMISCHE und NEWTON'SCHE POTENTIAL; *with diagrams, 8vo. sewn, 6s* (p. M. 10) *ibid.*, 1877
Containing the investigations which made the author the founder of the logarithmic potential.
- 12448 — VORLESUNGEN über RIEMANN'S THEORIE der ABEL'SCHEN INTEGRALÉ, 2. [neueste] vollständig umgearbeitete Auflage; *with plate and diagrams, roy. 8vo. sewn, 7s 6d* (p. M. 12) *ib.*, 1884
- 12449 **NEUMANN** (Franz Ernst; *Univ. Königsberg, F.R.S.; father of the above*) BEITRÄGE zur KRISTALLOGOMIE; *with 12 folding plates, 8vo. boards (scarce), 10s 6d* Berlin, 1823
The author introduces in this work linear and spherical projection in crystallography. He was also the founder of the crystallographic theory of deformation.
- 12450 — Die MATHEMATISCHEN GESETZE der INDUCIRTEN ELEKTRISCHEN STRÖME, 4to. (pp. 87) *sewn (scarce), 6s 6d* *ibid.*, 1846
The first of the author's two important publications on the laws of induced electricity. A copious account of the above is given in Hoppe's *Gesch. d. Elektrizität*, pp. 438-46.
- 12451 — VORLESUNGEN über die THEORIE der ELASTICITÄT der FESTEN KÖRPER und des LICHTÄTHERS, herausgegeben von OSKAR EMIL MEYER; *with diagrams, roy. 8vo. hf. morocco gilt, 8s 6d* (p. M. 11.60 unbound) Leipzig, 1885
- 12452 **NEUMANN** (Kaspar; *Berlin, F.R.S.*) CHEMICAL WORKS, abridged and methodized, with large Additions, containing the later Discoveries and Improvements, by WILLIAM LEWIS, F.R.S., 2nd Edition, 2 vols. 8vo. *old calf, 10s 6d* 1773
An epitome of the chemical knowledge of the time, and interesting for elaborating Stahl's phlogiston theory, of which the author was one of the foremost adherents.
- 12453 **NEVILLE** (John, C.E., M.R.I.A.) HYDRAULIC TABLES, COEFFICIENTS, and FORMULE, for finding the DISCHARGE of WATER from Orifices, Notches, Weirs, Pipes, and Rivers, *with 44 woodcuts, 8vo. cl., 3s 6d* 1853
- 12454 — SECOND EDITION. with extensive Additions, New Formule, Tables, and General Information on Rain Fall, Catchment-Basins, Drainage, Sewerage, and Water Supply for Towns and Mill Power, *with 46 woodcuts, 8vo. cl., 6s 6d* 1860-1
- 12455 **NEW JERSEY**, GEOLOGICAL SURVEY of: ANNUAL REPORT of the STATE GEOLOGIST for 1880, *with 2 coloured maps (1 folding in pocket), 8vo. boards, 3s* Trenton, N.J., 1880
- 12456 **NEW YORK**, INQUIRY into the CONDITIONS relating to the WATER-SUPPLY of the CITY of, by the MERCHANTS' ASSOCIATION of NEW YORK, *with numerous plans, maps and charts (many folding), thick 8vo. cl., 7s 6d* [New York, 1900]
- 12457 **NEW ZEALAND**, REPORT on the MINING INDUSTRY of: Papers laid before Parliament during the Session of 1886, *with 4 plates (2 folding), large post 8vo. cl., 4s 6d* Wellington, 1887
- 12458 **NEWBIGGING** (Thomas, M.I.C.E.) The GAS MANAGER'S HANDBOOK: Tables, Rules, and Useful Information, 8vo. *hf. roan (binding badly rubbed), 2s* 1870
- 12459 — HANDBOOK for GAS ENGINEERS and MANAGERS, 5th Edition [greatly enlarged and rewritten], *with 193 woodcuts, sq. cr. 8vo. hf. calf, 4s* 1889
- 12460 — EIGHTH [LATEST] EDITION [enlarged], *with fine portrait of W. Murdock, and illustrations, sq. large cr. 8vo. leather, g. e., 12s 6d* (p. 18s nett) 1913

- 12462 **NEWCOMB** (Simon; *U.S. Naval Observatory*, F.R.S.) ASTRONOMY for EVERYBODY: a Popular Exposition of the Wonders of the Heavens, with Introduction by SIR ROBERT S. BALL, F.R.S., 65 illustrations, Svo. cl., t. e. g., 3s 6d (p. 7s 6d) 1903
- 12463 ——— On BOSS'S SYSTEM OF DECLINATIONS and on that of the Astronomische Gesellschaft, 4to. (pp. 8), unbound, 1s Boston [Mass.], 1896
- 12464 ——— CATALOGUE of 1098 STANDARD CLOCK and ZODIACAL STARS, roy. 4to. cl., 6s [Washington, 1881]
- 12465 ——— COMPENDIUM of SPHERICAL ASTRONOMY, with its Applications to the Determination and Reduction of Positions of the Fixed Stars, with 36 diagrams, Svo. cl., 8s (p. 12s 6d nett) New York, 1906
- 12466 ——— DISCUSSION of the NORTH POLAR DISTANCES observed with the Greenwich and Washington Transit Circles, with Determinations of the Constant of Nutation, roy. 4to. (pp. 80), sewn, 2s [ibidem, c. 1885]
- 12467 ——— Sur les FORMULES de NUTATION basées sur les Décisions de la Conférence de 1896, 8vo. (pp. 6), sewn, 1s [1898]
- 12468 ——— INVESTIGATION of CORRECTIONS to HANSEN'S TABLES of the MOON; with Tables for their Application, 4to. (pp. 51), sewn, 2s Washington, 1876
- 12469 ——— A NEW DETERMINATION of the PRECESSIONAL MOTION, roy. 4to. (pp. 7), sewn, 1s 6d Boston [Mass.], 1897
- The author ascertained the annual precessional value as + 0.000222", the most accurate one hitherto given.
- 12470 ——— OBSERVATIONS of the TRANSIT of VENUS, Dec. 8-9, 1874, made and reduced under the Direction of the Commission created by Congress, with 2 folding plates of the photo-heliograph, 4to. cl., 4s Washington, 1880
- 12471 ——— PERIODIC PERTURBATIONS of the LONGITUDES and RADII VECTORES of the FOUR INNER PLANETS of the First Order as to the Masses, roy. 4to. (pp. 174), sewn, 3s [ibid., 1891]
- 12472 ——— POPULAR ASTRONOMY, with front., 112 woodcuts, and 5 star maps, Svo. cl., 4s 6d (p. 18s) 1878
- An invaluable work to the amateur astronomer, including a good bibliography of the best astronomical works, ancient and modern.
- 12473 ——— The PROBLEMS of ASTRONOMY, 8vo. (pp. 10), sewn, 1s Washington, 1898
- 12474 ——— On the RECURRENCE of SOLAR ECLIPSES, with Tables of Eclipses from B.C. 700 to A.D. 2300, 4to. (pp. 55), sewn, 2s 6d ib., 1879
- A very interesting memoir.—G. F. Chambers, F.R.A.S.
- 12475 ——— The REMINISCENCES of an ASTRONOMER, with portrait, Svo. cl., 4s (p. 10s 6d) 1903
- 12476 ——— RESEARCHES on the MOTION of the MOON, made at the United States Naval Observatory, Washington: Part I: REDUCTION and DISCUSSION of OBSERVATIONS of the MOON before 1750, 4to. sewn, 6s Washington, 1878
- Investigating the errors of Hansen's Lunar Tables (*q. v. ante*) as compared with observations before 1750.
- 'Newcomb further showed that small residual irregularities are still found in the moon's movements, inexplicable either by any known gravitational influence, or by any uniform value that could be assigned to secular acceleration.—Miss Agnes M. Clerke.
- 12477 ——— La THÉORIE du MOUVEMENT de la LUNE: son Histoire et son État actuel, impl. Svo. (pp. 9), sewn, with author's inser., 1s 6d Roma, 1909
- 12478 ——— SIMON NEWCOMB: MEMORIAL ADDRESSES by Charles K. Wead, James Bryce, Milton Updegraff, R. S. Woodward, etc. etc., with portrait, roy. 8vo. (pp. 35), sewn, 1s 6d Washington, 1910
- 12479 **NEWELL** (Frederick Haynes) REPORT of the PROGRESS of STREAM MEASUREMENTS for 1902, 4 vols. 8vo. sewn, 4s U. S. Geol. Survey, Washington, 1903
- 12480 **NEWKIRK** (Burt L., Minneapolis) Eine UNTERSUCHUNG der PARALLAXE des ZENTRAL-STERNS des RINGNEBELS in der LEIER, Inaugural-Dissertation, roy. 8vo. (pp. 37), sewn, with author's inser., 2s München, 1902
- 12481 **NEWLANDS** (John A. R.; F.I.C.) On the DISCOVERY of the PERIODIC LAW, and on RELATIONS among the ATOMIC WEIGHTS, with 2 folding tables, post 8vo. cl., with author's inser. (scarce), 6s 6d 1884
- The periodic law was discovered simultaneously, but independently of one another, by the author and Prof. Lothar Meyer (*q. v. ante*), and received its classic development by Prof. Mendelejeff, who by its means predicted the existence of certain elements then unknown, which were afterwards actually discovered.
- 'I claim to have been the first to publish a list of the elements in the order of their atomic weight, and also the first to describe the periodic law, showing the existence of a simple relation between them when so arranged.—Preface.
- 12482 **NEWMAN** (Francis William; brother of Cardinal Newman) The DIFFICULTIES of ELEMENTARY GEOMETRY, especially those which concern the Straight Line, the Plane, and the Theory of Parallels, with 122 illustrations, 8vo. sewn (scarce), 5s 1841
- The author was evidently ignorant of the work of Lobatschewsky, Gauss, and Bolyai on parallel lines, which he does not mention, although he quotes Legendre's treatment, and T. P. Thompson's 'proof'.
- 12483 **NEWMAN** (John, philosophical instrument maker to the Royal Institution) DESCRIPTION of OSLER'S REGISTERING ANEMOMETER, with folding plate, 8vo. (pp. 9), unbound, 3s 1840
- 12484 ——— INSTRUCTIONS for FIXING the STANDARD BAROMETER, with woodcut, Svo. (pp. 3), unbound, 1s n. d.
- 12485 ——— MINER'S SAFETY LAMP: an Account of his IMPROVEMENT on SIR HUMPHRY DAVY'S, with 8 woodcuts, 8vo. (pp. 10), unbound, 3s 6d [1835]
- The improvement consists of the addition of an outer cylinder of wire gauze. It was awarded the silver medal by the Society of Arts.
- 12486 **NEWNHAM** (Philip Hankinson, pr., F. R. MET.S.) The CLIMATE of BOURNEMOUTH, with 13 tables, 8vo. (pp. 16), sewn, 2s Bournemouth [1869]

- 12488 **NEWMAN** (John, M.I.C.E.) NOTES ON CYLINDER BRIDGE PIERS and the WELL SYSTEM of FOUNDATIONS; especially written for those engaged in the Construction of Bridges, Quays, Docks, River Walls, Weirs, etc., 8vo. cl., 3s (p. 6s) 1893
An enlargement of the author's calculations in designing iron cylinder bridge piers, for which he was awarded the Miller prize by the Institution of Civil Engineers.
- 12489 **NEWSHOLME** (Arthur, M.D.) The ELEMENTS of VITAL STATISTICS, with charts, thick cr. 8vo. cl., 3s 6d (p. 7s 6d) 1889
- 12490 **NEWTH** (George Samuel, F.I.C., F.C.S.) CHEMICAL LECTURE EXPERIMENTS: Non-Metallic Elements, with 224 illustrations, 8vo. cl., 2s 6d (p. 10s 6d) 1892
- 12491 ——— NEW EDITION [enlarged], with 230 illustrations, cr. 8vo. cl., 3s 6d 1908
- 12492 ——— MANUAL of CHEMICAL ANALYSIS, QUALITATIVE and QUANTITATIVE, with 100 illustrations, post 8vo. cl., 3s (p. 6s 6d) 1898
- 12493 **NEWTON** (Hubert Anson; Yale Univ.) On the CAPTURE of COMETS by PLANETS, especially their Capture by JUPITER, with diagrams, 8vo. (pp. 27), sewn, 2s [New Haven], 1891
'The researches of Tisserand, Callandrea, and Newton leave scarcely a doubt that the 'capture theory' represents the essential truth.'—Miss Agnes M. Clerke.
- 12494 ——— On the RELATION which the FORMER ORBITS of those METEORITES that are in our COLLECTIONS, and that were seen to FALL, had to the EARTH'S ORBIT, 2 diagrams, 8vo. (pp. 14) sewn, 2s [ib.], 1888
'He found that nearly all [falling meteorites] had been travelling with a direct movement in orbits the perihelia of which lay in the outer half of the space separating the earth from the sun.'—Eadem.
- 12495 ———, OBITUARY NOTICE of, by G[EO]RGE J[AMES] S[YMONS, F.R.S.], 8vo. (pp. 6), unbound, 1s [1896]
Professor Hubert Newton, born at Sherburne, N.Y., in 1830, was one of ten children of parents of whom one was engineer of the Buffalo section of the Erie Canal and the other (born Butler) was remarkable for her mathematical attainments. He graduated with the highest mathematical honours at Yale when only twenty.
- 12496 **NEWTON** (Sir Isaac, P.R.S.) OPERA quæ exstant OMNIA, Commentariis illustrabat SAMUEL HORSLEY, R.S.S. [Episcopus Roffensis]; plates, tables, and numerous diagrams, 5 vols. 4to. contemporary tree-calf (joints cracked); RARE, £8. 15s Londini, Nichols, 1779-85
- 12497 ——— ANOTHER COPY, 5 vols. roy. 4to. contemporary tree-calf gilt (joints neatly mended); A FINE AND TALL COPY, £9. 15s

This is the only collected edition of Newton's works, now becoming increasingly rare. It was the first to contain his important *Geometria Analytica*. The following is a list of the works reprinted in it:—I. *Arithmetica Universalis*. *Tractatus de Rationibus*. *Analysis per Æquationes*. *Excerpta ad Series Fluxionesque pertinentia*. *De Quadratura Curvarum*. *Geometria Analytica*. *Methodus Differentialis*. *Enumeratio Linearum Tertii Ordinis*: II—III, *Principia*. *Lectiones Opticæ*: IV, *Opticks*. *Letters on Various Subjects*. *Letters to Mr. Boyle*. *Tabule Colorum et Refractionum*. *De Problematis Bernoullianis*. *Propositions for determining the Motions of a Body urged by two Central Forces*. *Four Letters to Dr. Bentley*. *Commercium Epistolicum, cum Additamentis*: V, *Chronology of Ancient Kingdoms*. *Short Chronicle from a MS. Prophecies of Daniel and the Apocalypse*. *Two Notable Corruptions of Scripture*. There are also some original papers by the Editor, viz., *Geometria Fluxionum*; *Logistica Infinitorum*; *De Viribus Centralibus*, etc.

- 12498 ——— OPERA, EDITIO COLLECTIVA; with numerous plates, tables, and diagrams, 8 vols. 4to. uniformly bound in russia gilt, g. e. (a few joints neatly mended, but a FINE SET), £2. 12s 6d 1744-61
Besides Bp. Horsley's edition above, this was the only approximately complete and uniform edition of Newton's works ever issued. It comprises: OPERA MATHEMATICA, PHILOSOPHICA et PHILOLOGICA, collectit, recensit, etc. Joh. Castellioneus, 3 v., *Lausannæ*, '44: PRINCIPIA, studio Thomæ Le Seur et Franc. Jacquier, 3 v., *Coloniæ*, '60; ARITHMETICA UNIVERSALIS, cum Commentariis Joh. Castellionæi, 2 v., *Amst.*, '61.
- 12499 ——— OPUSCULA MATHEMATICA PHILOSOPHICA et PHILOLOGICA, collectit partimque Latine vertit ac recensit JOH. CASTILLIONEUS, Jurisconsultus [accessit Commentariolus de Vita Auctoris]; with vignette portrait by Duflos after Delamonce, 64 plates, and 2 folding tables, 3 vols. 4to. hf. vellum, or, hf. calf, 18s 6d *Lausannæ*, 1744
- 12500 ——— ANOTHER COPY, contemporary pressed white vellum (fine copy), £1. 1s
The above work contains: *Analysis per Æquationes*. *Methodus Fluxionum*. *Tractatus de Quadratura Curvarum*. *Enumeratio Linearum Tertii Ordinis*. *Methodus Differentialis*. *Excerpta ex Commercio Epistolari*. *De Mundi Systemate*. *Lectiones Opticæ*. *De Natura Acidarum*, etc. etc. etc.

PRINCIPIA:

- 12501 ———: PHILOSOPHIÆ NATURALIS PRINCIPIA MATHEMATICA. Auctore Is. NEWTON, Trin. Coll. Cantab. Soc. Matheseos Professore Lucasiano, & Societatis Regalis Sodali. Imprimatur. S. PEPYS, Reg. Soc. Præs. Julii 5. 1686, editio princeps; with folding plate, and numerous diagrams, 4to. old (? contemporary) calf, newly and very neatly rebaked, with auto. 'J. C. Willisford, August 1828' on title, (blank top margins of some ll. water-stained, and a very small hole in one page, otherwise a SOUND AND LARGE COPY, measuring $9\frac{1}{16} \times 7\frac{1}{2}$ inches), excessively rare, £18. 18s Londini, Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud plures Bibliopolas. Anno MDCLXXXVII.

THE ABOVE IS THE FIRST ISSUE OF THE FIRST EDITION. A re-issue was published in the same year with a new title, having a different imprint. This second issue is somewhat less rare than the above, although copies of either are now practically unprocurable. No copies of either can be traced as having sold at auction during the last twenty years.

The interest of the first edition of what probably constitutes the most important printed work on exact science ever published need hardly be emphasised. It should also be noted that the first edition has never been reprinted in any form.

The cost of printing the first edition was borne by EDMUND HALLEY, F.R.S., who edited and saw it through the press, and added the Latin verses reprinted in all the later editions. The idea of Mr. Samuel Pepys, F.R.S. giving the Society's imprinter to Newton's Principia is tickling.

Owing to the importance of the work and the comparatively small number of copies printed, the first edition became rare almost immediately after publication. Sir David Brewster, in his *Life of Newton*, mentions (Vol. I, pp. 312 and 337): 'The impression was quickly sold. A copy of the Principia could scarcely be procured in 1691. . . . Cotes states in his preface to the second edition that copies of the first were scarce, and could only be obtained at an immense price. Sir William Browne, when at college, gave more than two guineas for a copy, and owing to the difficulty of procuring one at a reasonable price, the father of Dr. John Moore of Glasgow transcribed the whole work with his own hand.'

PRINCIPIA, continued:—

- 12503 **NEWTON** (Sir Isaac, P.R.S.) PHILOSOPHÆ NATURALIS PRINCIPIA MATHEMATICA; EDITIO SECUNDA, auctor et emendator; with folding plate, and numerous diagrams, 4to. sound and very clean copy in old calf (RARE), £1. 15s
This copy bears the autograph while at Caius College of SAMUEL SHUCKFORD, afterwards Prebendary of Canterbury, and author of the 'Connexion of Sacred and Profane History', which had an extraordinary vogue of a hundred years till it was finally edited by James Talboys Wheeler, the historian of India, in 1858.
- 12504 ——— ANOTHER COPY, old calf (binding slightly damaged), £1. 10s
- 12505 ——— THE SAME, hf. calf gilt (title mounted and some ll. inked or stained), £1. 5s
This edition contains considerable additions by the AUTHOR, while the chapters on the lunar theory and the theory of comets were much enlarged. It was edited by ROGER COTES, F.R.S., whose preface (pp. 16), in which he vigorously attacks the Cartesian philosophy then still in vogue at the universities, and refutes an assertion that Newton's theory of attraction is a *causa occulta*, is of great historical importance. It also contains a new preface by the author, the Latin verses on him by EDMUND HALLEY, the Astronomer Royal, and an 'Index Caputum' and 'Index Rerum Alphabeticus' at end, both by the Editor. Seven hundred and fifty copies were printed of this edition, which has now also become RARE.
- 12506 ——— EDITIO SECUNDA REIMPRESSIO AMSTÆLODAMENSIS [*in titulo*:] Editio Ultima, auctor et emendator; with folding plate and numerous diagrams, 4to. old calf (back of binding damaged, and last 18 ll. water-stained), 15s
Amst., sumptibus Societatis, 1714
The first Amsterdam reprint of the second edition. It was reprinted in 1723 with the addition of 'Analysis per Quantitatum Series'.
- 12507 ——— EDITIO TERTIA [ET ULTIMA], aucta et emendata; with numerous diagrams, 4to. sound copy in contemporary panelled calf (portrait wanting), with bookplate of Earle Bulwer [Sir Henry Bulwer, Lord Dalling, Ambassador at Washington, and concluder of the Clayton-Bulwer Treaty], £1. 1s
Londini, Guil. & Joh. Innys, 1726
- 12508 ——— ANOTHER COPY, with portrait by G. Vertue, sound copy in old calf, newly rebacked, with auto. of Samuel Roberts, F.R.S., 18s 6d
- 12509 ——— ANOTHER COPY, old calf (joints broken and portrait wanting), 12s 6d
- 12510 ——— A Largest Paper Copy, printed on thick paper, with portrait at. 83 by G. Vertue after Vanderbank, folio, contemporary russia extra (back badly rubbed and slightly damaged, and joints cracked), g. e., with label of George Kennie, F.R.S. (very rare), £3. 10s
Less than 20 copies were printed of this edition, all of which were reserved for presentation.
'This edition, the last published during the author's life-time, and the one on which all subsequent ones are based, was edited by HENRY PEMBERTON, M.D., F.R.S., and contains a new preface by Newton, and a large number of alterations, the most important being the scholium on fluxions, and the addition of a new one on the motion of the moon's nodes, to which I may add an account of some additional experiments on the resistance of the air to bodies falling through it, and the use of some fresh astronomical observations in book III.—W. R. Ball. It also contains Halley's verses and Cotes's preface.
'Newton modified in the third edition of the *Principia* the scholium relating to fluxions, in which Leibnitz had been mentioned by name. Leibnitz and his friends had always held this scholium to be an acknowledgment of his claim to originality.'—Dr. R. T. Glazebrook, F.R.S. See in this connexion note to No. 12570, post.
- 12511 ——— REPR. OF THE THIRD EDITION, reprinted for SIR WILLIAM THOMSON [LORD KELVIN, P.R.S.] and HUGH BLACKBURN, Professors of Natural Philosophy and Mathematics in the University of Glasgow, with fs. title and numerous diagrams, 4to. cl. (SCARCE), £1. 5s
Glasgow, 1871
'Finding that all the Editions of the *Principia* are now out of print, we have been induced to reprint Newton's last Edition without note or comment, only introducing the 'Corrigenda' of the old copy and correcting typographical errors. W. T. H. B.—Notice. This reprint contains besides the author's prefaces to the three editions, the valuable introduction to the second edition by Roger Cotes, and the Latin verses by Edmund Halley.
- 12512 ——— EDITIO NOVA, perpetuis Commentariis illustrata, communi Studio PP. THOMÆ LE SEUR et FRANCISCI JACQUIER, Ord. Min.; with vignettes, and numerous diagrams, 3 vols. 4to. in 4.
sound copy in contemporary calf gilt, £1. 5s
Genevæ, 1739-42
THE FIRST so-called 'JESUITS' EDITION,' much valued for its copious commentary. 'Le professeur Calandrini, à Genève, a été l'éditeur de cet excellent commentaire et l'a enrichi de notes, de citations et de démonstrations.'—Brunet.
The above edition also contains in v. III the following important pieces, which gained the prize of the French Academy: *Traité sur le Flux et Reflux de la Mer*, par DANIEL BERNOULLI (pp. 133-246); *De Causa Physica Fluxus et Refluxus Maris* a COLIN MACLAURIN, S.R.S. (pp. 247-82); *Inquisitio Physica in Causam Fluxus et R-fluxus Maris* a LEONARDO EULER (pp. 283-374). According to Mr. W. W. R. Ball, 'these three memoirs contain all that was done on the theory of tides between the publication of Newton's *Principia* and the investigations of Laplace.
The text of the *Principia* is that of the third Edition.
- 12513 ——— EDITIO ALTERA, longè accuratior et emendator; with numerous diagrams, 3 vols. 4to.
old calf gilt (a few joints cracked), 18s 6d
Colonie Allobrogum, 1760
The second 'Jesuits' Edition,' being a reprint of the first with corrections, and the memoirs on the theory of tides, but without Halley's verses.
- 12514 ——— ANOTHER COPY, 3 vols. in 4, old calf (joints broken), with numerous MS. notes in a contemporary hand, 14s
- 12515 ——— EDITIO NOVA, summa Cura recensita; with numerous diagrams, 2 vols. impl. 8vo. hf. calf (joints cracked), 12s
Glasgœ, 1833
The last and best of the 'Jesuits' Editions,' edited by JOHN M. F. WRIGHT, containing all the prefaces to the first three editions, as well as the memoirs on the tides. 'Edition belle et soignée.'—Brunet.
- 12516 ——— THE MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY, translated by ANDREW MOTTE; with the LAWS of the MOON'S MOTION, according to Gravity, by JOHN MACHIN, F.R.S., with fronts., and vignettes by the Translator, and 47 folding plates, 2 vols. 8vo. old calf, 15s
Benjamin Motte, 1729
- 12517 ——— ANOTHER COPY, 2 vols. old calf (fronts. wanting, binding not uniform and that of v. I damaged, also wanting fronts.), 10s
First edition of the first English translation of the *Principia*, 'handsomely printed', and 'a highly creditable productio n.'—D. N. B.

PRINCIPIA, continued :—

- 12519 NEWTON (Sir Isaac, P.R.S.) THE MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY; new Edition, with Newton's SYSTEM OF THE WORLD; a short Comment on, and Defence of, the Principia, by W. EMERSON; and LIFE, carefully revised and corrected by WILLIAM DAVIS, with fine bust portrait by Scriven, and 54 folding plates, besides diagrams, 3 vols. 8vo. old calf, or, hf. cl. (RARE), £1. 5s 1803
- 12520 — ANOTHER COPY, 3 vols. in 1, hf. calf, £1. 4s
- 12521 — ANOTHER COPY, 3 vols. mottled calf extra (name cut off titles, but FINE COPY), £1. 10s
This edition contains for the first time the translation of the *De Mundi Systemate*, which was not contained in the edition of 1729.
'The inconvenience arising from the great scarcity of former editions of the Principia, and System of the World, added to the exorbitant prices charged for them when to be met with, determined the Editor to undertake a New Edition of those Works.'—*Preface*.
- 12522 — REPRINT of the above EDITION, with fine bust portrait by Scriven, and 54 folding plates, 3 vols. 8vo. old hf. calf (a few joints cracked), £1. 1s 1819
- 12523 — MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY, BOOK I [Motion of Bodies], translated, and illustrated with a Commentary, by ROBERT THORP, D.D., Archdn. of Northumberland; 2nd Edition, with 22 plates, roy. 4to. russia extra, g. e., with booklabel of George Rennie, F.R.S. (fine and large copy), 12s 6d 1802
- 12524 — ANOTHER COPY, boards, uncut, 10s 6d
This translator was a member of Peterhouse, and Senior Wrangler in 1758. His Son CHARLES, pr., was the first Warden of Durham University. The above translation includes Newton's Prefaces, and Cotes's to the second Edition, and an Introduction (pp. 18) by himself.
'Newton is the new Archimedes, and the Principia forms the Novum Organum of scientific method. . . . There is hardly a progressive branch of physical and mathematical science, excepting perhaps chemistry and electricity, which has not been developed from the germs of true scientific procedure which he disclosed in the Principia and Opticks.'—*Prof. W. S. Jevons, F.R.S.*
- 12525 — THE FIRST THREE SECTIONS, with copious Notes and Illustrations, and a great Variety of Deductions and Problems, by JOHN CARR, pr., Fellow of Trinity, with 6 folding plates, 8vo. cl., with auto. of C. F. Mackenzie, first Bp. of the Universities' Mission to Central Africa, 2s 6d 1821
- 12526 — SECOND EDITION, improved and enlarged, with 6 folding plates, 8vo. hf. cl., 3s 1825
- 12527 — THE FIRST THREE SECTIONS and Part of the SEVENTH, with Preface recommending a Geometrical Course of Mathematical Reading, and Introduction on the Atomic Constitution of Matter, and the Laws of Motion, by GEORGE LEIGH COOKE, pr., with 54 diagrams, 8vo. cl., 4s Oxford, 1850
- 12528 — THE FIRST THREE SECTIONS, with Appendix, and the IX. and XI. SECTIONS, edited by JOHN H. EVANS, Master of Sedbergh School, 2nd Edition, with diagrams, 8vo. hf. cl., 2s Cambridge, 1838
- 12529 — FIFTH EDITION, by P. T. MAIN, with diagrams, 12mo. cl., 2s *ibidem*, 1871
- 12530 — SECTIONS I. II. III., with Notes and Illustrations, also Problems, principally intended as Examples of Newton's Methods, by PERCIVAL FROST; pr., F.R.S., with diagrams, post 8vo. cl., 3s *ib.*, 1854
- 12531 — [SECOND EDITION, enlarged], with diagrams, 8vo. cl., 4s 6d *ib.*, 1863
- 12532 — [THIRD EDITION], with diagrams, 8vo. cl. (cover slightly soiled), with auto. of Samuel Roberts, F.R.S., 5s 1880
- 12533 — FOURTH [LAST] EDITION, with diagrams, 8vo. cl., 6s 6d (p. 12s) 1883

OPTICS :

- 12534 [—] OPTICKS: or a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light; also TWO TREATISES on the Species and Magnitude of CURVILINEAR FIGURES, first edition, with 19 folding plates, 4to. hf. calf antique (VERY RARE), £2. 2s
S. Smith and B. Walford, Printers to the Royal Society, 1704
- 12535 — ANOTHER COPY, contemporary panelled calf (joints cracked, but a large and sound copy), with auto. 'Isaac Newton' on endpaper, £3. 15s
- 12536 — THE SAME, A FINE COPY IN CONTEMPORARY ENGLISH RED MOROCCO EXTRA, Harleian gold tooling on sides, g. e., £4. 4s
The above work is one of the great classics of optics. It expounds Newton's corpuscular or emission theory of light, and first contains his important optical discoveries in a collected form. The above first edition also contains two important mathematical treatises left out in the later ones, viz. 'Enumeratio Linearum III. Ordinis' and 'Tractatus de Quadratura Curvarum', containing his invention of the 'fluxional' calculus. They were here published for the first time, especially with a view to assert Newton's rights to the discovery of the calculus (of which the controversy with Leibniz was then just preparing). In his introduction to the *Tractatus* he states that he had invented the 'method' in 1665—thus claiming priority over Leibniz. According to the *Advertisement*, 'the ensuing discourse was written at the desire of some Gentlemen of the Royal Society, in 1675. He reveals therein also his peculiarity of shrinking from every kind of publicity, when he complains that he had delayed the printing 'to avoid being engaged in disputes about these matters'.
The last passage of the *Advertisement* is of importance in connexion with the Newton-Leibniz controversy: 'In a Letter written to Mr. Leibnitz in 1676 . . . I mentioned a Method by which I had found some general Theorems about squaring curvilinear Figures . . . And some Years ago I lent out a Manuscript containing such Theorems, and having since met with some Things copied out of it, I have on this Occasion made it publick'.
- 12537 — ANOTHER COPY, without the Two Mathematical Treatises, with 12 folding plates, 4to. old calf (joints cracked), £1. 5s [1704]
The above consists of the optical part only, with a new title, without date, place, or printer's name, but giving the author's name. This issue seems to be rare, no mention being made of it in bibliographies.

OPTICS, continued:—

Sir Isaac Newton's own corrected copy:

- 12539 NEWTON (Sir Isaac, P.R.S.) OPTICKS, SECOND [FIRST OCTAVO] EDITION, with Additions, with 12 folding plates, 8vo. old calf, joints neatly mended (FINE COPY); with MS. corrections in Sir Isaac Newton's handwriting, £25.

A. Bowyer for W. Innys, 1717

The original issue of the second edition, and printed on strong paper. It is rare thus, most copies being of the second issue of 1718. The mathematical tracts were left out in this and the following editions.

The above copy is of great interest for having belonged to Sir Isaac Newton himself, who has made additions and corrections (all verified to be in his handwriting), which were wholly or partly adopted in the later editions of the 'Opticks'. They are: on page 70, line 20: $\frac{MCa}{NGa}$ is altered

into $\frac{AD}{EPa}$ (this correction was made in the 3rd Edition). Page 230, line 19: $\frac{16\frac{1}{2}}{10000}$ is altered in text and written out on margin: $\frac{9\frac{1}{2}}{100000}$ (corrected in the 3rd Edition). Page 271, line 14: after 'plainest' is added on margin: 'upon the

Chart, & removing the chart' (alteration not adopted). Page 275, line 15: after 'second' is added on margin: 'without quicksilver in the same angle' (addition not adopted). Page 334, line 11-12: The passage: 'that side of the same Ray which looks towards' is struck out (correction not adopted). Page 342, line 6: after 'Earth' is added on margin 'or 7 $\frac{1}{2}$ '; line 8: 14 is altered in text into 15 $\frac{1}{2}$, and on margin into 16 $\frac{1}{2}$; line 10: '21, 28 or 35' is altered in text into '22, 30 $\frac{1}{2}$, 35 $\frac{1}{2}$ ', and on margin into '23, 30 $\frac{1}{2}$, 38 $\frac{1}{2}$ '; lines 12 and 13: '70, 140, 210', is altered in text into '76 $\frac{1}{2}$, 153 $\frac{1}{2}$, 230', and on margin into '80, 160, 238' (corrections adopted slightly modified in the 4th Edition). Page 366, line 22: 'height' is struck out, and 'distance' substituted for it on margin (correction made in the 4th Edition). Page 382, line 4: after 'Benefactor' is added: 'as their ancestors did before they corrupted themselves. For the seven Precepts of the Noachides were originally the moral Law of all nations; & the first of them was to have but one supreme Lord God & not to alienate his worship; the second was not to profane his name; & the rest were to abstain from blood or homicide & from fornication (that is from incest adultery & all unlawful lusts,) & from theft & all injuries, & to be merciful even to brut beasts, & to set up magistrates for putting these laws in execution. Whence came the moral Philosophy of the ancient Greeks' (partly adopted in the third Edition, by adding after 'Benefactor': 'as their Ancestors did under the Government of Noah and his Sons before they corrupted themselves').

- 12540 — SECOND ISSUE OF THE SECOND EDITION, with 12 folding plates, 8vo. old calf, or, old calf, rebacked, 12s 6d
W. and J. Innys, 1718

In this edition the number of queries at the end of the work is increased from 16 to 31, including the celebrated one (No. 28): 'Are not all hypotheses erroneous in which Light is supposed to consist in pression or motion propagated through a fluid medium? . . . If it consisted in pression or in motion propagated either in an instant or in time, it would bend into the shadow. For pression and motion cannot be propagated in a fluid in right lines beyond an obstacle which stops part of the motion, but will bend and spread every way in the quiescent medium which lies beyond the shadow.' Query 17 discusses the double refraction of Iceland spar. It also contains a new and interesting preface.

'At the end of the 3rd book I have added some Questions. And to shew that I do not take Gravity for an essential Property of Bodies, I have added one Question concerning its Cause, chusing to propose it by way of a Question, because I am not yet satisfied about it for want of Experiments.'—Advertisement II.

- 12541 — THIRD EDITION, corrected, with 12 folding plates, 8vo. old calf, or, old calf, neatly rebacked, 12s
apud eosdem, 1721

This is a literal reprint of the foregoing edition, save for a few corrections and the addition of one passage in the last sentence in the work referring to Noah and his sons, as pointed out in the note to Newton's annotated copy of the second edition (No. 12539, *supra*).

- 12542 — FOURTH [FINAL] EDITION, corrected, with 12 folding plates, 8vo. old calf, or, old calf, newly rebacked (RARE), 17s 6d
William Innys, 1730

This was the last edition revised by the Author. 'It was corrected by the Author's own hand, and left before his Death with the Bookseller. . . . It has been thought proper to make at the bottom of the Pages several Citations from thence [Lectiones Opticæ], where may be found the Demonstrations, which the Author omitted in these Opticks'.—Advertisement to this Fourth Edition.

- 12543 — OPTICE: sive de Reflexionibus, Refractionibus, Inflexionibus et Coloribus Lucis Libri III, Latine reddidit SAMUEL CLARKE, A.M.; accedunt Tractatus II ejusdem Authoris de SPECIEBUS et MAGNITUDE FIGURARUM CURVILINEARUM; with 19 folding plates, 4to. contemporary calf, newly rebacked (sound and clean copy); RARE, £1. 5s Londini, S. Smith & B. Walford, 1706

- 12544 — ANOTHER COPY, old panelled calf (joints cracked, and title and some ll. somewhat stained), 18s 6d

THE FIRST LATIN EDITION, translated by Newton's disciple DR. SAMUEL CLARKE, afterwards Rector of St. James's, Westminster, whose alleged Arianism gave rise to so long a controversy. It was the first edition to contain Newton's views on the double refraction of Iceland spar, and included six more queries than the English Edition of 1704. It contains for the first time the celebrated one [No. 28] on the nature of light (*v. note to No. 12540, supra*). The translator received £500. from Newton for his work.

- 12545 — EDITIO SECUNDA, auctior; with 12 folding plates, 8vo. old calf (binding damaged), 6s
ibidem, Gul. & Joh. Innys, 1719

- 12546 — A LARGE PAPER COPY, 4to. old calf, newly rebacked, 10s 6d
Neither this nor the later editions contain the two mathematical treatises included in the edition of 1706. The queries however are extended from 22 to 30.

- 12547 — EDITIO NOVISSIMA [TERTIA]; with vignette on title, and 12 folding plates, 4to. old calf gilt (some ll. browned), 8s 6d
Lausanne, 1740

This edition has a dedication to Jean Bernoulli by the publisher, and is valuable for a copious index which it contains.

TRANSLATED BY MARAT:

- 12548 — OPTIQUE de NEWTON, Traduction Nouvelle, faite par M*** [JEAN PAUL MARAT; 'L'Ami du Peuple'] sur la dernière Edition originale. Dediée au Roi [avec Préface], par M. BEAUZÉE, Editeur de cet Ouvrage, l'un des Quarante de l'Académie Française, etc. etc.; with 21 folding plates, 2 vols. 8vo. old hf. calf (binding rubbed, but a sound and clean copy); RARE, £1. 5s
1787

OPTICS, continued:—

- 12550 **NEWTON** (Sir Isaac, P.R.S.): OPTIQUE de NEWTON: ANOTHER COPY of MARAT'S TRANSLATION (as fully described in No. 12548), 2 vols. 8vo. HANDSOMELY BOUND IN CONTEMPORARY FRENCH CRIMSON MOROCCO EXTRA, hand-tooled backs, silken linings and flyleaves, g. e., by DERÔME (A VERY FINE COPY), £4. 4s

This, like all the other works of this monster of the Terror, is very rare (v. Nos. 11385-91, ante). The 'Opticks' were previously translated into French by Pierre Coste in 1725, and reprinted in 1722. This translation appears however to have been very unsatisfactory, for the editor characterizes it as 'défectueuse, infidèle et obscure, servile et barbare'. Marat's translation is by no means a literal one, and should be of special interest, as it was Marat who first, in France, dared to attack Newton's corpuscular theory.

Marat's translation was apparently unknown to Sir David Brewster, as he only mentions that of P. Coste.

- 12551 ——— LECTIONES OPTICÆ, Annis MDCLXIX ad MDCLXXI, in Scholis Publicis habitæ: et nunc primum ex MSS. in Lucem editæ, editio princeps; with 24 folding plates, 4to. sewn, uncut (sound copy); RARE, £1. 1s
Londini, Guil. Innys, 1729

- 12552 ——— ANOTHER COPY, old vellum (fine copy), £1. 5s

- 12553 ——— ANOTHER COPY, contemporary calf, newly rebounded, £1. 4s

Consisting of two parts, 'de radiorum lucis refractionibus', and 'de colorum origine'. Only the first part was translated into English.

Before the end of 1669 he had worked out the details of his discovery of the decomposition of a ray of white light into rays of different colours by means of a prism. The complete explanation of the theory of the rainbow followed from this discovery. These discoveries formed the subject matter of the lectures which he delivered as Lucasian professor from 1669 to 1671. . . . The MS. of his original lectures was printed in 1720 under the title *Lectiones Opticæ*.—W. W. R. Ball.

'This valuable work contains many beautiful propositions, and interesting and instructive experiments, which are not to be met with in any modern treatise on optics.'—Sir David Brewster, F.R.S.

ARITHMETICA UNIVERSALIS:

- 12554 [——] ARITHMETICA UNIVERSALIS; sive de Compositione et Resolutione Arithmetica Liber, cui accessit HALLEIANA ÆQUATIONUM RADICES arithmetice inveniendi METHODUS, editio princeps; with numerous diagrams, sm. 8vo. contemporary calf (joints neatly mended, otherwise a FINE COPY), with inser. 'E Libris B: Baker Sanc: Trin: Coll: Cant. Alumni, 1707' on flyleaf, and bookplate of John Kentish (Unitarian); RARE, £1. 10s
Cantabrigiæ, 1707

- 12555 ——— ANOTHER COPY, old hf. calf gilt, £1. 8s 6d

- 12556 ——— ANOTHER COPY, contemporary panelled calf gilt (VERY SOUND AND FRESH COPY), with old engraved bookplate of John Peyto Verney, Lord Willoughby de Broke, £1. 12s 6d

This work was published by WILLIAM WHISTON, P.R.S., who 'extracted a somewhat reluctant permission from Newton to print it. Among several new theorems on various points in algebra and the theory of equations Newton here enunciates the following important results. He explains that the equation whose roots are a solution of a given problem will have as many roots as there are different possible cases. . . . He extends Descartes's rule of signs to give limits to the number of imaginary roots. He uses the principle of continuity to explain how two real and unequal roots may become imaginary in passing through equality. . . . and shows that imaginary roots must occur in pairs. . . . The most interesting theorem contained in the work is his attempt to find a rule (analogous to that of Descartes for real roots) by which the number of imaginary roots of an equation can be determined.'—W. W. R. Ball.

- 12557 ——— EDITIO SECUNDA, in qua multa immutantur et emendantur, nonnulla adduntur; with numerous diagrams, 8vo. old calf (newly rebounded); RARE, 15s
Londini, 1722

This edition, the last published during the author's lifetime, is almost as rare as the first. It was unknown to Prof. de Morgan.

- 12558 ——— EDITIO NOVA, cum Commentario JOHANNIS CASTILLIONEI; with 37 folding plates, 2 vols. 4to. old calf, 10s 6d
Amstedodami, 1761

- 12559 ——— ANOTHER COPY, 2 vols., contemporary mottled calf gilt (fine copy), 14s

Besides the editor's preface (pp. 14), and the copious commentary (pp. 288), the above edition contains 'Additamentu vel de Soluti-one et C-structione Æquationum, etc.: Scripta varia ex Transactionibus Philosophicis et altitudie excerpta [by EDMUND HALLEY, JOHN COLSON, ABRAHAM DE MOIVRE, COLIN MACLAURIN, A. G. KÄSTNER, K. J. BOSOVICH, and others (pp. 134)].

- 12560 [——] UNIVERSAL ARITHMETICK: or a Treatise of Arithmetical Composition and Resolution. To which are added, DR. HALLEY'S Method of finding the Roots of Æquations Arithmetically; translated by JOSEPH RAPHSON, F.R.S., and revised and corrected by SAMUEL CUNN, first English edition, with 8 plates, sm. 8vo. old calf, newly rebounded (rare), 15s
J. Senex, 1720

- 12561 ——— SECOND EDITION, very much corrected, with 8 plates, 8vo. old calf, rebounded, 7s 6d
apud eundem, 1728

- 12562 ——— ANOTHER COPY, contemporary panelled calf, 8s

- 12563 ——— [THIRD AND LAST EDITION], to which is added, a TREATISE on the MEASURES of RATIOS, by JAMES MAGUIRE, the whole illustrated and explained in a Series of Notes, by THEAKER WILDER, D.D., T.C.D., with 8 plates, thick 8vo. hf. calf gilt, or, old calf, 8s 6d
1769

COMMERCIIUM EPISTOLICUM:

- 12564 ——— COMMERCIIUM EPISTOLICUM D. JOHANNIS COLLINS ad aliorum de ANALYSI PROMOTA: Jussu Societatis Regiæ in Lucem editum [Curâ JOANNIS KEILL, S.R.S.]; editio princeps; with diagrams, 4to. contemporary panelled calf, newly rebounded (very rare), £2. 12s 6d
Londini, Typis Pearsonianis, 1712

This is the celebrated report drawn up by order of the Royal Society, and consisting of a selection from the correspondence of John Collins, F.R.S. with some of the most celebrated mathematicians of the time, which substantiated Keill's charge against Leibniz of having derived the fundamental ideas of his calculus from papers by Newton, said to have been communicated to him through Collins and Oldenburg.

Although greatly biased in Newton's favour, the work is nevertheless 'a repository of the utmost value to the history of science' (D. N. B.), and is now excessively rare.

The above is, according to Gray's Bibliography of Newton, the EARLIEST of the TWO ISSUES of the FIRST EDITION.

- 12565 ——— [EDITIO SECUNDA], et jam unâ cum ejusdem Recensione præmissa, et Judicio primarii, ut ferebatur. Mathematici subjuncto, iterum impressum; with diagrams, 8vo. fine and tall copy in old calf gilt (RARE), £1. 12s 6d
ibidem, J. Tonson et J. Watts, 1722

- 12566 ——— ANOTHER COPY, cl., with MS. notes by, and bookplate of, Prof. Lloyd Tanner, F.R.S., £1. 10s
The first issue of the second edition.

COMMERCIIUM EPISTOLICUM, continued:—

- 12568 **NEWTON (Sir Isaac, P.R.S.)**: COMMERCIIUM EPISTOLICUM: SECOND ISSUE OF THE SECOND EDITION, *with diagrams*, 8vo. *old calf (joints cracked)*, with 7 pp. of MS. NOTES at END IN AN XVIII. CENTURY HAND, HEADED 'ADDENDA', £1. 10s *Londini, J. Tonson et J. Watts, prostant venales apud Jacobum Mack-Euen, Bibliopolam Edinburgensem, 1722*
- The second edition, besides being a complete reprint of that of 1712, contains a new address to the reader (pp. 6), a 'Recensio Libri qui inscriptus est Commercium Epistolicum' (pp. 59), an Appendix (pp. 2), and an 'Annotatio' (pp. 4). The address and Recensio were written by NEWTON himself—a fact first announced by Prof. de Morgan, and confirmed by Sir David Brewster. The latter did not know of the edition of 1722, and only mentions (Life of Newton, v. II, p. 75) that 'in the year 1725, a new edition of the Commercium was published.'

- 12569 ——— **EDITIO SECUNDÆ REIMPRESSIO**; *with diagrams*, 8vo. *old calf (back torn)*, with 10 pp. of MS. Index added (RARE), £1. 12s 6d *ibidem, J. Tonson et J. Watts, 1725*

FIRST ISSUE OF THE 1725 REPRINT, which agrees with that of 1722, but has a new and much fuller title.

- 12570 ——— **SECOND ISSUE OF THE 1725 EDITION**; *with diagrams*, 8vo. *old hf. calf (one joint cracked)*; VERY RARE, £2. 2s *ib., apud eosdem, 1725*

This was the last issue of the last edition published (save for the French reprint), and is of great interest for a cancellation in Newton's preface. In all the previous issues of the 1722 and 1725 editions occurs the passage: 'Quæ novæ Principiorum editio premissa sunt, Newtonus non vidit antequam Liber in lucem prodiret. Quæ de Questionibus Philosophicis disputata sunt D. Des Maizeaux a D. Leibnitio et aliis accepit et in lucem edidit,' with a note referring to Leibniz's letters to Des Maizeaux. In the above issue however the passage 'a. D. Leibnitio et aliis accepit' and the note is cancelled. This was probably done at the time when Newton decided to leave out of the third Edition of 1726 the Scholium referring to Leibniz (*vide note to No. 12510*).

'It is due to historical truth to state, that Newton supplied all the materials for the *Commercium Epistolicum*, and that, though Keill was its editor, and the committee of the Royal Society the authors of the Report, Newton was virtually responsible for its contents.'—*Sir David Brewster*.

- 12571 ——— **COMMERCIIUM EPISTOLICUM . . . ou CORRESPONDANCE de J. Collins et d'autres Savants célèbres du XVII^e Siècle relative à l'ANALYSE SUPÉRIEURE**, réimprimée sur l'Édition Originale de 1712, avec l'Indication des Variantes de l'Édition de 1722, complétée par une COLLECTION de PIÈCES JUSTIFICATIVES et de DOCUMENTS, et publiée par J. B. BIOT et F. LEFORT; *with diagrams*, 4to. *hf. calf*, 10s (p. F. 15 nett sewn) 1856

The 'pièces justificatives' are letters that seemed to support Leibniz's claims in the opinion of the editors, as well as excerpts from Cavalieri, Descartes, Fermat, Hudde, Ricci, Barrow, and Sluze, which ultimately led to the discovery of the infinitesimal calculus. At end is a chapter by Lefort (pp. 9): 'Caractère des publications du Commercium Epistolicum faites en 1712 et en 1722, etc. etc.'

MINOR WORKS:

PRESENTATION COPY BY THE EDITOR:

- 12572 [—] **ANALYSIS per QUANTITATUM SERIES, FLUXIONES, ac DIFFERENTIAS: cum Enumeratione Linearum Tertii Ordinis [edente GULIELMO JONES, S.R.S.] editio princeps**; *with vignettes and numerous diagrams*, 4to. *old calf, with inser. by the Editor, WILLIAM JONES, F.R.S., friend of Newton (1675-1749), as below (RARE)*, £1. 5s *Londini, 1711*

'To Dr. Cockburn by his humble Servt. Wm: Jones.'—*Inscr. on flyleaf.*

- 12573 ——— **ANOTHER COPY, with 2 engraved tables of curves by J. Senex ADDED, old calf gilt**, £1. 2s 6d

First edition of Newton's Treatises on the higher mathematics, containing his discovery of the differential calculus. It comprises: 'De Anali per Equationes Infinitas' (containing the *Binomial Theorem*), 'Fragmenta Epistolarum ad D. Oldenburgum', 'De Quadratura Curvarum', 'Enumeratio Linearum Tertii Ordinis', and 'Methodus Differentialis'.

'In his Latin preface Jones gives notes of the earliest applications of Newton's method, no doubt with some reference to the contest with Leibnitz which was then preparing'.—*D. N. B.*

- 12574 ——— **The CHRONOLOGY OF ANCIENT KINGDOMS AMENDED**, with Short Chronicle from the First Memory of Things in Europe, to the Conquest of Persia by Alexander the Great, **first edition**, *with engraved vignette and 3 folding plates*, 4to. *boards, uncut*, 10s 1728

- 12575 ——— **A LARGE PAPER COPY, printed on thick paper, roy. 4to. old hf. calf (one joint cracked)**; RARE, 15s

'Containing an attempt to determine the dates of ancient events from astronomical considerations. . . Newton indicates the manner in which astronomy might be used to verify the views on the chronological points derived in the main from Ptolemy, which were held in his time. These views have since that date been proved, by the Babylonish and Egyptian records, to be on the whole correct.'—*R. T. Glazebrook, F.R.S.*

- 12576 ———: **EXCERPTA quædam e NEWTONI PRINCIPIIS PHILOSOPHIAE NATURALIS, cum Notis Variorum**; *with 12 folding plates*, 4to. *old calf (binding damaged)*, 4s

Cantabrigie, Typis academicis, 1765

- 12577 ——— **ANOTHER COPY, contemporary hf. calf, uncut, with auto. of, and MS. notes and problems by, John North, Caius Coll., Cantab., 7s 6d**

The above work was edited by JOHN JEBB, PR., M.D., F.R.S., GEORGE WOLLASTON, D.D., F.R.S., and ROBERT THORP. It has a long list of subscribers.

- 12578 ———: **NEUTONI GENESIS CURVARUM per UMBRAS, seu Perspective Universalis Elementa**; Exemplis Coni Sectionum et Linearum Tertii Ordinis illustrata [curâ PATRICII MURDOCH, D.D.]; *with 12 folding plates*, 8vo. *old calf*. 7s 6d *Londini, 1748*

- 12579 ——— **The METHOD OF FLUXIONS and INFINITE SERIES: with its APPLICATION to the GEOMETRY OF CURVE-LINES**, translated from the Latin Original not yet made public; with a Perpetual Comment, consisting of Annotations, Illustrations, and Supplements, by JOHN COLSON, F.R.S., **first edition, with front. on copper of shooting flying, and diagrams**, 4to. *old rough calf (joints cracked)*, *with old armorial bookplate of 'Parkinson'* (RARE), £1. 1s *H. Woodfall, 1736*

- 12580 ——— **ANOTHER COPY, old calf (title and front. mounted), with bookstamp of Prof. Lloyd Tanner, F.R.S., 17s 6d**

The first edition of Newton's complete treatise on the calculus, originally written in 1671. It includes a valuable preface by the editor (pp. 15), and a 'commentary' (pp. 143-339). It was reprinted in 1737 in 8vo.

H. Wallisford
August
1828.

PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

Autore *J*S. NEWTON, *Trin. Coll. Cantab. Soc. Matheseos*
Professore Lucasiano, & Societatis Regalis Sodali.

IMPRIMATUR.
S. PEPYS, *Reg. Soc. PRÆSES.*
Julii 5. 1686.

LONDINI,
Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud
plures Bibliopolas. Anno MDCLXXXVII.

No. 110 *No. 110*

No. 12501 (*page 621*).

First issue of the first edition of the greatest work on exact science
ever published.

instead of teaching the Transmigration of Souls, and to worship the Sun and Moon, and dead Heroes, they would have taught us to worship our true Author and Benefactor, as their ancestors did before they corrupted themselves. For the seven Precepts of the Noachides were originally the moral law of all nations, & the first of them was to have but one supreme Lord God & not to alienate his worship; the second was not to I ^{steal} ^{his} name; & the rest were to abstain from fornication (that is from incest adultery & all unlawfull lusts,) & from homicide, theft & all injuries, & to be merciful even to brute beasts, & to set up ^{magistrates} for putting these laws in execution. Whence came the morals ^{of the} Philosophy of the Greeks.



No. 12539 (page 624).

Newton's autograph.

MINOR WORKS, continued:—

- 12582 **NEWTON** (Sir Isaac, P.R.S.) *La MÉTHODE des FLUXIONS, et des SUITES INFINIES* [traduite par JEAN LOUIS LECLERC, COMTE DE BUFFON]; with diagrams, 4to. *French boards (rare)*, 12s 6d
de Bure vainc, 1740
- 12583 ——— **ANOTHER COPY**, *old calf (binding damaged), with inser. as below*, 17s 6d
Taken out of a French Ship which was captured by Capt. John Rogers, Dover, Commander of the Grand Faulkner, during the late French War.—*MS. Note in pencil on title.*
Buffon's translation (the translator was unknown to Barbler) was made from Colson's English translation, but contains neither his preface nor the commentary. It includes however a very interesting preface by Buffon himself (pp. 28), in which he maintains, in opposition to the opinion of the majority of the mathematicians of his own country, that Newton is the sole and only inventor of the calculus ('on demeura convaincu que Newton seul est l'auteur de ces merveilleux calculs' [p. VI of preface]).
- 12584 ——— **De MUNDI SYSTEMATE, editio princeps**; with 2 folding plates, 4to. *contemporary calf gilt (one joint cracked, but a sound copy)*; RARE, 12s 6d
Londini, impensis Tonson, Osborn et Longman, 1728
This seems to be a very rare edition, that of 1731 being generally considered the first Latin one. The latter only is mentioned in Gray's 'Bibliography of Newton.'
Prof. de Morgan's doubts as to Newton's authorship of this work were dispelled by Edleston in his *Correspondence*. It was originally meant to form the third book of the *Principia*.
- 12585 ——— **TREATISE of the SYSTEM of the WORLD**, translated into English, *printed on stout paper, with 2 plates and diagrams*, 8vo. *old panelled calf*, 6s 6d 1723
The first English edition, containing an interesting preface (pp. 22), which was left out in the later ones.
- 12586 ——— **TABLES for RENEWING and PURCHASING the LEASES of CATHEDRAL-CHURCHES and COLLEGES**, according to several RATES of INTEREST, with their Construction and Use explained; also Tables for Renewing and PURCHASING the LEASES of LAND or HOUSES, etc. etc., with the Value of Church and College Leases consider'd; sixth Edition, with TABLES of INTEREST exactly computed at 3, 3½, 4, and 5 p. C., with other useful Tables, 12mo. *old calf (joints cracked)*, 5s 1742
- 12587 ——— **SEVENTH EDITION**, 12mo. *old sheep (binding worn and joints cracked)*, 5s 1758
Although generally attributed to Sir Isaac Newton, it is very doubtful whether this work, which is not included in Horsley's edition, was ever written by him.
- 12588 ——— **TWO TREATISES of the QUADRATURE of CURVES, and ANALYSIS by EQUATIONS of an INFINITE NUMBER of TERMS**, explained; containing the Treatises translated into English, with large Commentary, etc. etc., by JOHN STEWART, Prof. Mathematicks, Aberdeen; F.R.S., with diagrams, 4to. *cl., or, old calf (rare)*, 15s 1745
The only English translation of the 'Tractatus de Quadratura Curvarum' and 'Analysis per Quantitatum Series'. It contains moreover a copious commentary.
- 12589 ——— **THIRTEEN LETTERS from, as Representative in Parliament of the University of Cambridge, to JOHN COVEL, D.D., Vice-Chancellor, Master of Christ's College** [with Notes by DAWSON TURNER], with fs. letter, roy. 8vo. *sewn (scarce)*, 5s
Norwich, 1848
Published by Dawson Turner from the great collection of the Macro Manuscripts.

NEWTONIANA :

- 12590 **[ALGAROTTI (Francesco Conte di)] Il NEWTONIANISMO per le DAME, ovvero DIALOGHI sopra la LUCE e i COLORI, prima edizione**; with front. by Pitteri after Piazzetta (*hand-coloured*), sm. 4to. *old hf. calf (back rubbed)*; rare, 10s 6d
Napoli, 1737
An interesting Italian popularisation of Newton. It was translated into English (by ELIZABETH CARTER) and into French, and was unknown to Riccardi.
'Il se proposa de mettre à la portée des gens du monde les découvertes et le système de Newton, comme Fontenelle y avait mis les œuvres de Descartes. Il n'avait alors que 21 ans. Ce livre fit beaucoup de bruit, et lui fit obtenir l'honneur d'être invité par Maupertuis et Clairaut à les accompagner dans leurs expéditions scientifiques.'—*Biogr. Gén.*
- 12591 **BLOCH (Léon) LA PHILOSOPHIE de NEWTON**, 8vo. (pp. 644), *sewn*, 6s 6d (p. F. 10 nett) 1908
- 12592 **BREWSTER (Sir David, F.R.S.) THE LIFE of SIR ISAAC NEWTON, with portrait by W. C. Edwards after Kneller, and woodcuts**, 12mo. *cl. (cover damaged)*, 3s 6d 1831
- 12593 ——— **MEMOIRS of the LIFE, WRITINGS, and DISCOVERIES of SIR ISAAC NEWTON, BEST EDITION, with 2 steel portraits, and woodcuts**, 2 vols. large 8vo. *cl., uncut (SCARCE)*, 17s 6d *Edin.*, 1855
- 12594 ——— **ANOTHER COPY**, 2 vols. *cl. (binding slightly worn, and fronts. and titles stamped)*, 15s
- 12595 ——— **ANOTHER COPY**, 2 vols. *cl. (wanting one portrait, also browned, and covers damaged)*, 10s 6d
The chief authority on Newton's life. It contains appendixes of original papers, *viz.*, letters from and to Newton, 'an Hypothesis explaining the Properties of Light discoursed in my several Papers'; Drawing and Measures of the Eye of a Sheep, and Description of the Optic Nerves; Notice of Prof. Cotes; Newton's Directions to Dr. Bentley for studying the *Principia*; Newton's 15th Query; Draught Copies of the Scholium to Lemna II Book II; Table of Refractions sent to Flamsteed; 'De Metallo ad conficiendum Speculum Componendo et Fundendo', etc. etc.
- 12596 **[BROUGHAM and VAUX (Henry Peter Lord, Lord Chancellor; F.R.S.)], LIFE of SIR ISAAC NEWTON [with BIBLIOGRAPHY]**, 8vo. (pp. 40), *sewn*, 2s
L. U. K. [1829]
'Substantially a translation from the life in the 'Biographie Universelle', by M. Biot.'—*P. I.*
- 12597 ———, and Edward John ROUTH, *Fellow of Peterhouse, F.R.S.*: **ANALYTICAL VIEW of SIR ISAAC NEWTON'S PRINCIPIA, with diagrams**, 8vo. *cl. (scarce)*, 7s 6d 1855
'Explaining the connexion of the various parts of the *Principia* with each other, and with the preceding and subsequent progress of the science.'—*Preface.*
- 12598 **CATALOGUE of the PORTSMOUTH COLLECTION of BOOKS and PAPERS**, written by, or belonging to, SIR ISAAC NEWTON, the Scientific Portion of which has been presented by the EARL OF PORTSMOUTH to the UNIVERSITY of CAMBRIDGE, with diagrams, 8vo. *cl. (o. p.)*, 4s
Univ. Press, Cambridge, 1888
This is the great mass of Newton's papers which came at his death into the hands of Mr. Conduitt, who married Catherine Barton, Newton's niece, and eventually into those of Lord Portsmouth at Hurstbourne. They were inspected and ignored by Bp. Horsley, and but little used by Sir David Brewster.
The above valuable volume has preface and appendix to preface by H. R. LUARD, pr., SIR G. GABRIEL STOKES, J. COUCH ADAMS, and G. D. LIVEING, F.R.S.

NEWTONIANA, continued:—

- CLARKE (John, Dean of Sarum)** DEMONSTRATION of some of the PRINCIPAL SECTIONS of SIR ISAAC NEWTON'S PRINCIPLES of NATURAL PHILOSOPHY (1730)—*v. No. 6927, ante.*
- 12600 **DOMCKE (Georg Peter; F.R.S.)** PHILOSOPHIA MATHEMATICA NEWTONIANA ILLUSTRATA; with 16 folding plates, 8vo. old calf (rare), 6s 6d Londini, 1730
The book was licensed by William Whiston, who characterizes the above commentary as 'satis et feliciter'. The second Part contains: Definitiones et Leges Motus; Leges Virium Centripetarum et Theoria Attractionis seu Gravitacionis Corporum in se Mutuo; Mundi Systema. The author, who is mentioned in Poggendorf's, masquerades in *Allibone* as 'Domekins'.
- 12601 **EDLESTON (J., Trinity Coll., Cantab.)** CORRESPONDENCE of SIR ISAAC NEWTON and PROFESSOR [ROGER] COTES, including Letters of other eminent Men, now first published, with Appendix of UNPUBLISHED LETTERS and PAPERS by Newton, with Notes; SYNOPTICAL VIEW of his LIFE, etc. etc., with fine steel portraits and woodcuts, 8vo. cl. (scarce), 10s 6d 1850
- 12602 ——— ANOTHER COPY (binding torn), 9s 6d
'By far the most valuable collection of facts relating to him is the Synoptical View of Newton's Life, edited by Edleston in 1850.—D. N. B. The preface contains an interesting historical account of the first two editions of the 'Principia'.
- 12603 **FRAGMENS de LETTRES de divers SAVANS CONTEMPORAINS de NEWTON, précédés d'une Remarque sur quelques HYPOTHESES de NEWTON lui-même**, 8vo. (pp. 31), *sewn (scarce)*, 5s s. l. n. d.
Containing the correspondence of NICOLAS FACCIÒ, F.R.S., Newton's friend, with Huygens, Jacques Bernoulli, and others.
- 12604 **GORDON (George)** REMARKS upon the NEWTONIAN PHILOSOPHY, as propos'd by SIR ISAAC NEWTON, in his Principia . . . ; and DR. GREGORY, in his Principia Astronomiæ Physiçæ, wherein the FALLACIES of the PRETENDED MATHEMATICAL DEMONSTRATIONS are clearly LAID OPEN, and the PHILOSOPHY ITSELF fully PROVED to be FALSE and ABSURD, both by Mathematical and Physical Demonstration, with diagrams, 12mo. sound copy in old calf (rare), 7s 6d 1719
Interesting as an early attack on the Newtonian system, and a defence of Descartes's theory of vortices.
- GRAVESANDE (Willem Jacobus 's; F.R.S.)** PHILOSOPHIE NEWTONIANÆ INSTITUTIONES—*v. Nos. 8594-5, ante.*
- 12605 **HARTSOEKER (Nicolas; teacher of Peter the Great)** RECUEIL de PLUSIEURS PIÈCES de PHYSIQUE, où l'on fait principalement voir l'INVALIDITÉ du SYSTÈME de Mr. NEWTON, et où se trouve, entre autres, une Dissertation sur la Peste, et sur les Moyens de s'en garentir; with diagrams, 18mo. old calf gilt, 8s 6d Utrecht, 1722
'Il s'y declare nettement contre ces grands espaces vides où se mouvraient les planètes, obligées à décrire des courbes par des gravitations ou attractions mutuelles.'—*Biogr. Gén.*
- 12606 **HORNE (George; 59th Bp. of Norwich)** A FAIR, CANDID, and IMPARTIAL STATE of the CASE between SIR ISAAC NEWTON and MR. [JOHN] HUTCHINSON, in which is shown how far a System of Physics is capable of Mathematical Demonstration; how far Sir Isaac's, as such a System, has that Demonstration, and consequently, what Regard Mr. Hutchinson's Claim may deserve to have paid to it, 8vo. *sewn*, 7s 6d Oxford, 1753
'He allowed to Sir Isaac the great merit of having settled laws and rules in natural philosophy; but at the same time claimed for Mr. Hutchinson the discovery of the true physiological causes by which, under the power of the Creator, the natural world is moved and directed.'—*William Jones (of Nayland), præ., F.R.S.*
- 12607 **LIFE of NEWTON** [from the UNIVERSAL MAGAZINE], 8vo. (pp. 13), *sewn*, 2s [1748]
- 12608 **MACLAURIN (Colin, F.R.S.)** ACCOUNT of SIR ISAAC NEWTON'S PHILOSOPHICAL DISCOVERIES; published from the Author's MSS. [with LIFE (pp. 20)] by PATRICK MURDOCH, F.R.S., first edition, with 6 folding plates, roy. 4to. *russia extra, g. e. (fine copy)*, with bookplate of George Rennie, F.R.S., 12s 6d printed for the author's children, 1748
This edition was published for the benefit of Maclaurin's children, and contains a long list of subscribers.
- 12609 ——— SECOND EDITION, with 6 folding plates, 8vo. old calf (joints cracked), 4s 6d 1750
- 12610 ——— THIRD [LAST] EDITION, with 6 folding plates, 8vo. old hf. calf (rubbed and 2 plates mended), 3s 6d 1755
Comprising: Of a Method of Proceeding in Natural Philosophy, and the various Systems of Philosophers; Of the Theory of Motion, or Rational Mechanics; Gravity demonstrated by Analysis; The Effects of the General Power of Gravity deduced synthetically. The life prefixed is still the chief authority on Maclaurin.
The last chapter treats 'Of the Supreme Author and Governor of the Universe, the true and living God', and ends with an argument in favour of a future life, dictated but a few moments before his death.
- *v. Nos. 11220-2, ante.*
- 12611 **MANUSCRIPT (Italian):** Sopra le TRE LEGGI del MOTO del NEWTON, Canzone: Sopra le TRE REGULE di FILOSOFARE del NEWTON, Canzone: Sopra l'ELEVAZIONE de FLUIDI ne TUBI Capillari: Ecloga; a neatly written Manuscript on 8 pp., folio, 7s 6d Sæc. XVIII.
- MARTIN (Benjamin)** PANEGYRICK of the NEWTONIAN PHILOSOPHY (1754)—*v. No. 11492, ante.*
———— PLAIN and FAMILIAR INTRODUCTION to the NEWTONIAN EXPERIMENTAL PHILOSOPHY (1754)—*v. Nos. 11502-4, ante.*
- 12612 **MERCIER (Louis Sébastien, de l'Institut)** De l'IMPOSSIBILITÉ du SYSTÈME ASTRONOMIQUE de COPERNIC et de NEWTON, 8vo. hf. calf (rare), 10s 6d 1806
Not mentioned in Gray's bibliography of Newton.
The author was a Platearther unbudgeted by Professor de Morgan.
'Locke, Condillac et leurs disciples devinrent aussi le sujet de ses attaques; par un mauvais jeu de mots, il les appelait les idiots rogues, idiologues. Les découvertes physiques ne lui inspiraient pas plus de respect: il attaqua même le système astronomique de Kopernik et de Newton, prétendant que la Terre est ronde et plate et que le Soleil tourne autour de ce plateau comme un cheval de manège.'—*Biogr. Gén.*
- 12613 **NEWTON et LEIBNITZ** [in French, English, and German], folio (pp. 3), *unbound (very rare)*, 7s 6d Pau, 1863
In this interesting letter, which was sent out to 1500 scientists, the anonymous author offers 250 francs for the publication of a certain passage in a Leibniz MS. (referred to by Dr. H. Sloman, but said to have been purposely left out in Gerhardt's edition, and since then disappeared altogether from his home in the Royal Library of Hanover), which would conclusively prove that Leibniz borrowed his differential calculus from a Manuscript by Sir Isaac Newton.

COMMERCIIUM

EPISTOLICUM

D. JOHANNIS COLLINS,

ET ALIORUM

DE

ANALYSI

PROMOTA:

JUSSU

SOCIETATIS REGIÆ

In lucem editum.



LONDINI:

Typis PEARSONIANIS, Anno M DCC XII.

A D

LECTOREM.

QUAM ob causam editæ sint hæ Epistolæ Chæreticæ collectaneæ, apparebit ex Literis D. Leibnitii & D. Keillii in fine subscriptis. Offensum asterant D. Leibnitio nonnulli, quæ scripto prodidit D. Keillius in Actis Londinensibus anno 1708, injuriam D. Newtono oblatam propalam. Datis igitur ad Societatis Regiæ Secretarium literis, de calumniâ questus D. Leibnitius, remedium a Societate petiit; itaque eos equum creditis judicaretur, ut D. Keillius culpam suam publicè fateatur. D. Keillio ex est pars visa potior, ut ad illa, quæ questus erat D. Leibnitius, literis scriptis responderet: Quibus in literis quæ antè editæ rat. & expoliat: plenè & vindicavit. D. Leibnitius nequamquam his factis sibi factam arbitratus, literas alteras ad Societatem edidit; in quibus adhuc de D. Keillio questus, novum eum hominem appellat, pariturque peritium rerum antea factarum cognitorum, nec mandatum ab eo, cujus interellet, habentem; Societatisq; æquitati committit, annon coercedæ sint vanæ & iniustæ vocitationes.

Verabatur in Angliâ D. Leibnitius inveniunt anno 1673, iterumq; mensè Octobri 1676; & interiecto illo temporis intervallo in Galliâ egit. Quo omni temporis spatio, mutuis accepit datiq; literis, commercium habuit cum D. Oldenburgo, & Oldenburgo, operâ, cum D. Collinio utidem, & nonnunquam etiam cum D. Newtono. Quid autem ille ex Angliâ tandem, vel cum Londini esset, vel ex literis sibi mutuo datis, edidisset, in eo serè certissimè hæc omnis questio. D. Oldenburgus & Collinius jam àià obtulerunt; D. Newtonus autem tum Cantabrigiæ egit; peritumq; amplius novit, quam quod ex literis ipsius a D. Wallisio deinceps editis apparet. D. Newtonus neque a D. Keillio partibus Testis esse potest, nec D. Leibnitius ipse a suis: Aliam autem in rebus Testis esse nullus. Societas itaq; Regiæ, a D. Leibnitio his ad-

No. 12564 (page 625).

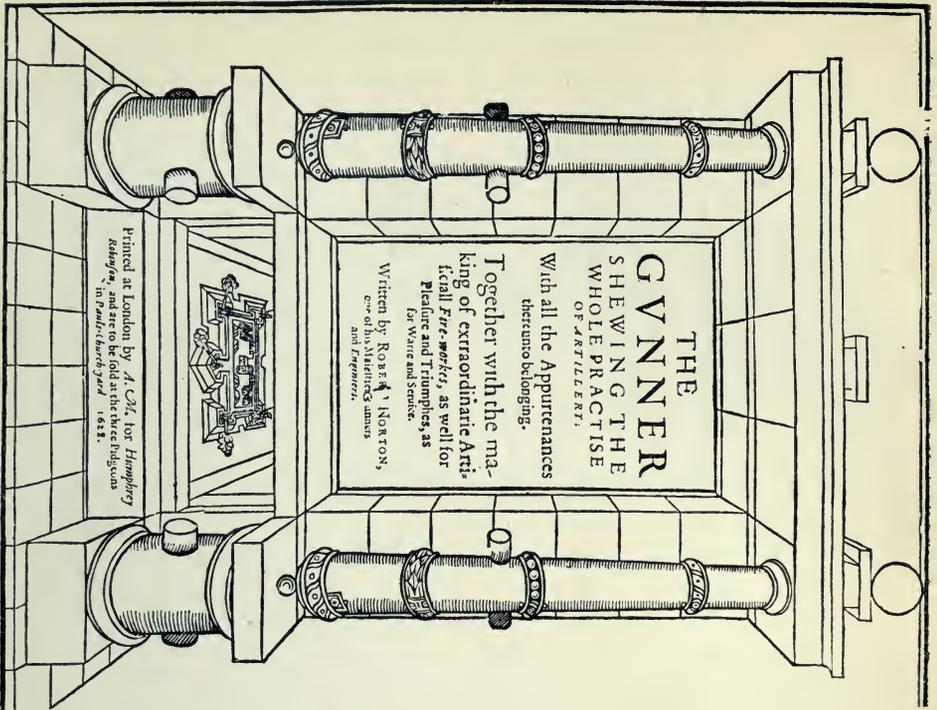
The Newton-Leibniz controversy on the invention of the calculus.

A Table of the Contents.

D	Page
Definitions	1
Of Ordnance	2
Of Ordnance	3
Of Ordnance	4
Of Ordnance	5
Of Ordnance	6
Of Ordnance	7
Of Ordnance	8
Of Ordnance	9
Of Ordnance	10
Of Ordnance	11
Of Ordnance	12
Of Ordnance	13
Of Ordnance	14
Of Ordnance	15
Of Ordnance	16
Of Ordnance	17
Of Ordnance	18
Of Ordnance	19
Of Ordnance	20
Of Ordnance	21
Of Ordnance	22
Of Ordnance	23
Of Ordnance	24
Of Ordnance	25
Of Ordnance	26
Of Ordnance	27
Of Ordnance	28
Of Ordnance	29
Of Ordnance	30
Of Ordnance	31
Of Ordnance	32
Of Ordnance	33
Of Ordnance	34
Of Ordnance	35
Of Ordnance	36
Of Ordnance	37
Of Ordnance	38
Of Ordnance	39
Of Ordnance	40
Of Ordnance	41
Of Ordnance	42
Of Ordnance	43
Of Ordnance	44
Of Ordnance	45
Of Ordnance	46
Of Ordnance	47
Of Ordnance	48
Of Ordnance	49
Of Ordnance	50
Of Ordnance	51
Of Ordnance	52
Of Ordnance	53
Of Ordnance	54
Of Ordnance	55
Of Ordnance	56
Of Ordnance	57
Of Ordnance	58
Of Ordnance	59
Of Ordnance	60
Of Ordnance	61
Of Ordnance	62
Of Ordnance	63
Of Ordnance	64
Of Ordnance	65
Of Ordnance	66
Of Ordnance	67
Of Ordnance	68
Of Ordnance	69
Of Ordnance	70

No. 12756 (page 636).

An early English work on gunnery.



NEWTONIANA, continued:—

- 12615 **MORGAN** (Augustus de: F.R.A.S., *Univ. Coll., London*) **NEWTON**: his FRIEND: and his NIECE, edited by his WIFE [SOPHIA ELIZABETH], and by his Pupil, ARTHUR COWPER RANYARD, F.R.A.S., Svo. cl. (*scarce*), 7s 1885
Dealing with an episode in Newton's life little referred to by his biographers, but characteristically mentioned by Voltaire: his relations with Charles Montagu, first Earl of Halifax, his friend and political patron, and his niece CATHERINE BARTON, afterwards Mrs. CONDUITT, who was Montagu's mistress. The work contains new evidence which quite clears Newton from a charge of connivance in his niece's easy virtue.
- 12616 ——— On a POINT connected with the DISPUTE between KEILL and LEIBNITZ about the INVENTION of FLUXIONS, 4to. (pp. 3), *unbound*, 1s 6d 1846
MORRISON (Commr. Richard James, R.N.; 'ZADKIEL') **THE NEW PRINCIPIA**—v. No. 12163, *ante*.
NEUMANN (Carl Gottfried; *Univ. Leipzig*) ALLGEMEINE UNTERSUCHUNGEN über das NEWTON'SCHE PRINCIPI DER FERNWIRKUNGEN—v. No. 12442, *ante*.
- 12617 [**PEMBERTON** (Henry, M.D., F.R.S.)] A VIEW of SIR ISAAC NEWTON'S PHILOSOPHY, with 12 folding plates, 12 beautiful vignettes and tail-pieces by J. PINE after J. GRISON (including arms of Sir Robert Walpole), and 5 finely engraved initials by the same, 4to. old calf, with fine Chippendale bookplate of Thomas Holme, 8s 6d S. Palmer, 1728
- 12618 ——— ANOTHER COPY, *russia gilt*, g. e., with booklabel of George Rennie, F.R.S., 10s
- 12619 ——— A LARGE PAPER COPY, with superior impressions of Pine's engravings, roy. 4to. old calf gilt, 12s 6d
This copy has at end: 'Sir Isaac Newton's Corollaries from his Philosophy and Chronology; in his Own Words' page 1-16, signed by WILLIAM WHISTON.
- 12620 ——— ANOTHER LARGE PAPER COPY, *old morocco extra (joints mended)*, g. e., 12s 6d
'Interesting as being the account of a near friend.—D. N. B. The preface contains the author's recollections of Newton, especially in his old age. Dr. Pemberton had studied under Boerhave, and prepared the Fifth London Pharmacopœia. There is also a Poem (pp. 15) on Sir Isaac by RICHARD GLOVER (poet and M.P., 1712-85), written in his 16th year, the author's introduction on Newton's method of reasoning in philosophy, and a long list of subscribers.
- 12621 **RECUEIL** de DIVERSES PIÈCES sur la Philosophie, la Religion Naturelle, l'Histoire, les Mathématiques, etc., par MM. LEIBNIZ, CLARKE, NEWTON, etc., 3^{me} Edition, augmentée [publiée par PIERRE DES MAIZEAUX; F.R.S.], 2 vols. 16mo. *contemporary calf gilt*, 10s Lausanne, 1759
Containing the correspondence of Leibniz and A. S. Conti, F.R.S., on the disputed invention of the calculus, also Newton's remarks, and Leibniz's letter to him.
- 12622 **RIGAUD** (Stephen Peter, *Savilian Prof. Astron., Oxon.*, F.R.S.) **HISTORICAL ESSAY** on the FIRST PUBLICATION of SIR ISAAC NEWTON'S PRINCIPIA, with diagrams, 8vo. cl., *uncut (scarce)*, 10s 6d *Univ. Press, Oxford*, 1838
The name of Stephen Peter Rigaud will be familiar to Old Westminsters as that of the father of Stephen Jordan Rigaud, whose House in Little Dean's Yard is still known by his name, and who died of yellow fever in the West Indies within a year of his consecration to the Bishopric of Antigua. Professor Rigaud himself was a capable astronomer, but was still more remarkable for his accurate knowledge of the literature and history of the subject, and as a mathematical antiquary and bibliographer with no rival previous to de Morgan. It is to him that, in the first instance, we owe much of our information about Newton and the history of his discoveries. 'The *Historical Essay* is an admirable exposition of the facts then known, and contained much new and interesting matter about Halley, whose life Rigaud intended to write'.—D. N. B.
The appendix contains: I. Newton Propositiones de Motu: Early Notice on Fluxions (from an original paper in Newton's handwriting), Newton and Huygens, on the Cause of Gravitation, Halley's Review of the Principia, Unpublished Correspondence, etc.
- 12623 **ROBINSON** (Bryan, M.D., T.C.D.) A DISSERTATION on the ÆTHER of SIR ISAAC NEWTON, large 12mo. *hf. bound (joints broken)*; *rare*, 10s 6d 1747
Robinson was an ardent admirer of Newton, and tried to account for animal motions by his principles, and to apply them to the rational treatment of diseases. He attributed the production of muscular power to the vibration of an ethereal fluid pervading the animal body, a doctrine essentially in accord with modern views.—D. N. B. He attempts to prove that 'ether causes gravity by giving bodies a mutual tendency to one another.'
- 12624 **SAUNDERSON** (Nicholas, *Lucasian Professor, Cantab.*, F.R.S.) **COMMENTARIUS** in PRINCIPIA PHILOSOPHIÆ NEWTONIANÆ; a very neatly written Manuscript on 233 pp., with numerous diagrams, 4to. *contemporary panelled calf (one joint cracked, otherwise in fine condition)*, £1. 15s [1742]
A manuscript of the lectures delivered by the blind Lucasian Professor of Mathematics on Newton's Principia.
Quæ in Sequentibus Latina sunt ea ex Auctoris Libro MSO. descripta sunt: Cetera ipse viva Voce dictavit; exceptis his quæ spectant ad Figuram Telluris in Propositionem 9^{am} Libri 3ⁱ; Ea utique expressa sunt ferè omnia ex MSO. A. D. 1759.—*Inscription facing title*.
'Hunc descripti Librum Mense Martio A. D. 1741. ex Libro MSO. Viri Reverendi Johannis Samuelis Hill, quem ex ipse Auctoris Autographo ipse descriptis A. D. 1759. GULIELMUS WARD'.—*Inscr. at end*.
- 12625 **VOLTAIRE** (François Marie Arout de) **THE ELEMENTS** of SIR ISAAC NEWTON'S PHILOSOPHY, translated, revised, and corrected by JOHN HANNA, with folding plates and woodcuts, 8vo. *old calf*, 12s 1738
'The story that this train of thought [on gravitation] was aroused by seeing an apple fall is due to Voltaire, and is given in his 'Philosophie de Newton'. Voltaire had it from Newton's step-niece, Mrs. Conduitt. For many years tradition marked the tree in the garden at Woolsthorpe: it was shown to Sir David Brewster in 1814, and was taken down in 1820'.—D. N. B.
- 12626 [**WILSON** (Andrew, M.D., *Edin.*)] **THE PRINCIPLES of NATURAL PHILOSOPHY**: with Remarks on the FUNDAMENTAL PRINCIPLES of the NEWTONIAN PHILOSOPHY; in an Introductory Letter to Sir Hildebrand Jacob, Bart., 8vo. (pp. 72), *sewn*, 7s 6d 1754
RARE, and unknown to the author's biographer in D. N. B. The second part, 'the Principles and Properties of Material Motion', appeared in an enlarged form in 1764. The work is not noticed in Gray's Bibliography of Newton.
The introduction is strongly anti-Newtonian.
- 12627 **YOUNG** (Robert) **EXAMINATION** of the THIRD and FOURTH DEFINITIONS of the FIRST BOOK of SIR ISAAC NEWTON'S PRINCIPIA, and of the Three Axioms or Laws of Motion, vo. *sewn*, 3s 1787

NEWTONIANA, continued.—

- 12629 **WRIGHT** (John Martin Frederick, *Trin. Coll., Cantab.*) COMMENTARY on NEWTON'S PRINCIPIA; with a SUPPLEMENTARY VOLUME, *diagrams*, 2 vols. roy. 8vo. boards (*backs torn off*), 4s 6d 1833
- 12630 ——— ANOTHER COPY, 2 vols. *prize calf* (*joints cracked*), with *inscr. signed by John Fleming*, D.D., Aberdeen, 5s
- 12631 **NEWTON** (John; D.D., *Canon of Hereford*) ASTRONOMIA BRITANNICA, exhibiting the Doctrine of the Sphere, and Theory of the Planets DECIMALLY by TRIGONOMETRY, and by Tables, fitted for the MERIDIAN of LONDON, according to the COPERNICAN SYSTEM, as it is illustrated by BULLIALDUS, and the easie Way of Calculation, lately published by DR. WARD, with numerous diagrams, 4to. *old calf* (*title and some ll. soiled, and back of binding damaged*); RARE, 10s 6d R. and W. Leybourn, 1657
- The second book contains 'The Theory of the Planets . . . exhibiting their first Inequalities at one Operation Trigonometrical, their other Inequalities, and Eclipses of the Sun and Moon with much Ease'; and the third 'Tables for the converting of Sexagenary Numbers into Decimal and the contrary, for Astronomical Chronologie with the Ecclesiastical Computation, and the Calculation of the Planets, Eclipses', etc. etc. Both have separate titles dated 1656. 'His writings are a proof of his great application to study, and a sufficient monument of his genius and skill in the mathematical sciences.'—*Dr. Hutton.*
- 12632 **NEWTON** (Thomas, *pr.*) SHORT TREATISE on the CONIC SECTIONS; in which the Three Curves are derived from a general Description on a Plane, and the most useful Properties of each are deduced from a Common Principle, with 11 *folding plates*, 8vo. boards, 5s Cambridge, 1794
Intended as an introduction to the fluxional calculus.
- 12633 **NIAUDET** (Alfred) TRAITÉ ÉLÉMENTAIRE de la PILE ÉLECTRIQUE, première édition; with 56 *woodcuts*, 8vo. cl. (*scarce*), 6s 1878
The first full account of the Voltaic pile or electric battery, including many forms long since forgotten.
- 12634 ——— ELEMENTARY TREATISE on ELECTRIC BATTERIES, translated by L. M. FISHBACK, with 55 *woodcuts*, cr. 8vo. *hf. calf* (*title stamped*), 4s 6d (p. 12s 6d) New York, 1880
- 12635 **NICHOL** (John Pringle, F.R.A.S.) The PHENOMENA and ORDER of the SOLAR SYSTEM, with 21 *lithographs*, many after old prints, and *woodcuts*, post 8vo. cl., 3s Edin., 1838
- 12636 ——— The PLANET NEPTUNE: an Exposition and History, with 6 *plates*, and *diagrams*, 8vo. cl., 2s *ib.*, 1848
- 12637 ——— THOUGHTS on some IMPORTANT POINTS relating to the SYSTEM of the WORLD, with 14 *plates* (3 *folding*), besides *woodcuts*, 8vo. cl., or, *hf. calf*, 3s *ib.*, 1846
- 12638 ——— VIEWS of the ARCHITECTURE of the HEAVENS, with 23 *plates*, and *diagrams*, 8vo. cl., 3s *ib.*, 1837
- 'Nichol was a prolific and successful writer. His books were eloquent, enthusiastic, and learned. 'George Eliot' described herself in 1841 as 'revelling' in them, and they were most effective in the popularisation of science. . . . His astronomical observations were directed chiefly to the physical features of the moon, and to the nebulae, etc.'—*Agnes M. Clerke.*
- 12639 **NICHOLS** (Edward Leamington, *Cornell Univ.*), and William Suddards FRANKLIN: The ELEMENTS of PHYSICS, Vol. I.: MECHANICS and HEAT, with 143 *illustrations*, 8vo. cl., 3s 6d (p. 6s nett) New York, 1896
- 12640 **NICHOLS** (William Ripley) WATER SUPPLY; considered mainly from a Chemical and Sanitary Standpoint, 3rd Edition, with 54 *woodcuts*, 8vo. cl., 3s 6d (p. 10s 6d) New York, 1888
- 12641 **NICHOLSON** (John, C.E.) The MILLWRIGHT'S GUIDE: a Practical Treatise on the Construction of all kinds of Mill Work, and the Application of the Power of Wind and Water, with 15 *plates*, and *vignette on title*, 8vo. *hf. cl.*, 2s 6d 1830
- 12642 ——— The OPERATIVE MECHANIC, and BRITISH MACHINIST: a Practical Display of the Manufactories and Mechanical Arts of the United Kingdom, with *folding front* and 95 *plates*, thick 8vo. *hf. calf*, with *auto. of George Rennie, F.R.S.*, 5s 1825
Including a chapter on horology, with illustrations of the various escapements, and a very copious account of mills, afterwards published in a separate form (*supra*).
- 12643 **NICHOLSON** (Peter) The BUILDER'S and WORKMAN'S NEW DIRECTOR, with the Elements and Practice of Geometry in its Application to the Building Art; new Edition, much enlarged, with *portrait by Armstrong after T. Heaphy*, 136 *plates*, and numerous *diagrams*, 2 vols. 4to. *hf. calf*, 8s 6d 1845
'He was the first author who treated of the methods of forming the joints, and the hinging and the hanging of doors and shutters, and was also the first to notice that Grecian mouldings were conic sections, and that the volutes of Ionic capitals ought to be composed of logarithmic spirals . . . His invention of the centrolinead for use in drawing perspective views procured him 20 guineas from the Society of Arts.'—*D. N. B.*
- 12644 ——— MECHANICAL EXERCISES; or, the Elements and Practice of Carpentry, Joinery, Brick-laying, Masonry, Slatting, Plastering, Painting, Smithing, and Turning, with a full Description of the TOOLS, and copious Directions for their Use, an Explanation of the Terms, and an Introduction to Practical Geometry, with 39 *fine copperplates*, 8vo. *hf. calf* (*sound copy*), 7s 6d 1812
- 12645 ——— PRACTICAL TREATISE on MENSURATION, wherein the MEASUREMENT of CURVED SURFACES in particular is clearly explained, by Means of their Plans, Sections, and Elevations, accompanied with a Scale, with *Pecksniff-jawed portrait in mezzotint* (*foxed*) and 25 *plates*, 4to. *hf. cl.*, 6s 6d [1827]
- 'His great ability as a mathematician enabled him to simplify and generalise many old methods, besides inventing new ones. He formulated rules for finding sections of prisms, cylinders, or cylindroids, which enabled workmen to execute handrails with greater facility and from less material than previously . . . and was the inventor of the application of orthographical projection to solids in general.'—*D. N. B.*
- 12646 ——— The PRINCIPLES of ARCHITECTURE, with the TRUE METHOD of drawing the ICHNOGRAPHY and ORTHOGRAPHY of Objects; Geometrical Rules for Shadows; also the Five Orders of Architecture, etc., etc., 5th Ed., with Additions, with 216 *finely engraved plates* by W. Lowry, F.R.S., Cosmo Armstrong, etc., from drawings by the author, 3 vols. 8vo. cl., 10s 6d 1841
The last edition edited by the author himself.

- 12648 **NICHOLSON** (Edward Chambers) On the COMPOSITION of CAFFEIN, and of some of its COMPOUNDS, 8vo. (pp. 9), *sewn*, 2s 6d 1847
- 12649 — On the COMPOUNDS of PHOSPHORIC ACID with ANILINE, 8vo. (pp. 9), *sewn*, 2s 6d [1847]
- 12650 **NICHOLSON** (Henry Alleyne, M.D.; F.R.S.) MANUAL of PALEONTOLOGY, with General Introduction to the Principles of Paleontology [and Glossary], 2nd Edition, greatly enlarged, with 722 woodcuts, 2 vols. 8vo. cl., with author's signature pasted on title, 15s (p. £2. 2s) Edin., 1879
- 12651 —, and Robert ETHERIDGE, F.R.S.: MONOGRAPH of the SILURIAN FOSSILS of the GIRVAN DISTRICT in ARYSHIRE, with special Reference to those contained in the 'Gray Collection,' FASCICULI I-II: Protozoa, Actinozoa, and Crustacea, with 24 plates, besides woodcuts, 2 parts roy. 8vo. boards, 5s (p. 15s) *ibidem*, 1878-9
- 12652 **NICHOLSON** (William) THE BRITISH ENCYCLOPEDIA, or Dictionary of Arts and Sciences, comprising an Accurate and Popular View of the Present Improved State of Human Knowledge, with over 150 fine copperplates by W. Lowry, F.R.S., Scott, Cooper, etc., 6 vols. 8vo. contemporary calf gilt (FINE SET), 15s 1809
- Still of some value for its numerous good articles on the exact sciences. Vol. I contains one on AEROSTATION (pp. 9).
- 12653 — DESCRIPTION of an INSTRUMENT which, by the TURNING of a WINCH, produces the Two States of ELECTRICITY WITHOUT FRICTION or COMMUNICATION with the EARTH, with folding copperplate, 4to. (pp. 5), *sewn*, 6s 1788
- Describing the author's electrostatic machine in which the earth conduction is avoided. The principle it is based on is that of Abraham Bennet's 'doubler' (v. No. 6127, ante).
- Included are: Abstract of a Register of the Barometer, Thermometer, and Rain at Lyndon in Rutland, with the Rain in Hampshire and Surrey, in 1787, by THOMAS BARKER (pp. 6); and On the Era of the Mahometans, called the Hejera, by WILLIAM MARSDEN, F.R.S. (pp. 19).
- 12654 — DICTIONARY of CHEMISTRY, exhibiting the present State of the Theory and Practice of that Science, its Application to Natural Philosophy, the Processes of Manufactures, Metallurgy, etc. etc., with a considerable Number of TABLES, expressing the Elective Attractions, Specific Gravities, Comparative Heats, Component Parts, Combinations, and other Affections of the Objects of Chemical Research, with 4 copperplates, 2 vols. 4to. in 1, old calf, with auto. of Edmund Ronalds, 8s 6d 1795
- This work, which was reissued in 1808 in an enlarged form as 'Dictionary of Practical and Theoretical Chemistry', formed the basis of Ure's Dictionary (v. Nos. 5022-5, ante), 'a book carried on in successive editions to the present day' (D. N. B.).
- 12655 — EXPERIMENTS and OBSERVATIONS on ELECTRICITY, with copperplate, 4to. (pp. 24), *sewn*, 5s 6d 1789
- Containing 3 sections: On the Excitation of Electricity; on the Luminous Appearances of Electricity and the Action of Points; and of Compensated Electricity.
- The author, together with Sir Anthony Carlisle, F.R.S., was the discoverer of the electrolysis of water by the galvanic current.
- 12656 — THE FIRST PRINCIPLES of CHEMISTRY, first edition, with folding plate, thick 8vo. original boards, uncut, 6s 1790
- 12657 — ANOTHER COPY, contemporary tree-calf extra (fine copy), 8s 6d
- 12658 — SECOND EDITION, with Improvements, 8vo. sound copy in contemporary calf gilt, 6s 6d 1792
- The first 82 pp. contain interesting chapters on physical chemistry, and the appendix tables of 'comparative heats', 'elective attractions', etc. etc.
- 12659 — INTRODUCTION to NATURAL PHILOSOPHY, 2nd Edition, with Improvements, with 25 folding copperplates, 2 vols. 8vo. in 1, contemporary hf. calf gilt, 5s 6d 1787
- 12660 — THIRD EDITION, with Improvements, with 25 folding copperplates, 2 vols. 8vo. contemporary tree-calf extra (fine copy), 7s 6d 1790
- 12661 — FOURTH EDITION, with Improvements, with 25 folding copperplates, 2 vols. 8vo. old hf. calf, 5s 1796
- The first of the author's numerous publications, 'which soon superseded Rowning's 'System of Natural Philosophy' as an elementary class-book.'—D. N. B.
- 12662 — JOURNAL of NATURAL PHILOSOPHY, CHEMISTRY, and the ARTS [Original Series], COMPLETE from the beginning in 1797 to the Conclusion of the original Series in 1802, with numerous copperplates (some folding), 5 vols. 4to. old calf (RARE), £2. 2s 1797-1802
- In vol. IV. of this publication first appeared the important memoir by the EDITOR and his friend SIR ANTHONY CARLISLE, F.R.S., containing the discovery of the electrolysis of water by the galvanic current.
- There are also many other interesting original papers, e.g., 'The Principles and Application of a New Method of constructing Achromatic Telescopes', by ROBERT BLAIR, M.D. (containing the discovery of the aplanatic telescope), 'Description and Account of a New Press operating by the Action of Water on the Principle of the Hydrostatic Paradox', by JOSEPH BRAMAH, and others (many on electrical subjects) by TIBERIUS CAVALLO, RICHARD KIRWAN, F.R.S., SIR BENJAMIN THOMPSON—COUNT RUMFORD, MARTINUS VAN MARNUM, etc. etc.
- 12663 — [New Series], COMPLETE from its beginning in 1802 to its Conclusion in 1813, with several hundred copperplates, 36 vols. 8vo. contemporary tree-calf (some joints cracked, otherwise a SOUND SET); RARE, £3. 3s 1802-13
- 12664 — ANOTHER SET, COMPLETE to 1812 (Vols. 1-30), 30 vols. 8vo. hf. calf (NICE SET, but vv. 1-2, 22-3 and 28-9 in old calf, damaged), £2. 2s 1802 12
- 12665 — A SERIES, Vols. 3-5, 7-8, 12-21, 26-7, and 30—in all 18 vols. 8vo. old calf (binding damaged), 15s 1802-12
- Nicholson's Journal was published simultaneously with the Philosophical Magazine (v. Nos. 3600-2, ante, and post), to which it forms a necessary supplement. It contains valuable original contributions by JOHN DALTON, SIR HUMPHRY DAVY, WILLIAM HIGGINS, JOSEPH PRIESTLEY, LL.D., THOMAS THOMSON, M.D., THOMAS YOUNG, M.D., and many other prominent scientists of the time, besides abridgments of the more important English and foreign memoirs published by the Learned Societies.
- 12666 **NICOL** (W. W. J., F.R.S.E.) On the CONDITION of AMMONIUM SALTS when DISSOLVED in WATER, Part I, 8vo. (pp. 9), *sewn*, 1s Edin., 1842
- 12667 — THE NATURE of SOLUTION, 8vo. (pp. 11), *sewn*, 1s 6d 1883

- 12669 **NICKLÈS** (François Joseph Jérôme, *Univ. Nancy*) Sur l'ACIDE SULFURIQUE FLUORIFÈRE et sa PURIFICATION, 8vo. (pp. 8), *sewn*, 1s 6d [Nancy, 1857]
- 12670 — APPAREIL pour servir à la DÉMONSTRATION de la THÉORIE de la FLAMME; *with plate*, 8vo. (pp. 4), *sewn*, 1s 6d [*ibidem*, 1856]
- 12671 — Sur l'ISOMORPHISME des COMBINAISONS HOMOLOGUES: ANALYSE d'un CALCUL de BOEUF: RECHERCHES sur l'AIMANTATION; *with plate*—3 pieces 8vo. in 1 (pp. 16), *sewn*, 2s [*ib.*, 1855]
- The Stone in the Ox was discovered by the *Chef* of the Hotel de France when cutting up kidneys.
- 12672 — Le MOTEUR des CONVOIS des GRANDS TUNNELS, et en particulier du TUNNEL SOUS-MARIN; 8vo. (pp. 32), *sewn*, 2s [*ib.*, 1858]
- The author rejects electricity as well as steam, and proposes compressed air.
- 12673 — PRÉSENCE de la VIVIANITE dans des OSSEMENTS HUMAINS; *with plate*, 8vo. (pp. 4), *sewn*, 1s [*ib.*, 1855]
- 12674 — RECHERCHE du FLUOR. ACTION des ACIDES sur le VERRE, 8vo. (pp. 7) *sewn*, 1s 6d [*ib.*, 1857]
- 12675 — RECHERCHES sur la DIFFUSION du FLUOR, 8vo. (pp. 60), *sewn*, 2s 6d [*ib.*, 1858]
- 'Nicklès fell a victim to the frightful action of anhydrous hydrofluoric acid in 1869.'—*Prof. E. v. Meyer*.
- 12676 **NICOLAS** (Pierre, s.j.) De CONCHOIDIBUS et CISSOIDIBUS Exercitationes Geometricæ; *with 4 folding plates*: De LINEIS LOGARITHMICIS et SPIRALIBUS HYPERBOLICIS Exercitationes Geometricæ; *with folding plate*—2 vols. sm. 4to. in 1, *fine copy in old calf extra (rare)*, 15s Tolosæ, 1697-6
- 'Tous ces morceaux sont doués d'une élégance charmante pour ceux qui ont encore quelque gout pour le style de la géométrie ancienne, et qui n'en sont pas venus au point de désirer qu'on pût démontrer les premières propositions des éléments par des équations algébriques.'—*Montucla*.
- 'Ouvrages remarquables.'—*M. Marie*.
- 12677 **NICOLSON** (John Thomas, M.I.C.E., *Univ. Manchester*) REPORT on EXPERIMENTS with RAPID CUTTING STEEL TOOLS, made at the MANCHESTER MUNICIPAL SCHOOL of TECHNOLOGY, under the Auspices of a Joint Committee of Members of the Manchester Association of Engineers and the School of Technology Sub-Committee, together with Dr. Nicolson, *with 16 folding plates*, 8vo. *sewn*, 3s 6d Manchester, 1904
- 12678 —, and Dempster SMITH, A.M.I.MECH.E.; *ibidem*: LATHE DESIGN for HIGH- and LOW-SPEED STEELS: a Treatise on the Kinematical and Dynamical Principles governing the Construction of Metal Turning Lathes, with Notes to guide the Purchaser in the Choice of a Tool, and many Examples from Practice, *with folding chart (in pocket)*, 17 plates, and 247 other illustrations, roy. 8vo. cl. (title stamped), 7s 6d (p. 18s nett) 1908
- 12679 **NIESTEN** (L., *Observatoire royal de Bruxelles*) NOTE sur la TACHE ROUGE observée sur la PLANÈTE JUPITER pendant les Oppositions de 1878 et de 1879; *with coloured plate showing 6 drawings of Jupiter from 1665 to 1879*, 8vo. (pp. 20), *unbound*, *with author's inscr.*, 4s 6d Bruxelles, 1879
- The fullest account of the Great Red Spot on Jupiter, which first appeared in 1878, began to vanish in 1882, and has now almost gone.
- 12680 — OBSERVATIONS sur l'ASPECT PHYSIQUE de la PLANÈTE MARS, pendant l'Opposition de 1877; *with 5 plates containing 43 coloured illustrations*, 4to. (pp. 22), *sewn*, *with author's inscr.*, 5s [*ibid.*, 1878]
- 12681 — À Propos de la ROTATION de la PLANÈTE VÉNUS; *with 2 plates*, 8vo. (pp. 31), *unbound*, *with author's inscr.*, 2s 6d [*ib.*, 1891]
- 12682 — RECHERCHES sur les COULEURS des ÉTOILES DOUBLES, 8vo. (pp. 21), *unbound*, 2s [*ib.*, 1879]
- 12683 **NIEUPORT** (Charles François le Prud'homme d'Hailly, Vicomte de) MÉLANGES MATHÉMATIQUES, ou Mémoires sur différents Sujets de Mathématiques tant pures qu'appliquées; *with 3 plates*, 2 v., 1794-9: MÉMOIRE sur l'INTÉGRABILITÉ MÉDIATE des ÉQUATIONS DIFFÉRENTIELLES, d'un Ordre quelconque, et entre un Nombre quelconque de Variables, 1802—3 vols. 4to. in 1, *old hf. calf gilt*, 12s 6d Bruxelles, 1794-1802
- 12684 **NIEUWENTYT** (Bernard) ANALYSIS INFINITORUM, seu Curvilinearum Proprietates ex Polygonorum Natura deductæ; *with 21 folding plates*, 12mo. *sound copy in old calf (RARE)*, 15s Amstelædami, 1695
- 'L'auteur s'y efforce de remédier aux difficultés qu'il avait trouvées dans le système des infiniments petits.'—*Biogr. Gén.*
- Nieuwentijt was the first who attacked Leibnitz's infinitesimals by 'asserting that dx stood for an unmeaning quantity like %.'—*W. W. R. Ball*.
- 12685 — THE RELIGIOUS PHILOSOPHER: or the Right Use of contemplating the Works of the Creator, I. in the wonderful Structure of Animal Bodies, II. in the no less wonderful Formation of the Elements, III. in the most amazing STRUCTURE of the HEAVENS, etc. etc. etc., translated by JOHN CHAMBERLAYNE, F.R.S., with Letter to the Translator, by J. T. DESAGULIERS, pr., F.R.S.; 2nd Edition, *with numerous folding copperplates*, 3 vols. 8vo. *contemporary calf (fine copy)*, 7s 6d 1729
- 12686 **NIFO** [*Latine NIPHUS*] (Agostino) De AUGURIS Libri II, nec non de DIEBUS CRITICIS Liber I, nunc denuo excusi; his accesserunt URANIE DIVINATRICIS, quo ad Astrologiæ Generalia, Libri II, jam primò in Lucem evolantes; sm. 4to. *old painted boards (browned throughout)*; RARE, 15s Marpurgi, 1614
- Probably the earliest work on 'critical days' meteorology. The author was the commentator on Aristotle's *Meteorologica*.
- 12687 **NISBET-LATTA** (M., M.A.S.M.E.) HANDBOOK of AMERICAN GAS-ENGINEERING PRACTICE, *with over 100 illustrations*, 8vo. cl., 10s 6d (p. 18s nett) 1907
- 12688 **NIXON** (John): PIONEER of the STEAM COAL TRADE in SOUTH WALES: a Memoir, by JAMES EDMUND VINCENT, *portrait*, 8vo. cl., 4s (p. 10s 6d) 1900

- 12690 **NIXON** (R. C. J., *Peterhouse*) ELEMENTARY PLANE TRIGONOMETRY, that is Plane Trigonometry without Imaginaries, *with diagrams*, cr. Svo. cl., 4s (p. 7s 6d)
Clarendon Press, Oxford, 1892
- 12691 ——— GEOMETRY in SPACE: containing Parts of Euclid's 11th and 12th Books, and some Properties of Polyhedra and Solids of Revolution, *with diagrams*, post Svo. cl., 2s
apud eandem, ibidem, 1888
- A supplement to the author's 'Euclid Revised' (v. No. 7660, ante).
- 12692 **NOAD** (Henry Minchin, F.R.S.) ANALYSIS of the BATH WATER, Svo. (pp. 7), unbound, 1s 1844
- 12693 ——— CHEMICAL MANIPULATION and ANALYSIS, Qualitative and Quantitative, Part I, MANIPULATION and QUALITATIVE ANALYSIS, *with 52 woodcuts, and 4 folding tables*, Svo. cl., 2s 1848
- 12694 ——— NEW EDITION, enlarged, with the Principles of Chemical Nomenclature, the Construction and Use of Formulæ; and the Doctrine of Equivalent Proportions and on the Preparation and Management of Gases; *with 53 woodcuts*, Svo. cl., 3s 6d 1852
'A valuable treatise.'—D. N. B.
- 12695 ——— LECTURES on ELECTRICITY, comprising Galvanism, Magnetism, Electro-Magnetism, Magneto- and Thermo-Electricity; new Edition, *with front., and 272 woodcuts*, Svo. cl. (binding loose), 3s 1844
- 12696 ——— THIRD EDITION, greatly enlarged, *with front., and 280 woodcuts*, Svo. cl., 3s 1849
- 12697 ——— FOURTH [LAST] EDITION, entirely rewritten (entitled MANUAL of ELECTRICITY), Part II: MAGNETISM and the ELECTRIC TELEGRAPH, *with front. and 242 woodcuts*, Svo. cl., 3s 1857
- Of special interest for the part on the electric telegraph (pp. 747-808), and a chapter on Magnetic Hypotheses.
- 12698 ——— THE STUDENT'S TEXT-BOOK of ELECTRICITY, *with over 400 woodcuts*, cr. Svo. cl., 2s (p. 12s 6d) 1867
- 12699 ——— NEW [LAST] EDITION, with Introduction and Additions by SIR WILLIAM HENRY PREECE, F.R.S., *with 471 woodcuts*, thick cr. Svo. cl., 4s (p. 12s 6d) 1879
- 12700 **NOBEL** (Les PRIX), 1902, et 1906-10; *with numerous fine portraits and plates*, 6 vols. roy. Svo. sewn, 12s 6d *Imprimerie Royale, Stockholm, 1905-11*
Containing the lectures by the laureates in the languages in which they were delivered, with their biographies, and the addresses by the Nobel Committee.

THE GREAT CORDITE CASE:

- 12701 **NOBELS EXPLOSIVES CO. v. [Sir] William ANDERSON**: 1. Index of Contents. 2. Printed Transcript of Shorthand Notes of Evidence at the Trial. 3. Printed Transcript of Shorthand Note of the Reasons of MR. JUSTICE ROMER. 4. Printed Transcript of Shorthand Note of the Reasons of the MASTER OF THE ROLLS and LORDS JUSTICES KAY and A. L. SMITH. [5. Transcript of Shorthand Note of the Reasons of the LORD CHANCELLOR and LORDS WATSON, ASHBORNE, MORRIS, and SHAND], folio, cl.; a corrected copy, *with auto. of Sir F. J. Bramwell, F.R.S.*, 18s 6d 1894-5

This was really one of the very finest patent cases which ever brought grist to the scientific bar. The trial was of the greatest importance in connexion with the patent rights for the manufacture of cordite, which has ever since been the standard smokeless powder used throughout the British Army and Navy, and which it was claimed was merely a Government plagiary from Mr. Alfred Nobel's ballistite. The chief experts for plaintiffs were Prof. W. Odling, F.R.S., Alfred Nobel, and [Sir] H. E. Roscoe, F.R.S., and for defendant (in reality the Crown) [Sir] James Dewar, F.R.S., Sir Andrew Noble, Prof. George Lunge, [Sir] Edward Frankland, [Sir] William Crookes, and Oscar Gutman. Lord Romer found for the Crown, and the judgment was upheld by the Court of Appeal and the House of Lords.

- 12702 **NOBILI** (Leopoldo) Sopra l'IDENTITÀ dell' ATTRAZIONE MOLECOLARE coll' ASTRONOMICA; *with 4 folding plates*, roy. 4to. hf. cl. (*fine copy*), 8s 6d *Modena, 1818*

'The author holds that the law of attraction according to the inverse square of the distance will suffice for the explanation of the phenomena of molecular action, as well as for the phenomena of astronomy. He treats of adhesion, cohesion, and capillary attraction.'—Prof. J. Todhunter, F.R.S.

- 12703 ——— NUOVI TRATTATI sopra il CALORICO, l'ELETTRICITÀ, ed il MAGNETISMO; *with 8 folding copperplates*, Svo. sewn (RARE), £1. 1s *ibidem, 1822*

A very interesting work, full of suggestions in electricity and magnetism, a subject which fills pp. 51-397 of the book. It was his first work on electricity and magnetism, and unknown to Poggendorff, who mentions the *Questioni sul Magnetismo*, 1824, as his first publication. The illustration of the magnet already gives the lines of force—many years before Faraday.

The author was the discoverer of *Nobili's Rings*, the coloured transparent films of metal deposited by electro-chemical action. He also invented the thermo-multiplier, discovered the present form of the galvanometer by combining Schweigger's multiplier with Ampère's astatic needle, and was the first to prove that fluids in contact show an electro-motive action.

- 12704 **NOETHER** (Max; *Univ. Erlangen*) Ueber eine CLASSE von auf die EINFACHE EBENE ABBLIDBAREN DOPPELEBENEN: Ueber die RATIONALEN FLÄCHEN VIERTER ORDNUNG—roy. Svo. (pp. 47), sewn, 2s *[Leipzig, 1888]*

- 12705 ——— Ueber die GLEICHUNGEN achten GRADES und ihr Auftreten in der Theorie der Curven vierter Ordnung, Svo. (pp. 22), sewn, 1s 6d *[ib., 1879]*

- 12706 ——— Zur GRUNDLEGUNG der THEORIE der ALGEBRAISCHEN RAUMCURVEN, 4to. (pp. 48), sewn, *with inscr. to Samuel Roberts, F.R.S.*, 3s 6d *[Berlin, 1882]*

- 12707 ——— Zur THEORIE der ABELSCHEN DIFFERENTIALAUSDRÜCKE und FUNCTIONEN, roy. Svo. (pp. 79), sewn, 2s 6d *[Leipzig, 1890]*

'Through the researches of Noëther, Brill, and Lindemann, there have grown out of the theory of Abelian functions a theory of algebraic functions and point-groups on algebraic groups.'—Prof. Cajori.

- 12708 ——— Ueber die TOTALEN ALGEBRAISCHEN DIFFERENZIALAUSDRÜCKE ERSTER GATTUNG, Svo. (pp. 7), sewn, 1s 6d *[Erlangen, 1886]*

- 12709 **NORDENFELT** (Thorsten) The NORDENFELT MACHINE GUNS described in Detail, and compared with other Systems; and their Employment for Naval and Military Purposes, *with 57 plates*, roy. 4to. hf. morocco (*slightly rubbed*), 3s 6d (p. £1. 10s) *Portsmouth, 1884*

- 12710 ——— ANOTHER COPY, cl., 9s

- 12712 **NOBLE (Sir Andrew, F.R.S.)** ARTILLERY and EXPLOSIVES: Essays and Lectures, with 79 plates (some folding), and many other illustrations, thick 8vo. cl., with auto. of [Major-Gen.] Edward Sinclair] May [H.A., C.B., F.R.G.S.], 14s (p. £1.1s nett) 1906
A republication in a collected form of the author's important papers and lectures on explosives and gunnery.
- 12713 **NOBLE (Edward)** THE ELEMENTS of LINEAR PERSPECTIVE, demonstrated by Geometrical Principles; with Introduction, containing so much of the Elements of Geometry as will render the whole Rationale of Perspective intelligible without any other previous Mathematical Knowledge, with 48 copperplates (some folding), 8vo. boards, uncut, 5s 1771
- 12714 — ANOTHER COPY, old sheep (binding damaged), 3s
Referred to in 'Allibone as *Linear Perspective*!—a triumph of the Transatlantic compositor hardly to be beaten by his successor fifty years after who made Mr. Price Collier credit Frederick the Great with the addition of Siberia to the crown of Prussia.
The work is dedicated to Sir Joshua Reynolds.
- 12715 **NOBLE (Major-Gen. William Henry; R.A., F.R.S.; inventor of cordite)** DESCRIPTION [and EMPLOYMENT] of NAVEZ-LEURS'S ELECTRO-BALLISTIC CHRONOSCOPE for determining the Velocity of Projectiles [with 23 Tables], with 4 plates (2 folding), besides woodcuts, roy. 8vo. (pp. 46), sewn, 4s 6d 1868
- 12716 — ANOTHER COPY, cl., 5s
- 12717 —, and Sir Frederick Augustus ABEL, F.R.S.: RESEARCHES ON EXPLOSIVES. FIRED GUNPOWDER, with 12 plates, 4to. sewn, 15s 1875
- 12718 — ANOTHER COPY, cl., 15s 6d
The report of the authors' most valuable researches, based on the experiments of Bunsen and Shishkoff, on the chemical, dynamic, and ballistic effects of various kinds of gunpowder, which ultimately led to the manufacture of prismatic powder. It is preceded by an interesting historical chapter.
This important paper is not mentioned in an inadequate biography in D. N. E.
- 12719 **NOEL (—, Ingénieur-Géographe à Cherbourg)** RECHERCHE sur la CONSTRUCTION et la meilleure DISPOSITION des DIGUES, pour les rendre capables de résister aux Efforts de la Mer; with 5 folding copperplates, 8vo. contemporary calf gilt (corners of title and some ill. badly stained), 6s Caen. 1781
This work was awarded the prize by the Caen Academy in 1778. It was many years after that the Cherbourg break-water rose out of the Channel.
- 12720 **NOEL (Adml. Sir Gerard Henry Uctred)** THE GUN, RAM, and TORPEDO: MANŒUVRES and Tactics of a Naval Battle in the Present Day; with two Essays [on Naval and Steam Tactics] by SIR J. K. LAUGHTON, F.R.A.S., and CAPT. CHARLES CAMPBELL, R.N., with 14 plates, cr. 8vo. cl., 3s 6d (p. 8s 6d) 1874
- 12721 **NORDENSTRÖM (G.)** L'INDUSTRIE MINIÈRE de la SUEDE [traduite par J. H. KRAMER]; with folding coloured map, 8vo. (pp. 60), sewn, 2s 6d [Stockholm, 1883]
- 12722 **NORIE (John William)** THE DESCRIPTION and USE of HADLEY'S QUADRANT and SEXTANT, with an Improved Method of taking a Lunar Observation, without Assistants, with Complete Tables of the Sun's Declination, Right Ascension of the Sun and Fixed Stars, etc. etc., with folding copperplate, 8vo. (pp. 44), sewn, 4s 6d
Heather and Williams, at the Navigation Warehouse, Leadenhall St., 1796
The author's first published work. It was unknown to Lowndes, Allibone, and D. N. E.
- 12723 — FORMULAS for FINDING the LONGITUDE, oblong 4to. sewn, 5s *apud eosdem*, 1807
- 12724 — NEW and COMPLETE EPITOME of PRACTICAL NAVIGATION, with the most approved Methods of ascertaining the Latitude and Longitude, including a Journal of a Voyage from London to Madeira, with a new and correct Set of TABLES, more extensive than any hitherto published; 3rd Edition, with 9 copperplates, and diagrams, 8vo. old tree-calf (some ill. browned), 7s 6d *for the author, at the Navigation Warehouse, Leadenhall Street*, 1810
- 12725 — FOURTH (STEREOTYPE) EDITION; with 9 copperplates, and diagrams, 8vo. old calf (plates and a number of ill. foxed), 5s 1816
'His 'Navigation' is still a standard work, and is in constant demand.—D. N. E. For the interest of the author and his shop in connexion with Dickens see no. 3348, ante.
- 12726 — SAILING DIRECTIONS for the RIVER THAMES, from London to the Nore and Sheerness, etc. etc., 3rd Edition, 8vo. sewn, 3s 1829
- 12727 **NORMANDY (Alphonse René le Mire de, F.C.S.)** THE FARMER'S MANUAL of AGRICULTURAL CHEMISTRY, with Instructions respecting the Diseases of Cereals, and the Destruction of Injurious Insects, with numerous woodcuts. cr. 8vo. cl., 2s 1853
- 12728 — On the PRODUCTION of FRESH-WATER from SEA-WATER, 8vo. (pp. 8), sewn, 2s 6d 1855
'His apparatus for distilling sea-water [described supra] is very largely used on board ship. The great merit of the invention consists in conducting the operation at a low temperature, and causing the condensed water to absorb a large quantity of atmospheric air, which renders it palatable.—D. N. E.
Dr. Normandy was also a valuable witness before the Commons' Committee on Food Adulteration, especially as to the wholesale adulteration of bread with alum, which was rife in the first half of the Nineteenth Century.
- 12729 **NORRIS (William, M.I.MECH.E.)** MODERN STEAM ROAD WAGONS; with 79 illustrations, 8vo. cl. (o. p.), 3s 6d (p. 7s 6d nett) 1906
'The first publication which has in any way attempted to deal exclusively with the subject of heavy steam motor wagons.—Preface.
- 12730 — PRACTICAL TREATISE on the 'OTTO' CYCLE GAS ENGINE, with 207 illustrations (including folding plate), 8vo. cl., 4s (p. 10s 6d) 1896
- 12731 **NORTH (Oliver)** THE PRACTICAL ASSAYER, containing Easy Methods for the Assay of the Principal Metals and Alloys, principally for EXPLORERS and those interested in Mines, with woodcuts and tables, post 8vo. cl., 3s (p. 7s 6d) 1874
- 12732 **NORTHCOTE (Augustus Beauchamp, F.C.S.)** On the CONSTITUTION of ALLOPHANE, 8vo. (pp. 8), unbound, 1s 6d 1857
- 12733 — On the WATER of the RIVER SEVERN at WORCESTER, 8vo. (pp. 22), sewn, with inser. to M. H. N. Story-Maskelyne, F.R.S., 1s 6d 1867

- 12735 **NOLLET** (Abbé Jean Antoine; *de l'Académie des Sciences*; F.R.S.) *L'ART des EXPÉRIENCES, ou Avis aux Amateurs de la Physique, sur le Choix, la Construction, et l'Usage des INSTRUMENTS*; sur la PRÉPARATION et l'EMPLOI des DROGUES qui servent aux Expériences, nouvelle Édition; with 56 folding copperplates, 3 vols. 12mo. sound copy in contemporary hf. calf (rare), 12s 6d 1787
Designed as a continuation to the 'Leçons' (*infra*), and interesting for describing and illustrating the numerous instruments used in the author's experiments, excepting those already described in the 'Leçons'.
- 12736 — **ESSAI sur l'ÉLECTRICITÉ des CORPS, première édition**; with fine front., and 4 folding plates, 1746: **Winkler** [*hic Winckler*] (**Johann** [*hic F.*] **Heinrich**, *Univ. Leipzig*) **ESSAI sur la NATURE, les EFFETS, et les CAUSES de l'ÉLECTRICITÉ**; avec une Description de DEUX NOUVELLES MACHINES à ÉLECTRICITÉ, traduit de l'Allemand; with 2 folding copperplates, '48 — 2 vols. 12mo. in 1, old calf gilt (RARE), £1. 1s 1746-8
Winkler's electrical machine was the first in which a fixed woollen pad caused the friction hitherto done by hand.
- 12737 — **SECONDE ÉDITION du premier Ouvrage**; with frontispiece and 4 folding plates, 12mo. contemporary mottled calf gilt, r. e. (nice copy), 10s 1753
This edition has added: Examen de quelques Phénomènes Électriques publiés en Italie; Avertissement touchant les Critiques de cet Ouvrage.
- 12738 — [RÉIMPRESSION]; with frontispiece and 4 folding plates, 12mo. contemporary calf extra (title slightly mended and name inked out, otherwise a fine copy), 8s 6d 1765
One of the author's most valuable works, including a description of his electrical machine. The author made numerous interesting experiments with the Leyden jar, which name he introduced in honour of the supposed inventor, **CUNÆUS** of Leyden, in ignorance of the actual inventor, **E. G. v. KLEIST** of Cammin. To show its powerful action, he electrified before the King 180 Carthusian monks who formed a line 900 feet long.
He propounded a twofold-motion fluid hypothesis of electricity, by which he attempted to explain electric attraction and repulsion; investigated the influence of electricity on the germination of seeds; and constructed a primitive electroscope consisting of two linen threads, which, being projected on an arc of 180°, were to show the amount of the electric charge by the rate of their angular divergence.
- 12739 — **LEÇONS de PHYSIQUE EXPERIMENTALE, 6^e Édition**; with front. and over 100 folding copperplates, 6 vols. 12mo. old hf. calf, 15s 1764
- 12740 — **HUITIÈME ÉDITION**; with fine portrait of Beauvarlet after *La Tour* (splendid impression), and over 100 folding copperplates, 6 vols. 12mo. contemporary mottled calf extra (portrait and a few ll. slightly water-stained in vol. I, otherwise a FINE COPY), £1. 1s 1775
The fine portrait by Beauvarlet is substituted in this edition for the frontispiece of the other editions.
- 12741 — **NEUVIÈME ÉDITION**; with frontispiece and over 100 folding copperplates, 6 vols. 12mo. old extra boards, 14s 1783
- 12742 — **NOUVELLE ÉDITION**; with portrait by *H. Godin* after *La Tour*, and 100 folding copperplates, 6 vols. 12mo. contemporary hf. calf, 14s 1784
The portrait is re-engraved in this edition. The binding of the above copy is uniform with that of *L'Art des Expériences*.
'Les éditions de 1759, et celles qui sont postérieures, sont les plus estimées.'—*Quéraud*. 'On y admire une méthode inconnue jusqu'alors, une netteté singulière dans les idées, et dans la manière de les exprimer. Nollet eut l'art d'assujettir tout à l'expérience, de soumettre les vérités intellectuelles au jugement des sens.'—*Grandjean de Fouchy*.
The author was the discoverer of endosmosis, and in France is considered the father of experimental physics. Besides giving his invention of an improved percussion apparatus, the above work is still of value for containing perhaps the most complete illustrative account of physical apparatus in use during the middle of the Eighteenth Century.
- 12743 — **LECTURES in EXPERIMENTAL PHILOSOPHY**, translated by **JOHN COLSON**, F.R.S., with 19 folding copperplates, 8vo. old calf (small wormhole through margin of title and a few ll.), 10s 6d 1748
- 12744 — [REPRINT], with 19 folding copperplates, 8vo. old calf (title soiled), 8s 6d 1752
- 12745 — **PROGRAMME ou IDÉE GÉNÉRALE d'un COURS de PHYSIQUE EXPERIMENTALE, avec Catalogue Raisonné des INSTRUMENTS qui servent aux Expériences**, 12mo. contemporary mottled calf extra, red edges (nice copy), 6s 1738
The author's first published work. At end is a description of 845 instruments used in experimental physics.
'Bien qu'il soit regardé à tort comme le père de la physique expérimentale en France, honneur qui appartient à Pierre Poënière, il sut donner à ses démonstrations plus de charme et d'intérêt, et il fit faire à la science de véritables progrès.'—*Biogr. Gén.*
- 12746 — **RECHERCHES sur les CAUSES PARTICULIÈRES des PHÉNOMÈNES ÉLECTRIQUES, et sur les Effets Nuisibles ou Avantageux qu'on peut en attendre**; with 8 folding copperplates, 12mo. old calf gilt, 10s 6d 1749
- 12747 — **NOUVELLE ÉDITION**, with 8 folding copperplates, 12mo. sound copy in contemporary mottled calf gilt, 10s 1764
'Il fut le premier à reconnaître que les corps aiguës dégagent des courants lumineux, mais ne manifestent pas à d'autres égards cette puissance électrique . . . que le verre et d'autres corps non-conducteurs étaient plus fortement influencés dans l'air que dans le vide,' etc. etc.—*Biogr. Gén.*
- 12748 **NORTHAMPTON** (**Spencer Joshua Alwyne Compton, 2nd Marquess of**; F.R.S.) **DESCRIPTION of the ROCKS which occur along a Portion of the SOUTH COAST of the ISLE of MULL, with 3 copperplates, 4to. (pp. 9), sewn, 3s 1821**
NORTHUMBERLAND (**Admiral Algernon Percy, 4th Duke of**, F.R.S., F.R.A.S., *First Lord of the Admiralty*; friend of *Sir John Herschel* and of *E. W. Lane*)—*v. LIFE-BEAT MODELS, ante.*
- 12749 **NORTON** (**Brigadier-Gen. Charles Benjamin**, U.S.V.) **AMERICAN INVENTIONS and IMPROVEMENTS in BREECH-LOADING SMALL ARMS, HEAVY ORDNANCE, MACHINE GUNS, MAGAZINE ARMS, FIXED AMMUNITION, PISTOLS, PROJECTILES, EXPLOSIVES, and other Munitions of War, including a Chapter on SPORTING ARMS, with numerous plates (some coloured), and other illustrations**, roy. 4to. hf. morocco, 12s 6d (p. £2. 12s 6d) Springfield, Mass., 1880
- 12750 —, and **William J. VALENTINE**: **REPORT to the GOVERNMENT of the UNITED STATES on the MUNITIONS of WAR exhibited at the PARIS UNIVERSAL EXHIBITION, 1867, with 80 plates and other woodcuts**, roy. 8vo. cl., 6s New York, 1868

- 12752 **NORTHCOTT** (William Henry, M.I.MECH.E.) *The THEORY and ACTION of the STEAM ENGINE* (for Practical Men), with 29 woodcuts, and 3 folding tables, 8vo. cl., 2s 6d (p. 7s 6d) [1877]
- 12753 ——— **SEVENTH EDITION**, with 29 woodcuts, and 3 folding tables, 8vo. cl., 3s (p. 7s 6d) [1889]
- 12754 ——— **TREATISE on LATHES and TURNING**, Simple, Mechanical, and Ornamental, with 239 woodcuts (including many plates), 8vo. cl., 6s (p. 13s) 1868
- 12755 ——— **SECOND [LAST] EDITION** [enlarged], with 338 illustrations (including many plates), 8vo. cl. (o. p.), 9s (p. 18s)
- 12756 **NORTON** (Robert, one of his Majesties Gunners and Enginiers) *The GUNNER: shewing the whole PRACTISE of ARTILLERY: with all the Appurtenances thereunto belonging. Together with the Making of extraordinary ARTIFICIAL FIRE-WORKS, as well for Pleasure and Triumphs, as for Warre and Seruice, with title within woodcut borders, 37 copperplates (mostly folding), and numerous good woodcuts, folio, ORIGINAL ROUGH CALF (blank corner torn off one l., and a worm-hole through margin of some ll., otherwise a FINE AND CRISP COPY), with fine old bookplate of Sir John Cope, Bart. (very rare), £10. 10s*
A. M. for Humphrey Robinson, 1628
- The above is important as the first great English work on artillery, and valuable for the copious and minute descriptions and illustrations of contemporary ordnance.
- In his Epistle to the Reader the author asserts that his book is an original one, and not a translation from Diego Ufano's *Artilerie*, although most of the plates were taken from this work, as published in Frankfort in 1621. He complains in the dedication to Charles I. that 'my wrongs and discouragements hath hitherto hindred the publication' of the work.
- Among the complimentary verses is one by CAPTAIN JOHN SMITH, President of Virginia, who signs himself 'Hungarian-ensis', in remembrance of his taking part (in the Austrian army) in the Hungarian war against the Turks.
- 'Sir John Cope Bart.' is not identical with Lt.-Gen. Sir John Cope ('Johnnie Cope'), who was defeated by Prince Charles Edward at Prestonpans.
- 12757 ——— **The GUNNERS DIALOGUE**, with the Art of Great Artillery, with diagram of ballistic curves, sm. 4to., black letter; sewn (water-stained, but in sound condition); RARE, £1. 5s
printed in the year, 1643
- This work is numbered from page 71 to 92, with a title and dedication to the Duke of Buckingham. It was published with W. Bourne's 'Art of Shooting', 1643, but appears to have also been issued separately.
- In the dedication to the second Duke of Buckingham ('Zimri') the author complains of the 'penury of expert gunners and understanding men, and the weakness of the present meanes to breed more hereafter'.
- Neither of the above important works was known to Lowndes, who only mentions the author's 'Mathematical Appendix' (1604).
- 12758 **NORWICKI (R.), und Hans MAYER: FLÜSSIGE LUFT: die VERFLÜSSIGUNGSMETHODEN der GASE und die neueren Experimente auf dem Gebiete der flüssigen Luft, 2. erweiterte Auflage; with 48 woodcuts. roy. 8vo. sewn, 1s 6d**
Mähr.-Ostrau, 1906
- 12759 **NUISEMENT** (— Sieur de, Receveur General au Comté de Ligny en Barrois) **TRAITTEZ du VRAY SEL**, Secret des Philosophes, et de l'ESPRIT GENERAL du MONDE, contenant en son Interieur les trois Principes Naturels, selon la Doctrine de Hermes: Oeuvre tres-utile et necessaire à quiconque desire arriver à la parfaite Pratique de ce pretieux Elixir ou Medecine Universelle, tant celebree des Anciens, reconeüë et experimentee (blank margin of some ll. wormed), 1621: **POEME PHILOSOPHIC de la VERITÉ de la PHISIQUE MINERALLE**, ou sont refutes les Obiections que peuvent faire les Incredules et Ennemis de cet Art, auquel est naïvement et veritablement peinte la vraye Matiere des Philosophes, 20—2 vols. 12mo. in 1, old limp vellum (somewhat water-stained, but a sound copy); RARE, £1. 5s
Jeremie Perier et Abdias Bvizard, 1621-20
- Unknown to Brunet, Poggenдорff, or Ebert, nor mentioned by Kopp and Waite. Nothing seems to be known of its author.
- 12760 **NYRÉN (Magnus; Observatoire de Pulkowa) L'ABERRATION des ÉTOILES FIXES**, 4to. (pp. 47), sewn, 3s 6d
St. Pétersbourg, 1883
- An elaborate investigation of the small annular displacements of the stars due to the successive transmission of light, involving an increase of Struve's 'constant of aberration' from 20'445" to 20'492". From the new value . . . was derived a valuable approximation to the sun's distance, concluded at 92,905,021 miles (parallax = 8'794").—Miss Agnes M. Clerke.
- 12761 ——— **Zur ABERRATION der FIXSTERNE**, 8vo. (pp. 13), unbound, 1s
ibidem, 1888
- 12762 ——— **Das AEQUINOCTIUM für 1865,0**, abgeleitet aus den am Passageinstrumente und am Vertikalkreise in den Jahren 1861-70 in Pulkowa angestellten Sonnenbeobachtungun, 4to. (pp. 34), sewn, 2s
ib., 1876
- 12763 ——— **BESTIMMUNG der NUTATION der ERDACHSE**, 4to. (pp. 64), sewn, 2s 6d
ib., 1872
- 12764 ——— **DÉCLINAISONS MOYENNES des ÉTOILES PRINCIPALES pour l'Époque 1885,0**, déduites des Observations faites au Cercle Vertical de Poulkovo, 1882-91, atlas 4to. (pp. 25), sewn, with author's inscr., 5s
ib., 1893
- 12765 ——— **Die POLHÖHE von PULKOWA**, roy. 4to. (pp. 40), sewn, 3s
In this memoir the author first proves that the polar height of a place is not invariable.
- 12766 ——— **VARIATIONS de la LATITUDE de POUKOWO observées au Grand Cercle Vertical dans les Années 1882-91; with 2 plates**, sm. folio, sewn, 2s 6d
[ib., 1893]
- 12767 **NYSTROM (John W., C.E.) NEW TREATISE on STEAM ENGINEERING, PHYSICAL PROPERTIES of PERMANENT GASES, and different Kinds of VAPOR, with 5 illustrations**, 8vo. hf. morocco neat, Philadelphia, 1876
- 4s
- 'Furnishing a variety of matters pertaining to steam engineering which appear to be wanting in that profession, and which have hitherto not been published.'—Preface.
- 12768 ——— **TREATISE on SCREW PROPELLERS and their STEAM-ENGINES**, with Practical Rules and Examples how to calculate and construct the same for any Description of Vessels; with TREATISE on BODIES in MOTION in FLUID, exemplified for Propellers and Vessels; and Description of a CALCULATING MACHINE, with 32 plates (including a Pitch Table with movable slip), and woodcuts, 8vo. cl., 7s 6d
Philadelphia, 1852
- Written at a period when the paddle-wheel was still the more efficient agent, for 'were we to decide from the present aspect of public opinion [in America], we would be almost compelled to say screw-propellers are on the wane'. The work contains original investigations and formulæ, and a description of a 'centripetal screw propeller' and a 'propeller engine' patented by Loper and Nystrom. By the Calculating Machine also described the author effected all the calculations in the work.

- 12770 **NORWOOD (Richard)**: NORWOOD'S EPITOME: being the APPLICATION of the DOCTRINE of TRIANGLES, in certain Problems, concerning the Use of the PLAIN SEA-CHART, and MERCATOR'S CHART, with TABLE of ARTIFICIAL SINES and TANGENTS, and the Complements Arithmetical of Sines, supplying the Use of Secants, to Radius 10,00000, and to every Degree and Minute of the Quadrant; also LOGARITHMS of Absolute Numbers from 1 to 2000, etc. etc., the last Edition, newly revised and corrected, *with diagrams*, 12mo. *contemporary sheep*, 12s 6d
J. D. for Richard Mount, at the Postern on Tower Hill, 1696
- 12771 ——— The SEAMANS PRACTICE, containing a Fundamental [*sic*] Problem in Navigation, experimentally verified, namely, touching the Compass of the Earth and Sea, and the Quantity of a Degree in our English Measures; also, an exact Method or Form of keeping a RECKONING at SEA in any Kind or Manner of Sailing; with certain Tables and Rules useful in Navigation, as also of the Plotting and Surveying of Places, etc. etc. etc., 9th Edition, *with diagrams (last l. defective)*: A TRIANGULAR CANON LOGARITHMICAL: or a Table of Artificial Sines, Tangents, etc. (*corner of 2 l. torn off*)—2 vols. sm. 4to. in 1, *old calf gilt, with bookplate of Philip 2nd Earl Stanhope, F.R.S.* (RARE), £1. 12s 6d
W. Godbid, for Benj. Hurlock, at his shop on London Bridge, 1670 [67]
- The second work, beginning with signature Ee 1, and ending with Kk 10, was evidently taken from the author's 'Trigonometrie', in order to supplement the first.
- 12772 ——— TRIGONOMETRIE, or, the DOCTRINE of TRIANGLES, shewing the Mensuration of Right lined and Spherical Triangles, with the Grounds and Demonstrations thereof. Both performed by that late and excellent Invention of LOGARITHMS, after a more easie and compendious Manner, than hath been formerly taught. Whereunto is annexed (chiefly for the use of SEAMEN) a TREATISE of the APPLICATION thereof, in the three principal Kinds of SAILING; with exact TABLES of the Suns Declination, etc. etc. etc., 7th Edition, being diligently Corrected, in divers difficult Places explained; New Tables of the Stars right Ascensions and Declinations added, and the whole Work very much enlarged, by the Author himself [*with LOGARITHMIC TABLES*], *with numerous diagrams*, sm. 4to. *contemporary calf (binding slightly damaged, but a sound copy)*, 15s
R. W. for W. Fisher, 1678
- Containing at end the 'Logarithmes of Absolute Numbers from a unity to 10,000', and 'A Triangular Canon Logarithmical, or, a Table of Artificial Sines, Tangents, and the Complements Arithmetical of Sines supplying the use of Secants, the Radius 10,0000000, and to every degree and minute of the Quadrant.'
- Referring to Briggs's work on logarithms, the author in his preface mentions: 'Though we both handle the same thing, yet it is in such a different manner, that there is scarce any one proposition handled by us both.'
- Between 1633 and 1635 the author measured a degree of the meridian between London and York, and in it first employed the compass to avoid deviations from the route measured—a fact unnoticed in *D. N. B.*
- He was sent out by the Bermuda Company to survey the islands in 1616 (when he was accused of dishonest collusion with the Governor), and is of interest to Americans as having in 1623 patented lands in VIRGINIA, though it is doubtful whether he ever went there.
- 'He personally measured, partly by chain and partly by pacing, the distance between London and York, making corrections for all the windings of the way, as well as for the ascents and descents. He also, from computations of the sun's altitude, computed the difference of latitude of the two places, and so calculated the length of a degree of the meridian. Considering the roughness of his methods and the imperfection of his instruments it is not surprising that his result was some 600 yards too great; but even so it was the nearest approximation which had then been made in England.'—*D. N. B.*
- 12773 **NÜSSLER (Karl Gottlob v.)** De HYPOTHESEOS quae RECURSUM COMETARUM tuetur PROBABILITATE, sm. 4to. (pp. 30), *sewn (browned)*, 6s
Vitebergae, 1719
- Unknown to Poggenдорff and Houzeau and Lancaster, and to the author's biographer in *Allgemeine Deutsche Biographie*. The author occupied with success high judicial positions in Prussia, without however receiving the smallest payment for his services from his niggardly King.
- 12774 **O'BRIEN (Matthew, pr., Caius Coll.)** MATHEMATICAL TRACTS, PART I [all pub.]: on Laplace's Coefficients, the Figure of the Earth, the Motion of a Rigid Body about its Center of Gravity, and Precession and Nutation, 8vo. *sewn (scarce)*, 3s 6d
Cambridge, 1840
- 'Containing a certain latitude in the symbolic use of divergent series.'—*D. N. B.*
- 12775 ——— TREATISE on PLANE CO-ORDINATE GEOMETRY, PART I [all pub.], containing Right Lines, Circles, and Conic Sections], *with 5 plates*, 8vo. *hf. cl.*, 3s
ibidem, 1844
- 12776 **OBSERVATORY (The)**: a MONTHLY REVIEW of ASTRONOMY, edited by Sir W. H. M. CHRISTIE, F.R.S., E. W. MAUNDER, H. H. TURNER, T. LEWIS, and H. P. HOLLIS, FF.R.A.S., from 1888 to 1896 (Vols. XI-XIX), *with numerous photographic and other plates (including portraits), and woodcuts*, 9 vols. 8vo., 7 v. cl., and the rest in nos. (4 nos. wanting). £1. 10s
 1888-1896
- 12777 **OCAGNE (Maurice d', des Ponts et Chaussées)** Le CALCUL SIMPLIFIÉ par les PROCÉDÉS MÉCANIQUES et GRAPHIQUES; *with 2 folding plates and 38 other illustrations*, 8vo. *sewn*, 1s 1894
- 12778 ——— COORDONNÉS PARALLÈLES et AXIALES: Méthode de Transformation Géométrique et Procédé nouveau de Calcul Graphique déduits de la Considération des Coordonnées Parallèles; *with folding plate and 14 diagrams*, 8vo. *sewn*, 1s 6d (p. F. 3 nett) 1885
- 12779 ——— COURS de GÉOMÉTRIE DESCRIPTIVE et de GÉOMÉTRIE INFINITÉSIMALE; *with 340 diagrams*, roy. 8vo. *buckram*, 7s (p. F. 12 nett sewn) 1896
- 12780 ——— NOMOGRAPHIE: les Calculs Usuels effectués au Moyen des ABAQUES. Essai d'une Théorie générale. Règles pratiques. Exemples d'Application; *with 8 plates and 38 diagrams*, roy. 8vo. *sewn*, 2s 1891
- 12781 **ODERICO (Tommaso, Gentiluomo Genovese)** DISCORSI METEOROLOGICI et ASTROLOGICI sopra la COMETA apparsa nel Fine dell' Anno 1652; *with astrological diagrams*, sm. 8vo. *old vellum* (FINE COPY); RARE, £1. 1s
Genova, 1653
- An early work on cometary meteorology, and unknown to Poggenдорff, Brunet, Graesse, and others.
- 12782 **ODERMATT (Wilhelm, Unterwalden)** Zur KENNTNISS der PHENOLBILDUNG bei der FÄULNISS der EIWEISSKÖRPER: Inaugural-Dissertation, 8vo. (pp. 13), *sewn*, 1s 6d *Leipzig*, 1878

- 12784 **ODDI (Joseph, de l'Archigymnase de Rome)** RECHERCHES MÉCANIQUES sur LA THÉORIE du TIRAGE des VOITURES, ou Application des Principes de la Mécanique à cette même Théorie; with folding plate, 8vo. sewn, 5s 6d 1806
 'Aucun mathématicien n'a appliqué directement à ce même examen les principes de la mécanique.'—P. 1.
- 12785 **ODDI (Muzio, da Urbino; designer of the Fortress of Lucca)** FABRICA et USO del COMPASSO POLIMETRO; with engraved vignette on title, woodcut initials, and numerous diagrams, sm. 4to. sound copy in old limp vellum (RARE), 15s Milano, Fr. Fobella, 1633
 'Raro ed apprezzato. Lo strumento di cui l'autore espone la descrizione e l'uso, è il compasso di proporzione, o Galileano. In questa come nelle altre sue opere, addimostra non comune cognizione delle matematiche, e dalla prefazione possono raccogliersi interessanti notizie sulla storia della invenzione di cotesto strumento.'—Riccardi.
- 12786 — Dello SQUADRO; with numerous engravings on copper and wood, sm. 4to. sound copy in old Italian vellum (RARE), 18s 6d ibidem, Bart. Fobella, 1625
 'È opera rara ed anche pregiata per la qualità della stampa. Questo libro può considerarsi come un trattato di agrimensura: imperocchè l'autore, premessa la descrizione dello squadro agrimensorio, dà le regole per adoperarlo nella misurazione di terreni; e si estende nella risoluzione di problemi relativi alla geometria pratica ed all' altimetria. È notevole che gli squadri agrimensori allora usati portassero i traguardi corrispondenti ancora all'angolo di 60°; il che parmi faciliterebbe anche oggi giorno i rilievi planimetrici che si possono eseguire con questo strumento.'—Riccardi.
- 12787 **ODLING (William, F.R.S., Waynflete Prof. Chemistry, Oxon.)** ABSTRACTS OF LECTURES at the ROYAL INSTITUTION [1868-73], 8vo. cl., with inser. to Dr. W. J. Russell, F.R.S. (scarce), 6s 1874
- 12788 — ACCOUNT of GUY'S HOSPITAL WELL, with coloured folding plate, 8vo. (pp. 19), sewn, with inser. to Dr. [Sir Edward] Frankland, F.R.S., 1s 6d [c. 1859]
 The Guy's Hospital well was sunk in 1858 through the London Clay to a depth of 297 feet.
- 12789 — ON ACIDS and SALTS, 8vo. (pp. 7), sewn, with inser. to Sir E. Frankland, F.R.S., 1s 6d 1860
- 12790 — ON the CONSTITUTION of the HYDRO-CARBONS, 8vo. (pp. 4), unbound, 1s 6d 1855
- 12791 — COURSE of PRACTICAL CHEMISTRY for MEDICAL STUDENTS, 4th Edition, with 71 woodcuts, post 8vo. cl. (some ll. pencilled), 1s 6d 1869
- 12792 — FIFTH EDITION [revised and enlarged by JOHN WATTS and SIR THOMAS STEVENSON], with 71 woodcuts, post 8vo. cl., with auto. of W. J. Russell, F.R.S., 2s 6d (p. 6s) 1876
- 12793 — ON MR. GRAHAM'S RESEARCHES on DIALYSIS, 8vo. (pp. 4), unbound, 1s 6d 1862
- 12794 — ON MAGNESIUM, CALCIUM, LITHIUM, and their CONGENERS, 8vo. (pp. 6), unbound, 1s 6d 1859
- 12795 — MANUAL of CHEMISTRY, Descriptive and Theoretical, PART I (all published), with woodcuts, 8vo. boards, or, hf. calf (joints cracked), 5s 1861
 'This manual purposes to show how the employment of unitary formulæ facilitates the generalisation of chemical truths.'—Advertisement. It is based on the newer type or substitution theory as propounded by Gerhardt and Laurent.
- 12796 — ON the NATURAL GROUPINGS of the ELEMENTS, PART I, 8vo. (pp. 35), sewn, 3s 1857
 Interesting as having been written 8 years before Newlands published his theory of chemical octaves [v. No. 12481], afterwards developed into the Periodic Law by Mendelejeff and Lothar Meyer. The author enumerates 13 groups.
- 12797 — ON ORTHO- and META-SILICATES, 8vo. (pp. 7), sewn, with inser. to Sir E. Frankland F.R.S., 1s 6d 1859
- 12798 — OUTLINES of CHEMISTRY, or Brief Notes of Chemical Facts, post 8vo. (pp. 468), cl. (o. p.), with auto. of W. J. Russell, F.R.S., 3s 6d 1870
- 12799 — REMARKS on the DOCTRINE of EQUIVALENTS, 8vo. (pp. 9), sewn, 1s 6d 1858
- 12800 — REPORT on the EFFECTS of SEWAGE CONTAMINATION upon the RIVER THAMES, 8vo. (pp. 22), sewn, 2s 6d Lambeth, by Order of the Vestry, 1858
 Curious as a minimising report on the state of the River at the time when it stank out the House of Commons; and directed against the main drainage scheme long since carried out, which has helped to make London the healthiest great town in the world. No doubt it comforted the Vestry.
- 12801 — ON SOME FAILURES of MARSH'S PROCESS for the DETECTION of ARSENIC, 8vo. (pp. 8), unbound, with author's inser. to Sir E. Frankland, F.R.S., 2s n. d.
 'Odling deserves credit for being instrumental in causing a constant replaceable value to be ascribed to particular elements, to hydrogen and oxygen in particular, whereby the atomic weights of those two latter served as standards for fixing replaceable values of other elements and compound radicals.'—Prof. K. v. Meyer.
- 12802 **O'DRISCOLL (Florence, A.M.I.C.E.)** NOTES on the TREATMENT of GOLD ORES, with 28 woodcuts, roy. 8vo. (pp. 200), cl. 3s 6d (p. 8s 6d nett) 1889
- 12803 **OERSTED (Hans Christian, Univ. Copenhagen; F.R.S.)** RECHERCHES sur l'IDENTITÉ des FORCES CHIMIQUES et ÉLECTRIQUES, traduit de l'Allemand par MAROEL DE SERRES; with plate, 8vo. sewn (rare), 8s 6d 1813
 Important in connexion with the dynamic theory of chemistry, first propounded by Berthollet, to whom the work is dedicated. The author is well-known as the discoverer of electro-magnetism.
- 12804 **OGILBY (William, Trinity Coll., Cantab, F.G.S., M.R.I.A.)** NEW THEORY of the FIGURE of the EARTH, considered as a SOLID of REVOLUTION, founded on the Direct Employment of the Centrifugal Force, instead of the common Principles of Attraction and Variable Density, diagrams, roy. 4to. (pp. 121), sewn, 4s 6d 1872
 'The theory of the figure of the earth is perhaps better adapted than any other problem of physical science to exhibit the abuses of the analytical treatment here referred to, and the fallacy of its results.'—Preface. The author claims that the figure of the earth is the result of centrifugal force only, and not of gravitation.
- 12805 **OIL and COLORMAN (The), and PAINTERS' MANUAL**, conducted by PETER THOMPSON, 8vo. (pp. 496), cl., 5s 1863
 All that was published of a work to elevate the British Oilman. The editor produced designs for the new Houses of Parliament, and for Healthy Moral Homes for Agricultural Labourers. There are many articles on White Lead, the Electric Light, Petroleum, etc. etc., and weekly Prices Current.
- 12806 **OLDHAM (Richard Dixon; F.R.S.; Geol. Survey, India)** On the PROPAGATION of EARTH-QUAKE MOTION to GREAT DISTANCES, roy. 4to. (pp. 40), sewn, 1s 6d 1990

- 12808 **OHIO**, REPORT of the GEOLOGICAL SURVEY of. VOL. I PART II: PALEONTOLOGY, *with 48 lithographs, besides woodcuts*, thick roy. 8vo. cl., 12s 6d
Columbus, 1873
Containing Descriptions of Invertebrate Fossils of the Silurian and Devonian Systems, by F. B. MEEK; Descriptions of Fossil Fishes, by J. S. NEWBERRY; and Description of Fossil Plants, by the same.
- 12809 **OHM (Georg Simon; F.R.S.)** Die GALVANISCHE KETTE, MATHEMATISCH BEARBEITET [mit Anhang: Ueber die Kraft der galvanischen Kette]; original edition, *with plate*, post 8vo. cl. (RARE), 15s
Berlin, 1827
- 12810 — ANOTHER COPY, *hf. morocco (title and some ll. slightly water-stained, but a sound and tall copy)*, 15s
- 12811 — NEUDRUCK, mit einem Vorwort von JAMES MOSER; *with diagrams*, large 8vo. sewn, 3s
Wien, 1887

This classic work contains the important discovery known as *Ohm's Law* (the basis of the present system of electrical measurement), which he found by applying Fourier's theory of the conductivity of heat to the electric current.

His work, neglected and even ridiculed in Germany, was awarded the Copley medal by the Royal Society, to whom in gratitude he dedicated his *Molekular-Physik*; and he at last became long after his death the *hero eponymus* of the unit of electrical resistance.

- 12812 **OHM (Martin, Univ. Berlin; brother of the above)** Die ANALYTISCHE und HÖHERE GEOMETRIE in ihren Elementen, mit vorzüglicher Berücksichtigung der THEORIE der KEGELSCHNITTE; *with 2 folding plates*, post 8vo. *hf. calf (back rubbed)*, 1s 6d
Berlin, 1826
- 12813 — Der GEIST der MATHEMATISCHEN ANALYSIS und ihr Verhältniss zur Schule, I. ABHANDLUNG, 8vo. cl., 2s
ibidem, 1842
- 12814 — Die KÖRPERLICHE RAUM-GRÖSSEN-LEHRE, mit Inbegriff der sphärischen Trigonometrie, der beschreibenden Geometrie, der Projektion der Schatten und der Perspektive; *with 5 folding plates*, post 8vo. *hf. calf (back rubbed)*, 1s 6d
ib., 1826
- 12815 — Die LEHRE der ENDLICHEN DIFFERENZEN und SUMMEN und der reellen Faktoriellen und Fakultäten, sowie die Theorie der bestimmten Integrale, post 8vo. *hf. calf gilt*, 2s 6d
Nürnberg, 1851
- 12816 **OLIVIER (Théodore, Prof. de l'École d'Artillerie de Metz)** De la CAUSE du DÉRAILLEMENT des WAGONS sur les COURBES des CHEMINS de FER; *with 2 folding plates*, post 8vo. *hf. roan neat (scarce)*, 7s 6d
1846

'La théorie du déraillement dont je donne un essai, est basée sur deux principes. Le premier est relatif au frottement de glissement qui fait naître la force centrifuge . . . le second est relatif aux moments, par rapport au centre de gravité du wagon, des résistances dues aux frottements des roues pendant le mouvement circulaire'.—P. 1.

The treatment is mathematical. The true process of derailment at a curve, whether by mounting the rail or by actual overturning, was still under discussion sixty years after or the occasion of the American boat-train running off the rails at the South Western station at Salisbury.

- 12817 — COURS de GÉOMÉTRIE DESCRIPTIVE, 2^e [dernière] Édition, avec les ADDITIONS: Démonstration nouvelle des Propriétés principales des Sections Coniques, 3 vols. 4to. in 1, with Atlas, containing 112 plates, 3 vols. roy. 4to. in 1—2 vols. *hf. calf*, 12s
1852-4-47
- 12818 **OLVER (John S.)** FAULTS and DYKES: a GEOLOGICAL STUDY of the WITWATERSRAND, *with numerous diagrams and 13 maps*, 8vo. cl., 8s 6d (p. £1. 1s)
Capetown, 1911
- 12819 **OLYVER [sive OLIVER] (Thomas)** A NEW HANDLING of the PLANISPHERE, divided into three Sections. In the first is a plaine and sensible EXPLICATION of the CIRCLES of the SPHERE, and such Terms as appertaine vnto the Doctrine de primo mobili; after a Method not heretofore used in any Language. The second sheweth how vpon any Plaine, being Paper, Pastboard, or a Lattenplate, having one Circle diuided into Degrees, and crossed with two Diameters at right Angles, most Conclusions of the ASTROLABE may for all Latitudes or Countries be readily and exactly performed onely with RULER and COMPASSES. In the third, being a Supplement organically, is contained the MAKING of certaine easie INSTRUMENTS for the perfecter working the former Conclusions, as to know what Degrees and Minutes be in any Circumference given, with other necessarie Matters about the MERIDIAN LINE, and the HEIGHT of the POLE, *with woodcuts and numerous diagrams*, sm. 4to., black letter; *sewn (top-margin of one l. dust-soiled, otherwise a VERY LARGE AND FINE COPY)*; VERY RARE, £2. 10s

Felix Kyngston. for Simon Waterson and Ralfe Jacson, 1601

'Oliver was a mathematician as well as a physician, and wrote learnedly in both capacities. In a dedication dated from Bury St. Edmunds he acknowledges obligations to 'Clauius his Astrolabe'.—D. N. B.

'My constructions were very farre differing from Claiuis, amending those defects which Gemma noteth in Roias his worke, besides taking the matter to be commodious, and not unpleasant for travellers.'—*Indication.*

- 12820 **OMALIUS d'HALLOY (Jean Baptiste Julien Baron d'; F.R.S.)** ÉLÉMENTS de GÉOLOGIE, 2^e Édition; *with folding stratigraphical plate, table, and coloured map*, 8vo. *hf. calf (slightly stained and binding damaged)*; scarce, 5s 6d
1835
- 'He recognised the leading subdivisions of the cretaceous series, and ascertained the stratigraphical relations and range of the Jurassic system.'—*Str. A. Geikie.*
- 12821 **OPPERMANN (C. A., des Ponts et Chaussées)** TRAITÉ COMPLET des CHEMINS de FER ÉCONOMIQUES d'Intérêt Local, Départementaux, Vicinaux, Industriels, Agricoles, TRAMWAYS Américains, Voies de Service Fixes ou Mobiles; with Atlas, containing 48 plates, 2 vols. inpl. 8vo. *hf. morocco (nice copy)*, 10s (p. F. 35 nett sewn)
1873

An early extensive treatise on light or narrow-gauge railways and tramways.

- 12822 **OPPOLZER (Theodor Ritter v.; Univ. Vienna)** CANON der FINSTERNISSE; *with 160 plates*, roy. 4to. *hf. morocco gilt*, £2. 15s (p. M. 85 sewn)
Wien, 1887
- The most important catalogue of solar and lunar eclipses published. They extend from B.C. 1207 to A.D. 2162.
- 12823 — TRAITÉ de la DÉTERMINATION des ORBITES des COMÈTES et des PLANÈTES, Édition française, publiée d'après la 2^e Édition allemande, par ERNEST PASQUIER, 1^{er} VOLUME; *with diagrams*, impl. 8vo. *hf. roan, with editor's inscr.*, 16s (p. F. 30 nett sewn)
1886
- The only volume translated into French of this monumental work, the most complete treatise ever issued on the calculation of the orbits of comets and planets, and representing a wholly new treatment of the subject, and to some extent superseding Gauss's *Theoria Motus Corporum Cælestium*. See No. 3374 ante for a copy of the complete original work.

- 12825 **OPPERT** (*Gustav, Prof. Sanskrit, Presidency Coll., Madras*) On the WEAPONS, ARMY ORGANISATION, and POLITICAL MAXIMS of the ANCIENT HINDUS, with special Reference to GUNPOWDER and FIREARMS, 8vo. (pp. 162 + vi), *sewn*, 7s 6d Madras, 1880
Including the Sanskrit (Romanized) text and translation of the two unpublished poems on which Dr. Oppert 'trusts to have proved that gunpowder and firearms were known in India in the most ancient times, and that the knowledge of making gunpowder was never forgotten there'.
- 12826 **OPTICAL CONVENTION, 1912**, The PROCEEDINGS of the, held at South Kensington, June 19-26, 1912, VOL. II, with plates and numerous other illustrations, 4to. (pp. 359), *cl.*, 6s 6d (p. 10s nett) [1913]
Containing the Inaugural Address by the President, Professor Silvanus Thompson, F.R.S., and 35 valuable contributions by its president, T. H. Blakesley, G. B. Bryan, Prof. E. G. Coker, T. M. Lowry, A. S. Percival, M. von Rohr, W. Rosenhain, Prof. H. H. Turner, F.R.S., and others.
- 12827 **JOURNAL (THE BRITISH)**, edited by ARTHUR C. BROOKES, from September, 1901 to August, 1902 (Vol. I), with numerous illustrations, 4to. *hf. brown calf extra, cl. sides, t. e. g.*, 7s 6d 1901-2
Containing many contributions by C. V. DRYSDALE, including 'Applied Optics,' a series of articles.
- 12828 **ORDINAIRE (Claude Nicolas, ci-devant Chanoine de Riom) HISTOIRE NATURELLE des VOLCANS**, comprenant les Volcans Soumarins, ceux de Boue, et autres Phénomènes analogues; with large folding map by Tardieu l'aîné, 8vo. *old hf. calf, with auto. of William Buckland, F.R.S., Dean of Westminster, on flyleaf (rare)*, 12s 6d 1802
'Ouvrage très-estimé.—*Biogr. Gén.* 'Ce livre présente une théorie fondée sur les faits de la formation des volcans, et des différents accidents qui accompagnent ce terrible phénomène. On y trouve en outre des remarques sur les volcans les plus connus, tirées des voyageurs et des naturalistes qui les ont visités à diverses époques. Ce volume est accompagné d'une mappemonde volcanique (très-intéressante), gravée par Tardieu, pour servir à l'histoire des volcans, contenant la carte de la majeure partie du Mexique et du Pérou.'—*Quercus*.
- 12829 **ORDNANCE (Service), TREATISE ON**, 6th Edition, with 147 plates (mostly coloured), and numerous woodcuts, 2 vols. roy. 8vo. *cl.*, 5s (p. 10s nett) Stationery Office, 1904
- 12830 **MANUAL (The)**, for the Use of the OFFICERS of the UNITED STATES ARMY, 3rd Edition [by MAJOR T. T. S. LAIDLEY], with 33 plates, post 8vo. *cl.*, 4s Philadelphia, 1862
Of special interest as authorized and issued during the first year of the Civil War.
- 12831 **ORFF (Generalmajor Carl v.) BESTIMMUNG der LÄNGE des EINFACHEN SECUNDENPENDELS** auf der STERNWARTE zu BOGENHAUSEN, 4to. (pp. 134), *sewn*, 3s München, 1883
- 12832 **TELEGRAPHISCHE LÄNGENBESTIMMUNGEN für die KÖNIGLICHE STERNWARTE zu BOGENHAUSEN**, 2 parts 4to. *sewn*. 6s ibidem, 1888-94
- 12833 **ORFORD (Henry) MODERN OPTICAL INSTRUMENTS** [especially Ophthalmoscopes], and their CONSTRUCTION; illustrated, cr. 8vo. *cl. (o. p.)*, 2s 6d 1896
- 12834 **ORLANI (Barnaba Conte; Director Brera Observatory, Milan) ISTRUZIONE su le MISURE e su i PESI** che si usano nella REPUBBLICA CISPALINA, 8vo. (pp. 128), *sewn*, 3s 6d *Milano, Anno X—1801*
- 12835 **ORTA (Garcia da) COLLOQUIES on the SIMPLES and DRUGS of INDIA** [1563]; New Edition (Lisbon, 1895), edited and annotated by the CONDE DE FICALHO, translated, with Introduction and Index, by SIR CLEMENTS ROBERT MARKHAM, K.C.B., F.R.S., with 25 full-page illustrations from the quaint engravings in 'Historia Natural y Morale de las Indias', por Jos. de Acosta (1590), sm. 4to. *buckram, uncut, t. e. g.* (250 COPIES PRINTED, ONLY 200 of WHICH ARE FOR SALE), £2. 2s 1913
The celebrated 'Coloquios dos Simples e Drogas da India' of Garcia da Orta were first published at Goa in 1563. The author went out to India in 1534 as physician to his feudal lord Dom Martin da Sousa, afterwards Governor of Goa, and stayed there until his death in 1570. Travelling extensively along the western seaboard of India and in Ceylon, Garcia gathered botanical and pharmaceutical knowledge at first hand wherever he went. He formed a large 'physic garden' in Goa, and another in Bombay, on the site now occupied by the Victoria Gardens. The 'Colloquies' was in all probability the first European book printed in India; it contains the first descriptions of many Indian plants now in widespread medical use, and of their application to such diseases as cholera and dysentery. Clusius in his 'Aromatum Historia' made a short, unsatisfactory précis, and the Italian and the French translations are very inferior to the original. Sir Clements Markham was engaged on his translation from the standard Portuguese edition, at Lisbon and Madrid, for the greater part of three years. On the proposal of Sir George Birdwood the publication was under the patronage of the Secretary of State for India. The work has more than a scientific interest, for it is enlivened by entertaining anecdotes of the manners and customs of the people among whom Garcia da Orta carried on his researches.
This is the first English translation of this famous book, and it will be found to appeal not only to the Botanist and Pharmacist, but also to the many students of Indian subjects, as well as the lover of Belles Lettres, who will be agreeably pleased by its quaint and curious style, so reminiscent of the Dialogues in Walton's 'Angler.'
'In spite of occasional bombast or intolerance a remarkable book; and all who are concerned with the history of simples are under great obligation to Sir Clements Markham for his painstaking translation from a language which few are able to read.'—*Times*.
- 12836 **OSBORN (Henry Stafford, Lafayette College) PRACTICAL MANUAL of MINERALS, MINES, and MINING**: Suggestions as to the Localities and Associations of all the Useful Minerals, Methods for their Analyses, and Hints on the various Operations of Mining, including Architecture and Construction, 35 plates with 171 figures, roy. 8vo. *cl.*, 7s 6d (p. £1. 1s) Philadelphia, 1888
- 12837 **OSMOND (M. F.), and William Chandler ROBERTS-AUSTEN, F.R.S.:** On the STRUCTURE of METALS, its Origin and Changes, with 2 folding plates, and 3 diagrams, roy. 4to. (pp. 16), *sewn, with inscr. 'From the Authors'*, 1s 6d 1896
- 12838 **OSSERVAZIONI METEOROLOGICHE**, 1879, fatte al R. Osservatorio del Campidoglio, 4to. (pp. 48), *sewn*, 3s Roma, 1880
- 12839 **OSTEN (Hans v.) Eine GROSSE HERZSTÄRKUNG für die CHYMISTEN**; nebst einer Dose voll gutes Niesepulver, für die unkundigen Widersprecher der VERWANDLUNGSKUNST der METALLE, im Kloster zu Oberberg, seit Anno 1426, aufbehalten, vor wenigen Monaten daselbst gefunden, mit wahrhafter Nachricht dieser Geschichte; with *ovlish satirical front. and folding copperplate of cabalistic signs*, 12mo. *sound and tall copy in old calf (RARE)*, £1. 1s Berlin, 1771
Unknown to Brunet, Græsse, Poggenodt, or Eb-rt, nor mentioned in Mr. A. E. Waite's Alphabetical Catalogue of Works on Hermetic Philosophy and Alchemy.
- 12840 **OVERMAN (Frederick, Mining Engineer) The MANUFACTURE of IRON**, in all its various Branches, with ESSAY on the MANUFACTURE of STEEL, with 150 woodcuts, roy. 8vo. *cl. (cover damaged)*, 4s Philadelphia, 1850

- 12842 **OSTWALD** (Wilhelm, *Univ. Leipzig; Nobel Laureate*) CHEMISCHE FERNEWIRKUNG, 8vo. (pp. 14), *sewn*, 1s 6d [Leipzig, 1891]
- 12843 ——— MANUAL OF PHYSICO-CHEMICAL MEASUREMENTS, translated with the Author's Sanction by JAMES WALKER; F.R.S., with 188 woodcuts, and tables in pocket, 8vo. cl. (*scarce*), 10s 6d 1894
Both the English and German Editions of this work are now out of print and scarce.
- 12844 ——— OUTLINES of GENERAL CHEMISTRY, translated, with the Author's Sanction, by JAMES WALKER, F.R.S., 58 woodcuts, 8vo. cl., 5s (p. 10s nett) 1890
- 12845 ——— THE PRINCIPLES of INORGANIC CHEMISTRY, translated, with the Author's Sanction, by ALEXANDER FINDLAY, 2nd Edition, with 126 illustrations, thick 8vo. cl., 10s (p. 18s nett) 1904
- 12846 ——— The SCIENTIFIC FOUNDATIONS of ANALYTICAL CHEMISTRY, treated in an Elementary Manner, translated with the Author's Sanction by GEORGE MCGOWAN, 2nd Edition, cr. 8vo., cl., 3s 6d (p. 6s nett)
- 12847 ——— SOLUTIONS: being the Fourth Book, with some Additions, of the Second Edition of 'Lehrbuch der allgemeinen Chemie', translated by M. M. PATTISON MUIR, with 35 illustrations, 8vo. cl. (*SCARCE*), 15s 1891
- 12848 ——— VERWANDTSCHAFTSLEHRE, I. THEIL [Geschichte der Verwandtschaftslehre. Chemische Dynamik], 2. umgearbeitete [neueste] Auflage; with 389 illustrations, thick 8vo. *sewn*, £1. (p. M. 29 nett) Leipzig, 1911
- 12849 ——— Die WISSENSCHAFTLICHEN GRUNDLAGEN der ANALYTISCHEN CHEMIE elementar dargestellt, 5. umgearbeitete [neueste] Auflage; with 3 illustrations, large post 8vo. cl., 5s (p. M. 8) *ibid.*, 1910
- 12850 **O'TOOLE** (John) AUSA DYNAMICA, concerning FORCE, IMPULSION, and ENERGY, 8vo. *sewn*, with author's *inscr.*, 2s 6d Dublin, 1884
- 12851 ——— IMPROVED and ENLARGED EDITION, with diagrams, 8vo. *sewn*, with author's *inscr.*, 3s *ibid.*, 1886
- 12852 **OUDEMANS** (Antoon Cornelis; *Delft*) Over den INVLOED van OPTISCH INACTIEVE OPLOSMIDDELEN op het SOORTELIJK DRAAIINGSVERMOGEN van OPTISCH ACTIEVE STOFFEN; with folding plate, 8vo. (pp. 31), *sewn*, 4s 6d Amsterdam, 1872
An important memoir in which the author first shows that optically active alkaloids show equal rotation in equivalent concentrations. The author is generally confused with his brother the astronomer (*infra*).
- 12853 **OUDEMANS** (Jan Abraham Christiaan; *Univ. Utrecht*) BERICHT aangaande de WAARNEMINGEN, gedaan by Geleghenheid der TOTALE ZONSVERDUISTERING van 12 December 1871; with folding plate, roy. 8vo. (pp. 30), *sewn*, 1s 6d z. p. [1872]
- 12854 ——— GEMAKKELIJKE METHODE, den Stand van den SPIEGEL van eenen PATENTCIKREL van PISTOR en MARTINS te BEPALEN en te RECTIFICEREN; with folding plate, roy. 8vo. (pp. 18), *sewn*, 1s 6d [Batavia, 1865]
- 12855 ——— HISTORISCH OVERZICHT over de ONDERZOEKINGEN, in de laatste Dertig Jaren verricht, bij Geleghenheid van TOTALE ZONEKLIPSEN, roy. 8vo. (pp. 20), *sewn*, 1s 6d (*ibidem*), 1871
- 12856 ——— NADER BERIGT omtrent het TERUGVINDEN van de KOMEET van BRORSEN, cr. 8vo. (pp. 4), *unbound*, with author's *inscr.*, 1s [Utrecht, 1857]
- 12857 ——— On the RETROGRADATION of the PLANE of SATURN'S RING and of those of his Satellites whose Orbits coincide with that Plane, 8vo. (pp. 12), *sewn*, 1s 1888
- 12858 ——— UEBERSICHT der in den LETZTEN 60 JAHREN ausgeführten BESTIMMUNGEN von FIXSTERNPARALLAXEN, 4to. (pp. 12), *sewn*, 1s 6d Kiel [1889]
- 12859 ——— VERGELIJKING der WAARDE in de TABLES de la LUNE van HANSEN aan den Straal der Maan toegekend, en de Waarden, door de naauwkeurigste Bepalingen gegeven, roy. 8vo. (pp. 25), *sewn*, with author's *inscr.*, 1s 6d [Batavia, 1859]
- 12860 ——— WAARNEMINGEN op de KOMEET van 1858, gedaan te Batavia, 4to. (pp. 16), *sewn*, 3s 6d [*ibidem*, 1859]
- 12861 **OUGHTRED** (William; *pr., King's Coll., Cantab.*) CLAVIS MATHEMATICÆ denuo limata, sive potius fabricata, cum aliis quibusdam ejusdem Commentationibus; Editio IV. auctior et emendatior; with numerous diagrams, 12mo. *fine copy in contemporary white vellum* (RARE), 17s 6d Oxoniae, Typis Lichfeldianis, 1667

His *Clavis Mathematicæ* is a good systematic text-book on arithmetic, and contains practically all that was then known on the subject. In this work he introduced the symbol \times for multiplication. He also introduced the symbol : in proportion: previously to his time a proportion such as $a : b = c : d$ was usually written $a - b - c - d$; he denoted it $a . b : : c . d$.—*W. W. R. Ball.*

This edition includes the following treatises by the same author, each with a separate titlepage and pagination: Elementi X. Euclidis Declaratio, nec non de Solidis Regularibus Tractatus, '62: Theorematum in Libris Archimedis de Sphæra et Cylyndro Declaratio, '63: Horologiorum Scoticorum in Plano, Geometricè solùm, sine Calculo Trigonometrico, delineandorum, Modus Facillimus, '63.

According to the preface the work was revised by JOHN WALLIS, F.R.S., and the treatise on dialling translated into Latin by SIR CHRISTOPHER WREN.

12862 [——] THE DESCRIPTION and USE of the DOUBLE HORIZONTAL DYALL . . . and of the General HOROLOGICAL RING (1652)—*v. Nos. 7608 and 10772-4, ante.*

12863 ———: MR. WILLIAM OUGHTRED'S KEY of the MATHEMATICKS, newly translated from the Best Edition, with Notes rendering it Easie and Intelligible to less Skilful Readers, in which also, some Problems left Unanswer'd by the Author are Resolv'd. Recommended by Mr. E. HALLEY, F.R.S. [with Preface by him], with numerous diagrams, 12mo. *old calf*, or, *old calf*, newly rebacked, 12s 6d John Salusbury, 1694

THE BEST ENGLISH TRANSLATION. 'This Translation is New and from the fullest Edition, and may be of good use to all Beginners in the Analytical Art.'—*Dr. Halley's Preface.*

'Oughtred's *Clavis* is a book of arithmetic as well as of algebra, and one of great celebrity. The editions which follow the first, besides other additions, have the solution of affected equations, or Vieta's method. Throughout the old, or *scratch* method of division, is retained'.—*Prof. de Morgan.*

- 12865 **OTT (Karl v.)** THE ELEMENTS of GRAPHIC STATICS, translated by CAPTAIN GEORGE SYDENHAM CLARKE, R.E. [LORD SYDENHAM, F.R.S.], with 93 diagrams, cr. 8vo. cl., 2s 6d (p. 5s) 1885, or '91
- 12866 ——— Der LOGARITHMISCHE RECHENSCHIEBER: Theorie und Gebrauch; with folding plate of the slide-rule, roy. 8vo. (pp. 51), sewn, 1s 6d
Prag, 1874
- 12867 **OVERSTRATEN (J. P. C. van, Generaal-Majoor der Artillerie)** HANDLEIDING tot de KENNIS der ARTILLERIE, 6^{de} herziene Druk; with 7 folding plates, cr. 8vo. hf. calf, 3s Breda, 1863
- 12868 **OWEN (Major-Gen. Charles Henry, R.A., Prof. Artillery, R.M. College, Woolwich)** ELEMENTARY LECTURES on ARTILLERY, 4th Edition, with 32 plates, besides woodcuts, '65: ROUGH NOTES on the MANUFACTURE of ORDNANCE, CARRIAGES, and AMMUNITION, with 6 plates and 13 woodcuts, '67: Goodenough (Col. O. G., R.A.) NOTES on GUNPOWDER, with 4 folding plates, '68—3 vols. 4to. in 1, hf. roan (back rubbed), 10s 6d
Woolwich, 1865-8
The above copy has added numerous MS. notes by a former owner, and 24 plates (mostly coloured), some signed by General Owen.
- 12869 **[OWEN (Henry, Rector of St. Olave's, Hart St.; M.D.; Boyle Lecturer)** HARMONIA TRIGONOMETRICA: or a Short Treatise of Trigonometry, wherein the Harmony between Plane and Spherical Trigonometry is clearly exhibited; the similar Cases of both being solved by Theorems materially, and almost verbally the same; 2nd Edition, enlarged, with plate and diagrams, 4to. sewn (title slightly soiled, and a few corners worn away), 6s
R. Cave, at St. John's Gate, 1764
- 12870 **[OWEN (Brigadier-Gen. John Fletcher, R.A.)]** TREATISE on the CONSTRUCTION and MANUFACTURE of ORDNANCE in the BRITISH SERVICE, prepared in the Royal Gun Factory [new Edition, enlarged by the Author and CAPT. MORTON PORTER, R.A.], with 20 coloured plates, 2 folding charts, and numerous woodcuts, roy. 8vo. cl., 5s
1879
- 12871 **OWEN (Sir Richard, F.R.S.)** HISTORY of BRITISH FOSSIL REPTILES, with 268 full-page lithographic plates, comprising several hundred figures, 4 vols. 4to. buckram, uncut (only 170 COPIES PRINTED), with author's signature, £3. 10s (p. £12. 12s)
1849-84
- 12872 ——— MONOGRAPH on the FOSSIL REPTILIA of the CRETACEOUS FORMATIONS, with 59 lithographs (some folding), besides woodcuts, 4to. hf. maroon morocco gilt, uncut, t. e. g. (fine copy), with bookplate of H. B. H. Beaufoy, F.R.S., £1. 15s
Paleontographical Soc., 1851-64
- 12873 ——— MONOGRAPH on the FOSSIL REPTILIA of the WEALDEN and PUREBECK FORMATIONS, with 62 lithographs (many folding), 4to. hf. maroon morocco gilt, uncut, t. e. g., with bookplate of H. B. H. Beaufoy, F.R.S. (fine copy), 14s
apud eandem, 1853-64
- 12874 ——— On the FOSSIL MAMMALS of AUSTRALIA, Parts VIII-IX: MACROPODIDÆ, 16 lithographs, 2 parts 4to. (pp. 64), sewn, 4s
1874
- 12875 ———, and Thomas BELL, F.R.S.: MONOGRAPH on the FOSSIL REPTILIA of the LONDON CLAY, and of the Bracklesham and other Tertiary Beds, with 56 lithographs, besides woodcuts, 2 parts in 1 vol. 4to. hf. maroon morocco gilt, uncut, t. e. g., with bookplate of H. B. H. Beaufoy, F.R.S. (fine copy), 16s 6d
Paleontographical Soc., 1849-50
- 12876 **OWENS COLLEGE, Manchester,** INTRODUCTORY LECTURES on the OPENING of, 8vo. (pp. 136), sewn, 2s 6d
Manchester, 1852
A memorial of the genesis of the University of Manchester. It includes lectures on the Educational and Commercial Utility of Chemistry, by Sir Edward Frankland, F.R.S., and 'The Province of Mathematical Studies in a System of Education', by Prof. Archibald Sandeman.
- 12877 ———, STUDIES on the PHYSICAL and CHEMICAL LABORATORIES of the, VOL. I: PHYSICS and PHYSICAL CHEMISTRY, edited by PROFF. ARTHUR SCHUSTER and HAROLD B. DIXON, F.R.S., with woodcuts, roy. 8vo. sewn, 7s 6d
Manchester, 1893
Containing the following original memoirs: On New Forms of Stereometers, by W. W. Haldane Gee and Arthur Harden; and On the Duration of Chemical Action in the Explosive Combination of Gases, by G. S. Turpin, besides reprints of numerous memoirs of investigations carried on in the physical and chemical laboratories of the College.
- 12878 **PAASCH (Capt. H., Surveyor to Lloyd's Register for Belgium)** 'FROM KEEL TO TRUCK': MARINE DICTIONARY in ENGLISH, FRENCH and GERMAN, 2nd Edition [greatly enlarged], with portrait and 103 plates, thick roy. 8vo. cl., with author's inscr. to Dr. Francis Elgar, P.I.N.A., F.R.S., 8s 6d (p. £1. 1s nett)
Antwerp, 1894
- 12879 **PACKER (Thomas)** The DYER'S GUIDE: a Compendium of the Art of Dyeing Linen, Cotton, Silk, Wool, Muslin, etc. etc., with the Method of Scouring Wool, Bleaching Cotton, Ungumming Silk, and Whitening and Sulphuring Silk and Wool, with the leading Facts in Chemistry connected with Dyeing; 2nd Edition, materially improved, with coloured front., post 8vo. hf. cl., 5s
1830
- 12880 **PADOVANI (Giovanni, da Verona)** OPERA sopra la RIFORMA dell' ANNO, e da esso Autore tradotta di Latino in Volgare, ed ampliata; beautifully printed in italics, with diagrams on title and in text, sm. 4to. extra boards (LARGE AND FINE COPY); rare, 15s
Verona, Sebastian dalle Donne e Giovanni Fratelli [col.] 1576
Published six years before Pope Gregory XIII. published the Reform of the Kalender.
The work was unknown to Poggendorf, Brunet, or Graesse.
- 12881 **PADULLI (Girolamo)** Le PRINCIPALI PROPRIETÀ delle TRE CURVE CONICHE esposte e dimostrate; with 2 plates, 4to. (pp. 48), sewn, 4s
Unknown to Riccardi and Poggendorf.
Roma, 1777
- 12882 **PAGE (Thomas, C.E., M.I.C.E.)** REPORT on the SYSTEM of WEAVING by COMPRESSED AIR in the PATENT PNEUMATIC LOOM, 4to. (pp. 19), sewn (title slightly defective), 3s 6d Cambridge, 1864
The pneumatic loom was invented by Charles Weightman Harrison, and favourably reported on by the author, the assistant of Sir I. K. Brunel, and himself builder of Westminster new bridge, and the designer of the Albert Embankment.
- 12883 **PALACHE (Charles), and H. O. WOOD:** CRYSTALLOGRAPHIC NOTES on MINERALS from CHESTER, MASS., with plate, roy. 8vo. (pp. 12), sewn, 1s 6d
[Boston, Mass.], 1909

- 12885 **OZANAM** (Jacques; de l'Académie des Sciences) CURSUS MATHEMATICUS: or a Compleat Course of the Mathematics, VOLS. I-IV, containing I. Algebra, and the Elements of Euclid. II. Arithmetic and Trigonometry. III. Geometry and Fortification. IV. Mechanics, and Perspective, now done in English, with Additions and Corrections by Several Hands, *with numerous copperplates*, 4 vols. 8vo. *contemporary calf*, 4s 6d 1712
- 12886 [—] MÉTHODE de LEVER les PLANS et les CARTES de TERRE et de MER, avec toutes Sortes d'Instrumens et sans Instrumens; nouvelle Édition; *with 16 folding copperplates of Surveying Instruments, etc.*, 16mo. *fine copy in old calf gilt*, 5s 1750
- 12887 — NOUVEAUX ÉLÉMENTS d'ALGÈBRE, ou Principes généraux, pour résoudre toutes Sortes de Problèmes de Mathématique; *with front. and diagrams*, 2 vols. 8vo. in 1, *old calf (joints cracked)*, 7s 6d Amsterdam, 1702
- ¹Leibnitz parle avantageusement de cet ouvrage dans son *Commercium Epistolicum* avec Bernoulli, à cause de quelques méthodes algébriques utiles dans la réduction des quantités irrationnelles. Il y résoud d'ailleurs un grand nombre de questions de l'analyse indéterminée, et sur les triangles rectangles en nombres.—*Montucla*.
- 12888 — RECREATIONS MATHÉMATIQUES et PHYSIQUES, qui contiennent plusieurs Problèmes d'Arithmétique, de Géométrie, de Musique, d'Optique, de Gnomonique, de Cosmographie, de Mécanique, de Pyrotechnie, et de Physique, avec un TRAITÉ des HORLOGES ÉLÉMENTAIRES; nouvelle Édition, augmentée [par M. GRANDIN]; *with over 100 copperplates*, 4 vols. 8vo. *contemporary calf*, 12s 6d 1725, or '50
- ¹Cet ouvrage curieux contient la solution d'une foule de problèmes. On y trouve encore un traité de horloges élémentaires, une dissertation sur les lampes perpétuelles, enfin un ample recueil de tours de gobelets et d'escamotage'.—*Quéraud*.
- ²Best edition of an interesting work. Half the first volume is devoted to the theory of numbers, of which Ozanam was a perfect master'.—*Libri Catalogue*.
- It is the final edition in the original form of this well-known work, which was afterwards almost entirely rewritten by Montucla.
- 12889 — RECREATIONS MATHEMATICAL and PHYSICAL; laying down and solving many Profitable and Delightful Problems, of Arithmetick, Geometry, Opticks, Gnomonicks, Cosmography, Mechanicks, Physics, and Pyrotechny, done into English. *with 28 copperplates, and numerous woodcuts*, 8vo. *old calf gilt (one joint cracked, but a sound copy)*; *rare*, 10s 6d 1708
- 12890 — NEW EDITION, styled: RECREATIONS in MATHEMATICS and NATURAL PHILOSOPHY, lately recomposed, and greatly enlarged by J. E. MONTUCLA; and now translated, with many Additions and Observations, by CHARLES HUTTON, F.R.S., *with 98 folding plates*, 4 thick vols. Svo. *contemporary hf. morocco* (SCARCE), £1. 1s 1803
- BEST ENGLISH EDITION of this popular work. Ozanam's work itself was based on those of Bachel de Meziriac (v. Nos. 204 and 501), Jean Leurechon ('Henri van Etten'; v. Nos. 7604-8 and 10770-4), and Mydorgue (v. No. 3170).
- ¹I believe that it would be difficult to find in any of the books current in England on mathematical amusements as many as a dozen puzzles which are not contained in one of these four volumes'.—*W. W. R. Ball*. The above edition has also been used, and is frequently referred to, in Mr. Ball's *Mathematical Recreations and Problems*.
- 12891 — TABULÆ SINUUM, TANGENTIUM et SECANTIUM ad 1000000 Partium Radium, necnon LOGARITHMORUM, Sinuum ac Tangentium ad 10000000000 Partium Radium, 8vo. *old calf (sound copy)*, 5s Amsterdam, 1697
- 12892 — TRAITÉ des LIGNES du PREMIER GENRE, expliquées par une Méthode nouvelle et facile: TRAITÉ de la CONSTRUCTION des ÉQUATIONS, pour la Solution des PROBLÈMES INDETERMINÉZ: TRAITÉ des LIEUX GEOMETRIQUES, expliqués par une Méthode courte et facile; *with 34 plates*, 3 vols. 4to. in 1, *old calf gilt (back slightly rubbed)*, *with armorial bookplate of 'Lady Dowager Arundell'* (RARE), 15s 1687
- The author solves equations of a higher degree than the second by means of conic sections. The third work is a treatise on analytical geometry, while the first contains the solution of 4 'curious' problems, 'qui est de notre invention, et que je n'ay communiquée qu'à peu de personnes.'
- 12893 — TREATISE of FORTIFICATION, containing the Ancient and Modern Method of the Construction and Defence of Places, and the Manner of Carrying on Sieges, done into English, and amended by J. T. DESAGULIERS, of Hart-Hall, Oxon. [F.R.S.], with Appendix, concerning the Manner of Fortifying, which is truly MR. VAUBAN'S: never before in English, *with 46 plates (many fold.ng)*, 8vo. *old calf (back damaged)*, 5s Oxford, 1711
- 12894 — SECOND EDITION, with PLAN of GIBRALTAR, with its Fortifications, shewing the great Strength and Use of it, *with 46 plates, and 2 folding maps*, 8vo. *old calf, neatly rebacked, with the fine gilt morocco armorial booklabel of Edward Haïlstone*, 8s 6d 1727
- Gibraltar in English hands had already withstood one stiff siege in 1704-5.
- 12895 — USAGE du COMPAS de PROPORTION, et de l'INSTRUMENT UNIVERSEL, pour résoudre promptement et très-exactement les Problèmes de la Géométrie pratique, tant sur le Papier que sur le Terrain, sans aucun Calcul, avec Traité de la Division des Champs; nouvelle Édition; *with 12 folding copperplates*, large 12mo. *sound copy in old French calf extra (rare)*, 10s 6d 1769
- The first edition containing a description of both instruments. It was unknown to Quéraud.
- 12896 — USAGE de l'INSTRUMENT UNIVERSEL, pour résoudre promptement et très-exactement tous les Problèmes de la Géométrie pratique sans aucun Calcul, première édition; *with 2 folding plates (one illustrating the instrument)*, 12mo. *old calf gilt (rare)*, 8s 6d 1688
- The author claims to have been the first to use the instrument in all surveying operations. It would be interesting to know for certain whether Ozanam the mathematician was an ancestor of the pious and gifted littérateur ANTOINE FRÉDÉRIC OZANAM, friend of Lacordaire and co-founder of the Society of St. Vincent de Paul, the centenary of whose birth was kept in Paris in April, 1913.
- 12897 **PAGNINI** (Giovanni) COSTRUZIONE ed USO del COMPASSO di PROPORZIONE; *with 15 plates*, 4to. *hf. cl.*, 7s 6d Napoli, 1753
- ¹Si estende particolarmente nella risoluzione di molti problemi relativi all' uso di questo strumento'.—*Riccardi*.
- 12898 **PALAA** (Germain, conducteur des ponts et chaussées) DICTIONNAIRE LEGISLATIF et RÉGLEMENTAIRE des CHEMINS de FER, contenant le Résumé des Documents Officiels en Vigueur et les principaux Renseignements Pratiques sur l'Établissement, l'Entretien, la Police et l'Exploitation des Voies Ferrées, roy. Svo. (pp. 1018), *hf. calf gilt*, 5s 1864

- 12900 **PAIXHANS** (Général Henry Joseph; *inventor of the Paixhans Gun*) NOUVELLE FORCE MARITIME, et Application de cette Force à quelques Parties du Service de l'Armée de Terre; ou Essai sur l'Etat Actuel des Moyens de la Force Maritime, sur une ESPÈCE NOUVELLE d'ARTILLERIE de MER, qui détruirait promptement les Vaisseaux de Haut-Bord, sur la Construction de Navires à Voile et à Vapeur, de Grandeur Modérée, qui armés de cette Artillerie, donneraient une Marine moins Couteuse et plus Puissante que celles Existantes, et sur la Force que le Système de Bouches-à-Feu proposé offrirait à Terre; with 7 *folding plates*, 4to. *sewn* (SCARCE), 15s 1822

Important as one of the first works to advocate the use of a steel armature for warships to protect them against the devastating effect of the author's gun.

- 12901 **PAJOT des CHARMES** (C., *Inspector of Manufactures*) The ART OF BLEACHING PIECE GOODS, Cottons, and Threads of every Description, rendered more Easy and General by means of the OXYGENATED MURIATIC ACID, with the most certain Method of rendering Printed Goods perfectly white and colourless, and of bleaching Silk and Wool; and the DISCOVERIES made by the AUTHOR in the Art of BLEACHING PAPER, translated from the French, with Appendix [by WILLIAM NICHOLSON], with 9 *folding copperplates*, 8vo. boards, *uncut* (rare), 12s 6d 1799

Interesting as an early work describing the chlorine bleaching process, discovered by Berthollet in 1785.

A COMPLETE SERIES TO 1902:

- 12902 **PALÆONTOGRAPHICAL SOCIETY'S PUBLICATIONS**: a complete set from the beginning in 1847 to 1902 (issued to the Members only), with over 2000 *fine plates* by G. B. SOWERBY, etc., containing many thousands of lithographed figures; and woodcuts, 56 vols. 4to. in 57, *original hf. cl., or boards, as issued* (SCARCE), £22. 10s 1847-1902

This valuable work, published for the ILLUSTRATION of BRITISH FOSSIL ORGANIC REMAINS, comprises contributions by Charles Darwin, Sir Richard Owen, Henri Milne-Edwards, Searles V. Wood, Edward Forbes, John Morris, Thomas Bell, William King, Thomas Davidson, Daniel Sharpe, J. W. Salter, John Phillips, Henry Woodward, P. M. Duncan, Sir E. Ray Lankester, W. Boyd Dawkins, H. A. Nicholson, L. C. Miall, and very many others.

- 12903 **PALLADIUM** (THE BRITISH): or ANNUAL MISCELLANY of LITERATURE and SCIENCE, 1770-6, by the Author of the Improved and Perpetual Astronomer and Navigator, with diagrams, 7 vols. 12mo. in 1, *hf. calf* (*binding broken*), 6s

D. Steele, on Little Tower Hill; and R. Carr, Portsmouth, 1770-6

Containing very numerous mathematical problems, which Eighteenth Century amateurs took such remarkable pleasure in solving.

- 12904 **PALLISER** (Lt.-Col. Sir William; *inventor of the Palliser Shot*) TREATISE on COMPOUND ORDNANCE, with 5 *folding plates*, 8vo. cl., with author's *inser. to and auto. of Sir Frederick [Joseph] Bramwell, F.R.S.* (name torn off title, and one plate defective); SCARCE, £1. 1s

for private circulation [1863]

This work, which was unknown to the author's biographer in D. N. B., describes his invention of converting old smooth-bore ordnance into rifled guns by inserting tubes of coiled wrought iron—an inner tube of more ductile and an outer of less ductile metal—in cast-iron guns suitably bored out. 'Guns so treated were found on trial to give excellent results, and the method afforded means of utilizing the large stock of cast-iron smooth-bore ordnance . . . at one-third of the cost of new guns. Some thousands of these 'converted guns' have taken their place in the armament of our fortresses and coast batteries' (D. N. B.)—as built during the invasion-scare in the early 'Sixties.

Only a few copies of this work were privately printed, and it is now very scarce.

- 12905 **PALMER** (Chase; *Chemist to U.S. Geol. Survey*) The GEOCHEMICAL INTERPRETATION of WATER ANALYSES, with map and 4 *folding tables*, 8vo. (pp. 31), *sewn*, 1s 6d Washington, 1911

- 12906 **PALMER** (Major-Gen. Henry Spencer, R.E.) THE ORDNANCE SURVEY of the KINGDOM: its Objects, Mode of Execution, History, and present Condition, 8vo. cl., 2s 1873

- 12907 **PALMIERI** (Luigi, *Univ. Naples*) The ERUPTION of VESUVIUS in 1872, with Notes and Introduction on the present State of Knowledge of TERRESTRIAL VOLCANICITY, and the Cosmical Nature and Relations of Volcanoes and Earthquakes, by ROBERT MALLETT, F.R.S.; with 8 plates, roy. 8vo. cl. (scarce), with auto. of Edward Whymper, 7s 6d 1873

Important for the editor's preface (pp. 78), in which he lays the foundation of his theory of the fracturing and folding origin of the earth's crust. The work also describes the author's seismographic apparatus and his electrometer for atmospheric electricity.

- 12908 — Der AUSBRUCH des VESUVIUS vom 26. APRIL 1872, autorisirte deutsche Ausgabe, besorgt von C. RAMMELSBURG; with 7 plates, 8vo. *sewn*, 1s 6d Berlin, 1872

- 12909 **PANOT** (L., *St. Omer*) COURS sur les ARMES à FEU PORTATIVES, 4^e [dernière] Edition, considérablement augmentée; with 6 *folding plates*, 8vo. *hf. calf gilt* (joints rubbed), 5s 1851

- 12910 **PAPILLON** (Jean Michel, *graveur en bois*) SUPPLÉMENT du TRAITÉ HISTORIQUE et PRATIQUE de la GRAVURE en BOIS, contenant plusieurs Faits Historiques, de Nouvelles Manières, servant à perfectionner cet Art, les Arrêts rendus en Faveur de la Gravure, et une Table des Matières des trois Volumes; with woodcuts of tools and specimens, 8vo. *old calf* (joints cracked); rare, 8s 6d 1766

This supplementary volume (forming vol. III) is rare, and was unknown to Quéard and the *Biographie Générale*.

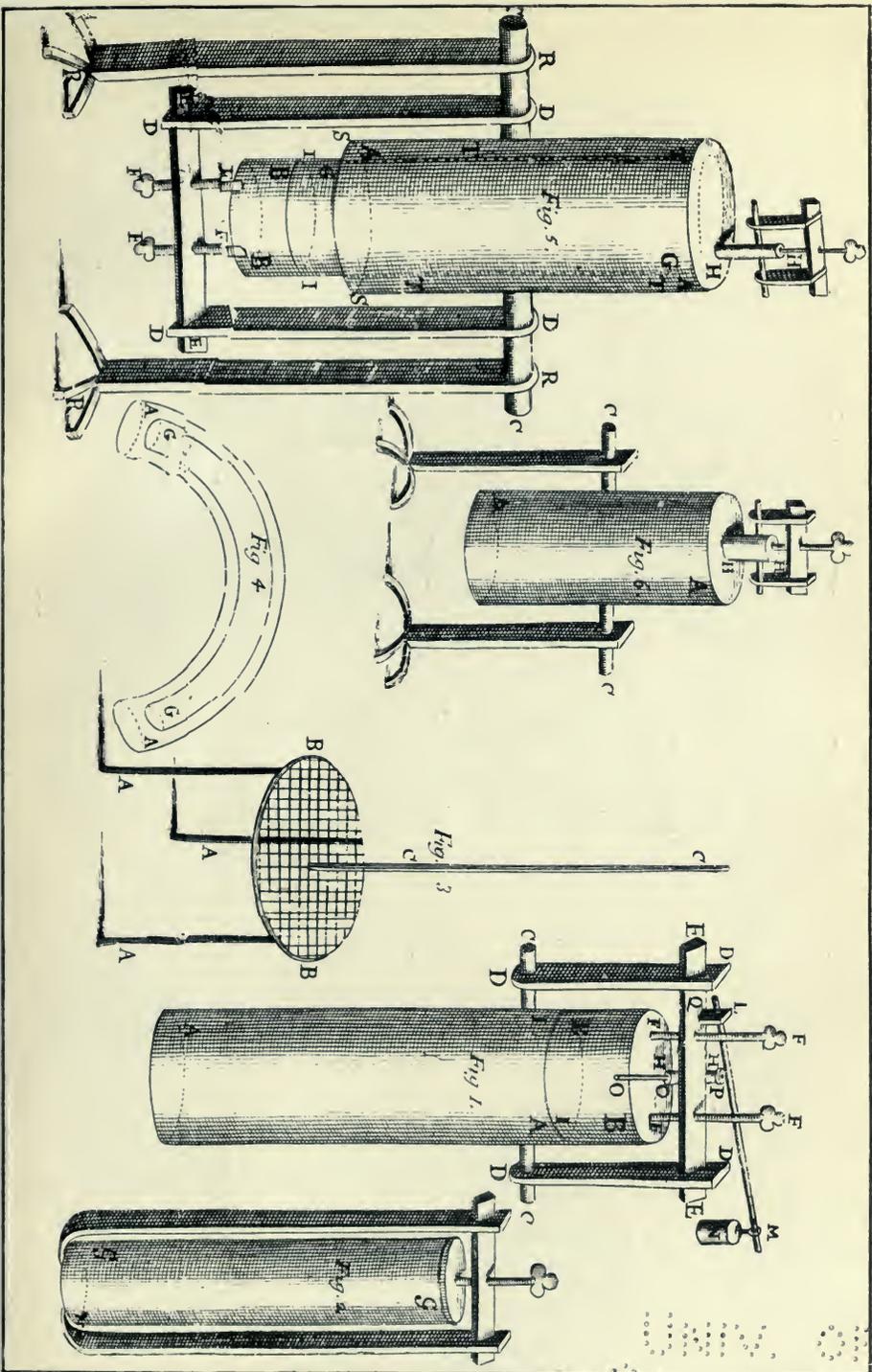
'Ce livre contient beaucoup de renseignements précieux'.—*Biogr. Gén.*

PAPIN'S DIGESTER:

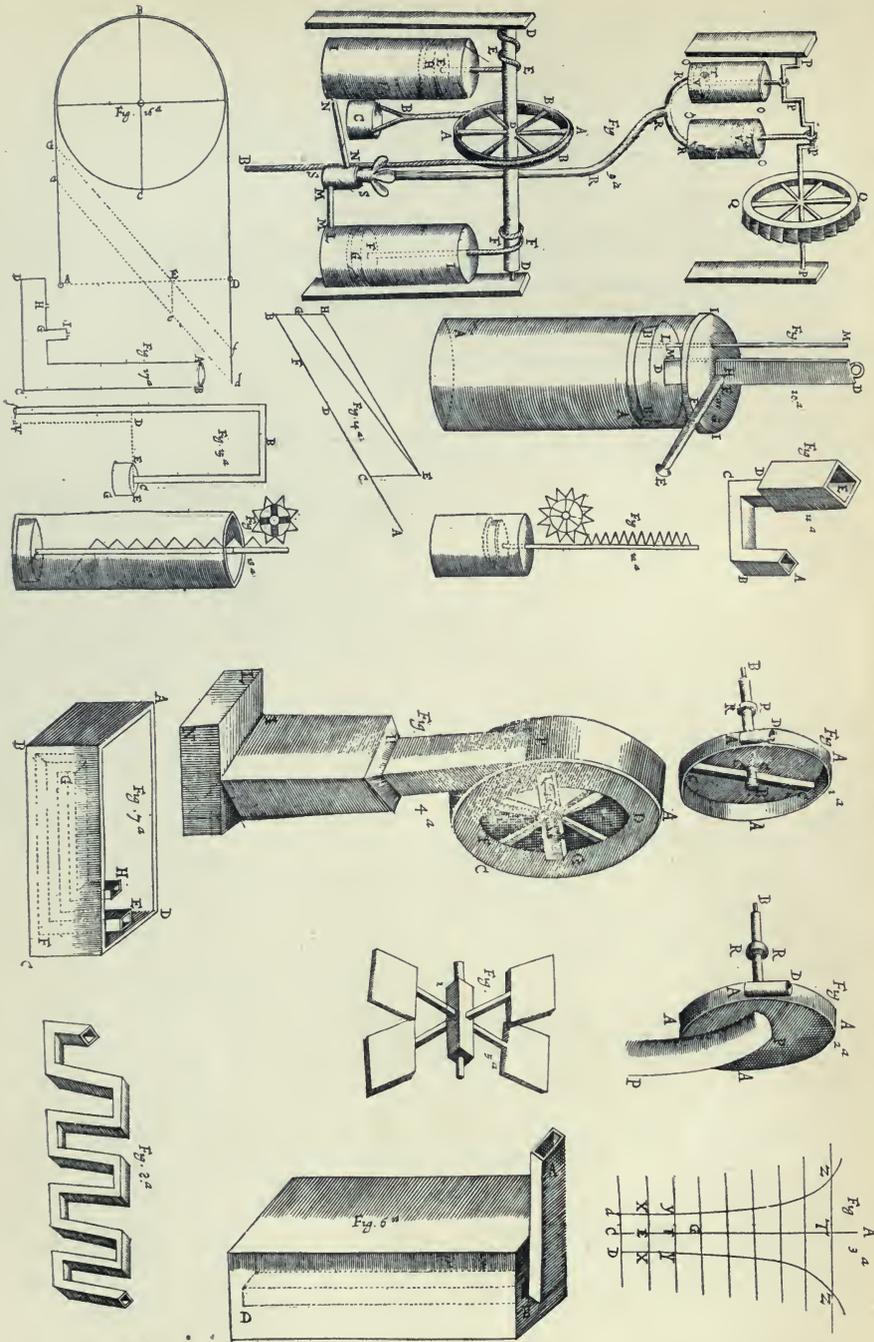
- 12911 **PAPIN** (Denis, M.D.: F.R.S., *assistant to Boyle*) La MANIÈRE d'AMOLIR les Os, et de faire cuire toutes Sortes de Viands en fort peu de Temps, et à peu de Frais, avec une DESCRIPTION de la MACHINE dont il se faut servir pour cet Effet, ses Proprietez, et ses Usages, confirmez par plusieurs Experiences, nouvellement inventé; with 2 *folding plates* (one mended), 16mo. *contemporary calf* (back damaged), VERY RARE, £1. 15s E. Michallet, 1682

This work contains the invention of the steam digester, and, forming part of it, that of the SAFETY VALVE. The latter exerted a great influence on the progress of the steam engine, as it did not form part of the engines constructed before this (e. g. Savery's and the Marquess of Worcester's).

The work was originally published in English, in 1681, as 'The New Digester'. This French edition contains an 'Advis' by CLAUDE COMIERS, in which he describes an improved form of the digester.



No. 12911 (page 644),
Papin's Digester



No. 12932 (page 616).

An important work for the history of the steam engine.

- 12912 [**PACIOLI** (Luca, *hic* Lucas de Burgo Sancti Sepulcri, *Ord. Min.*) *SUMA* de ARITHMETICA GEOMETRIA PROPORTIONI & PROPORTIONALITA, prima edizione; sig. a₁ surrounded by fine woodcut border, also numerous woodcuts and geometrical figures on margin after LEONARDO DA VINCI, besides large woodcut initials (the first containing the AUTHOR'S PORTRAIT), 2 vols. folio in 1, gothic letter; newly and finely bound in hf. brown polished Levant morocco gilt, rough g. c. (29 ll. margined or very neatly mended on margin, and a few ll. slightly soiled; otherwise a very fine and exceptionally tall copy, measuring $12\frac{1}{2} \times 8\frac{1}{2}$ inches); very rare, £11. 11s
[col.:] *Vinegia* . . . Paganino de Paganini da Brescia. M.CCCC.LXLIIIJ [1494]. adi. 10. de nouèbre.
- 12913 ——— ANOTHER COPY, unbound (wanting the first 9 and last 20 ll., partly water-stained, and a few ll. wormed), cheap, £2. 2s
*Certainly the FIRST PRINTED WORK ON ALGEBRA and PROBABLY THE FIRST ON BOOK-KEEPING.—*Prof. de Morgan*. Hain-Copinger, 4105. Proctor 5168.
There is another issue of this edition (a fact not noticed by bibliographers, e.g., Brunet or Graesse), in which the woodcut border is absent, and the fine woodcut initials are replaced by smaller ones.
- 12914 ——— [SECONDA EDIZIONE:] SUMMA de ARITHMETICA, GEOMETRIA, PROPORTIONI, et PROPORTIONALITA, nouamente impressa; with fine woodcut border on title and first leaf of text, and numerous fine woodcut initials (one giving the author's portrait), besides numerous diagrams on margin, folio, gothic letter; boards (last 25 ll. holed, rendering text of last 10 ll. defective; also title margined and guarded); VERY RARE, cheap, £3. 3s
[col.:] per Paganino, in Tusculano sulla riva dil lago Benacense, 1523
The above second edition is as rare as the first, and perhaps preferable to it on account of its typographical execution. The author, perhaps better known as LUCA DI BORO [or BURGO], the name he took on entering religion, was the first to introduce numbers in algebra.
*In the arithmetic Pacioli gives rules for the four simple processes, and a method for extracting square roots. He deals pretty fully with all questions connected with mercantile arithmetic, in which he works out numerous examples, and in particular discusses at great length bills of exchange and the theory of book-keeping by double entry. This part was then the first systematic exposition of algebraic arithmetic. . . . In the algebra he discusses in some detail simple and quadratic equations, and problems on numbers which lead to such equations. He mentions the Arabic classification of cubic equations, but adds that their solution appears to be as impossible as the quadrature of the circle. . . . Though much of the matter described is taken from Leonardo's *Liber Abaci*, yet the notation in which it is expressed is superior to that of Leonardo,* etc. etc. etc.—*W. W. R. Ball*.
*In the mathematical writings of the monk Luca Pacioli symbols began to appear. They consisted merely in abbreviations of Italian words, such as *p* for *pin*, *m* for *meno*, *co* for *cosa*. . . .—*Prof. Lajori*.
*Il y a dans ce grand recueil une méthode fort ingénieuse pour la résolution de plusieurs équations indéterminées du second ou du quatrième degré. . . . On y voit la résolution des équations dérivées du second degré, et celle de certaines équations exponentielles. Dans quelques problèmes relatifs à la règle des partis, le calcul des probabilités se montre pour la première fois. . . . Enfin on y trouve l'application de l'algèbre à la géométrie et une multitude de faits, relatifs à diverses branches des connaissances humaines et fort utiles aux personnes qui veulent étudier l'histoire des sciences. C'est, par exemple, dans un traité de commerce inséré dans cette *Somme*, que l'on trouve pour la première fois la tenue des livres en partie double, etc. etc. etc.—*G. Libri*.
- 12915 **PAGE** (David, F.G.S., *Prof. Geol.*, Durham Coll. of Science) ADVANCED TEXT-BOOK of GEOLOGY [with GLOSSARY (pp. 35)], 4th Edition, enlarged, with numerous woodcuts, cr. 8vo. cl., 3s (p. 7s 6d) 1867
- 12916 ——— FIFTH EDITION, enlarged, with numerous woodcuts, cr. 8vo. (pp. 488), cl., 3s 6d (p. 7s 6d) *Edin.*, 1872
- 12917 **PAGE** (James Morris, *Univ. Va.*) ON THE PRIMITIVE GROUPS OF TRANSFORMATIONS IN SPACE of FOUR DIMENSIONS: Inaugural Dissertation at Leipzig, roy. 4to. (pp. 54), sewn, 3s *Baltimore*, 1888
- 12918 **PAGE** (Thomas, M.I.C.E.) REPORT ON THE SYSTEM OF WEAVING BY COMPRESSED AIR in the PATENT PNEUMATIC LOOM [of CHARLES WEIGHTMAN HARRISON], 4to. (pp. 19), sewn, with author's inscr., 4s 6d *Cambridge*, 1864
- 12919 **PAGE** (Sir Thomas Hyde, R.E.; F.R.S.) ESTIMATE of the EXPENSE for carrying into Execution the PLAN of EMBANKMENT for the IMPROVEMENT of the DRAINAGE of the SOUTH and MIDDLE LEVELS, and other Lands having their Drainage through the RIVER OUSE, and for the Improvement of its Navigation, etc. etc., with folding map, 8vo. (pp. 29), sewn, with marginal MS. notes (? by JOHN RENNIE, F.R.S.), 7s 6d 1794
*He was chief engineer for forming the New Cut from Ean Brink to King's Lynn, a problem of navigation and drainage that has puzzled engineers since the time of Charles I.—*D. N. B.*
- 12920 **PAJOT des CHARMES** (C., *Inspecteur des Manufactures*) L'ART du BLANCHIMENT des TOILES, FILS et COTONS de tout Genre, rendu plus facile et plus général, au Moyen des NOUVELLES DÉCOUVERTES, avec la Méthode de DÉCOLORER et de ramener à un État de Blancher parfait toutes les TOILES PEINTES ou IMPRIMÉES; suivi des Procédés les plus sûrs pour blanchir les Soies et les Laines, et des Découvertes faites par l'Auteur dans l'ART de BLANCHIR les PAPIERS, première édition; with 9 folding copperplates, 8vo. hf. red morocco, by BELZ-NIEDRÉE (rare), 15s 1798
- 12921 ——— [NOUVELLE ÉDITION, corrigée]; with 9 folding copperplates, 8vo. sewn, 10s *An VIII* [1800]
Interesting as an early work describing the chlorine bleaching process, discovered by Berthollet in 1785.
- 12922 **PALMER** (Henry R., M.I.C.E.) DESCRIPTION of a RAILWAY on a NEW PRINCIPLE; with Observations on those hitherto constructed, and TABLE shewing the comparative Amount of RESISTANCE on several now in Use, also an Illustration of a newly observed Fact relating to the Friction of Axles, and Description of an IMPROVED DYNAMOMETER, for ascertaining the Resistance of Floating Vessels and Carriages moving on Roads and Railways; 2nd Edition, revised, with 2 folding plates, 8vo. (pp. 68), sewn (SCARCE), 15s 1824
This was perhaps the first suggestion for a monorail line, as afterwards reduced to practice on the Lartigue system, as on the Listowel and Ballybunion Railway. It was to follow the contour of the country, slightly raised on posts or prestles, the trucks being drawn by a horse walking beside it. One plate gives a general view of the line, and the other constructional details. The resistance tables are compiled from the Cheltenham, Llanelly, and other tramroads of the time. The work is not mentioned by Allibone, nor can anything be traced concerning its author.

- 12924 **PADOVANI** (Giovanni, da Verona) VIRIDARIUM MATHEMATICORUM, in quo omnia ferè, quæ in Rebus Astronomicis desiderari possunt, facillimè pertractantur; adjecta sunt etiam INSTRUMENTA nonnulla ab eo nuper excogitata, quibus brevissimè omnia assequuntur, quæ magno Labore atque assiduis Supplicationibus per Astronomicas Tabulas, ac Astrolabio, aliisque Instrumentis antea habebantur; with woodcuts, sm. 4to. sewn (binding torn off); RARE, 15s
Venetiis, B. Zalterius, 1563
- 'Bella e rara edizione'.—Riccardi. The work is composed of the following chapters: I. De tempore. II. De computo Calendarii. III. De sphaera. IV. De arithmetica. V. De omnifariis sphaerae utilitatibus. VI. De astronomicis instrumentis.
- 12925 **PAMBOUR** (François Marie Guyonneau, Comte de) PRACTICAL TREATISE ON LOCOMOTIVE ENGINES ON RAILWAYS, with Formulæ founded on a great many NEW EXPERIMENTS on the LIVERPOOL and MANCHESTER RAILWAY, with many different Engines and considerable Trains of Carriages; with Appendix, showing the Expense of conveying Goods, by Locomotive Engines, on Railroads, first English edition, with 4 folding copperplates, 8vo. (pp. 384). cl. uncut (SCARCE), with AUTO., SOME VERSES, AND SLIGHT PENCIL SKETCH ON FLYLEAF BY WILLIAM FROUDE, F.R.S., engineer, friend of Brunel, and brother of the historian, £1. 2s 6d 1836
- 12926 ——— ANOTHER COPY, hf. calf gilt, 15s
- FIRST EDITION of the first work published in England on Locomotive Engineering, containing the first extensive investigations on locomotives ever made, which became the basis of all subsequent researches. It gives copious formulæ for air-resistance, curves, fuel consumption, evaporation capacity, rail friction, the relation between speed and load, etc. etc. etc.
- 12927 ——— SECOND EDITION, increased by a great many NEW EXPERIMENTS and RESEARCHES, with 5 folding copperplates, thick 8vo. (pp. 631), cl., with piscatorial bookplates of Buddle Atkinson, 8s 6d 1840
- GEORGE RENNIE'S COPY:
- 12928 ——— ANOTHER COPY, cl., with inscr. to GEORGE RENNIE, C.E., F.R.S., and interesting autograph letter (in English) from the author to Prof. Henry Moseley, F.R.S., Canon of Bristol, mentioning 'that Woolf's engines seem to be quite out of use at present in Cornwall,' 15s
- 12929 ——— THE THEORY of the STEAM ENGINE, showing the Inaccuracy of the Methods in Use for calculating the Effects or the Proportions of Steam Engines, and supplying a Series of PRACTICAL FORMULÆ, etc. etc. etc.; 8vo. cl., 6s 1839
- 12930 ——— THÉORIE des MACHINES à VAPEUR, Ouvrage destiné à prouver l'Inexactitude des Méthodes en Usage pour évaluer les Effets ou les Proportions des Machines à Vapeur, et à y substituer une SÉRIE de FORMULES ANALYTIQUES, etc. etc. avec Appendice pour rendre parfaitement clair et facile l'Usage des Formules, 2^e Édition, augmentée d'un ATLAS, et de la Description des divers Systèmes de Machiues à Vapeur en Usage; with 24 fine plates (mostly double ones), 2 vols. 4to. hf. calf (SCARCE), £1. 5s 1844
- LAST AND BEST EDITION of this valuable work, especially valued for its fine plates, which were not contained in the first edition or the English translation.
- The investigations of the Count de Pamhour on the theory of the steam engine were conducive to the progress of the thermodynamics by pointing out the proper mode of applying mechanical principles to the expansive action of an elastic fluid.—Prof. Rankine, F.R.S.
- M. de Pamhour is unaccountably left out of the *Nouvelle Biographie Général*, 1862, although, living in the midst of the Romantic Period, he was a pioneer of workaday progress in France.
- 12931 **PANAROLO** (Domenico, Romano, filosofo e medico) AEROLOGIA, cioè Discorso dell' Aria. Trattato utile per la Sanità; with etched title, and printer's device on last l.: L'ARIA CELLI-MONTANA; with device on title—2 vols. 18mo. in 1, old vellum, 15s
[col.] Roma, Dom. Marciari, 1642
- RARE, and unknown to Brunet, Graesse, Poggendorff, and others. The first work includes chapters 'del Vento, e che cosa sia'; 'del Numero dei Venti, Sito, e Natura loro'; 'delle Zone, Sito, e Numero di esse'; 'dei Climi, Sito, e Numero d'esse'; etc.
- 12932 **PAPIN** (Denis, Dr. en Med.; F.R.S.; assistant to Robert Boyle) TRAITÉ de plusieurs NOUVELLES MACHINES et INVENTIONS EXTRAORDINAIRES sur différents Sujets; with 3 folding plates, 12mo. contemporary calf gilt (back slightly damaged); very rare, £5. 5s
J. Guignard, 1698
- This copy belonged to J. Eliot Hodgkin, F.S.A., and bears his bookplate, and some MS. additions. According to his authority, the work is 'exceedingly rare, as it is one of the most important books for the history of the Steam Engine. In it is contained the remarkable mention of a high-pressure steam-engine for driving paddles for the propulsion of a vessel, on which is based by French writers the claim of Papin to the invention of the steam-engine.'
- The work is also of great importance for containing Papin's INVENTION of the CENTRIFUGAL PUMP. Added is an interesting account thereon by Mr. Hodgkin, as published in *Engineering* for 1890. It was unknown to Quérard, Poggendorff, *Bioer. Gén.*, and other bibliographers, and is of great rarity.
- 12933 **PAPPIANI** (Alberto, delle Scuole Pie) LA SCIENZA delle GRANDEZZE, dimostrata colle principali Calcolazioni Numeriche, Analitiche, e Geometriche; with 6 folding plates, 4to. contemporary Italian vellum, 10s
Firenze, 1747
- 'Magnifica edizione. L'opera può considerarsi come una enciclopedia della matematica pure, disposta però in modo alquanto intralciato. Sono interessanti le note storiche contenute nella prefazione.'—Riccardi.
- 12934 **PAPWORTH** (John, afterwards John Buonarotti) ESSAY on the CAUSES of DRY ROT in BUILDINGS, with Observations on its CURE, and on the Admission of Air into the Parts of the Buildings affected by that Disease, 4to. (pp. 46), sewn, 4s 1803
- 12935 **PARDIES** (Ignace Gaston, S.J.) ELEMENS de GEOMETRIE, où par une Méthode courte et aisée, l'on peut apprendre . . . les plus belles Inventions des anciens et des nouveaux Géomètres, 4^{me} Edition; with woodcuts: DEUX MACHINES propres à faire les QUADRANS avec tres-grande Facilité, 3^{me} Edition; with 7 folding copperplates—2 vols. 24mo. in 1, old calf (back damaged); RARE, 15s 1683-7
- The second work is rare, and interesting for containing Father Pardies's discovery of two dialling machines, by means of which (according to the preface) 'on peut apprendre, en moins d'une heure, la manière de faire toutes sortes de quadrans, et qu'on peut pratiquer, comme en se jouant, ce qu'on a appris, et faire sur les murailles, et dans les chambres, toutes sortes d'horloges, avec une très-grande facilité.'

- 12937 **PAOLI** (Pietro; *Univ. Pisa*) *NOTA* sngl' INTEGRALI DEFINITI, 4to. (pp. 10), *sewn*, 2s 6d s.l. [c. 1852]
- 12938 **PAPPUS Alexandrinus**: MATHEMATICÆ COLLECTIONES a FREDERICO COMMANDINO in Latinum converse, et Commentariis illustratæ; in hac nostra Editione ab innumeris, quibus scatebant Mendis, et præcipuè in Græco Contextu diligenter vindicatæ [a CAROLO MANOLESSIO]; with *Austrian arms engraved on title, portrait of Leopold Wilhelm Archduke of Austria, by J. Troyen, woodcuts, and numerous diagrams, folio, old calf (some slight water-stains on blank margin, otherwise a fine and tall copy)*, £1. 5s
Bononie, 1660 [in fine 1658]
- 'Best edition of a work indispensable to every mathematician.'—*Libri Catalogue*.
 '... From the Seventh Book, which is the longest and most valuable, is derived a large part of our knowledge of Greek geometry. Many of the writings here analysed are no longer extant, and it is on the indications (e. g. Euclid's *Porisms*) which Pappus gives of the object or the contents of them that the geometers of the 17th and 18th Centuries relied for their restorations of these writings. . . . Several of the books contain important theorems, the discovery of which is probably due to Pappus himself. One of these has been long associated with the name of Guldinus (1577-1643). Some others have received a brilliant development from the mathematicians of modern times.'
 'He discovered the directrix in the conic sections. In mechanics Pappus showed that the centre of a mass of a triangular lamina is the same as that of an inscribed triangular lamina whose vertices divide each of the sides of the original triangle in the same ratio. He also discovered the two theorems on the surface and volume of a solid of revolution which are still quoted in text-books under his name.'—*W. W. R. Ball*.
- 12939 ———: Der SAMMLUNG des PAPPUS von ALEXANDRIEN VII. UND VIII. BUCH; GRIECHISCH UND DEUTSCH, herausgegeben von C. I. GERHARDT; with numerous diagrams, 8vo. *hf. calf gilt*, Halle, 1871
- 12940 **PARACELSUS** (Aureolus Philippus Theophrastus BOMBAST ab HOHENHEIM, *dictus*), The HERMETIC and ALCHEMICAL WRITINGS of, now for the first Time translated faithfully and unabridged; edited, with Notes, copious HERMETIC VOCABULARY, and INDEX, by ARTHUR EDWARD WAITE, printed on specially made antique paper, 2 vols. 4to. *cl., uncut, t. e. g.*, £1. 7s 6d (p. £2. 12s 6d) 1894
- 'Containing the whole and unabridged body of literature attributed to this celebrated adept, treating directly of Alchemy and the transcendental doctrines and physics of the *Magnum Opus*; besides the whole Paracelsian Literature of the Great Elixir and the Universal Medicine, and an exhaustive Catena of Alchemical References scattered throughout his chiralurgical works.'
- 12941 ———: Of the NATURE of THINGS, Nine Books: Of the Generations, Growths, Conservations, Life, Death, Renewing, Transmutations, Separations, Signatures of Natural things [translated by JOHN FRENCH, M.D.], sm. 4to. *unbound (lower corner worn)*; RARE, 18s 6d
Richard Cotes, for Thomas Williams, 1650
- The first book 'Of the generations of Natural things' contains an account of how to generate artificial men (*homunculi*), of the secret poison of the basilisk, and many similar stories of Renaissance superstition.
 'Paracelsus was the man who, in the first half of the XVI. century, opened out new paths for chemistry and medicine by uniting them both. To him is undoubtedly due the merit of freeing chemistry from the restraining fetters of alchemy, by a clear definition of scientific aims. He taught that 'the object of chemistry is not to make gold, but to prepare medicines.'—*Prof. E. v. Meyer*.
- 12942 ———: PARACELSUS his ARCHIDOXIS: comprised in Ten Books, disclosing the Genuine Way of making Quintessences, Arcanums, Magisteries, Elixirs, etc., with his Books of RENOVATION and RESTAURATION, of the TINCTURE of the PHILOSOPHERS, of the Manual of the PHILOSOPHICAL MEDICINAL STONE, of the Virtues of the Members, of the THREE PRINCIPLES, and finally his Seven Books, of the DEGREES and COMPOSITIONS of RECEIPTS, and NATURAL THINGS, faithfully and plainly Englished, and published by J[OHN] H[ESTER], Oxon., 12mo. *hf. bound (somewhat worn and browned)*; RARE, £1. 1s
Thomas Brewster, 1660
- THE FIRST ENGLISH EDITION. It was reprinted in 1661 and 1663.
 The above copy, according to a MS. note in the book, belonged to JAMES GRAHAM, the famous quack doctor (1745-94), who practised in the 'Temple of Health' in the Adelphi, where he attracted large crowds by exhibiting EMMA LYON (afterwards LADY HAMILTON) naked as the Goddess of Health.
- 12943 ———: FERGUSON (John, F.R.S.E., F.S.A.; *Univ. Glasgow*) BIBLIOGRAPHIA PARACELSICA: Contributions towards a Knowledge of Paracelsus and his Writings, PARTS III—V, 3 parts 8vo. *sewn (scarce)*, 8s 6d
Glasgow, 1890-3
- Only 150 copies of this work were privately printed.
- 12944 **PARADISI** (Giovanni Conte) RICERCHE sopra la VIBRAZIONE delle LAMINE ELASTICHE; with 2 folding plates, roy. 4to. *sewn*, 3s 6d
Bologna, 1806
- 12945 **PÂRIS** (Vice-Amiral Edmond, de l'Institut) NOTE sur les NAVIRES CUIRASSÉS; with 3 folding plates, 8vo. (pp. 50), *sewn, with inscr. to George Rennie, C.E., F.R.S.*, 3s 6d 1863
- 12946 ———: TRAITÉ de l'HÉLICE PROPULSIVE, publié sous les Auspices du Ministère de la Marine et des Colonies; with coloured front. of the S.S. Himalaya, and 15 folding plates, woodcuts, and foldina tables, impl. 8vo. *sewn, with auto. of George Rennie, C.E., F.R.S.*, 8s 6d 1855
- The first part (pp. 1-271) consists of a translation of John Bourne's 'Treatise on the Screw Propeller.'
- 12947 [PARIS (John Ayrton, M.D., F.R.S., P.R.C.P.)] PHILOSOPHY in SPORT made SCIENCE in EARNEST: an Attempt to illustrate the First Principles of Natural Philosophy by the Aid of Popular Toys and Sports, 5th Edition; with considerable Additions, with numerous characteristic woodcuts by GEORGE CRUIKSHANK (good impressions), and diagrams, fcap. 8vo. *cl., uncut (scarce)*, 7s 6d 1842
- 12948 [———] SIXTH EDITION, with considerable Additions, with all the woodcuts by GEORGE CRUIKSHANK, and diagrams, fcap. 8vo. *cl.*, 5s 1846
- This edition is dedicated to Faraday.
- 12949 ———: NINTH [LAST] EDITION, with frontispiece, all GEORGE CRUIKSHANK'S woodcuts, and diagrams, cr. 8vo. *cl.*, 5s 1861
- This edition contains four additional chapters.
 The illustrations to this long popular book, with those to PETTIGREW'S 'Egyptian Mummies,' represent George Cruikshank in the unusual rôle of a scientific illustrator.
- 12950 **PARKHURST** (Henry M.) NOTES on VARIABLE STARS, roy. 4to. (pp. 8), *sewn*, 1s 6d
Boston [Mass.], 1901

- 12952 **PARK** (James, F.G.S., *Univ. Otago*) The GEOLOGY of the CROMWELL SUBDIVISION, WESTERN OTAGO DIVISION, NEW ZEALAND, with 21 plates (2 folding), 16 coloured maps and geological sections (8 folding), and 48 woodcuts, 4to. sewn, 2s 6d
 Wellington, N.Z., 1908
- 12953 ——— The GEOLOGY of NEW ZEALAND: an Introduction to its Historical, Structural, and Economic Geology, with 27 plates, 145 woodcuts, and coloured geological map, 8vo. cl., 7s (p. 10s 6d nett)
 Christchurch, N.Z., 1910
- 12954 ——— TEXT-BOOK of MINING GEOLOGY, with 3 plates and 78 other illustrations, cr. 8vo. cl., 3s 6d (p. 6s)
 1906
- 12955 **PARKER** (Edward Wheeler), Joseph Austin **HOLMES**, and Marius Robison **CAMPBELL**: PRELIMINARY REPORT on the OPERATIONS of the COAL-TESTING PLANT of the U.S. GEOLOGICAL SURVEY at the Louisiana Purchase Exposition, St. Louis, Mo., 1904, with 2 folding tables, 8vo. sewn, 3s
 Washington, 1905
- 12956 **PARKER** (J., *St. John's Coll., Cantab.*) ELEMENTARY THERMODYNAMICS, numerous diagrams, cr. 8vo. (pp. 416), cl., 3s 6d (p. 9s)
 Univ. Press, Cambridge, 1891
 Including Conservation of Energy (pp. 1-80); On Perfect Cases (pp. 81-103); Carnot's Principle and its Applications (pp. 104-324); and Thermodynamic Potential and its Applications (pp. 325-405).
- 12957 ——— SUPPLEMENTARY VOLUME to THERMODYNAMICS treated with ELEMENTARY MATHEMATICS: Applications to Animal and Vegetable Life, Tidal Friction, and Electricity, with 21 diagrams, cr. 8vo. cl., 3s (p. 6s)
 1896
- 12958 **PARKER** (Thomas Netherson) ESSAY, or PRACTICAL ENQUIRY concerning the HANGING and FASTENING of GATES and WICKETS, with 4 plates, 8vo. sewn, 5s
 1801
- 12959 **PARKES** (S. H., F.R.A.S.) UNFINISHED WORLDS: a Study in Astronomy, with 10 plates, cr. 8vo. cl., with inscr. to Dr. Dallinger, F.R.S., 3s
 1857
- 12960 ——— SECOND EDITION, with 10 plates, 8vo. cl., 3s
 1888
- 12961 **PARKES** (Samuel, *manufacturing chemist*) The CHEMICAL CATECHISM, with Notes, Illustrations, and Experiments, 3rd Edition, containing the New Discoveries and other very considerable Additions, with plate etched on glass, and vignette, thick 8vo. hf. calf (slightly soiled), 5s
 [1808]
- 12962 ——— SIXTH EDITION, with considerable Additions, with folding front., thick 8vo. old calf (joints cracked), 3s 6d
 1314
- 12963 ——— NINTH EDITION, carefully corrected, and adapted to the present State of Chemical Science, with 2 plates of apparatus, thick 8vo. boards, uncut, or, hf. roan (damaged), 4s 6d
 1819
 All the above editions contain a chapter on Caloric, in which the author, in spite of the investigations of Count Rumford, Scheele, and Sir John Leslie, still treats heat as a specific substance.
- 12964 ——— NEW EDITION [entitled: CATECHISM of CHEMISTRY], revised throughout, and considerably enlarged, by WILLIAM BARKER, with woodcuts, post 8vo. cl., 3s 6d
 1837
 'His manuals of chemistry brought him much repute and honours from learned societies. The *Chemical Catechism*, the most popular of the author's works, went through numerous editions. When it was translated into Russian, the Emperor of Russia sent him a valuable ring.'—D.N.B.
- 12965 ——— CHEMISCHER KATECHISMUS, mit Noten, Erläuterungen und Anleitung zu Versuchen, 2. vermehrte Auflage; with 2 copperplates, thick 8vo. boards, 2s 6d
 Weimar, 1820
- 12966 ——— CHEMICAL ESSAYS, principally relating to the Arts and Manufactures of the British Dominions; 3rd Edition, enlarged by JOSEPH WAINWRIGHT HODGETTS, with 14 plates, thick 8vo. hf. calf, 4s
 1830
 Including glass manufacture, calico-printing, bleaching, etc. etc. The editor, the author's son-in-law, lost his life at an explosion in chemical works in Manchester.
- 12967 **PARKIN** (G.) A METHOD for CASTING of TONNAGE and the LOAD DRAUGHT of WATER for SHIPS of WAR, etc., a neatly written Manuscript on 38 pages, impl. 8vo. sewn, 7s 6d [c. 1800]
 Among the warships described is Nelson's flag-ship, the *Victory*.
- 12968 **PARKIN** (Thomas) A LETTER, on IMPORTANT MATTERS, addressed to the PROPRIETORS of the LONDON and BIRMINGHAM RAILWAY, with DR. BIRKBECK'S and PROF. BARLOW'S OPINION on Mr. Parkin's Patent Railway Invention; and [sic] which will interest the Proprietors of all Railways yet to be made, with folding plate, post 8vo. (pp. 24), sewn, with inscr. to George Rennie C.E., F.R.S. (SCARCE), 10s
 1836
 An attempt to overcome the intolerable bumps due to the original inelastic permanent way laid on granite blocks, by a continuous compound sleeper laid on blocks of clinker. Though ingenious, it was very much more complicated than Brunel's longitudinal road, and never came into use.
- 12969 **PARKINSON** (Richard Marion, A.M.I.C.E.) LIGHT RAILWAY CONSTRUCTION, with 85 diagrams and 8 ll. of squared paper, roy. 8vo. buckram, 6s (p. 10s 6d nett)
 1902
- 12970 **PARKINSON** (Thomas, *Archdeacon of Leicester*; F.R.S.) SYSTEM of MECHANICS, with 24 folding plates, 4to. sewn, uncut, 8s 6d
 Cambridge, 1785
 This copy belonged to RICHARD WATSON, F.R.S., absentee Bp. of Llandaff (1737-1816), and has his Calgarth Park book-label, as well as the inscription 'The Bishop of Landaff.'
- 12971 ——— SYSTEM of MECHANICS and HYDROSTATICS, with 34 folding copperplates, 4to. old calf gilt, 10s
 ibidem, 1789
- A reprint of the foregoing work, with a section on hydrostatics (pp. 192) added.
- 12972 **PARNELL** (Edward Andrew) APPLIED CHEMISTRY; in Manufactures, Arts, and Domestic Economy (Gas Illumination: Preservation of Wood: Dyeing and Calico-Printing: Glass Manufacture: Starch, Tanning, and the Caoutchouc, Borax, Soap, Sulphur and Sulphuric Acid, and Soda Manufacture), with numerous woodcuts, and 22 specimens of printed calico, 2 vols. 8vo. cl. (damaged), 8s 6d
 1844
- 12973 ——— DYEING and CALICO-PRINTING, with 41 illustrations, and 23 specimens of printed calico, 8vo. cl., with auto. of W. J. Russell, F.R.S., 6s 6d
 1849
 'In many parts of the article on Calico-printing I have derived material assistance from my esteemed friend Mr. [JOHN] MERCER [F.R.S.], of the Oakenshaw print-works, near Blackburn.'—Preface.

- 12975 **PARR** (George Dudley Aspinall; *Univ. Leeds*) PRACTICAL ELECTRICAL TESTING, in Physics and Electrical Engineering, with 231 illustrations, 8vo. cl., 4s (p. 8s 6d) 1901
- 12976 **PARR** (Samuel Wilson, *Univ. Illinois*) THE COALS OF ILLINOIS: their Composition and Analysis, with 10 illustrations, impl. 8vo. (pp. 40), sewn, 1s 6d *Urbana, 1904*
- 12977 **PARRY** (Ernest John, F.I.C.) CHEMISTRY OF ESSENTIAL OILS AND ARTIFICIAL PERFUMES, with 20 woodcuts, 8vo. cl., 8s (p. 12s 6d nett) 1899
- 12978 **PARRY** (John, F.C.S., *Ebbw Vale Iron and Steel Co.*) ON THE SPECTRA OF THE GASES AND VAPOURS evolved on HEATING IRON and other METALS, with 15 photographic plates, containing several hundred spectra, 8vo. cl. (SCARCE), 15s *privately printed, Pontypool, 1885*
- 12979 **PARRY** (Rear-Adml. Sir William Edward), Commr. Henry FOSTER, R.N., F.R.S., and Rear-Adml. Sir James Clark ROSS, F.R.S.; *Arctic explorers*: OBSERVATIONS to determine the Amount of ATMOSPHERICAL REFRACTION at PORT BOWEN, 1824-5, 4to. (pp. 27), sewn, 3s 6d 1826
Captain Foster was astronomer to Admiral Parry's Polar expeditions, and was afterwards drowned in the river Chagres while measuring the Isthmus of Panama.
- 12980 **PARSELL** Jr. (Henry V. A., M.A.I.E.E.), and Arthur J. WEED, M.E.: GAS ENGINE: CONSTRUCTION: a Practical Treatise, describing the Theory and Principles of the Action of Gas-Engines of various Types, and the Design and Construction of a Half Horse Power Engine, with 140 illustrations, roy. 8vo. cl., 5s (p. 10s 6d nett) 1900
Pp. 285-92 contain an Annotated Bibliography.
- 12981 **PARSEY** (Arthur; *miniaturist*) THE QUADRATURE OF THE CIRCLE DISCOVERED. Submitted to the Consideration of the Royal Society, on whose Protection the Author humbly throws himself, with folding plate, 8vo. (pp. 24), sewn (*rare*), with author's inscr., 7s 6d *printed for the author, 1852*
- 'In July 1831, reading an article on squaring the circle, and finding there was a difficulty, he set to work, got a light denied to all the mathematicians in—some would say through—a crack, and advertised in the *Times* that he had done the trick. He then prepared this work, in which, those who read it will see how, he showed that 3.14159 . . . should be 3.0625.'—*Prof. de Morgan*. The author also distinguished himself as a paradoxer on perspective.
- 12982 **PARSHALL** (Horace F., M.I.C.E.), and Henry Metcalf HOBART, M.I.E.E.: ARMATURE WINDINGS OF ELECTRIC MACHINES [with ARMATURE WINDING TABLES (pp. 80)], 129 full-page and other illustrations, 4to. cl., 8s 6d (p. £1. 16s) *New York, 1895*
- 12983 **PARSLOE** (Joseph) OUR RAILWAYS: Sketches Historical and Descriptive, with Practical Information as to Fares and Rates, etc., and a Chapter on Railway Reform, cr. 8vo. *hf. brown morocco*, 2s (p. 6s in cl.) 1878
- 12984 **PARSONS** (John), and Thomas WASTELL: CLAVIS ARITHMETICÆ: or a Key to Arithmetick in Numbers and Species; wherein Arithmetick and Algebra are Abridged, Demonstrated and made Easie, in their several Fundamentals and Consequents, collated from the most Authentic Authors, with many Improvements and Useful Theorems, not hitherto Extant, with 3 copperplates, 12mo. sound copy in old calf (*joints cracked*); RARE, 8s 6d
R. Mount and T. Page, at the Postern on Tower Hill, 1703
- 'The old system of division is rather recommended. There is a very neat work on algebra at the end.'—*Prof. de Morgan*. The number of old mathematical books printed on and about Tower Hill was doubtless due to the number of master-mariners lodging round about the shipping in the Pool.
- 12985 **PARTINGTON** (Charles Frederick) THE BUILDER'S COMPLETE GUIDE: comprehending the Theory and Practice of Architecture, Bricklaying, Masonry, Carpentry, Joinery, Painting, Plumbing, etc. etc.; with 5 copperplates, besides woodcuts, 8vo. boards, 3s 1825
- 12986 ——— COURSE OF LECTURES ON THE STEAM ENGINE, with 17 plates (*some folding*), 12mo. boards, uncut (*rare*), 12s 1826
Valuable for containing a reprint of a very rare work: A Description and Draught of a new-invented Machine for carrying Vessels or Ships out of, or into any Harbour, Port, or River, against Wind and Tide, or in a Calm, by JONATHAN HULLS, 1737, with copperplate by J. Shury, illustrating Hull's steam boat.
- 12987 ——— HISTORICAL and DESCRIPTIVE ACCOUNT OF THE STEAM ENGINE, comprising the various Modes of employing Elastic Vapour as a Prime Mover in Mechanics; with Appendix of PATENTS and PARLIAMENTARY PAPERS, with 8 fine folding plates on copper of historic engines, besides woodcuts, 8vo. *hf. calf (rubbed)*, 6s 1822
- 12988 ——— ANOTHER COPY, *hf. calf, with auto.* 'George Rennie, Royal Mint', 7s
Containing a bibliography on the subject from 1629 to 1822. This first edition gives one of the earliest accounts of locomotive engines and steam navigation.
- 12989 ——— THIRD [LAST] EDITION, enlarged [entitled: POPULAR and DESCRIPTIVE ACCOUNT OF THE STEAM ENGINE . . . and of STEAM NAVIGATION], with 9 folding copperplates, besides woodcuts, 8vo. *hf. calf gilt, with auto. of GEORGE RENNIE, C.E., F.R.S., on title (scarce)*, 10s 6d 1838
This edition contains besides additions to the text four new appendices, viz.: Steam Boats: Evidence of the Commons' Committee on Steam Packets: ——— on Steam Carriages: Description of a Steam Indicator.
- 12990 ——— MANUAL OF NATURAL and EXPERIMENTAL PHILOSOPHY, with 4 copperplates, and 270 woodcuts, 8vo. cl. (*cover soiled*), 4s [1828]
- 12991 ——— THE MECHANICS' LIBRARY, or Book of Trades; comprehending Architecture, Carpentry, Joinery, Bricklaying, Plastering, Masonry, Brickmaking, Painting, Glazing, Plumbing, Clock and Watch Making, Coach-Making, Printing, Engraving, and Shipbuilding, with 9 plates, besides woodcuts, 8vo. (pp. 736), cl., 5s [1825]
- 12992 ——— THE SHIP-BUILDERS' COMPLETE GUIDE; comprehending the Theory and Practice of Naval Architecture, with its Modern Improvements, with 3 plates, and numerous woodcuts, 8vo. sewn, 5s 1826
Containing a full account of the inventions and improvements in naval architecture by the great Admiralty designer SIR ROBERT SEPPINGS, F.R.S.
- 12993 **PARTINGTON** (J. Riddick, *Univ. Manchester*) HIGHER MATHEMATICS for CHEMICAL STUDENTS, with 44 diagrams, cr. 8vo. cl., 3s (p. 5s) [1911]

12995 **PARTRIDGE (Seth)** The DESCRIPTION and Use of an INSTRUMENT, called the DOUBLE SCALE of PROPORTION, by which Instrument, all Questions in Arithmetick, Geometry, Trigonometry, Astronomy, Geography, Navigation, Fortification, Gunnery, Gaging Vessels, Dialling, may be most accurately and speedily performed, without the Assistance of either Pen or Compasses, with 2 plates, large 12mo. *old sheep (title soiled and slightly damaged and corner of one l. torn off)*; RARE, 15s
Richard Mount, 1692

One of the earliest works on the sliding rule—a subject curiously neglected in Cantor's *Vorlesungen üb. Gesch. d. Mathematik*. Seemingly only Gunter's was previous to the author's in date; but it differs however considerably from it. Partridge was also the first to publish a work on logarithms in English.

12996 **PASCAL (Blaise)** ŒUVRES COMPLÈTES [avec sa VIE par MME. PÉRIER (GILBERTE PASCAL)]; with 136 woodcuts and diagrams, 3 vols. post 8vo. *hf. roan, uncut, 6s 6d* 1864-5
Vol. III consists of Pascal's physical and mathematical writings.

12997 ———: TRAITÉ du TRIANGLE ARITHMÉTIQUE, avec quelques autres Petits Traitez sur la mesme Matière, par MONSIEUR PASCAL, première édition; with folding plate of the triangle, 4to. *contemporary limp vellum (some ll. browned as usual, otherwise a LARGE AND FINE COPY)*, with AUTOS. of J. J. DORTOUS DE MAIRAN (1678-1771) on title, and of PIERRE PREVOST on flyleaf, also woodcut bookplate of GABRIEL CRAMER, F.R.S. (1704-52); very rare, £3. 15s
Guillaume Desprez, 1665

Containing the account of Pascal's arithmetical triangle, of which he made important use by applying it to the theory of probabilities, and also of importance in connexion with the method of indivisibles, the forerunner of the calculus. It comprises the following treatises:—*Traité du Triangle Arithmétique*: Diverses usages du Triangle Arithmétique, dont le Generateur est l'Unité; Usages du Triangle Arithmétique, pour determiner les Partis qu'on doit faire entre deux Jōueurs qui jōient en plusieurs Parties: — pour trouver les Puissances des Binomes et Apotomes; *Traité des Ordres Numeriques*: De Numericis Ordinibus Tractatus: De Numerorum Continnoorum Productis: Numericarum Potestatum Generalis Resolutio; Combinations: Potestatum Numericarum Summa: De Numeris Multiplicibus, ex sola Caracterum Numerorum Additione agnoscendis.

'Le traité *Potestatum numericarum summa* contient la solution générale et complète de la question si capitale, dans la méthode des indivisibles, d'exprimer la somme des puissances semblables et entières d'une suite de nombres en progression arithmétique. Le procédé de Pascal n'est, du reste, pas inférieur à celui que nous employons aujourd'hui.'—*M. Marie*.

12998 **PASCAL (Ernesto, Univ. Pavia)** REPERTORIO di MATEMATICHE SUPERIORI (Definizioni, Formole, Teoremi, Cenni Bibliografici); 2 vols. thick 16mo. *cl.*, with bookplate by Gordon Browne of Dr. Emil Reich, 8s 6d
Milano, 1898-1900

A standard work of well-known excellence.

12999 **PASCOLI (Leone, hic Leone)** IL TEVERE NAVIGATO, e NAVIGABILE, in cui si prova con Autorità evidenti, e non sospette che ne' Tempi Passati sin da sua Scaturigine si navigava . . . con tre Discorsi: Due delle CAUSE delle di lui INNONDAZIONI, e dei Rimedj loro; e l'altro de' Rimedj dell' Innondazioni della Chiana, ecc., 4to. *contemporary vellum, 8s 6d* Roma, 1740
Raro. Un giudizio di quest' opera si ha nelle *Nov. Lett. di Firenze*, 1741.—Riccardi.

13000 **[PESI] [ò PAXI] (Anton Bartolomeo di, da Venezia)** TARIFFA de PESI e MISURE, prima edizione; with large woodcut on title, sm. 4to. *contemporary limp vellum (some ll. slightly water-stained, and back of binding damaged, otherwise a FINE AND VERY LARGE COPY)*; very rare, £4. 14s 6d
[in fine:] Stampado in uenesia per Albertin da lisona uercellese regnante linclyto principe miser Leonardo loreddano, 1503

First edition of this work, which was reprinted in 1521, 1540, and 1557, and of extreme rarity. Riccardi, who gives a wrong collation, only quotes one copy, that in the Biblioteca Marciana. There was only the edition of 1557 in the Libri Collection. The work was quite unknown to Prof. de Morgan.

'Per i raggugli contenuti in questa operetta fra i pesi e misure dei diversi paesi, essa può classificarsi fra le tavole di ragguglio d'aritmética pratica, di maggior interesse per la storia del commercio.'—Riccardi.

13001 **PASLEY (General Sir Charles William, R.E., F.R.S.)** COMPLETE COURSE OF PRACTICAL GEOMETRY, including Conic Sections, and Plan Drawing; treated on a Principle of peculiar Perspicuity; 2nd Edition, much enlarged, with diagrams, thick 8vo. *cl.*, 5s 1822

'An elaborate treatise, enabling the non-commissioned officers to teach themselves and their men without the assistance of mathematical masters, and to go through their course of geometry in the same manner as their company drills or their small-arms exercises.'—*Col. R. H. Vetch, R.E.*

13002 ——— COURSE OF ELEMENTARY FORTIFICATION, including Rules, deduced from Experiment, for determining the Strength of Revetments, treated on a Principle of peculiar Perspicuity; 2nd Edition, with 5 folding plates and numerous other illustrations, 2 vols. 8vo. *hf. calf (one joint cracked)*, with author's *inscr. in v. II*, 5s 1822

'A complete treatise, including the principles of the science and rules for construction, many of which apply to civil as well as military works.'—*Col. Vetch, R.E.*

13003 ——— OBSERVATIONS on LIMES, CALCAREOUS CEMENTS, MORTARS, STUCCOS, and CONCRETE, and on PUZZOLANAS, Natural and Artificial, with Rules deduced from numerous Experiments for making an ARTIFICIAL WATER CEMENT, equal to the best Natural Cements of England, improperly termed Roman Cements, and Abstracts of Opinions of former Authors, with woodcuts, 8vo. *cl.*, uncut (cover damaged), 6s 6d 1838

It contains several discoveries, the result of experiments at Chatham, and led at once to the manufacture in large quantities of artificial cements, such as Portland, patent lithic, and blue lias.'—*D. N. B.*

13004 ——— RULES, chiefly deduced from Experiment, for Conducting the PRACTICAL OPERATIONS of a SIEGE, with numerous woodcuts, 2 vols. 8vo. *unbound (scarce)*, 8s 6d Chatham, 1829-32

'Still an authority, and the best text-book at the time that had been written in any language on that subject. Every operation of the siege was treated as a separate study, and it exposed various mistakes into which French and German authors had fallen.'—*Col. Vetch, R.E.*

13005 **PASSOT (Félix)** TURBINE PASSOT, NOUVELLE ROUE HYDRAULIQUE approuvée par l'Académie Royale des Sciences, sur le Rapport de MM. Arago et Coriolis Rapporteur; Exposition de son Principe et de ses Propriétés; with 2 plates, 4to. (pp. 59), sewn (very scarce), 12s 6d 1839

The author claims to have invented a turbine on a new principle, superior to that of Benoit Fourmeyron 'puisque'il peut rejeter le fluide avec une vitesse presque nulle, et sans qu'il y ait de perte sensible de force vive dans l'intérieur' (*G. G. Coriolis*).

- 13006 **PASSON (Max)** KLEINES HANDWÖRTERBUCH der AGRIKULTURCHEMIE; with 305 illustrations, 2 vols. large 8vo. sewn, 12s (p. M. 22) Leipzig, 1910
- 13007 **PASTEUR (Louis, de l'Institut; F.R.S.)** ÉTUDES sur la BIÈRE: ses Maladies, Causes qui les provoquent, Procédé pour la rendre inaltérable; avec une THÉORIE nouvelle de la FERMENTATION; with 12 plates, and 85 woodcuts, 8vo. new hf. brown calf gilt (fine copy); SCARCE, £2. 5s 1876
- 13008 ——— ANOTHER COPY, newly and handsomely bound in hf. polished crimson morocco gilt, art-linen sides, uncut, t. e. g. (FINE COPY), £2. 10s
- The only edition published of this important work, which created the chemistry and bacteriology of brewing. It contains Pasteur's theory of vital fermentation, which has now quite superseded the contact theory of Berzelius and Mitscherlich, as well as the mechanical one of Liebig.
- 13009 ——— STUDIES on FERMENTATION: the DISEASES of BEER, their Causes, and the Means of preventing them, translated, with Notes, Index, and original Illustrations, by FRANK FAULKNER and D. CONSTABLE ROBB, with 12 plates and 85 woodcuts, 8vo. cl., uncut (SCARCE), 16s 6d 1879
- The authorized translation of the 'Études sur la Bière,' containing many notes and additions by the editors.
- 13010 ——— ÉTUDES sur la MALADIE des VERS à SOIE: Moyen Pratique Assuré de la combattre et d'en prévenir le Retour; with numerous plates (many COLOURED), and other illustrations, 2 vols. 8vo. in 1, newly and handsomely bound in hf. polished crimson morocco gilt, art-linen sides, uncut, t. e. g. (FINE COPY); SCARCE, £2. 12s 6d 1870
- 13011 ——— TOME Ier: La PÉBRINE et la FLACHERIE; with numerous plates (many coloured), and other illustrations, large 8vo. sewn, £1. 1s 1870
- 13012 ——— ÉTUDES sur le VIN: ses Maladies, Causes qui les provoquent, PROCÉDÉS NOUVEAUX pour le CONSERVER et le VIEILLIR, 2^e [DERNIÈRE] ÉDITION, revue et augmentée; with 32 fine COLOURED PLATES and 25 woodcuts, large 8vo. newly and handsomely bound in hf. polished crimson morocco gilt, art-linen sides, uncut, t. e. g. (VERY SCARCE), £3. 15s 1875
- This important work describes the author's discovery of preserving wine by heating it to 45°–50° C. This process of partial sterilization, now known as Pasteurization, was afterwards employed by its inventor in connexion with wine, beer, milk, cream, etc.
- 13013 ———: FRANKLAND (Percy Faraday, F.R.S., Univ. Birmingham, and Grace C.) PASTEUR, with 2 portraits and fs. letter, cr. 8vo. cl. (o. p.), 3s 6d 1898
- 13014 ———: [VALLERY-RADOT (René)] M. PASTEUR: Histoire d'un Savant par un Ignorant, 9^e Edition, augmentée d'un Chapitre sur la RAGE, cr. 8vo. sewn, 2s 6d s. d.
- 13015 ———: [—] LOUIS PASTEUR: his LIFE and LABOURS, by his SON-IN-LAW, translated by LADY CLAUD HAMILTON [with Preface (pp. 32) by JOHN TYNDALL, F.R.S.], cr. 8vo. cl. (scarce), 7s 6d 1885
- 13016 **PATÉ (Capitaine Edouard)** NOTICE sur la PLANCHETTE PHOTOGRAPHIQUE de M. AUGUSTE CHEVALIER, avec l'Indication des Méthodes connues de Topographie qui s'appliquent à cet Appareil; with photo-frontispiece, and 2 diagrams, 8vo. (pp. 31), sewn (scarce), 4s 6d 1862
- The photographic camera applied to surveying.
- 13017 **PATENT JOURNAL (The)**, and INVENTORS' MAGAZINE, edited by CHARLES BARLOW, and PHILIP LE CAPELAIN, VOLS. I and II (from May 30, 1846 to May 22, 1847), with 2 folding plates, and numerous woodcuts, 2 vols. 8vo. hf. calf, and cl., 7s 6d [1846-7]
- 13018 **PATENTS**: INDEX of all PATENTS GRANTED in ENGLAND, from 1815 to 1845 inclusive: an Appendix to the General Index of the Repertory of Arts etc., 8vo. cl., 5s 1849
- 13019 **PATERSON (James, F.G.S.)** NOTES on the LITHOLOGY of GAS COALS, with List of Commercial Analyses [3rd Edition], impl. 8vo. cl. boards, 2s 1887
- 13020 **PATHWAY (The)** to KNOWLEDGE, containing certain briefe TABLES of ENGLISH WAIGHTS, and MEASURES, with the proportions, kinds, and numbers belonging properly onto the same. How to CAST ACCOMPT with Counters, and with Pen, both in whole and broken numbers. With the Rules of the Cossicke, Surd, Binomically, and Residual Numbers, and the Rule of Equation, or of ALGEBERE, with diuers examples for the working of the same. Whereunto is annexed a most excellent Invention of JULIUS CÆSAR PATAVINUS, for the buying and selling of all kinde of Merchandise. And lastly the ORDER of KEEPING of a MARCHANTS BOOKE, after the ITALIAN MANNER, by Debitor and Creditor, with an Instruction to lead you to the same. . . . Written in Dutch and now translated into English, by W. P., printed in black lette; with diagrams and woodcut ornaments, sm. 4to. unbound (title torn and soiled, and some ll. soiled and water-stained, but a LARGE AND PERFECT COPY); excessively rare, £8. 15s printed for William Barley, and are to be sold at his shop at the upper end of Gratiouse street, 159⁶
- A work of great rarity, no copy of which has been sold at auction during the last 25 years; nor is it included in the British Museum Catalogue of Early English Books. It consists of signatures A and A—F in fours, and one sheet in sixes between signatures 16 and C.
- It is also one of the earliest English works on bookkeeping.
- "This work has escaped the notice of Ames, and was perhaps confounded with the geometrical work of the same name by Records [v. No. 3911 ante]. The English translator's preface, giving an account of the existing weights and measures, is the most complete thing there is of the day."—Prof. de Morgan.
- 13021 **PATTERSON (Thomas Stewart), and Elizabeth Findlay STEVENSON**: THE INFLUENCE of SOLVENTS on the ROTATION of OPTICALLY ACTIVE COMPOUNDS. Part XVI. The Relationship between the Chemical Constitution and the Influence of a Solvent, with diagrams. 8vo. (pp. 19), sewn, 1s 6d 1910
- 13022 **PAUL (Benjamin Horatio; F.C.S.)** On LIQUID FUEL [with SUPPLEMENT], 8vo. (pp. 36), sewn, with author's inscr., 2s 6d 1868
- Interesting as an early anticipation of the use of petroleum instead of coal for use in steam vessels.
- 13023 ——— REPORT of the RESULTS of PHYSICAL and CHEMICAL INVESTIGATION, and of the Applications of Physics, and Chemistry in the Arts, with diagram, 8vo. (pp. 8), sewn, 1s 6d 1856
- 13024 **PAZIENTI (Antonio)** CONSIDERAZIONI GENERALI intorno alla TERMODINAMICA, 3 parts impl. 4to. (pp. 34), sewn, 2s 6d s. l., 1869-77

- 13025 [PAULIAN (Aimé Henri, s.j., *Univ. Avignon*)] L'ÉLECTRICITÉ SOUMISE à un NOUVEL EXAMEN, dans différentes Lettres adressées à M. l'ABBÉ NOLLET, et dans quelques Questions de Physique, présentées sous la Forme Scholastique; le tout, selon une THÉORIE NOUVELLE, appuyée sur les EXPÉRIENCES les plus INCONTESTABLES, par l'Auteur du Dictionnaire de Physique; with 2 folding copperplates, 12mo. *hf. calf* (RARE), 17s 6d
Avignon, 1763
An electrical treatise 'sous la Forme Scholastique' would have tickled Father Tyrrell, *ejusdem Societatis*.
It is a very interesting work, full of original observations. In one on page 94 the author anticipates the electro-magnetic theory of light: 'Le feu, la lumière et l'électricité dépendent du même principe, et ne sont que trois modifications différentes du même être.'
- 13026 PAULSEN (Adam; *Danish Meteorological Inst.*) COMMUNICATIONS de l'OBSERVATOIRE MAGNÉTIQUE de COPENHAGUE; with 2 illustrations, 8vo. (pp. 68), *sewn*, 2s
Copenhague, 1892
- 13027 — Sur la NATURE et l'ORIGINE de l'AURORE BORÉALE, 8vo. (pp. 23), *sewn, with inser. to Sir Edward Thorpe, F.R.S., 2s 6d*
ibidem, 1894
Containing the author's theory of the aurora borealis, which is based on the properties of cathode rays. He estimated its height at from $\frac{1}{4}$ to 45 miles.
- 13028 — PERTURBATION MAGNÉTIQUE des 13 et 14 Février 1892; with folding plate, 8vo. (pp. 3), *sewn*, 1s
ibidem, 1892
- 13029 — RÉGIME MAGNÉTIQUE de l'ÎLE de BORNHOLM, 8vo. (pp. 42), *sewn, with inser. to Sir E. Thorpe, F.R.S., 2s*
ib., 1896
- 13030 PAVY (Frederick William, M.D., F.R.S.; *First Chairman of the International Congress of Medicine*) THE PHYSIOLOGY of the CARBOHYDRATES: their Application as Food and Relation to DIABETES, with numerous photo-engravings of microphotographs, roy. 8vo. *cl.*, with author's inser., 5s (p. 10s 6d)
1894
- 13031 — THE PHYSIOLOGY of the CARBOHYDRATES: an EPICRITICISM, cr. 8vo. *cl.*, 2s (p. 3s 6d) 1895
'Pavy was the last survivor of a line of distinguished physician-chemists who did much to lay the foundations and advance the study of metabolic disorders. He made the study of carbohydrate metabolism the work of his life, and he was the founder of the modern theory of diabetes. In this connexion his name was associated with many practical improvements in clinical and practical medicine, and 'Pavy's Test' for sugar and his use of sugar tests and albumen tests in the solid form have made his name familiar to physicians throughout the world.'—*Prof. d'Arcy Power*.
- 13032 PAYEN (Anselme; *de l'Institut*) COURS de CHIMIE ÉLÉMENTAIRE et INDUSTRIELLE; with 3 folding plates, 2 vols. 8vo. *hf. calf, with bookplate of Henry B. H. Beaufoy, F.R.S., 5s* 1832-3
- 13033 — PRÉCIS de CHIMIE INDUSTRIELLE à l'Usage des Ecoles Préparatoires aux Professions Industrielles et des Fabricants; with 29 folding plates, besides woodcuts, 2 vols. 8vo. in 1, *hf. calf neat*, 3s 6d
1849
The author was the first to convert starch into dextrine by using a weak solution of nitric acid, and the first to recommend animal charcoal to purify drinking water and to absorb lime in solutions. He also invented the decolorimeter to measure the decolorising power of animal charcoal.
- 13034 PEABODY (Cecil Hobart, *Mass. Inst. Technology*) PROPELLERS, with 29 diagrams, 8vo. *cl.*, 3s 6d (p. 5s 6d net)
New York, 1912
'Giving a reliable and convenient method of designing propellers, based on model experiments, and free from theoretical intricacies and uncertainties.'—*Preface*.
- 13035 — THERMODYNAMICS of the STEAM ENGINE, and other Heat Engines, 4th Edition, rewritten, with 97 woodcuts, 8vo. *cl.*, 10s 6d (p. £1. 1s net)
1906
- 13036 PEACOCK (Daniel Mitford, *pr. Trinity Coll., Cantab.*) COMPARATIVE VIEW of the PRINCIPLES of the FLUXIONAL and DIFFERENTIAL CALCULUS, 8vo. (pp. 95), *sewn (scarce)*, 5s Cambridge, 1819
A defence of the fluxional notation against the attempts of Dean Peacock, Sir J. F. W. Herschel, and Charles Babbage (*q.v. ante*) to introduce the differential notation.
- 13037 — SYSTEM of PLANE TRIGONOMETRY, with diagrams, 8vo. boards, with auto. of Prof. Hilary Bauerman, 3s
ibidem, 1817
- 13038 [PEACOCK (George, *Lowdean Prof. Astronomy, Cantab., F.R.S., Dean of Ely*)] ARITHMETIC, with 3 plates of Chinese, Egyptian, Mexican, and other numerals, 4to. (pp. 154), unbound, 5s [1826]
- 13039 — ANOTHER COPY, *hf. cl.*, uncut, 6s 6d
'A most valuable article.'—*Prof. de Morgan*. The first 114 pp. contain a valuable history of arithmetic, a work of authority, often quoted by historians of mathematics.
All Cambridge men should find his great memorial in his noble restoration of Ely Cathedral.
- 13040 PEACOCK (James, F.R.S.) SKETCHES and DESCRIPTIONS of THREE SIMPLE INSTRUMENTS for DRAWING ARCHITECTURE and MACHINERY in PERSPECTIVE, with 2 folding plates, 4to. (p. 6), *sewn*, 6s 6d
1785
Together with: Account of some Experiments on the Loss of Weight in Bodies on being melted or heated, by GEORGE FORDYCE, M.D., F.R.S. (pp. 5), and Experiments on Air, by HENRY CAVENDISH, F.R.S. (pp. 13), with plate.
Cavendish's memoir is especially valuable, as it contains the important discovery that the electric spark discharged through moist air produces nitric acid—a fact only recently utilised for the production of artificial manure.
- 13041 PEANO (Giuseppe, *Univ. Turin*) ARITMETICA GENERALE ed ALGEBRA ELEMENTARE, roy. 8vo. *sewn*, 1s 6d
Torino, 1902
- 13042 PECKSTON (Thomas Snowdon, C.E., *Chartered Gas-Light and Coke Co., Peter Street, Westminster*) THE THEORY and PRACTICE of GAS-LIGHTING, with an Historical Sketch, and the Theories of Light, Combustion, and the Formation of Coal, with Descriptions of the most approved Apparatus for Generating, Collecting, and Distributing Coal-Gas for Illuminating Purposes, first edition, with 14 plates, 8vo. *new hf. calf gilt, with inser. 'From the Author [Admiral Sir] Courtenay Boyle' [dedicatee], and auto. of Edward Solly, F.R.S., on title (scarce)*, 12s 6d
1819
- 13043 — SECOND EDITION, adapted to the present State of the Science, with entirely new Treatise on the ECONOMY of the GASES, procured for Illuminating Purposes, from OIL, TURF, etc., 14 plates, 8vo. *original boards, uncut (fresh copy)*, 7s 6d
1823
- 13044 — THIRD [LAST] EDITION [greatly enlarged, and] adapted to the present Improved State of the Manufacture of Gas, with 22 plates (foaced), thick 8vo. *cl. (cover soiled)*, 6s 6d
1841
Next to MURDOCK (*v. Nos. 12294-7, ante*) and ACCUM (*v. Nos. 5629-30 and 5632-4, ante*), the earliest English work on gas-lighting. According to the preface the author planned and executed the gas works at Southampton, Dublin, Newport (I. W.), Portsea, Brentford, and Dudley.

- 13046 **PEARSON** (George, M.D., F.R.S.; *early vaccinator*) WORKS, as under, with 6 *folding copper-plates*, 8 parts 4to. in 1 vol. *old hf. calf (back rubbed)*, £1. 12s 6d 1763-1800
 CONTENTS:—I. The Substance of Nine Lectures on Vegetation and Agriculture, by WILLIAM CULLEN, M.D.; F.R.S., with a few Notes by George Pearson (pp. 41), 1768: II. Experiments and Observations tending to show the Composition of Urinary Concretions (pp. 34), '97: III. Experiments and Observations to ascertain the Nature of the Gaz [*sic*] produced by passing Electric Discharges through Water, with *plate* (pp. 17), '90: IV. Observations on some ancient Metallic Arms and Utensils; with Experiments to determine their Composition, with 2 *plates* (pp. 57), 1800: V. Experiments and Observations to investigate the Nature of a kind of Steel manufactured at Bombay, called Wootz (pp. 25), 1795: VI. Observation and Experiments on a Wax-like Substance, resembling the Pé-la of the Chinese (pp. 21), '94: VII. Experiments made with a View of Decomposing Fixed Air, or Carbonic Acid (pp. 22), '92: VIII. Mémoire sur le Phosphate de Soude cristallisé en Rhombe (pp. 4), '88.
 The above copy belonged to Henry Bower, F.R.S., who has added a pedigree. All the pamphlets bear presentation inscriptions, mostly to the author's uncle George PEARSON, as well as a few MS. corrections and notes by the author. According to D. N. B. No. VII is 'among his most important chemical papers, and led him to the discovery of calcium phosphide'; while No. V is termed 'an excellent account of the properties of iron and steel'; and No. II mentioned as 'including a description of Uric Acid, a term invented by Pearson', which should endear him to the modern well-to-do world.
- 13047 ——— EXPERIMENTS and OBSERVATIONS to investigate the COMPOSITION of JAMES'S POWDER, 4to. (pp. 51), *sewn*, 4s 1791
 'James's Powder' was chiefly oxide of antimony, and had a long patent medicine career as a fever powder, in which it had many cures and many victims, among the latter being Oliver Goldsmith. It was first compounded as a secret medicine by a Dr. Robert James, an acquaintance of Dr. Johnson's, and grandfather of G. P. R. James.
 Added is: An Account of some Chemical Experiments on Tabasheer, by JAMES LOUIS MACIE (pp. 21).
- 13048 ——— OBSERVATIONS and EXPERIMENTS on a WAX-LIKE SUBSTANCE resembling the PÉ-LA of the CHINESE, collected at Madras by DR. ANDERSON, and called by him WHITE LAC, 4to. (pp. 19), *sewn*, 3s 6d 1794
- 13049 **PEARSON** (James, F.R.A.S., *Vicar of Fleetwood*) ELEMENTARY TREATISE on the TIDES, based on that of SIR J. W. LUBBOCK, F.R.S., with NEWLY-DEvised METHOD of COMPUTATION of the Heights of HIGH WATER at LIVERPOOL, with Factors for other Ports, and Tables adopted by the Admiralty, with 6 *plates*, roy. 8vo. *cl. (scarce)*, 4s 1881
- 13050 [————] The ELEMENTS of the CALCULUS of FINITE DIFFERENCES, treated on the METHOD of SEPARATION of SYMBOLS, 8vo. *hf. cl. (scarce)*, with bookplate of William Spottiswoode, P.R.S., 5s Cambridge, 1849
- 13051 ——— ANOTHER COPY, *sewn*, 4s
- 13052 ——— SECOND EDITION, enlarged, 8vo. *hf. cl.*, 7s 6d *ibidem*, 1850
- 13053 **PEARSON** (Karl; *Galton Prof. Eugenics, Univ. London*; *biographer of Sir Francis Galton*; F.R.S.) THE GRAMMAR of SCIENCE, with 25 *illustrations*, cr. 8vo. *cl. (scarce)*, 5s 1892
 Comprising: Facts of Science; Scientific Law; Cause and Effect; Probability; Space and Time; Geometry of Motion; Matter; Laws of Motion; Life; and Classification of Sciences.
- 13054 ——— MATHEMATICAL CONTRIBUTIONS to the THEORY of EVOLUTION: VII: On the CORRELATION of CHARACTERS not Quantitatively Measurable, 4to. (pp. 47), *sewn*, 2s 1900
- 13055 ———, and Alice LEE: MATHEMATICAL CONTRIBUTIONS to the THEORY of EVOLUTION: VIII: On the INHERITANCE of CHARACTERS not capable of Exact Quantitative Measurement, roy. 4to. (pp. 72), *sewn*, 3s 1900
- 13056 ———: On the VIBRATIONS in the FIELD round a THEORETICAL HERTZIAN OSCILLATOR, with 7 *plates, besides diagrams*, roy. 4to. (pp. 30), *sewn*, 3s 1899
- 13057 **PEARSON** (R. West, of Manchester) On the DETERMINATION of BISMUTH by WEIGHT and by VOLUME, 8vo. (pp. 11), *sewn*, 1s 6d 1856
- 13058 **PEARSON** (William, *pr.*, F.R.S.) INTRODUCTION to PRACTICAL ASTRONOMY, VOL. I: containing TABLES, recently computed, for facilitating the Reduction of Celestial Observations, and a Popular Explanation of their Construction and Use, roy. 4to. *hf. calf*, 6s 6d 1824
 'For this publication, styled by Sir John Herschel 'one of the most important and extensive works on that subject which has ever issued from the press', he received the gold medal of the Royal Astronomical Society'.—D. N. B.
 He was at first Rector of the tiny parish of Perivale, near Ealing, and owner of one of the great private schools which played so great a part in the higher education of the time, that at Temple Grove, East Sheen, and set up an observatory there; and was the chief founder of the Royal Astronomical Society.
- 13059 **PECKHAM** (Stephen Farnum, *Special Agent, U.S. Census*) REPORT on the PRODUCTION, TECHNOLOGY, and USES of PETROLEUM and its PRODUCTS, with *front.*, 11 *maps and charts*, and 30 *plates (several folding)*, roy. 4to. *sewn*, 7s 6d Washington, Govt. Printing Office, 1885
- 13060 **PÉCLET** (Jean Claude Eugène) TRAITÉ de l'ÉCLAIRAGE; with 10 *folding plates*, post 8vo. *hf. calf (scarce)*, 8s 6d 1827
 This work contains the first theoretical investigation on the illuminating power and oil consumption of lamps, as well as the first analyses of illuminating gases. The author also states in it the relation between length and breadth of the wick and chimney of a lamp and its illuminating effect.
- 13061 **PEDLER** (Sir Alexander; F.R.S.) ANNUAL ADDRESS to the ASIATIC SOCIETY of BENGAL, 5th Feb., 1896, 8vo. (pp. 77), *sewn, with author's inscr.*, 1s 6d Calcutta, 1896
- 13062 ——— On the VOLATILITY of some of the COMPOUNDS of MERCURY, and of the Metal itself, roy. 8vo. (pp. 11), *sewn, with inscr. to Sir E. Thorpe, F.R.S.*, 1s 6d *ibidem*, 1889
- 13063 ———, and C. J. H. WARDEN: On the NATURE and TOXIC PRINCIPLE of the AROIDEÆ, roy. 8vo. (pp. 12), *sewn*, 1s 6d *ib.*, 1888
- 13064 **PELIGOT** (Eugène Melchior, *de l'Institut*; *discoverer of uranium*) Le VERRE: son Histoire, sa Fabrication; with 75 *woodcuts*, 8vo. *sewn*, 6s 6d (p. F. 14 nett) 1877
- 13065 ——— ANOTHER COPY, *cl. extra, g. e.*, 7s 6d
 Including interesting historical chapters.
- 13066 **PELLET** (A. E.) THESE sur la THÉORIE des EQUATIONS ALGÈBRIQUES. — sur la THÉORIE des SURFACES, 4to. (pp. 50), *sewn*, 3s Clermont-Ferrand, 1878
- 13067 **PELLET** (Henri), et A. ALLART: ANALYSE des FONTES; with *woodcut*, 12mo. (pp. 16), [Braine-le-Comte, 1877]

- 13069 **PEDERSEN** (Carl) DOSAGE de PETITES QUANTITÉS d'ARSENIC dans les MATIÈRES ORGANIQUES, spécialement dans la Bière et dans le Moût; with woodcut, 8vo. (pp. 25), *sewn, with inscr. to Sir Edward Thorpe, F.R.S., 1s 6d* [Copenhagen,] 1902
- 13070 **PEIRCE** (Benjamin, *Harvard Univ.*) The LATITUDE of the CAMBRIDGE OBSERVATORY, in MASSACHUSETTS, determined from Transits of Stars over the Prime Vertical, observed 1844-5 by W. C. BOND, J. D. GRAHAM, and G. P. BOND, 4to. (pp. 21), *hf. calf, with inscr. as below, 5s* [Cambridge, Mass., c. 1845]
- 'Captain Simmons, Royal Engineers, with the respects of Major J. D. Graham, U.S. Top. Engineers'. This was to Field-Marshal Sir John Linton Arabin Simmons, then employed on his first billet on the boundary commission to delimit the Canadian and New England frontier.
- 13071 **PEIRCE** (Benjamin Osgood, *Harvard Univ.*) The CONCEPTION of the DERIVATIVE of a SCALAR POINT FUNCTION with Respect to another similar Function, roy. 8vo. (pp. 14), *sewn, 1s 6d* [Boston, Mass.,] 1910
- 13072 ——— The DAMPING of the OSCILLATIONS of SWINGING BODIES by the RESISTANCE of the AIR, with 4 plates, roy. 8vo. (pp. 26), *sewn, 2s* [*ibidem*,] 1908
- 13073 ——— The EFFECT of LEAKAGE at the EDGES on the Temperatures within a Homogeneous Lamina through which Heat is being conducted, 2 diagrams, roy. 8vo. (pp. 6), *sewn, 1s* [*ib.*,] 1910
- 13074 ——— The EFFECTS of SUDDEN CHANGES in the INDUCTANCES of ELECTRIC CIRCUITS as illustrative of the Absence of Magnetic Lag, and of the v. WALTENHOFEN PHENOMENON in finely Divided Cores, with plate and diagrams, roy. 8vo. (pp. 45), *sewn, 2s* [*ib.*,] 1911
- 13075 ——— The MAGNETIC PERMEABILITIES at LOW EXCITATIONS of Two Kinds of very Pure Soft Iron, roy. 8vo. (pp. 6), *sewn, 1s* [*ib.*,] 1910
- 13076 ——— The MAGNITUDE of an ERROR which sometimes affects the Results of MAGNETIC TESTS on Iron and Steel Rings, with diagrams, roy. 8vo. (pp. 9), *sewn, 1s* [*ib.*,] 1910
- 13077 ——— The RESISTIVITY of HARDENED CAST IRON as a Measure of its Temper and of its Fitness for Use in Permanent Magnets, with plate and 7 diagrams, roy. 8vo. (pp. 20), *sewn, 1s 6d* [*ib.*,] 1910
- 13078 ——— The THEORY of BALLISTIC GALVANOMETERS of LONG PERIOD, with plate and diagrams, roy. 8vo. (pp. 32), *sewn, 2s* [*ib.*,] 1909
- 13079 **PELETIER** [*Latine PELETARIUS*] (Jacques) In EUCLIDIS ELEMENTA GEOMETRICA DEMONSTRATIONUM Libri VI; with engraved title, and numerous diagrams, folio, *old vellum* (binding mended, text browned, and blank margins wormed); rare, WITH AUTO. OF ALFONSO BORELLI, 10s 6d *Lugduni, Joan. Tornæsius et Gul. Gazæius, 1557*
- 'Il ne s'est pas contenté d'interpréter Euclide, il l'a parfois corrigé heureusement.'—*Biogr. Gén.* This work also originated the famous controversy with Clavius on the angle of contingency, a full account of which may be found in Prof. Cantor's *Vorlesungen üb. Gesch. d. Math.*, Vol. II.
- 13080 ——— De OCCULTA PARTE NUMERORUM, quam ALGEBRAM vocant, Libri duo; with device of the fat hen on title, and numerous diagrams, sm. 4to. contemporary limp vellum (lower blank margin wormed, but a large copy), with MS. notes in a contemporary hand (RARE), £1. 5s *Parisii, G. Cavellat, 1560*
- 'This is said to be the first French work on algebra. At end is a table of squares and cubes up to those of 140.'—*Prof. de Morgan.*
- 'A very ingenious and masterly composition, treating in an able manner of the several parts of the subject then known, excepting the cubic equations. But his real discoveries, or improvements, may be reduced to these three, viz. I. That the root of an equation is one of the divisors of the absolute term. II. He taught how to reduce trinomials to simple terms, by multiplying them by compound factors. III. He taught curious precepts and properties concerning square and cube numbers, and the method of constructing a series of each by addition only, namely by adding successively their several orders of differences.'—*Dr. Hutton's Traacts*, where a full account of the work may be found in Vol. II, pp. 245-9.
- 13081 **PELLETIER** (Bertrand, *de l'Institut*) MÉMOIRES et OBSERVATIONS de CHIMIE, recueillis et mis en Ordre par CHARLES PELLETIER et L. P. E. A. SÉDILLOT; with portrait, and 5 folding copperplates, 2 vols. 8vo. sound copy in contemporary hf. calf gilt (RARE), 16s 6d 1798
- The above volumes contain practically all the author's writings. He was a zealous adherent of Lavoisier, and is best known for having first prepared pure phosphuretted hydrogen, and a number of phosphor metals.
- 'Il fit bien connaître la formation de l'acide muriatique oxygéné, et ses belles recherches sur le phosphore et les phosphures métalliques contribuèrent beaucoup aux progrès de la science.'—*Biogr. Gén.*
- 13082 **PELOUZE** (Edmond) ART du BRIQUETIER, CHAUFOURNIER, et CHARBONNIER, comprenant la FABRICATION du VINAIGRE de BOIS, première édition; with 4 folding plates, 12mo. hf. calf (damaged), with bookplate of Henry B. H. Beaufoy, F.R.S., 5s 1828
- 13083 **PELOUZE** (Théophile Jules), et Edmond FREMY, Membres de l'Institut: TRAITÉ de CHIMIE Générale, Analytique, Industrielle, et Agricole, 3^e [dernière] Édition, entièrement refondue, TOME VI^e: CHIMIE ORGANIQUE, III; with woodcuts, thick roy. 8vo. boards, 3s 6d 1864
- 13034 **PELTIER** (Jean Charles Athanasé) MÉMOIRE sur les DIVERSES ESPÈCES de BROULLARDS, 4to. (pp. 25), *sewn, with auto. and MS. notes by Dr. T. L. Phipson, F.C.S., 5s* Bruxelles, 1842
- Added is: 'Lettre de M. Peltier adressée à l'Académie Royale de Bruxelles' (pp. 5), 8vo., referring to the above memoir, which is important in connexion with the Theory of Thunderstorms. It was awarded the prize of the Brussels Academy.
- The writer was the author of the Peltier Effect, by which he demonstrated that a galvanic current may have cooling as well as heating effects.
- 13035 **PEMBERTON** (Henry, M.D., F.R.S.), A SCHEME for a COURSE of CHYMISTRY, to be performed by, 8vo. (pp. 15), *sewn, 3s 6d* [1731]
- 13086 ——— A VIEW of SIR ISAAC NEWTON'S PHILOSOPHY—v. NEWTONIANA, Nos. 12617-20, ante.
- 13087 **PENDLETON** (John) OUR RAILWAYS: their Origin, Development, Incident, and Romance, with folding front. of Frith's 'Railway Station,' and numerous other illustrations, 2 vols. 8vo. hf. calf, 6s (p. £1. 4s) 1894
- 13088 **PENDULUM OBSERVATIONS**:—TABLE of PROVISIONAL EQUATORIAL VIBRATION-NUMBERS of PENDULUMS used differentially since 1800, with a Synopsis of PENDULUM OBSERVATIONS, 1672-1874, roy. 4to. (pp. 22), *sewn, 3s 6d* Calcutta, 1879

- 13090 **PEMBLE** (William; *pr.*, *Magdalen Hall, Oxon.*) A BRIEF INTRODUCTION TO GEOGRAPHY, containing a Description of the Grounds, and General Part thereof, very necessary to young Students in that Science, first edition, with woodcuts and diagrams, sm. 4to. (pp. 50), unbound (table and last 5 ll. badly defective, also waterstained); RARE, 10s 6d
Oxford, John Lichfield for Edward Forrest, 1630
- First edition of this early University text-book on physical geography, which was often reprinted. It is interesting for still advocating the Ptolemean astronomy: 'The earth resteth immovable in the middle of the whole world' (p. 12). Eight pages are devoted to 'proving' this argument.
- 13091 **PENGELLY** (William; F.R.S.) THE LIGNITES AND CLAYS OF BOVEY TRACEY, DEVONSHIRE, with portrait (inserted), 2 plates, and coloured map (pp. 20): Heer (Oswald) On the FOSSIL FLORA OF BOVEY TRACEY, with 17 tinted lithographs (pp. 48), 2 vols. 4to. in 1, *cl.*, 10s 6d [1862]
'Pengelly's' reputation rests especially on three arduous tasks of scientific exploration undertaken in Devonshire: the examination of the plant-bearing deposit at Bovey-Tracey [the 'Bovey Heathfield'], that of Brixham Cave, and that of Kent's Hole at Torquay. By the first large collections of fossil plants were secured; these were afterwards examined by Prof. Heer who referred them to the earlier parts of the miocene period, but at present they are more generally assigned to the middle eocene.—D. N. B.
- 13092 **PENNA** (Girolamo, *Bolognese*) I PRIMI ELEMENTI dell' AGRIMENSURA; with etched title, and 9 plates (some folding), Bologna, 1643: MISURA de' CORPI MISTI con sue Gravità, della Forma del p: Deposito fabricato di Marmo, Ferro, e Piombo; with engraved title and folding plate, s. l. ed. a. (slightly wormed)—2 vols. folio in 1, old limp Italian vellum, 10s 6d Bologna, 1643
'Raro.'—Riccardi.
- 13093 **PENNING** (W. Henry, F.G.S.) FIELD GEOLOGY; with Section on PALEONTOLOGY by A. J. JUKES-BROWNE, F.G.S., with coloured front., and 23 woodcuts, cr. 8vo. *cl.*, 2s 6d (p. 6s) [1876]
- 13094 **PENNY** (Frederick, F.C.S., *Univ. Glasgow*) ON THE COMPOSITION AND PHOSPHORESCENCE OF PLATE-SULPHATE OF POTASH, 8vo. (pp. 8), sewn, 1s 6d 1855
- 13095 ——— ON THE ESTIMATION OF IODINE, 8vo. (pp. 4), unbound, with *inscr.* to Allen Thomson, *F.R.S.*, 1s 6d [1852]
- 13096 ——— REPORT on the EXPERIMENTAL OPERATIONS at LOCH KATRINE, 8vo. (pp. 32), sewn, 1s 6d 1855
Investigations on the chemical action of water on lead piping, of vital importance where a drinking-water supply is derived from a catchment area of peat.
- 13097 ——— ON THE VALUATION AND COMPOSITION OF PROTOCHLORIDE OF TIN, 8vo. (pp. 12), unbound, 1s 6d [1851]
- 13098 ———, and William WALLACE: NOTICE on CHLORIDE OF ARSENIC, 8vo. (pp. 6), unbound, with *inscr.* to Allen Thomson, *F.R.S.*, 1s 6d [1852]
- 13099 **PENNY CYCLOPÆDIA** (The) of the SOCIETY for the DIFFUSION of USEFUL KNOWLEDGE, with numerous woodcuts, 27 vols. folio in 12, *cl.*, with bookplate of Prof. Lloyd Tanner, *F.R.S.*, £1. 1s 1833-44
Charles Knight's 'Penny Cyclopædia' was an extraordinary production, as he enlisted as contributors a large proportion of the very ablest men of the day, a great number of whose articles may be read to advantage still, in addition to their historical interest. Many of its articles on exact science by well-known writers (*e.g.* Prof. A. de Morgan) have never been reprinted in any other form.
- 13100 **PENROSE** (Francis Cranmer, F.R.S., F.R.I.B.A., F.R.A.S.; *Surveyor to St. Paul's*) ON A METHOD OF PREDICTING by GRAPHICAL CONSTRUCTION OCCULTATIONS OF STARS by the MOON, and SOLAR ECLIPSES, for any given Place, with more rigorous Methods of Reduction for the accurate Calculation of LONGITUDE; 2nd Edition, with 4 plates, roy. folio, *cl.* (*o.p.*), 8s (p. 12s nett) 1902
The office of architect to St. Paul's Cathedral is only second to the blue ribbon of the profession of Architecture, that of Surveyor to Westminster Abbey, and it is notable that it has so often been combined with proficiency in the exact sciences, and especially astronomy, from Sir Christopher's day until now.
- 13101 **PEPPER** (John Henry; *exhibitor of 'Pepper's Ghost'*) CYCLOPÆDIC SCIENCE SIMPLIFIED; with coloured frontispiece and 537 woodcuts (including the Ghost), cr. 8vo. *cl.*, *g.e.*, 3s 6d 1869, *or, n.d.*
An interesting popular exposition of physics and chemistry, including portions of papers by Faraday, Daniell, Wheatstone, Brewster, Tyndall, etc. etc.
- 13102 **PEPYS** (William Hasledine, F.R.S.) ON THE RESPIRATION of the LEAVES of PLANTS, with folding plate, 4to. (pp. 4), sewn, with *inscr.* to Richard Phillips, *F.R.S.*, 3s 6d 1843
From his experiments the author concludes that plants do not produce carbon dioxide when the leaf is in health. He used in these experiments the mercury gasometer, which was invented by him.
- 13103 **PERCIVAL** (Archibald Stanley, *Trinity Coll., Cantab.*) OPTICS: a Manual for Students, with 131 diagrams, 8vo. *cl.*, 5s (p. 10s nett) 1899
- 13104 **PERDONNET** (Albert Auguste), Gabriel LAMÉ, et Benoit Pierre Emile CLAPEYRON: NOTICES sur les CHEMINS de FER, 8vo. (pp. 38), sewn (*scarce*), 6s 6d 1832
One of the very earliest proposals for constructing a general railway system for France. The first and larger part is on their advantages in comparison with canals; the second on their use for national defence.
- 13105 **PEREGRINUS** (Petrus, *de Maricourt, in Picardy*; contemporary of Roger Bacon) and his EPISTOLA de MAGNETE, by SILVANUS P. THOMPSON, F.R.S., with *fs.* from Bodleian MS. 7027, roy. 8vo. sewn, 1s 6d [1906]
- 13106 **PERING** (Richard, *Clerk of the Cheque of Plymouth Dockyard*) TREATISE on the ANCHOR, shewing how the component Parts should be combined to obtain the greatest Power, and most perfect Holding, with a Table of Dimensions, graduated from 1 to 95 Cwt.: and a Schedule of proportionate Weights of Anchors, suitable to the Tonnage of every Class of Vessel, etc., with some Observations on the CHAIN CABLE, shewing the Proportion it bears to that of Hemp, and to the Weight of the Anchor, with 3 folding plates, roy. 8vo. *cl.*, or, *sheep* (*scarce*), 10s 6d
Plymouth Dock [hodie Devonport], 1819

This work claims to be the first practical treatise on the construction of the anchor. It contains an improved anchor and anchor weight of the author's own invention.

There was no copy of the work in the Scott Library.

- 13108 **PERCY** (Cornelius McLeod, M.I.M.E., *Wigan Mining School*) The MECHANICAL ENGINEERING OF COLLIERIES (Vol. II 2nd Edition), with 2 steel portraits (duplicated) by W. J. Alais, and numerous plates (mostly folding), comprising 466 figures, 2 vols. roy. 8vo. cl., 12s 6d (p. £1. 18s 6d) 1882-6
- 13109 ——— WINDING and OVERWINDING: Descriptions of Winding Engines, Detaching Hooks, and Safety Cages, 3rd Edition enlarged, 8vo. (pp. 26), cl., 2s *Wigan*, 1880
- 13110 **PERCY** (John, M.D., F.R.S.) On the IMPORTANCE of SPECIAL KNOWLEDGE to the PRACTICAL METALLURGIST, 8vo. (pp. 25), sewn, 1s 6d 1852
- 13111 ——— METALLURGY: FUEL, FIRE-CLAYS, COPPER, ZINC, BRASS, etc., with 152 woodcuts, 8vo. cl., uncut (SCARCE), 15s 1861
The metallurgy of copper, zinc, and brass was not included in the new edition of the work, and never republished in any other form.
- 13112 ———: INTRODUCTION, REFRACTORY MATERIALS, and FUEL [2nd] greatly enlarged Edition, with 112 woodcuts, and 9 folding plates; thick 8vo. cl., uncut, 8s 6d (p. £1. 10s) 1875
A new edition of the above work on 'Fuel, Fire-Clays,' etc., but without the metallurgy of copper, zinc, and brass.
- 13113 ———: IRON and STEEL, with 223 woodcuts, thick 8vo. cl., uncut (back of cover slightly damaged); SCARCE, £1. 5s 1864
'The exceedingly important Thomas-Gilchrist process for making Bessemer steel from iron-ores containing phosphorus was an outcome of this work (pp. 815, 818-19, and was discovered by his pupils.'—D. N. B. The work has been out of print for many years, and is now very scarce. It also contains the result of the analysis of a large number of specimens of iron and steel, collected by S. II. Blackwell, and now in the Jernyn Street Museum.
'This classical book is now chiefly valuable for historical reasons, where its usefulness is often unexpectedly advantageous, as, for example, in patent litigations.'—B. Stoughton.
- 13114 ———: LEAD, including DESILVERIZATION and CUPELLATION, with 155 woodcuts, 8vo. cl., uncut, 8s 6d (p. £1. 10s) 1870
Percy's Metallurgy, although partly superseded, will always remain a work of great value on account of the historical matter which it contains, and is not to be found elsewhere.
- 13115 ——— NOTE on a CRYSTALLIZED COMPOUND of SESQUIOXIDE of IRON and LIME, 8vo. (pp. 3), sewn, 1s 1873
- 13116 **PERI** (Giovanni Domenico, *Genovese*) Il NEGOTIANTE; with vignette on titles, 4 vols. 4to. in 1, contemporary Italian vellum (title slightly soiled and a number of corners stained, otherwise a sound copy), with label 'Biblioteca Riccardi' (RARE), £1. 5s *Venetia*, 1672-3
The first complete edition in 4 vols. Vol. III is entitled 'I Frutti d' Albaro overo il Negotiante'.
'It is very interesting both for the history of arithmetic and banking.'—*Libri Catalogue*.
- 13117 **PERKIN** (Frederick Mollwo; F.I.C.) QUALITATIVE CHEMICAL ANALYSIS, ORGANIC and INORGANIC, with coloured spectrum plate, and 9 illustrations, 8vo. cl., 1s 6d 1901
- 13118 ——— SECOND EDITION [enlarged], with coloured spectrum plate, and 15 illustrations, 8vo. cl. (used copy with acid stains), 2s (p. 4s) 1905
- 13119 **PERKIN** (Sir William Henry, F.R.S.), JUBILEE of the DISCOVERY of MAUVE, and of the FOUNDATION of the COAL TAR COLOUR INDUSTRY by; edited by RAPHAEL MELDOLA, F.R.S., ARTHUR G. GREEN, F.I.C., and JOHN CANNELL CAIN, with 6 fine portraits and 3 plates, impl. 8vo. cl., 4s [1906]
There is a possibility that the Aniline Dye industry, the immediate offspring of Sir William Perkin's discoveries, may now, through the Anglo-Nietzschian War, return to its native land: to the prospering of trade, but the despoil of beauty!
- 13120 **PERKIN** (William Henry; F.R.S., *Univ. Oxford*, son of the above) EXPERIMENTS on the Synthesis of 1-Methylcyclohexylidene-4-Acetic Acid, 8vo. (pp. 11), sewn, 1s 6d 1903
- 13121 ———, and Frederic Stanley KIPPING; F.R.S.: ORGANIC CHEMISTRY, with 21 woodcuts, cr. 8vo. cl., 2s (p. 6s 6d) 1897 or, 1900
- 13122 ——— NEW EDITION [enlarged and rewritten], 25 illustrations, cr. 8vo. cl., 4s (p. 7s 6d) 1902
- 13123 ———, Robert ROBINSON, and Maurice Russell TURNER: The SYNTHESIS and CONSTITUTION of certain PYRANOL SALTS related to Brazilein and Hæmatein, 8vo. (pp. 31), sewn, 1s 6d 1908
- 13124 **PERKINS** (Jacob; C.E., 'the American Inventor') On the EXPLOSION of STEAM BOILERS: On the ECONOMY of using HIGHLY ELASTIC STEAM EXPANSIVELY, etc., with folding plate, 8vo. (pp. 18), sewn, with inser. [to George Ewning, C.E., F.R.S.]: very scarce, 10s 6d [c. 1840]
Containing original experiments. The author found *inter alia* that he could produce 'highly elastic steam' by injecting heated water into superheated steam. The above pamphlet was unknown to Poggenдорff.
The author constructed a new steam engine, invented a steam gun, improved the manufacture of welded wrought-iron pipes (named after him), took out the first patent for an ether ice-machine, and improved the process of steel-engraving (siderography).
- 13125 **PERKINS** (Loftus, M.I.C.E.; pioneer of Cold Storage) On STEAM BOILERS and ENGINES for HIGH PRESSURES, with 7 plates, 8vo. (pp. 41), sewn, 4s 1877
An account of the author's invention of a super-high-pressure engine, with boiler tubes of very small diameter, which could be worked at a very high pressure with a minimum risk of explosion, and with great economy of fuel. But he should be more remarkable now as a successful experimenter with the ammonia method of making cold.
- 13126 ———: THREE OFFICIAL REPORTS of RIGID TRIAL TESTS, proving the many Advantages of the PERKINS SYSTEM of ENGINES and BOILERS, as designed for using STEAM at HIGHER PRESSURES, with folding chart, woodcuts, and numerous diagrams, 8vo. sewn (scarce), 8s 6d [1881]
privately printed
- '[Sir] F. J. Bramwell Esq. [F.R.S.], with Mr. Perkins' Compts.'—*Inscr. on cover*.
Including the Reports of the Running of Perkins's Yacht 'Anthracite', which was constructed in 1880, 'was fitted with engines working with steam at a pressure of 500 lbs. on the incl, and is probably the smallest ship that ever crossed the Atlantic steaming the entire distance.'—D. N. B.
- 13127 **PERMAN** (Edgar Philip, *Univ. Coll., Cardiff*) VAPOUR-PRESSURE by AIR-BUBBLING, roy. 8vo. (pp. 4), sewn, 1s 6d 1905
- 13128 **PERNET** (J.) Über die BESTIMMUNG von ERDTEMPERATUREN mit THERMOKETTEN; with folding plate, roy. 4to. (pp. 22), sewn, 3s [St. Petersburg (Petrograd), 1870]

- 13130 **PERIGAL** (Henry, F.R.A.S.) FIFTEEN PAMPHLETS and BROADSHEETS on GEOMETRICAL SUBJECTS and the LUNAR MOTION CONTROVERSY, 8vo. *sewn and unbound*, 5s 1846-91
- 13131 ——— CONTRIBUTIONS to KINEMATICS: CLASSIFICATION of BI-CIRCLOIDS, Curves of Two Curvatures (in the same Plane), the Resultants of Two Circular Movements, 8vo. (pp. 8), *Two* 1849
1s 6d [1855]
- 13132 ——— ELLIPSES, with 33 diagrams, 8vo. (pp. 16), *sewn*, 1s 6d [1855]
- 13133 ——— KINEMATIC CURVES, 12 very finely executed plates of curves resulting from 3 circular motions combined, 8vo. *sewn*, with author's signature, and auto. of Dr. P. M. Roget, F.R.S., n. d. [1864]
- 13134 ——— REVOLUTION and ROTATION, with 12 diagrams, 8vo. (pp. 8), *unbound*, 2s [1864]
A contribution to the lunar rotation controversy, started by Jelinger Symons, in which the author distinguishes between revolution (attributed to the moon) and rotation.
- 13135 ——— TURNING FIGURES: six very neatly executed Drawings of elliptical spirals, each signed by the artist, post 8vo. *sewn*, 3s n. d.
- 13136 **PERRAULT** (Claude, M.D., de l'Académie Royale des Sciences, et Pierre) OEUVRES DIVERSES de PHYSIQUE et de MÉCANIQUE [avec Eloge de Claude Perrault]; with fine portrait of Claude Perrault, and numerous folding plates and smaller engravings on copper, 2 vols. 4to. in 1, old calf (joints cracked, and title to v. II missing), with booklabel of George Rennie, C.E., F.R.S., 8s 6d Leide, 1721
- 13137 ——— ANOTHER COPY, 2 vols. old calf gilt (1 joint cracked), 10s 6d
Containing: Du Ressort et de la Dureté des Corps, De la Pesanteur des Corps, De la Circulation de la Sève de Plantes, De la Bruit, De la Musique des Anciens, La Mécanique des Animaux, De l'Endurcissement de la Chaux, Expériences sur la Congélation, Lettres à Mariotte, Huygens, etc., Recueil de plusieurs Machines de Nouvelle Invention, L'Origine des Fontaines, etc. etc.
- 13138 **PERRET** (Jean Jacques, coutelier) MÉMOIRE sur l'ACIER, dans lequel on traite des différentes QUALITÉS de ce Métal, de la FORGE, du bon EMPLOI, et de la TREMPÉ; with folding plate, cr. 8vo. hf. calf (rare), 12s 6d 1779
'On lui doit l'invention du rasoir à rabat, et d'un instrument destiné à faire la section de la cornée transparente dans l'opération de la cataracte. On se servait depuis longtemps pour polir l'acier d'un procédé anglais; Perret, désirant soustraire l'industrie française à cette humiliante supériorité, composa une potée au moins égale en qualité à celle de l'Angleterre, et l'Académie des Sciences lui accorda les plus grands éloges.'—*Biogr. Gén.*
The above work was awarded the prize of the Société des Arts de Genève.
- 13139 **PERRIER** (Col. François; de l'Institut, Chef du Service Géodésique) DÉTERMINATION des LONGITUDES, LATITUDES, et AZIMUTS TERRESTRES en ALGÉRIE; with 19 plates and maps (including 4 fine photochromotypes), 3 vols. 4to. in 1, hf. roan, cl. sides, £1. 5s (p. F. 60 nett unbound) Imprimerie Nationale, 1877-80
- 13140 **PERRONET** (Jean Rodolphe, F.R.S.) DESCRIPTION des PROJETS et de la CONSTRUCTION des PONTS de NEULLI, de MANTES, d'ORLÉANS, de LOUIS XVI, etc., avec le Projet du CANAL de BOURGOGNE, pour la Communication des deux Mers par Dijon; et de celui de la Conduite des Eaux de l'Goette et de la Bièvre à Paris; nouvelle Edition, augmentée des Ponts de Château-Thierry, de Brunoie, de celui projeté pour S. Pétersbourg, etc., d'un Mémoire sur les Cintres, et d'un autre sur les Éboulements des Terres, etc., thick roy. 4to. old calf gilt (back rubbed, and Atlas wanting), 6s 6d Didot, 1788
The author was celebrated as a builder of the masonry bridges of which France has so many noble examples; his best being that described above, which crossed the Seine at Neuilly, and consisted of 5 arches of a length of over 150 feet each.
- 13141 ——— PROJET d'un PONT TRAVÉE de CHARPENTE, de 36 Pieds, ouverte à son Sommet, de 10 Pieds de Largeur et sans Clef; with folding copperplate, 4to. contemporary calf gilt, with book-label of George Rennie, C.E., F.R.S., 10s 6d Van II [1794]
'Rare.'—*Quérard*. 'Perronet fut pour les ponts et chaussées un de ces génies créateurs dont l'apparition fait époque et qui donnent pour longtemps l'impulsion.'—*Biogr. Gén.*
- 13142 **PERROT** (A. M.) NOUVEAU MANUEL COMPLET pour la CONSTRUCTION et le Dessin des CARTES GÉOGRAPHIQUES: nouvelle Edition, augmentée par P. BOURGOIN; with 148 woodcuts, 12mo. *sewn*. 1s 6d 1903
- 13143 **PERSON** (Charles Cléophas; Univ. Besançon) LOIS GÉNÉRALES des ACTIONS MOLÉCULAIRES: Analyse et Discussion des principaux Phénomènes Physiologiques et Pathologiques qui s'y rapportent, 4to. (pp. 48), *sewn*, 3s 6d 1843
- 13144 **PERSPECTIVE**, INSTRUCTION sur la; with folding plate; INSTRUCTION sur le DÉFILEMENT des OUVRAGES de CAMPAGNE, 2^e Edition; with 3 folding plates—in 1 vol. 8vo. (pp. 67), hf. calf, 3s 1828-30
- 13145 **PESENTI** (Cesare) Il CEMENTO ARMATO, e la sua Applicazione Pratica: Formole, Tavole Grafiche, Tabelle Numeriche ed Esempi Pratici pel Calcolo di Costruzioni in Cemento Armato; with plates and other illustrations, roy. 8vo. *sewn*, 3s (p. L. 5.50 nett) Milano, 1910
The failures of reinforced concrete have yet to be chronicled.
- 13146 **PESSUTI** (Abate Gioacchino) DESCRIZIONE, MANEGGIO ed USI del TEODOLITO, Istrumento più di qualunque altro Sicuro Spedito ed Universale, with large folding copperplate, 8vo. boards (plate water-stained), 5s Roma, 1794
- 13147 ——— ANOTHER COPY, contemporary hf. calf (sound copy), 6s
- 13148 ——— OPUSCOLI due all' IDRODINAMICA appartenenti il primo sulla TEORIA delle TROMBE IDRAULICHE, il secondo sulla LEGGE delle VELOCITÀ dell' ACQUA prorompente da' PICCOLI FORI de' Vasi; with copperplate, 4to. contemporary hf. roan gilt (fine copy), 10s 6d *ibidem*, 1789
'Sur l'hydraulique il a laissé des travaux remarquables.'—*Biogr. Gén.*, where the first treatise only is mentioned. Neither was known to Riccardi.
- 13149 ——— RIFLESSIONI ANALITICHE sopra una Lettera dal ABATE CONTE VINCENZO RICCATI; with plate, 8vo. *sewn*, 4s 6d Livorno, 1777
The work deals with imaginary numbers. Riccati's letter is included in it.

- 13151 **PERRY** (Jevon James Muschamp, *pr.*; F.R.A.S.) OBSERVATIONS and MEASUREMENTS on DOUBLE STARS, made at St. Paul's Vicarage, Alnwick, with 18" Silvered Glass Reflector, between 1880 and 1884, a Manuscript on 43 ll., with 4 original sketches of comets, 4to. *hf. bound*, 5s [1880-4]
- 13152 ——— ORIGINAL WATER-COLOUR DRAWINGS of JUPITER, 19 well-executed drawings, sketched between 1880 and 1884, with explanatory MS. Notes, in 4to: Album, *cl.*, 8s 6d [1880-4]
 These drawings are interesting in connexion with the 'Great Red Spot' of Jupiter, which originally suggested them. As in the foregoing work, the author used an 18" silvered reflector, made by With of Hereford for Henry Cooper Key, *pr.*, F.R.A.S., in 1878, which he describes as 'one of the finest 18" mirrors in existence'.
- 13153 **PERRY** (Capt. John) ACCOUNT of the STOPPING of DAGGENHAM BREACH, with the Accidents that have attended the same from the first Undertaking, with proper RULES for PERFORMING any the like WORK, and Proposals for rendering the PORTS of DOVER and DUBLIN (which the Author has been employ'd to Survey) commodious for entertaining LARGE SHIPS, with large coloured MS. plan of levels overflowed by the breach, 8vo. *old calf* (back slightly damaged, and 2 ll. in a neat contemporary MS.); RARE, £1. 1s 1/2
 'This book was bought by Mr. [ROBERT] MYLNE [F.R.S. (1794-1801)], Surveyor to Blackfriars Bridge, at the sale of Admiral Henry Norris's effects & presented by him to L. Henderson who transfers his title to Mr. [WILLIAM] CHAPMAN [C. E. (1749-1832)]. Dublin, 1792. W. C. to E. W. C.—*Inscr. on flyleaf.*
 'In 1714, tenders being invited to stop the breach in the Thames embankment at Dagenham in Essex, Perry offered to do the work for £25,000. The contract was, however, given to William Boswell, who asked only £10,300. Boswell having found his task impossible, the work was entrusted to Perry in 1715. He completed it successfully in five years' time; but the expenses so far exceeded anticipation that, though an extra sum of £15,000. was granted to him by parliament, and a sum of £1,000. presented to him by the local gentry, Perry gained no profit by the transaction. He published an account thereof in 'An Account' etc. (*supra*).—D. N. B.
 He had a singularly chequered career. As a commander of the fireship Cygnet he surrendered after a very slight resistance to a French privateer. He was court-martialled for dereliction of duty in not setting fire to his ship before the Frenchmen boarded her, found guilty, and sentenced to a fine of £1,000, and ten years' imprisonment in the Marshalsea. In 1698 he proceeded to Russia, engaged by the TSAR PETER, to superintend the naval and engineering works in that country, to leave fourteen years later afraid for his life after humbly reminding the Great Tsar that he had only paid him one year's salary. Subsequently he embarked upon the above unlucky venture (D. N. B.).
- 13154 **PERRY** (John, F.R.S.; *Roy. College of Science*) APPLIED MECHANICS: a Treatise for Students who have Time to work Experimental, Numerical, and Graphical Exercises, with 371 illustrations, *cr. 8vo. cl.*, with booklabel of, and a few MS. notes by, F. J. Jervis-Smith, *pr.*, F.R.S., and author's auto., 3s 6d 1897
- 13155 ——— NEW [LATEST] Edition, enlarged, with 372 illustrations, *cr. 8vo. cl.*, 4s 6d 1909
- 13156 ——— The CALCULUS for ENGINEERS, with 106 diagrams, *cr. 8vo. cl.*, 3s 6d (p. 7s 6d) 1897
- 13157 ——— TENTH IMPRESSION [revised, with Appendix], with 106 diagrams, *cr. 8vo. cl.*, 4s 6d [1910]
 An excellent manual for those who have only an elementary knowledge of algebra and trigonometry.
- 13158 ——— ENGLAND'S NEGLECT OF SCIENCE, 8vo. *cl.*, 1s 6d 1900
- 13159 ——— LONG-DISTANCE TELEPHONY, 8vo. (pp. 8), *sewn*, 1s 6d 1893
- 13160 ——— SPINNING TOPS, with 59 illustrations, *cr. 8vo. cl.*, 1s 6d S.P.C.K., 1890
- 13161 ——— The STEAM ENGINE and GAS and OIL ENGINES: a Book for Students who have Time to make Experiments and Calculations [new Edition, corrected], with 325 illustrations, 8vo. *cl.*, 4s 6d (7s 6d nett) 1904
- 13162 ——— The TEACHING of MATHEMATICS, with Discussion, before the British Association, Glasgow, 1901, post 8vo. *cl. boards*, with author's *inscr.*, 2s 6d 1901
 Added are: Remarks, by G. B. MATTHEWS, F.R.S. (pp. 6), and 'The Cultivation of the Mathematical Imagination', by MARY EVEREST BOOLE, Colchester, n. d.
- 13163 ———, J. GRAHAM, and C. W. HEATH: LIQUID FRICTION, with folding plate, 8vo. (pp. 18), *sewn*, with Prof. Perry's *inscr.*, 1s 6d [1893]
- 13164 **PERRY** (Stephen Joseph, S.J., F.R.S.) REPORT of the OBSERVATIONS of the TOTAL SOLAR ECLIPSE of August 29, 1886, made at the Island of CARRIACOU, with plate and diagram, roy. 4to. (pp. 12), *sewn*, with author's *inscr.*, 1s 6d 1889
- 13165 **PETAU** (Denis, *Latinè Dionysius Petavius*, S.J.) URANOLOGION, sive SYSTEMA variorum AUTHORUM, qui de SPHERA, ac SIDERIBUS, eorumque MOTIBUS Græcè commentati sunt: GEMINUS et ACHILLES TATIUS, HIPPARCHUS, PTOLEMÆUS, THEODORUS GAZA, MAXIMUS, ISAACUS ARGYRUS, S. ANDREAS CRETENSIS. Omnia vel GRÆCÈ ac LATINÈ nunc primum edita, vel antè non edita; accesserunt variarum Dissertationum Libri VIII; with vignette on title and diagrams, thick roy. folio, *old vellum* (*fine copy*); RARE, £1. 10s Lutetie Paris., S. Cramoisy, 1630
 Dedicated to Cardinal Richelieu, and valuable for a first containing some of the authors mentioned in the title. The work was reprinted in Amsterdam, 1703.
 'Il fut admiré de son temps, au point qu'on frappa en son honneur une médaille avec ses mots: Au prince des chronologistes.'—*Bioq. Gén.*
- 13166 **PETERMANN** (Andreas, *Univ. Leipzig*) OPUSCULA MEDICA atque CHIMICA, olim separatim, nunc vero conjunctim edita, eorum Usui apprime inserventia qui Arti huic salubriori noviter se manciparunt; with portrait, large 12mo. *old calf gilt*, 4s Lipsie, 1720
 Nothing appears to be known of the author, who is not mentioned by Poggendorf, Kopp, and others.
- 13167 **PETERS** (Christian August Friedrich; *Sternwarte Altona*) NUMERUS CONSTANS NUTATIONIS, ex ASCENSIONIBUS RECTIS STELLÆ POLARIS, in Specula Dorpatensi Annis 1822 ad 1838 Observatis deductus; adjecta est Disquisitio Theoretica de FORMULA NUTATIONIS, 4to. (pp. 103), *sewn*, 5s St. Pétersbourg [Petrograd], 1843
- 13168 **PETERS** (Christian Heinrich Friedrich; *Director of the Observatory, Clinton, N.Y.*) FLAMSTEED'S STARS 'OBSERVED, but not EXISTING', 4to. (pp. 15), *sewn*, 1s 6d [Washington,] 1885
- 13169 ——— RESULTATE aus PENDELBEOBAHTUNGEN. I. und III. ABTHEILUNG: BESTIMMUNG der Länge des einfachen Sekundenpendels in Altona und Königsberg, 2 parts 4to. (pp. 25), *sewn*. 3s [Kiel, 1880-1]

- 13171 **PETETIN** (Jacques Henri Désiré, M.D.) NOUVEAU MÉCANISME de l'ÉLECTRICITÉ, fondé sur les Lois de l'Équilibre et du Mouvement, démontré par des EXPÉRIENCES qui RENVERSENT le SYSTÈME de l'ÉLECTRICITÉ POSITIVE et NÉGATIVE; et qui établissent ses Rapports avec le Mécanisme Caché de l'AIMANT, dont il explique les principaux Phénomènes: et l'heureuse Influence du Fluide Électrique dans le Traitement des Maladies Nerveuses; with 10 folding plates, Svo. *sewn*, 8s 6d
Lyon, An 10 [1802]
Interesting for giving experiments to trace the connexion between electricity and magnetism.
- 13172 **PETIT** (Emma Gentille) PLAYING at SCIENCE [in Verse]: Recollections of a Course of Lectures on Geology, Astronomy, etc., given by the Rector of St. Michael's, Lichfield, 3 parts Svo. *sewn*, 3s 6d
privately printed, 1876-9
Lichfield scientific poetry almost suggesting a reincarnation of Erasmus Darwin.
- 13173 **PETIT** (Robert) HOW to BUILD an AEROPLANE: translated by T. O'B. HUBBARD and J. H. LEDEBOR, 2nd Edition, with 93 illustrations, Svo. *cl.*, 2s
1911
- 13174 **PETRI** (Nicolas, Deventer) PRACTIQUE. om te LEEREN REKENEN, CYPHEREN, ende BOECKHOEWEN, met die REGEL COSS, ende GEOMETRIE seer profytelijcken voor allen Cooplyden, van nieus [sic] ghecorrigeert ende vermeerderd; with finely engraved portrait by H. GOLTZIUS, 2 folding plates, and numerous diagrams, 4 parts 12mo. in 1, black letter; old white vellum (F. 194 wanting); RARE, £1. 15s
z. p. [? Amsterdam], 1591
Unknown to Poggeadorff, Græsse, Brunet, and others.
'Petri published an excellent treatise, which went through four [recte five] editions. It deals with arithmetic and geometry, as well as with book-keeping, and treats the subject succinctly and well. The improvements in the matter of stock-taking and of making a periodical trial-balance are incorporated. . . . Petri introduces for the first time two important departures from the older methods. . . . He no longer journalises all transactions *seriatim*, but occasionally groups the kindred items . . . and takes a step towards the separation of the books of primary entry. He introduces an 'Expenses-Book', and at the end of every month transfers the total to cash account by means of the journal. . . . Petri's book is truly one of primary entry.'—Richard Brown.
The above edition was unknown to Mr. Brown, who only quotes those of 1588, 1595, 1596, and 1605. Prof. de Morgan only knew that of 1596.
- 13175 **PETTERSON** (Oscar, Univ. Stockholm) NILSON MEMORIAL LECTURE, with portrait, Svo. 1900
(pp. 18), *sewn*, 1s 6d
Lars Frederik Nilson, F.R.S., was not only one of the greatest Swedish chemists of his time, but his beautiful native island of Gothland owes to him its present position as a great producer of sugar-beet.
- 13176 **PETTERSON** (Sven Otto; Univ. Stockholm) EXPERIMENTELLE METHODEN und UNTERSUCHUNGEN in der PHYSIKALISCHEN CHEMIE. I—VI; with 2 folding plates, 4to. (pp. 44), *sewn*, 3s 6d
Upsala, 1879
'Of more importance have been the researches made with the object of determining melting point and heat of solidification (*supra*), & c. those of Petterson and Nilson.'—Prof. E. v. Meyer.
- 13177 ——— UNTERSUCHUNGEN über die MOLEKULARVOLUMINA einiger Reihen von isomorphen Salzen, 4to. (pp. 45), *sewn*, 3s 6d
ibidem, 1873
- 13178 **PETTIGREW** (James Bell, M.D., F.R.S.) ANIMAL LOCOMOTION, or Walking, Swimming, and Flying; with a DISSERTATION on AERONAUTICS, 2nd Edition, with 3 plates and 130 woodcuts, cr. 8vo. *cl.*, 2s 6d (p. 5s)
1874
- 13179 **PETTUS** (Sir John; F.R.S., M.P., Deputy Governor of the Royal Mines) FLETA MINOR: the Laws of Art and Nature in Knowing, Judging, ASSAYING, FINING, REFINING and Inlarging the Bodies of confin'd METALS, in Two Parts. I. ASSAYS of LAZARUS ERCKERN [sic], Chief Prover (or Assay-Master General of the Empire of Germany), in V. Books; originally written by him in the Teutonic Language, and now translated into English. II. ESSAYS on METALLICK WORDS, as a Dictionary to many pleasing Discourses, first edition, with fine portrait *et.* 70 by R. WHITE, and 43 fine engravings on copper of metallurgical processes, large folio; FINE and EXCEPTIONALLY LARGE COPY in contemporary English calf (RARE), £3. 3s
printed for the author, by Thomas Dawks, 1683
Copies having the portrait are especially rare. It is different from that in the *Fodinae* and less comely, as he has developed an aggressive Roman nose. The above copy is unusually tall, and probably on Large Paper, although Lowndes does not mention such.
- 13180 ——— ANOTHER COPY, contemporary calf, rebounded (portrait wanting, but a FINE and TALL COPY), £1. 12s 6d
- 13181 ——— ANOTHER COPY, also wanting the portrait, new hf. calf antique, £1. 11s 6d
The first 377 pp. contain the only English translation ever published of Ercker's classic work. (v. No. 7592, *ante*). The dictionary of mining terms is the first published in the language.
- 13182 ——— REPRINT, with 43 fine engravings on copper, folio, old calf, newly rebounded (portrait wanting and title mounted, but a large copy), £1. 5s
Stephen Bateman, 1686
- 13183 ——— FODINÆ REGALES: or the HISTORY, LAWS, and PLACES of the CHIEF MINES and MINERAL WORKS in ENGLAND, WALES, and the ENGLISH PALE in IRELAND; as also of the MINT and MONY; with a Clavis explaining some difficult Words relating to Mines, etc., with beautiful PORTRAIT by W. SHERWIN (splendid impression), and 4 fine engravings on copper (2 full-page of Mines), folio, old calf (small part of blank margin torn out of portrait, but a LARGE and SOUND COPY); VERY RARE, £2. 12s 6d
T. Basset, 1670
This rare work is very valuable for giving an account of the state of mining in England during the XVIIth. Century. It was undertaken at the request of Prince Rupert and Lord Shaftesbury. Large extracts from it are given in Hunt's 'British Mining'.
The fine portrait is to be found only in a few copies of the work, it having evidently been subject to the ravages of the grangerizer or print-seller of the past. It is of a much earlier period of his life than that to the 'Fleta Minor' (*supra*), and is not mentioned in *D. N. B.*
- 13184 ——— REPRINT of the FIRST PART, 12mo. *sewn* (hole through last 6 ll.), 12s 6d F. Collins, 1706
Added to the above is: 'OBSERVATIONS made by J. H. mostly in the year 1706' (pp. 1-106, without title), which deals chiefly on CORNISH MINING.
- 13185 **PEWTNER** (W.) COMPREHENSIVE SPECIFIER: a Guide to the Practical Specification of every Kind of Building-Artificers' Work, edited by WILLIAM YOUNG, cr. 8vo. *cl.*, 2s (p. 6s)
1870

- 13187 **PETTY** (Sir William, F.R.S.) The DISCOURSE made before the ROYAL SOCIETY the 26. of November 1674 concerning the USE of DUPLICATE PROPORTION in sundry Important Particulars; with a NEW HYPOTHESIS of SPRINGING or ELASTIQUE MOTIONS, 24mo. *contemporary calf (blank portion of last l. missing, some ll. waterstained, and title soiled)*; RARE, 15s

John Martyn, Printer to the Royal Soc., 1674

Interesting for containing some extraordinary and interesting speculations in molecular physics. In his dedication to the Duke of Newcastle the author states the work to contain three parts: 'I. an Endeavour to explain the intricate Notions, or *Philosophia Prima* of Place, Time, Motion, and Electricity; II. to excite the World to the study of a little Mathematicks by shewing the use of Duplicate Proportions in some of the most weighty of Humane Affairs; III. Chymical Speculations, to consider such points and proportions, even in *Atoms* (such, whereof perhaps a Million do not make up one visible *Corpusculum*.) as may give an intelligent Account of the Nexures, Mixtures, and Mobilities of all parts of the Universe.'

- 13188 **PETZOLDT** (Georg Paul Alexander; *Univ. Dorpat*) Die AGRIKULTURCHEMIE in populären Vorlesungen, 2. umgearbeitete Auflage; *with woodcuts*, 8vo. *sewn*, 2s Leipzig, 1846
- 13189 ——— LECTURES to FARMERS on AGRICULTURAL CHEMISTRY, post 8vo. *cl.*, 2s 6d 1845
- 13190 **PETZVAL** (Joseph) INTEGRATION der LINEAREN DIFFERENTIALGLEICHUNGEN mit KONSTANTEN und VERÄNDERLICHEN COEFFICIENTEN, LIEFERUNG 1-3; *with plate*, in one vol. 4to. *hf. calf neat*, 7s 6d (p. M. 28.30 *sewn*) Wien, 1851-5

- 13191 **PEUERBACH**, *Latine PURBACHIUS* (Georg) THEORICÆ NOVE PLANETARUM, ab ERASMO REINHOLDO Saluedensi pluribus Figuris auctæ, et illustratæ Scholiis, quibus studiosi præparentur, ac inuitentur ad Lectureionem ipsius PTOLEMÆI; recens editæ et auctæ novis Scholiis in Theoria Solis ab ipso Autore Incerta item METHODICA TRACTATIO de ILLUMINATIONE LUNÆ; *with 3 plates and numerous other woodcuts and diagrams*, 12mo. *old vellum (one corner partly water-stained, otherwise a very sound and clean copy)*, 18s 6d Parisiis, C. Perier, 1557

The editor, Erasmus Reinhold, was professor of higher mathematics in the University of Wittenberg, and, according to Poggendorf, one of the first adherents of the Copernican system, and the first to mention, in the above work, the camera obscura, but in an imperfect state (*v. PORTA, A.o. 13517 post*). At end is: *Theorica Motus Octavæ Sphæræ*.

- 13192 ——— TRACTATUS super PROPOSITIONES PTOLEMÆI de SINUBUS et CHORDIS; item COMPOSITIO TABULARUM SINUM per JOANNEM de REGIOMONTE, cum TABULIS SINUM DUPLICES per eundem REGIOMONTANUM, editio princeps; *with diagrams, folio, parchment (water-stained, but a sound copy)*; RARE, £1. 1s Norimbergæ, Johan. Petreius, 1541

The first satisfactory table of sines ever published, and one of the author's most celebrated works. A full account of it will be found in Prof. Cantor's *Vorlesungen über Geschichte der Mathematik*, Vol. II.

'Les deux hommes à qui les mathématiques doivent le plus dans le XV^e siècle, sont *Purbach* et *Regiomontanus*. Ce ne sera pas concevoir d'eux une idée trop avantageuse, que de les regarder les vrais restaurateurs de ses sciences, et surtout de l'astronomie'. — *Montucla*.

The author was a native of Peuerbach, a market town of Upper Austria, whence his name; professor of mathematics in the university of Vienna, and the teacher of Regiomontanus.

- 13193 **PFÄFF** (Christian Heinrich, *Univ. Kiel*) REVISION der LEHRE vom GALVANO-VOLTAISMUS, mit besonderer Rücksicht auf Faraday's, de la Rive's, Becquerel's, Karsten's u. a. neueste Arbeiten; *with folding plate*, 8vo. *sewn*, 7s 6d Altona, 1837

- 13194 ——— ANOTHER COPY, *boards (nice copy)*, 8s 6d
- The author was one of the earliest and foremost supporters of the contact theory of voltaic electricity, and much of the work is directed against the chemical theory advanced (by Wollaston, Fabbroni, and Ritter) to account for electric action. He also revised Volta's contact series, and was one of the few who appreciated the importance of Ohm's discovery.

- 13195 **PFÄFF** (Friedrich, *Univ. Erlangen*) Die NATURKRÄFTE in den ALPEN; oder physikalische Geographie des Alpengebirges; *with diagrams and woodcuts*, post 8vo. *hf. calf extra (nice copy)*, 3s 6d München, 1877

- 13196 **PFÄFF** (Johann Wilhelm Andreas, *Univ. Erlangen*) BETRACHTUNGEN über die SPIRALE; *with plate*, 4to. (pp. 14), *sewn*, 2s [? München, 1832]

Not noticed by Poggendorf.

- 13197 **PFAUNDLER** (Leopold v.; *Univ. Graz*) Die ENTWERTHUNG der MATERIE, post 8vo. (pp. 32), *sewn*, 1s 6d Wien, 1888

- 13198 **PFEFFINGER** (Jean Frédéric) FORTIFICATION NOUVELLE, ou Recueil de différentes Manières de Fortifier en Europe, nouvelle Édition; *with frontispiece, vignette on title, and 46 folding copperplates*, 8vo. *boards, uncut, with auto. of [Gen.] Robert Melville [F.R.S., 1723-1809, inventor of a naval gun]*, 5s 6d La Haye, 1740

This work was unknown to Quérad. The *Biographie Générale* only mentions an edition of 1698.

- 13199 **PHELPS** (Robert, *Trinity Coll., Cantab.*) ELEMENTARY TREATISE on OPTICS, intended chiefly to elucidate the PRINCIPLES of the CONSTRUCTION of TELESCOPES, and some other Optical Instruments, *with 69 diagrams*, 8vo. *boards, uncut (scarce)*, 5s Cambridge, 1835

An early Cambridge text-book of geometrical optics.

- 13200 **PHILLIPPS** (Henry, *Philo-Nauticus*) THE SEA-MAN'S KALENDER: or, an Ephemerides of the Sun, Moon, and certain of the most notable Fixed Stars, also a TABLE of the LONGITUDE and LATITUDE of all the most eminent Places of the World, first calculated by JOHN TAP, corrected, with many Additions, *viz.* New Exact TABLES of the NORTH STAR; New TABLES of 85 of the principal FIXED STARS, etc., with a DISCOVERY of a Way to Find the Long Hidden SECRET of LONGITUDE, by HENRY BOND, all which are now newly calculated and corrected, and many Rules and Tables added, *with woodcuts (with the full-page one on p. 11 intact)*, sm. 4to. *large and sound copy in contemporary sheep (back damaged)*; RARE, *with Tixall Library label*, £1. 15s

W. Godbid for E. Hurlock, 1674

'It is a Compendium (if well understood) of the whole Art of Navigation. But its chiefest excellency consists in the Astronomical part thereof; the Tables whereof are so plain and full, and well ordered, that there never were the like in any Book.' — *Address to the Ingenious Sea-man*. At end is a table, giving the latitude and longitude of over 1000 places, by T. STERN, globe-maker.

The work was unknown to Lowndes, while Watt only quotes an edition of 1696. There was no copy of any edition in the Scott Library, nor is there one in that of the Institution of Naval Architects.

TRAITÉ

DU TRIANGLE

ARITHMÉTIQUE,

AVEC QUELQUES AUTRES

PETITS TRAITÉS SUR LA

MÊME MATIÈRE.

Par Monsieur PASCAL.

Notre de main



A PARIS,

Chez GUYLLAUME DESPREZ, rue saint Jacques,
à Saint Profect.

M. DC. LXV.

Z	I	2	3	4	5	6	7	L	8	9	10
1	1	1	1	1	1	1	1	1	1	1	1
2	1	2	3	4	5	6	7	8	9		
3	1	3	6	10	15	21	28	36			
4	1	4	10	20	35	56	84				
5	1	5	15	35	70	126					
6	1	6	21	56	126						
7	1	7	28	84							
8	1	8	36								
9	1	9									
10	1										

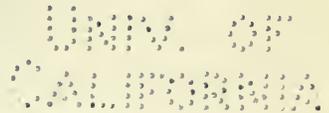
Rangs paralleles

Triangle Arithmetique

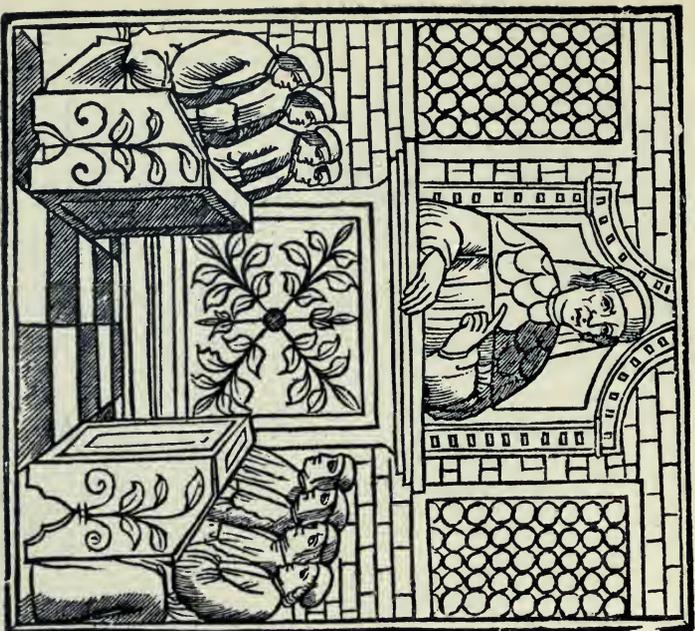
Rangs perpendiculaires

No. 12997 (page 650).

Pascal's Arithmetical Triangle.



TARIFFA DE PESI E MESVRE.
CON GRATIA ET PRIVILEGIO.



QVI COMINCIA LA VTISSIMA OPERA CHIAMATA
TARIPHA LAQUAL TRACTA DE OGNI SORTE
DE PESI E MISVRE CONRISPONDENTI PER TVTO
IL MONDO FATTA E COMPOSTA PER LO EXCELEN
TE ET EXIMIO MESSER BARTHOLMEO DI PAXIDA
VENETIA.



AVERemo adung prima adchiarare a
nostre eccellente tutte Le robe che se ven
dano in Venetia a peso grosso & quelle che
se vendano a peso sottile & de l'ordine di
pesi de li arzaniti & de le conditione di pã
ni de lane franciche fatte in Venetia: &
etiam de le conditione di panni de scdas
panni doroi: & del ordine del uendere de
le specie: & de le misure: & del ordine
de le misure di vini: & del ordine del ven
der del olio: & in che modo & peso se uen
dano i guadi: & del ordine di frutti che se vendono a nome di ster: &
che peso hanno cadaun ster: come risponde el peso grosso con tut
ta la Italia: & tutto el Levante: & etiam come i pestinilli e
e pesi grossi respondeno con molte terre de Italia: de Dalmatia e de
Leuante: & come respondeno le misure di panni de lana con tutta la
Italia: con tutto el Levante: & etiam come respondeno le misure di
panni de scdas: panni doroi e darzento con tutta Italia: & con tutto el
Leuante: & Ponente: & come respondeno le misure Dinghilterra cioè
la virga da Londra: e della Taripha Dalkandria: & etiam quella de
Damatcho & la taripha da Leppe, e come torna la poira Dalkandria
con molte terre de Leuante e de Ponente e de la Italia: & come el Can
ter fortiori Dalkandria responde con alcune altre terre de Leuante
de Ponente e de Italia: & etiam come responde el Chanter zeroni con
alcune terre del Levante del Ponente e de Italia: & come responde
el cento de le mane con alcune terre del Levante e molte de Italia &
del Ponente: & come responde iuriscamtra de Leuante e del Pos
nente con el peso sottile da Venetia: & come responde el Chanter da
Napoli de rame con molte terre del Levante del Ponente e con mol
te de Italia: & come responde el Chanter de Constantinopoli con mol
te terre de Leuante: & etiam de Italia: & come responde el Chanter de

- 13202 **PFORDTEN** (Otto Freiherr v.; *Univ. Strasbourg*) Zur NOMENCLATUR der ANORGANISCHEN VERBINDUNGEN, 8vo. (pp. 9), *sewn*, 1s
Berlin, 1889
- 13203 **PHILIPPS** (Henry) The PURCHASER'S PATTERN, shewing the true Value of LAND or HOUSES, by Lease or otherwise. . . . also TABLES of INTEREST and REBATE at 6 per Cent.; the MEASURING of LAND, BOARD, and TIMBER, and the FALSE METHODS us'd by many therein. Also the ART of GAUGING much enlarg'd with many other Rules about Weights and Measures, TABLES of the EXCISE of BEER and ALE, Tables of Accounts, etc. etc.; 6th Edition, much enlarg'd, 24mo. *old sheep (last l. mounted)*, 8s 6d
1721
A rare work, unknown to Lowndes and Prof. de Morgan.
The above copy belonged to, and bears the armorial bookplate (slightly damaged) of, John Perceval, first Earl of Egmont, F.R.S. (1688-1748), who together with General Oglethorpe established the Colony of GEORGIA.
- 13204 **PHILIPS** (Caspar) WIS- MEET- en DOORZICHT-KUNDIGE HANDLEIDING, volgens welke men ten allen Tyde en Plaatsen den Stand der ZONNE en MAANE; de Verlichting der Voorwerpen door dezelve; de Strekking en Lengten van derzelve Slagschaduwten, gemaklyk vinden, en in Perspectiefche Regelen overbrengen en bepaalen kan; with 8 folding copperplates, 8vo. boards, *uncut*, 10s 6d
Amsterdam, 1786
Including interesting problems in DIALLING. The author is not mentioned by Poggendorf and other bibliographers.
- 13205 **PHILLIPPS** (G. Jenkin, F.G.S., *late from Cornwall*) SYSTEM of MINING COAL and METALLIFEROUS VEINS fully explained; with Compendium of General Principles, Productive, Consumption, and incidental Statistics of Coal, and Geological and Mineralogical Observations, with 5 folding plates, post 8vo. *cl. (scarce)*, 6s
Philadelphia, 1858
Suggestions from English practice for American mining, then comparatively in its infancy.
- 13206 **PHILLIPS** (Francis C., *Western Univ., Allegheny City*) The COMPOSITION and FUEL VALUE of NATURAL GAS, 8vo. (pp. 41), *sewn*, 1s 6d
Harrisburg, 1887
- 13207 **PHILLIPS** (Henry Joshua, F.I.C.) ENGINEERING CHEMISTRY, comprising Methods of Analysis and Valuation of the principal Materials used in Engineering Work, with 33 woodcuts, cr. 8vo. *cl.*, 3s (p. 10s 6d)
1891
- 13208 ——— THIRD [LATEST] EDITION, enlarged, with 82 illustrations, thick 8vo. *cl.*, 6s (p. 10s 6d net)
1902
- 13209 **PHILLIPS** (John) GENERAL HISTORY of INLAND NAVIGATION, Foreign and Domestic: a complete Account of the CANALS already executed in ENGLAND, with Considerations on those projected, with Practical Observations [also Addenda and Second Addenda], with large coloured folding map of all canals in England, and 4 fine copperplates of canal works, thick 4to. *old tree-calf gilt, saffron edges (nice copy)*, 15s
1792[-4]
'Containing much useful information on canals at that time completed, or in process of construction, the cost of construction, freights, etc.'—D. N. B.
- 13210 **PHILLIPS** (John, F.R.S., *Prof. Geology, Oxon.*) FIGURES and DESCRIPTIONS of the PALEOZOIC FOSSILS of CORNWALL, DEVON, and WEST SOMERSET, with 60 lithographs, 8vo. *cl.*, *uncut (scarce)*, 10s 6d
1841
- 13211 ——— A GUIDE to GEOLOGY, 5th Edition, with 4 plates and 50 woodcuts, fcap. 8vo. *cl.*, 2s 1864
- 13212 ——— ILLUSTRATIONS of the GEOLOGY of YORKSHIRE; or a Description of the Strata and Organic Remains of the YORKSHIRE COAST, first edition, with 14 lithographic plates of fossils, 9 coloured plates of sections, and coloured geological map, 4to., *hf. calf gilt (SCARCE)*, £1. 1s
York, 1829
- 13213 ——— SECOND EDITION: PART I: The YORKSHIRE COAST, second Edition [revised]. Part II: The MOUNTAIN LIMESTONE DISTRICT, with 36 lithographic plates of fossils, 11 coloured plates of sections, and 2 maps (1 coloured), 2 vols. 4to. boards, *uncut (SCARCE)*, £1. 15s
1835-6
- 13214 ——— PART I: The YORKSHIRE COAST, third [last] Edition, by R. ETHERIDGE, with coloured folding map, 23 plates (some coloured), and numerous woodcuts, 4to. *cl. (SCARCE)*, £1. 1s
1875
- 13215 ——— MANUAL of GEOLOGY, Practical and Theoretical, with coloured frontispiece and 376 woodcuts, thick cr. 8vo. *cl.*, 2s 6d
1855
- 13216 ——— [NEW EDITION], edited by ROBERT ETHERIDGE and HARRY GOVIER SEELEY, F.R.S., with coloured frontispiece, 36 plates, numerous woodcuts, and coloured map, 2 thick vols. 8vo. *cl.*, *uncut (o. p.)*, £1. 1s (p. £2. 12s)
1895
- 13217 ——— REPORT on the PROBABILITY of the OCCURRENCE of COAL and other MINERALS in the Vicinity of LANCASTER, with 9 coloured plates of sections, 4to. (pp. 18), *sewn*, 5s
Lancaster, 1837
- 13218 ——— A TREATISE of GEOLOGY, forming the Article in the Seventh Edition of the Encyclopædia Britannica, with 2 folding plates of Staffa and 16 woodcuts, large post 8vo. *cl.*, 3s
Edin., 1838
- 13219 ——— VESUVIUS, with 9 plates, 35 woodcuts, and 2 maps, large cr. 8vo. *cl.*, 4s (p. 10s 6d)
Clarendon Press, Oxford, 1869
- 'More than one of his books still hold a high place in geological literature'.—Prof. Bonney, F.R.S. He was the first to propose the terms paleozoic, mesozoic, and cenozoic.
- 13220 **PHILLIPS** (John Arthur; F.R.S.) On the COMPOSITION and ORIGIN of the WATERS of a SALT SPRING in HUEL SETON MINE [Camborne], with folding plate and 2 woodcuts, 8vo. (pp. 11), *sewn*, with author's inscr., 2s
1873
- 13221 ——— ELEMENTS of METALLURGY: a Practical Treatise on the Art of Extracting Metals from their Ores, with 205 woodcuts, thick roy. 8vo. *cl.*, 6s 6d (p. £1. 14s)
1874
- 13222 ——— ANOTHER COPY, *cl. (binding badly damaged)*, 5s
- 13223 ——— SECOND EDITION, revised and enlarged by the Author and HILARY BAUERMAN, F.G.S., with 2 folding plates, and 232 woodcuts, thick roy. 8vo. *cl.*, 15s (p. £1. 16s)
1887

- 662 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 13225 PHILLIPS (John Arthur; F.R.S.) MANUAL OF METALLURGY, or Practical Treatise on the Chemistry of Metals, with 215 woodcuts, thick post 8vo. cl., 2s 6d 1852
- 13226 ——— ANOTHER COPY, *hf. morocco (stamp on title)*, 3s
- 13227 ——— SECOND EDITION, enlarged, with 218 woodcuts, thick post 8vo. *hf. morocco (stamp on title)*, 3s 6d 1854
- 13228 ——— ANOTHER COPY, *cl.*, 3s
- 13229 ——— The MINING and METALLURGY of GOLD and SILVER, with front., 7 plates, 84 woodcuts, and map, sq. roy. 8vo. *hf. morocco (scarce)*, 12s (p. £1. 11s 6d) 1867
- 13230 ——— NOTE on the COMPOSITION of certain MINE WATERS, 8vo. (pp. 4), *sewn, with author's inser.*, 1s 1874
- 13231 ——— TREATISE on ORE DEPOSITS, with 95 woodcuts, and map, roy. 8vo. *cl.*, 8s (p. £1. 5s) 1884
- 13232 ———, and John DARLINGTON: RECORDS of MINING and METALLURGY; or Facts and Memoranda for the Mine Agent and Smelter, with full-page and other woodcuts, post 8vo. *cl. (scarce)*, 6s 1857
- Including a valuable 'Historical Notice' (pp. 40), 'the result of a considerable amount of research, and presenting in a tabular form a large collection of analyses of various ancient alloys.'—*Preface.*
- This work was unknown to the author's biographer in D. N. B.
- 13233 PHILLIPS (Sir Richard; publisher; Radical; Sheriff of London; paradoxer; more than a match for George Borrow) ESSAYS on the PROXIMATE MECHANICAL CAUSES of the GENERAL PHENOMENA of the UNIVERSE, with diagrams, 12mo. boards (rare). 8s 6d 1818
- 'A pretentious volume on the principle of universal causation, which provoked De Morgan's anger. . . Christopher North called Phillips 'a dirty little Jacobin', with no literary ability and absurd scientific views.'—D. N. B.
- Readers of 'Lavengro' will recall the wicked publisher's successful exploitation of his redoubtable author.
- 13234 ——— TWELVE ESSAYS on the PROXIMATE CAUSES of the MATERIAL PHENOMENA of the UNIVERSE, with illustrative Notes, with 4 folding copperplates, besides diagrams, 8vo. boards, uncut (SCARCE), 16s 6d 1821
- A greatly enlarged edition of the above *Essays*.
- 'Phillips was not only an anti-Newtonian but carried to a fearful excess the notion that statesmen and Newtonians were in league to deceive the world. . . The schoolmen, and the 'philosophical trinity of gravitating force, projectile force, and void space' were the bogies of his life. . . He had four valuable qualities: honesty, zeal, ability, and courage. He applied them all to teaching matters about which he knew nothing, and gained himself an uncomfortable life and a ridiculous memory.'—*Prof. de Morgan.*
- 13235 [——] The WONDERS of the TELESCOPE; or a Display of the Starry Heavens and of the System of the Universe: calculated to promote and simplify the Study of Astronomy; new Edition, with 14 folding plates, cr. 8vo. boards, 4s 1809
- Including a good folding view of Sir William Herschel's 40-foot reflector with its cumbersome staging.
- 13236 PHILLIPS (Richard, F.R.S., P.C.S.) RESEARCHES on the CHEMICAL EQUIVALENTS of certain BODIES, 4to. (pp. 6), *sewn*, 3s 6d 1839
- Written in support of Prout's theory that all atomic weights are simple multiples of that of hydrogen. The author gives here the atomic weights of H, O, N, and Cl as 1, 8, 14, and 36.
- 13237 PHILLIPS (Samuel E., F.C.S.) AN ATTEMPT to UNDERSTAND the MATERIAL NATURE of ELECTRICITY, 8vo. (pp. 8), *sewn*, 1s 6d 1887
- Interesting as one of the hypotheses preceding the electron theory.
- 13238 PHILLIPS (William; F.R.S.; bookseller, George Yard, Lombard St.) DESCRIPTION of the OXYD of TIN, the Production of CORNWALL, of the PRIMITIVE CRYSTAL and its MODIFICATIONS, including an Attempt to ascertain with Precision the ADMEASUREMENT of the Angles by Means of the REFLECTING GONIOMETER of DR. WOLLASTON, with a Series of its Crystalline Forms and Varieties, 12 copperplates containing 235 diagrams, 4to. (pp. 41), *sewn*, 5s 1814
- 'Though actively engaged in trade, he devoted his leisure to the pursuit of natural science, and attained a high position as a mineralogist, in which study he made great use of the goniometer, then recently invented by W. H. Wollaston, his success with it being mentioned by William Whewell in his *History of the Inductive Sciences*.'—D. N. B.
- 13239 ——— ELEMENTARY INTRODUCTION to the Knowledge of MINERALOGY, with the Places and Circumstances in which Minerals are found, and especially the Localities of British Minerals, 3rd Edition, enlarged, with numerous woodcuts, large post 8vo. boards, uncut, 3s 1823
- 13240 ——— FOURTH EDITION, considerably augmented by ROBERT ALLEN, F.R.S.E., with numerous woodcuts, thick post 8vo. boards, uncut, 4s 1837
- 13241 ——— FIFTH [LAST] EDITION, with extensive Alterations and Additions, by H. J. BROOKE and W. H. MILLER, F.F.R.S., with 647 woodcuts, large post 8vo. (pp. 712), *cl.*, 5s 1852
- 'An extraordinary treasure of crystallographic facts.'—*Dr. Whewell.* 'A monument to Miller's name, though he almost expunged Phillips's name from it.'—*Prof. Story Maskelyne, F.R.S.*
- 13242 ——— OUTLINES of MINERALOGY and GEOLOGY, 3rd Edition, with Additions, 4 plates, post 8vo. boards, uncut, 2s 1818
- 13243 ——— A SELECTION of FACTS from the best Authorities, arranged so as to form an OUTLINE of the GEOLOGY of ENGLAND and WALES, with plate and geological map (both coloured and folding), and large folding table, feap. 8vo. *hf. morocco gilt (scarce)*, 7s 6d 1818
- 'His most important contribution to geology, which became the basis of a joint work by the Rev. William Daniel Conybeare and himself, entitled 'Outlines of the Geology of England and Wales'.'—D. N. B.
- 13244 PHILOSOPHICAL SOCIETY of GLASGOW (ROYAL), PROCEEDINGS of the, complete from 1866-7 to 1911-12 (vv. VI No. 3—XLIII), and Index to vv. I—XX, with maps, and numerous woodcut portraits, plates, and diagrams, 18 vols. 8vo. *cl.*, and the rest in parts, *sewn as issued (wanting Vol VIII No. 1)*, £5. 15s Glasgow, 1867-1912
- 13245 ——— ANOTHER SET, from 1880 (v. XIII) to 1907-8 (v. XXXIX), 14 vols. 8vo. *cl.*, and the rest in parts, *sewn as issued*, £3. 15s *ibidem*, 1880-1908
- post. TRANSACTIONS of the ROYAL SOCIETY—v. ROYAL SOCIETY of LONDON,

13247 **PHILOSOPHICAL MAGAZINE** (The), comprehending the VARIOUS BRANCHES of SCIENCE, the LIBERAL and FINE ARTS, AGRICULTURE, MANUFACTURES, and COMMERCE, from the Beginning in 1798 to 1803, with numerous copperplates (many folding), 15 vols. 8vo. *hf. calf* (wanting vv. IV and VIII and title to v. XV; the plates bound separately in 2 vv.); RARE, £3. 3s
1798-1803

A LONG SERIES TO MAY, 1900:

13248 ———, or ANNALS of CHEMISTRY, MATHEMATICS, ASTRONOMY, NATURAL HISTORY, and GENERAL SCIENCE, edited by RICHARD TAYLOR, RICHARD PHILLIPS, SIR DAVID BREWSTER, SIR ROBERT KANE, W. FRANCIS, G. F. FITZGERALD, JOHN JOLY, and LORD KELVIN, complete from 1832 to May, 1900, viz., THIRD SERIES (London and Edinburgh Philosophical Magazine and Journal of Science), 37 v., '32-50: FOURTH SERIES (London, Edinburgh, and Dublin Philosophical Magazine), 50 v., '51-75: FIFTH SERIES, vv. 1-49, '76-1900—in all 136 vols. 8vo., with hundreds of fine plates, portraits, and woodcuts; 3rd and 4th Series, 87 vols. in sound *hf. russia*, 5th Series, vv. 1-41 in *hf. calf*, and vv. 42-49 in parts as issued (A FINE AND EXTENSIVE SERIES); **EXTREMELY RARE**, £145.
1832-1900

A great publication, ranking hardly second to the Philosophical Transactions [*q. v. post*] of the Royal Society themselves, and thus indispensable to any great scientific library.

13249 ——— FOURTH SERIES, Vols. XXII—XXXII, with numerous plates (many folding or coloured) and other illustrations, 11 vols. 8vo. *hf. calf* (backs rubbed and some joints cracked), £6. 6s
1861-6

13250 ——— FIFTH SERIES, Vols. XXXI—XLIV, with numerous plates (many coloured or folding) and other illustrations, 14 vols. 8vo. *hf. calf neat* (last 2 v. in parts), £10. 10s
1891-7

13251 **PHIPSON** (Thomas Lambe, F.C.S.) ANALYSE de quelques SUBSTANCES MINÉRALES, roy. 8vo. (pp. 4), *unbound*, 1s
[Bruxelles], s. d.

13252 ——— BOILER DEPOSITS: on the CHEMICAL NATURE of various kinds of Boiler Incrustations, and on some of the Methods proposed to remedy them, 8vo. (pp. 12), *sewn*, 1s 6d
1868
Advocating the use of pure carbonate of soda.

13253 ——— Sur les BOLETS BLEUISSANTS: Étude de la FORMATION de PRINCIPES COLORANTS chez plusieurs Champignons, 8vo. (pp. 8), *sewn*, 1s 6d
Bruxelles, 1860

13254 ——— DESCRIPTION of a NEW APPARATUS for producing SULPHURETTED HYDROGEN, 8vo. (pp. 2), *unbound*, 1s 6d
n. d.

13255 ——— ESSAY on the AGRICULTURAL USES of SALT, showing its Chemical Value as a Food for Animals and Plants, and defining its Effects as Manure, 8vo. (pp. 23), *sewn*, 2s
[c. 1863]
Awarded a prize by the Society of Arts.

13256 ——— La FORCE CATALYTIQUE, ou études sur les Phénomènes de Contact, 4to. (pp. 34), boards, with author's *inscr.*, 4s 6d
Harlem, 1858
This memoir was awarded the prize by the Hollandsche Maatschappij der Wetenschappen.

13257 ——— Sur une MATIÈRE COLORANTE extraite du RHAMNUS FRANGULA (BOURDAINE), roy. 8vo. (pp. 3), *unbound*, 1s
[Bruxelles], s. d.

13258 ——— MÉMOIRE sur la FÉCULE et les Substances qui peuvent la remplacer dans l'Industrie, roy. 8vo. (pp. 29), *sewn*, 2s
ibidem, 1855-6

13259 ——— On NOCTILUCINE, the Phosphorescent Principle of Luminous Animals, 8vo. (pp. 6), *sewn*, 2s
1875

An account of the author's supposed discovery of animal phosphorescence in the shape of *noctilucine*, 'a fluid nitrogenous substance, slightly viscous or oily in appearance.' It contains interesting observations, although its date was too early to guess at a bacteriological origin.

13260 ——— NOTE on the ABSORPTION SPECTRA yielded by certain ORGANIC SUBSTANCES, with 12 woodcuts of spectra, 8vo. (pp. 4), *sewn*, 1s 6d
1869

13261 ——— NOTE on the BICARBONATE of AMMONIA of the CHINCA ISLES, 8vo. (pp. 3), *sewn*, 1s
[c. 1863]

13262 ——— NOTE sur les SPECTRES d'ABSORPTION produits par les SOLUTIONS de certaines SUBSTANCES ORGANIQUES; with 12 woodcuts of spectra, roy. 8vo. (pp. 4), *unbound*, 1s 6d [Bruxelles, 1869]
The original form of the above 'Note on the Absorption Spectra'.

13263 ——— NOTE on VEGETABLE IVORY, 8vo. (p. 1), *unbound*, 1s
n. d.

13264 ——— Sur une NOUVELLE ROCHE, de Formation récente, sur le Littoral de la Flandre Occidentale, 4to. (pp. 3), *sewn*, with author's *inscr.*, 1s 6d
1857

13265 ——— Sur quelques PHÉNOMÈNES MÉTÉOROLOGIQUES observés sur le Littoral de la Flandre Occidentale, 4to. (pp. 4), *sewn*, 1s 6d
1857

13266 ——— PHOSPHORESCENCE, or the EMISSION of LIGHT by MINERALS, PLANTS, and ANIMALS, with frontispiece, and 29 woodcuts, fcap. 8vo. *cl.* (SCARCE), 10s 6d
1862

At end is an interesting bibliography (pp. 8) of 50 authors who wrote on the subject from 1640 to 1859. Some of the works have interesting notes added.

13267 ——— De la PHOSPHORESCENCE en général, et des INSECTES PHOSPHORIQUES en particulier, roy. 8vo. (pp. 16), *sewn*, 3s
Bruxelles, 1858.

This brochure was afterwards enlarged into 'Phosphorescence' (*supra*).

13268 ——— PROTOCTISTA, ou la SCIENCE de la CRÉATION au POINT de VUE de la CHIMIE et de la PHYSIOLOGIE, roy. 8vo. (pp. 8), *sewn*, 1s 6d
ib., 1861

- 664 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 13270 **PHIPSON** (Thomas Lambe, F.C.S.) RECHERCHES NOUVELLES sur le PHOSPHORE, roy. 8vo. (pp. 8), *sewn*, 2s Bruxelles, 1856
 13271 ——— On SOMBRERITE, 8vo. (pp. 3), *sewn*, 1s n. d.
 13272 ——— On the TRANSFORMATIONS of CITRIC, BUTYRIC, and VALERIANIC ACIDS, with Reference to the ARTIFICIAL PRODUCTION of SUCCINIC ACID, 8vo. (pp. 2), *sewn*, 1s n. d.
 13273 ——— On VANADIUM OCHRE and other Sources of VANADIC ACID, 8vo. (pp. 4), *sewn*, 1s 6d n. d.
 13274 **PHIPSON** (Wilson Weatherly, C.E.) REMARKS on VENTILATION, with Abstracts from official Reports on the Combination of Ventilation and Warming SYSTEM VAN HECKE, 8vo. (pp. 19), *sewn*, 1s 6d 1859
 13275 **PHOTOGRAPHIC JOURNAL** (The Liverpool and Manchester), NEW SERIES, Vols. I—II, with woodcuts, 2 vols. roy. 8vo. *hf. morocco gilt (scarce)*, 12s 6d Liverpool, 1857-8
 Including original contributions by A. F. J. Claudet, F.R.S., Sir William Crookes, F.R.S., W. R. Grove, M. H. N. Story-Maskelyne, and H. Fox Talbot, F.R.S., a reprint of the Brewster-Wheatstone correspondence on the invention of the stereoscope, etc. etc. etc.
 13276 ——— **NEWS** (The): a WEEKLY RECORD of the PROGRESS of PHOTOGRAPHY, edited by SIR WILLIAM CROOKES, F.R.S., G. WHARTON SIMPSON, etc., from 1862 to 1875 (Vols. 6-19), with numerous illustrations, 14 vols. 4to. *hf. calf gilt* (v. 1, cl.); NICE SET, £2. 10s 1862-75
 13277 ——— **NOTES**: JOURNAL of the PHOTOGRAPHIC SOCIETY of SCOTLAND and of the MANCHESTER PHOTOGRAPHIC SOCIETY, edited by THOMAS SUTTON, from the Beginning in 1856 to 1860, with woodcuts, 5 vols. roy. 8vo. *hf. morocco gilt (SCARCE)*, £1. 10s 1856-60
 Including original contributions by Sir David Brewster, Sir Edward Frankland, J. P. Joule, F.R.S., and many other authorities.
 13278 ——— **SOCIETY of LONDON**, The JOURNAL of the, containing the TRANSACTIONS of the SOCIETY, and a General Record of Photographic Art and Science, edited by ARTHUR HENFREY, F.R.S., from the Beginning in 1854 to 1859, with numerous woodcuts, 5 vols. roy. 8vo. *hf. morocco gilt (backs slightly rubbed)*; SCARCE, £1. 5s 1854-9
 13279 ——— VOLUMES I—III ONLY, 3 vols. roy. 8vo. in 2, *hf. calf*, 15s 1854-7
 These scarce volumes contain original contributions by J. Latimer Clark, F.R.S., Sir William Crookes, F.R.S., Sir John Herschel, Dr. John Percy, John Tyndall, and Sir Charles Wheatstone, F.R.S.
 13280 **PHOTOGRAPHY**: its HISTORY and APPLICATIONS, from 'The British Quarterly Review', 8vo. (pp. 47), *sewn*, 2s 1866
 13281 **PHYSICAL LABORATORY** (The National): COLLECTED RESEARCHES, Vols. I—VI, with plates and charts (some folding), and numerous diagrams, 6 vols. roy. 4to. *sewn*, £1. 1s 1905-10
 13282 ———: REPORT for the YEAR 1907, with 20 plates (2 folding), 4to. (pp. 97), *sewn*, 2s Teddington, 1908
 13283 ———: REPORT for 1910, with 4 plates (2 folding), and 4 diagrams, 4to. (pp. 102), *sewn*, 2s *ib.*, 1911
 A COMPLETE SET TO AUGUST, 1913:
 13284 **PHYSICAL SOCIETY of LONDON**, PUBLICATIONS of the, COMPLETE from their Beginning in 1874 to August, 1913 (as below), with numerous folding plates and woodcuts, 25 vols. roy. 8vo. 26 *vv.* in *hf. calf gilt*, and the rest in parts, *sewn* (A SOUND LIBRARY SET), £16. 1874-1913
 CONTENTS:—PROCEEDINGS, 25 *v.*, 1874-1913: ABSTRACTS of PHYSICAL PAPERS from FOREIGN SOURCES, 3*v.*, '95-7: PHYSICAL MEMOIRS, etc., 5 parts in 1 *vol.*, '88-94.
 The 'Memoirs' contain: Studies on Electric Boundary-Layers, by H. v. HELMHOLTZ, '79: On the Thermodynamics of Chemical Processes, by the same, 3 parts, '82-3: Further Researches respecting the Electrolysis of Water, by the same, '87: On the Conduction of Electricity in Gases, by W. HITTOFF, 3 parts, '79: Radiant Electrode Matter, and the so-called Fourth State, by J. PALUJ, *n. d.*: The Continuity of the Liquid and Gaseous States, by D. J. v. d. WAALS [translated by R. Threlfall and J. F. Adair], *n. d.*: List of the Chief Memoirs on the Physics of Matter, by R. A. LEHFELDT, interleaved, '94.
 13285 ——— ANOTHER SET, including the Extra Publications, COMPLETE from their Beginning in 1874 to 1912 (v. XXIV), with numerous folding plates and woodcuts, 23 vols. roy. 8vo. in 20, *cl.*, and the rest *sewn* as issued (SCARCE), £15. 1874-1912
 CONTENTS:—PROCEEDINGS, 24 *v.*, 1874-1912: ABSTRACTS, 3 *v.*, '95-7: PHYSICAL MEMOIRS, etc. [Helmholtz. On the Chemical Relations of Electrical Currents (pp. 110): Hittorf. On the Conduction of Electricity in Gases. Paluj. On Radiant Electrode Matter (pp. 222): Van der Waals. On the Continuity of the Liquid and Gaseous States of Matter (pp. 164)], 3 parts, '88-94.
 EXTRA PUBLICATIONS:—The Scientific Papers of Sir Charles Wheatstone, F.R.S., '79: The Scientific Papers of J. P. Joule, F.R.S., 2 *v.*, '84-7: List of the Chief Memoirs on the Physics of Matter, compiled by R. A. Lehfeldt, '94.
 13286 ——— ANOTHER SET, containing the Proceedings, from the Beginning to 1907 (Vol. XX, pt. V), *vv.* 1-15 in 10 *v. cl.*, and the rest in parts, and Physical Memoirs, 3 parts, *sewn*, £10. 10s 1874-1907
 13287 ——— A SERIES, containing the Proceedings, from 1879 (Vol. II) to 1907 (Vol. XX, pt. V), *vv.* 2-11 in *cl.*, and the rest in parts, and Physical Memoirs, Nos. 1 and 3, 2 parts, *sewn*, £9. 1879-1907
 The advertisers also have for sale a number of shorter series and single volumes, particulars and prices of which may be had on application.
 13288 **PIANCIANI** (Giambattista; Collegio Romano) ESPERIENZE e CONGETTURE sulla FORZA MAGNETICA, roy. 4to. (pp. 18), *sewn*, with author's *inser. to the Duca di Rignano*, 3s Modena, 1840
 13289 ——— SAGGIO d'APPLICAZIONE del PRINCIPIO dell' INDUZIONE ELETTRO-DINAMICA a' i FENOMENI ELETTRO-FISIOLOGICI, ed in particolare a quelli delle TORPEDINI, 4to. (pp. 43), *sewn*, with author's *inser. to the Duca di Rignano*, 4s ibidem, 1839

- 13291 **PHOSPHORUS**:—Des PHOSPHORES et des LAMPES PERPETUELLES; with 3 plates of antique lamps, post 8vo. *hf. cl. neat* (RARE), 18s 6d [c. 1720]

Pp. 1-269 contain an account of PHOSPHORUS and PHOSPHORESCENCE, and are interesting for giving a *résumé* of practically everything then known on the subject. They include a reprint of the account of Wilhelm Homberg's discovery of the phosphorescence of molten chloride of calcium (named after him *Homberg's phosphorus*), as contained in the 'Mémoires' of the Académie Royale des Sciences of 1693, chapters on the phosphorescence of the sea, glowworms, luminous plants, diamonds, etc. etc.

Pp. 270-392 contain an historical account of perpetual lamps. In the last chapter (pp. 372-92) the anonymous author claims that 'depuis l'invention des phosphores, on doit convenir qu'il n'est pas absolument impossible de faire des lampes perpetuelles, surtout par la voye de la chymie.' The work has no title. On p. 1 is printed at bottom 'Tome IV.'

- 13292 **PIAZZI** (Giuseppe; *Ord. Theat., Specola di Palermo*) Sull' OROLOGIO ITALIANO, ed EUROPEO: RIFLESSIONI; printed on large and thick paper, with folding plate, large 8vo. contemporary Italian calf extra, inlaid with red morocco, and arms on sides (*fine copy*), 12s 6d Palermo, 1798

The gifted, painstaking, and paradoxical Professor Piazzì Smyth took his second name from Father Piazzì.

- 13293 **PICARD** (Jean, *Prieur de Villé; de l'Académie des Sciences*) L'ÉCOLE des ARPENTEURS; où l'on enseigne toutes les Pratiques de Geometrie, qui sont necessaires à un Arpenteur; on y a ajouté un ABBRÉGÉ du NIVELLEMENT, avec les Proprietez des Eaux, et les Manieres de les jauger ou mesurer; aussi une Méthode . . . pour faire des Toisez, pour toiser la Solidité des Terres, et jauger les Tonneaux; 2^e Édition, augmentée [par PHILIPPE DE LA HIRE]; with numerous diagrams, 12mo. *old calf gilt, with bookplate of Philip 2nd Earl Stanhope, F.R.S. (rare)*, 8s 6d 1692

'On y trouvera une méthode nouvelle de tirer la racine quarrée et cubique d'un nombre par la seule division à l'ordinaire.'—*Acertissement.*

It was translated into German by Johann Heinrich Lambert.

- 13294 **PICCOLOMINI** (Alessandro; *Arcivescovo di Patrasso*) La PRIMA [e la SECONDA] PARTE della FILOSOFIA NATURALE; finely printed in italics, with vignette on titles, 2 vols. 12mo. in 1, *fine copy in contemporary limp vellum*, 12s 6d Vinegia, Gio. Bonello, 1552

A very handsomely printed edition. The second part, entitled 'L'Instrumento della Filosofia', treats exclusively of LOGIC.

- 13295 — La PRIMA PARTE delle THEORICHE overo SPECULATIONI de i PIANETI; with vignette on title, and numerous diagrams, sm. 4to. *hf. roan (some ll. browned and a few holes in last l.)*, 10s *ibidem*, Gio. Varisco & Ci., 1568

No second part was ever published of this work.

THE FIRST STAR MAPS:

- 13296 [—] De la SFERA del MONDO, Libri IV in Lingua Toscana, iguali non per via di tradizione, nè à qual si voglia particolare Scrittore obligati: ma parte da i migliori raccogliendo; e parte di nuovo producendo; contengono in se tutto quel ch' intorno à tal materia si possa desiderare. ecc.: De le STELLE FISSE, con le sue Figure e Tavole, dove cò maravigliosa agevolezza potrà ciasche duno conoscere qualunque stella de le XLVIII Immagini del Cielo stellato, ecc., et oltre a questo cison TAVOLE, con nuova invention fabricate, con le lor dichiarazioni, ecc., prima edizione; with woodcuts, diagrams, and 48 star maps, 2 vols. sm. 4to. in 1, *old Italian vellum (some ll. wormed, and back of binding damaged, otherwise a sound copy)*; RARE, £1. 10s *ib.*, al Segno del Pozzo, 1540

This first edition contains some curious and rather free woodcut initials, which were left out or modified in the following ones.

- 13297 — [NEW EDITION OF BOTH WORKS]: di nuovo da lui ripolita, accresciuta, e fino à sei Libri, di Quattro che erano ampliata, e quasi per ogni parte rinnovata, e riformata: with numerous diagrams, woodcuts, and the 48 star maps, 2 vols. sm. 4to. in 1, *old vellum (title and first 31 ll. of the 2nd work wanting, also back of binding damaged)*, 10s 6d *ib.*, Gio. Varisco e Ci., 1566

The first work has been greatly enlarged in the above edition, and increased from four to six books. The edition was unknown to Riccardi. The second work, though imperfect, contains all the star maps.

- 13298 — GLI STESSI; with numerous woodcuts and diagrams, and the 48 star maps, 2 v., Gio. Varisco e Paganino Paganini, s. a.: La PRIMA PARTE delle THEORICHE overo SPECULATIONI de' PIANETI; with numerous diagrams, Gio. Varisco e Ci., 1563—3 vols. sm. 4to. in 1, *old hf. white Italian vellum (slightly foxed, but very good copies)*, £1. 1s *ib.*, s. a.—1563

¹ Buona edizione'.—Riccardi.

The second work 'De le Stelle Fisse', which has a separate title-page and pagination, is of special interest, containing as it does the first published star maps—a fact not generally known. Four different magnitudes are distinguished, and the stars are named with Latin letters. The Greek lettering, still in use at the present time, was first used by Johannes Bayer in 1603 (*q. v. post*).

These star maps in all the above editions are xylographs, and according to M. Libri, 'perhaps the last instance of a xylographic work, or portion of a work of any extent, printed during the XVI. Century.'

² La chiarezza, il buon ordine ed il bello stile coi quali sonovi esposte le cognizioni che allora si avevano intorno alla costituzione dell' universo, rendono ragione della straordinaria diffusione di questa opera.'—Riccardi.

- 13299 — De SPHÆRA Libri IV, ex Italico in Latinum Sermonem conversi; eiusdem COMPENDIUM de COGNOSCENDIS STELLIS FIXIS, et de MAGNITUDE TERRE et AQUÆ Liber unus, itidem Latinus factus, JOAN. NICOL. STUPANO Rhetor interprete; with woodcuts, numerous diagrams, and 48 star maps, 3 v.: VERÆ SOLARIS atque LUNARIS ANNI QUANTITATIS aliarumque Rerum ad CALENDARIUM ROMANI EMENDATIONEM pertinentium, de Ortu item atque Occasu Stellarum Fixarum compendiosa atque dilucida EXPLICATIO. Opus olim a Petro Pitato Veronensi conscriptum; nunc revisum, etc. [a JOA. NIC. STUPANO]—4 vols. 4to. in 1, *old English calf, with gilt ornament in centre (top of back and one corner of binding slightly damaged, otherwise a VERY LARGE AND FINE COPY)*; RARE, £1. 12s 6d Basileæ, per Petrum Pernam, 1568

The only Latin edition ever published of this work.

¹ Pierre Pitatus de Véronne fit un grand nombre d'observations pour déterminer au juste les périodes lunaires et solaires. Il présente en 1550 au pape Pie IV un plan de réformation.'—Montucla.

- 13300 **PICKETT** (William; *Alderman of London*) PUBLIC IMPROVEMENT; or, a Plan for making a CONVENIENT and HANDSOME COMMUNICATION between the Cities of LONDON and WESTMINSTER, with folding plan, 4to. (pp. 42), *sewn (rare)*, 10s 6d [1789]

An early Strand Improvement Scheme. It included clearing away Butcher Row, and rebuilding and turning round St. Clement Danes' Church.

- 13302 **PICKERING** (Edward Charles; *Director Harvard Coll. Observatory; inventor of the meridian photometer*) DIMENSIONS OF THE FIXED STARS, with especial Reference to Binaries and Variables of the Algol Type, with 2 woodcuts, 8vo. (pp. 37), *sewn*, 1s 6d Cambridge [Mass.], 1880
- 13303 ——— ELEMENTS OF PHYSICAL MANIPULATION, PART I [Mechanics, Sound and Light], with 65 woodcuts, roy. 8vo. *cl.* (o. p.), 3s 6d (p. 10s 6d) 1874
Including experiments first introduced by the author.
- 13304 ——— FOURTH ANNUAL REPORT OF THE PHOTOGRAPHIC STUDY OF STELLAR SPECTRA conducted at the HARVARD COLLEGE OBSERVATORY, with photographic plate of spectrum of β Aurigæ, roy. 4to. (pp. 9), *sewn*, 2s Cambridge [Mass.], 1890
- 13305 ——— VARIABLE STARS OF SHORT PERIOD, 8vo. (pp. 23), *sewn*, 1s 6d Boston [Mass.], 1881
- 13306 ——— The WEDGE PHOTOMETER, 8vo. (pp. 3), *unbound*, 1s [Cambridge, Mass.], 1882
- 13307 ———, Arthur SEARLE, and Oliver Clinton WENDELL: OBSERVATIONS with the MERIDIAN PHOTOMETER, 1879-82, roy. 4to. (pp. 186), *sewn* (o. p.), 7s 6d *ibidem*, 1885
Containing interesting chapters on 'Ancient Catalogues', 'Catalogues of Sir William and Sir John Herschel', and 'Modern Catalogues' (pp. 45), 'Discordant Observations', 'Suspected Variables', and 'Errors of Catalogues'. It forms a supplement to the author's Photometric Catalogue, published in 1884.
- 13308 ——— PHOTOMETRIC MEASUREMENTS OF THE VARIABLE STARS β PERSEI and DM. 81° 25', made at the Harvard College Observatory, 8vo. (pp. 37), *sewn*, 1s 6d *ibidem*, 1881
- 13309 **PICKERING** (Percival Spencer Umfreville; F.R.S.; *Director Woburn Experimental Fruit Farm*) ON DELICATE CALORIMETRIC THERMOMETERS, 8vo. (pp. 13), *sewn*, 1s 6d 1886
- 13310 ——— The DENSITY OF SULPHURIC-ACID SOLUTIONS, 8vo. (pp. 13), *sewn*, 1s 6d 1892
- 13311 ——— EXPERIMENTAL ERROR IN CALORIMETRIC WORK, 8vo. (pp. 7), *sewn*, 1s 6d 1886
- 13312 ——— ON THE NATURE OF SOLUTION, 8vo. (pp. 8), *sewn*, 1s 6d 1886
- 13313 ——— The RECOGNITION OF CHANGES OF CURVATURE BY MEANS OF A FLEXIBLE LATH, 8vo. (pp. 31), *sewn*, 2s 1892
- 13314 **PICKERING** (William Henry, *Harvard Observatory; discoverer of Phæbe and Themis*) THE MOON: a Summary of the existing Knowledge of our Satellite, with a COMPLETE PHOTOGRAPHIC ATLAS, with 110 plates, chiefly from photographs, and 8 diagrams, sm. atlas 4to. *cl.*, £1. 10s (p. £2. 2s nett) New York, 1903
'Giving an account of some of the more recent advances in our knowledge of the Moon, leaving to the text-books a statement of the information that was earlier acquired.'—*Preface*. The photographs were made with a 12" refractor at the Arequipa station of Harvard Observatory under ideal atmospheric conditions.
- 13315 ——— INVESTIGATIONS IN ASTRONOMICAL PHOTOGRAPHY, with 7 plates, 4to. *sewn*, 3s 6d Cambridge, Mass., 1895
- 13316 **PICTET** (Lieut.-Col. Adolphe) ESSAI sur les PROPRIÉTÉS et la TACTIQUE des FUSÉES de GUERRE, 8vo. *hf. calf*, 3s Turin, 1848
- 13317 **PICTET** (Marc Auguste; F.R.S.) ESSAY ON FIRE, translated under the Inspection of the Author, by W. B., M.D., with folding frontispiece and table, 12mo. *hf. calf* (front. browned); RARE, 12s 6d 1791
'In consequence of this delay [in printing] I have been anticipated in the suggestion of some of the general ideas contained in the first chapter by Mr. Lavoisier in his *Elementary Treatise of Chemistry*. . . . Certain paragraphs of my work resemble almost word for word those of that celebrated chemist.'—*Preface*.
The author gave in the above work an explanation of the formation of dew, by which he was able to explain a dew-maximum on clear nights. His theory was completed in 1814 by Dr. W. C. Wells, F.R.S. (v. Nos. 5322-5 ante).
- 13318 ——— NOTICE sur DEUX PONTS SUSPENDUS, en FIL de FER, récemment établis sur les Fossés d'Enceinte de la Ville de Genève; with folding plate of suspension bridge, 8vo. (pp. 20), *unbound*, 3s 6d [Genève, 1823]
- 13319 **PICTET** (Raoul) Le CARBITE: nouveaux Procédés pour sa Fabrication; with illustration, 8vo. (pp. 74), *sewn*, 2s Genève, 1896
A simplified process for producing carbide of calcium.
- 13320 **PIDDINGTON** (Henry, *President of Marine Courts, Calcutta*) THE SAILOR'S HORN-BOOK FOR THE LAW OF STORMS: a Practical Exposition of the Theory of the Law of Storms, and its Uses to Mariners of all Classes in all Parts of the World, shewn by Transparent Storm Cards and Useful Lessons, fifth Edition, enlarged and improved, with folding charts (2 transparent ones in pocket), large post 8vo. *cl.*, 6s 1869
Containing the discovery of the law of storms (together with Sir William Reid, q. v. post). The author also originated in this work the word 'cyclone'.
- 13321 **PIDOUX** (Justin; *Geneva Observatory*) MÉMOIRE sur la LATITUDE de l'OBSERVATOIRE de GENÈVE, 4to. (pp. 68), *sewn*, 2s Genève, 1900
- 13322 **PIERCE** (George Washington; *Harvard Univ.*) CRYSTAL RECTIFIERS FOR ELECTRIC CURRENTS and ELECTRIC OSCILLATIONS, II. CARBORUNDUM, MOLYBDENITE, ANATASE, BROOKITE, with plate and 12 illustrations, roy. 8vo. (pp. 33), *sewn*, 2s [Baltimore], 1909
- 13323 ——— EXPERIMENTS ON THE ELECTRICAL OSCILLATIONS OF A HERTZ RECTILINEAR OSCILLATOR, with 4 illustrations, roy. 8vo. (pp. 11), *sewn*, 1s 6d [ibidem], 1910
- 13324 ——— THEORY OF COUPLED CIRCUITS, under the Action of an Impressed Electromotive Force, with Applications to RADIOTELEGRAPHY, 11 diagrams, roy. 8vo. (pp. 32), *sewn*, 1s 6d [ib.], 1911
- 13325 **PIERCE** (George Winslow) THE LIFE-ROMANCE OF AN ALGEBRAIST, with portrait, plate, and fss., oblong 16mo. *cl.*, 4s Boston [Mass.], 1891
A curious medley of mathematics, autobiography, and poetry.
- 13326 **PILLA** (Leopoldo; *Univ. Pisa*) COSCENZE di MINERALOGIA necessarie per lo Studio di Geologia; with folding plate, 8vo. (pp. 72), *sewn*, 2s 6d Napoli, 1841
- 13327 **PILLA** (Niccola) Il GALVANISMO, nel suo Rapporto colla RIPRODUZIONE ANIMALE, ovvero TEORIA della GENERAZIONE, 8vo. *sewn* (rare), 7s 6d Napoli, 1817
This work is not mentioned by Poggenorff and other bibliographers, nor contained in the otherwise complete list of books on electricity in the Catalogue of the Ronalds Library.

- 13329 **PIESSE (G. W. Septimus, analytical chemist)** THE ART OF PERFUMERY, and the Methods of Obtaining the Odours of Plants, with Appendix on the Colours of Flowers, Artificial Fruit Essences, etc., first edition, with numerous pretty full-page and other woodcuts, post 8vo. *cl.* (scarce), 6s 1855
- 13330 — FIFTH EDITION, edited by CHARLES H. PIESSE, F.I.C., with frontispiece of a Lavender Still, and numerous other woodcuts, 8vo. (pp. 515), *cl.*, 8s 6d *apud auctorem*, 1891
One of the best books on the subject, by heads of the old London perfumery firm of Piesse and Lubin.
- 13331 **PIFFERI (Francesco, Monaco Camaldolense)** MONICOMETRO: INSTRUMENTO da MISURAR con la VISTA STANDO FERMO; with numerous woodcuts, sm. 4to. boards (large and sound copy); RARE, £1. 5s. Siena, 1695
'Raro opuscolo. Vi si trova un primo tentativo della costruzione dei distanziometri.'—Riccardi.
The Libri copy fetched 47 francs in 1847, but the work was unknown to Poggendorf.
- 13332 **PIG-IRON INDUSTRY**, COLLECTIVE EXHIBIT illustrating the, Franco-British Exhibition, 1908, with plate, 8vo. *sewn*, 1s *Iron and Steel Institute*, 1908
- 13333 **PIGEON (Jean)** DESCRIPTION d'une SPHERE MOUVANTE, par le Moyen d'une PENDULE, d'un GLOBE monté d'une Façon particulière et d'un nouveau PLANISPHERE pour les Distances et Grosseurs des Planetes, selon l'Hypothese de Copernic; with fine front. by Scotin, and 3 plates (2 with volvelles), sm. 8vo. *old calf gilt* (RARE), £1. 1s *Jacques Quillau, Imprimeur-Juré de l'Université*, 1714
This rare work was unknown to Quéraud, Brunet, or Graesse, but is mentioned by Poggendorf, who states that the author made a planetarium, as described above, for Louis XIV., for which he received 'a royal reward', and sold another 'for a high price' to Peter the Great in 1716.
- 13334 **PIGGOT (A. Snowden)** THE CHEMISTRY and METALLURGY of COPPER, including the principal Copper Mines of U.S. and other Countries, with the Art of Mining and Preparing Ores for Market, and the various Processes of Copper Smelting, etc., with 15 woodcuts, post 8vo. *cl.*, Philadelphia, 1858 (scarce), 6s
- 13335 **PIGOTT (Edward; discoverer of Pigott's Comet; son of Nathaniel Pigott)** ACCOUNT of some LUMINOUS ARCHES, 4to. (pp. 4), *sewn*, 1s 6d 1789
- 13336 — DETERMINATION of the LONGITUDES and LATITUDES of some Remarkable Places near the SEVERN, 4to. (pp. 6), *unbound*, 2s 6d 1790
The author's determination of geographical coordinates is deduced from observed meridian transits of the moon's limbs.
- 13337 — The LATITUDE and LONGITUDE of YORK determined from a Variety of Astronomical Observations, with a Recommendation of the METHOD of DETERMINING the LONGITUDE of Places by Observations of the MOON'S TRANSIT over the MERIDIAN, 4to. (pp. 17), *sewn*, 6s 1786
'In a paper on the geographical co-ordinates of York he gave the first practical application of the method of longitudes by lunar transits, independently struck out by him.'—Miss Agnes M. Clerke.
Added are: Advertisement of the expected Return of the Comet of 1532 and 1661 in 1788, by NEVIL MASKELYNE, PR., F.R.S. (pp. 6): A New Method of finding Fluents by Continuation, by SAMUEL VINCE, PR., F.R.S. (pp. 11).
- 13338 — OBSERVATIONS of a NEW VARIABLE STAR, 4to. (pp. 10), *unbound*, 2s 6d 1784
- 13339 — OBSERVATIONS and REMARKS on those STARS which the ASTRONOMERS of the last Century suspected to be CHANGEABLE, 4to. (pp. 30), *sewn*, 6s 6d 1786
'A catalogue of fifty variable or suspected stars was published by him [*supra*] in 1786, with the remark that 'these discoveries may, at some future period, throw fresh light on astronomy.'—Miss Agnes M. Clerke.
Added is: An Account of a Subsidence of the Ground near Folkstone, by EDWARD KING, F.R.S., with 2 plates, 1786.
- 13340 **PIGOTT (Nathaniel, F.R.S.)** OBSERVATIONS of the TRANSIT of MERCURY over the Sun's Disc, made at Louvain, in the Netherlands, May 3, 1786, with diagram, 4to. (pp. 5), *unbound*, 2s 6d 1786
The author was a private gentleman of Whitton, Middlesex, and an able amateur astronomer. He carried out for the Austrian Government, then in possession, the first determination of the geographical positions of the chief towns of the Low Countries in 1772, with the help of his son Edward and his own servants.
- 13341 **PIHL (O. A. L.)** On OCCULTING MICROMETERS, and their Value as applied to Exact Astronomical Measurements, roy. 4to. (pp. 71), *sewn*, with *inscr. to Prof. A. S. Herschel, F.R.S.*, 3s 6d *Christiania*, 1893
ibidem, 1891
- 13342 — The STELLAR CLUSTER χ PERSEI micrometrically surveyed, with 2 folding maps, roy. 4to. (pp. 107), *sewn*, with *inscr. to the same*, 4s 6d *ibidem*, 1891
- 13343 **PILÂTRE de ROZIER (Jean François)**, La VIE et les MÉMOIRES de, écrits par lui-même, et publiés par M. T[OURNON DE LA CHAPELLE]; with 4 folding woodcuts, 18mo. *sewn* (RARE), 15s 1786
M. Pilâtre de Rozier was the first man to go up in a balloon (together with the Marquis d'Arlandes). Before him only animals were sent up for experimental purposes. He was killed in an attempt to cross the Channel in a combined *charlière* and *montgolfière*, which caught fire and burst, in 1785. The above work contains a full account of his ascent and death, and also includes his chief memoirs contributed to the *Journal de Physique*.
- 13344 **PILLET-WILL (Michel Frédéric Comte)** De la DÉPENSE et du PRODUIT des CANAUX et des CHEMINS de FER; de l'Influence des Voies de Communication sur la Prospérité Industrielle de la France; with Atlas of 29 large folding copperplates and maps, 2 vols. 4to. *hf. calf*, with *auto.* of GEORGE RENNIE, C.E., F.R.S., on tiles, 15s 1837
Even in 1837 there were some railways already operated for some time in France, chiefly horse lines in the mineral districts of the Centre. The plates relate to Canal Engineering, and include a long profile of the Canal du Rhône au Rhin, through Mulhouse, of interest at this moment of the Franco-Nietzschean War.
- 13345 **PINCOT (Daniel, Artificial Stone Manufacturer)** ESSAY on the ORIGIN, NATURE, USES, and PROPERTIES of ARTIFICIAL STONE, with some Observations upon Common Natural Stone, Clays, and Burnt Earths in general, in which the Durability of the latter is shown to be equal, if not superior, to the hardest Marbles, being the Result of many Experiments, 8vo. *sewn* (rare), 6s 1770
- 13346 **PINO (Domenico, o.p.)** L'INCREDIBILITÀ del MOTO della TERRA brevemente esposta, 8vo. *sewn* (RARE), 10s 6d *Milano*, 1806
A delightfully belated refutation of the Newtonian system, published under the auspices of Pope Pius VII. The author is unkindly ignored by Poggendorf and Riccardi.

- 13348 **PINGRÉ** (Alexandre Guy, *Chanoine Régulier de Ste.-Geneviève; Chancelier de l'Université de Paris; de l'Académie des Sciences*) COMÉTOGRAPHIE, ou TRAITÉ historique et théorique des Comètes; with 7 copperplates, 2 vols. 4to. *old French mottled calf extra (top of back slightly damaged)*; RARE, £1. 10s
Imprimerie Royale, 1783-4
- 13349 — ANOTHER COPY, 2 vols. boards, uncut (very sound and clean copy), £1. 10s
'The most complete historical and general treatise on comets which has appeared.'—Prof. Newcomb.
'His celebrated *Cométographie*, which for the industry and labour bestowed on it has few equals, has been from the period of its publication down to the present day the astronomer's text-book on the subject of cometary history: it has never been superseded, and is never likely to be, though supplementary matter has of course been accumulated.'—*Chambers's Handbook of Astronomy* (1889).
- 13350 **PINTO d'ALMEIDA** (A. J.) PRINCIPIOS de GEOLOGIA; with 2 diagrams, 4to. *hf. bound, with Sandhurst College bookplate*, 4s
Coimbra, 1838
- 13351 **PIOBERT** (Gén. Guillaume; de l'Institut) COURS d'ARTILLERIE; PARTIE THÉORIQUE, redigée d'après ses Cahiers et ses Leçons par MM. DIDION et DE SAULCY; lithographed on 418 pp. from the MS., with numerous illustrations, cr. 4to. *hf. calf*, 5s
1841
- 13352 —, et A. L. TARDY: EXPÉRIENCES sur les ROUES HYDRAULIQUES à AXE VERTICAL, et sur l'Écoulement de l'Eau dans les Coursiers et dans les Bases de Forme Pyramidale; with 4 folding plates, 4to. (pp. 40), *sewn*, 5s 6d
1840
'Les expériences rapportées dans le présent ouvrage offrent un des premiers exemples de l'emploi du frein (Prony, v. No. 1781, post) à la mesure de l'effet utile transmis par les machines.'—*Avant-propos*.
- 13353 **PIOLA** (Gabrio) Sull' APPLICAZIONE de' PRINCIPIJ della MECCANICA ANALITICA di LAGRANGE ai principali PROBLEMI, roy. 4to. boards, uncut, 7s 6d *Imp. Regia Stamperia, Milano*, 1825
'Lo scopo di questa memoria è di trovare una nuova dimostrazione delle equazioni generali dell' equilibrio e del moto date nella meccanica analitica. Lagrange servendosi del solo assioma o principio delle velocità virtuali. . . . L'autore ricorre a un nuovo metodo che la qualche rassomiglianza con quello usitato due secoli da Bonaventura Cavalieri nella sua geometria degl' indivisibili, e che propriamente chiamasi metodo dei limiti.'—*Rapporto*.
- 13354 **PIRIE** (George, Prof. Math., Aberdeen) LESSONS on RIGID DYNAMICS, with diagrams, cr. 8vo. cl., 3s (p. 6s)
1875
- 13355 **PISANI** (Félix) ANALYSE de la FIBROFERRITE de PALLIÈRES (Gard): Sur quelques NOUVEAUX MINÉRAUX du CORNOUAILLES, 4to. (pp. 4), *sewn*, 1s 6d
1864
- 13356 — DESCRIPTION d'un APPAREIL servant à la RECHERCHE de plusieurs ACIDES; with plate, Svo. (pp. 3), *sewn*, 1s
[c. 1860]
- 13357 — ÉTUDE CHIMIQUE et ANALYSE de l'AÉROLITHE d'ORGUEIL, 4to. (pp. 4), *sewn*, 1s 6d
1864
- 13358 — ÉTUDE CHIMIQUE et ANALYSE du POLLUX de l'Île d'ELBE, 4to. (pp. 3), *sewn*, 1s 6d
1864
- 13359 — NOTICES MINÉRALOGIQUES, 4to. (pp. 4), *sewn*, 1s 6d
1876
- 13360 — Sur le GRANAT OCTAÉDRIQUE de l'Île d'ELBE, 4to. (pp. 2), *sewn*, 1s 6d
s. d.
- 13361 — Sur les MINÉRAUX trouvés dans la MINE de CUIVRE du CAP GARONNE (Var), 4to. (pp. 4), *sewn*, 1s 6d
1870
- 13362 — Sur une NOUVELLE ESPÈCE MINÉRALE du CORNOUAILLES, la DEVILLINE, 4to. (pp. 2), *sewn*, 1s 6d
1864
- 13363 — Sur la SÉPARATION de l'ACIDE TITANIQUE et de la ZIRCONÉ, 4to. (pp. 4), *sewn*, 1s 6d
1864
- 13364 — Sur un SILICATE de BARYTE CRISTALLISÉ, obtenu artificiellement, 4to. (pp. 3), *sewn*, 1s 6d
1876
- 13365 — Sur un SULFO-ANTIMONIURE de PLOMB trouvé à ARNSBERG (Westphalie), 4to. (pp. 3), *sewn*, 1s 6d
1876
- 13366 — TRAITÉ ÉLÉMENTAIRE de MINÉRALOGIE, précédé d'une Préface par ALFRED DES CLOIZEAUX; with 184 woodcuts, post 8vo. *hf. calf gilt (o. p.)*, 4s (p. F. 8 nett *sewn*)
1875
'M. Pisani a rendu un véritable service aux minéralogistes en réunissant toutes les espèces minérales bien déterminées aujourd'hui par leurs caractères cristallographiques, optiques et chimiques.'—*A. des Cloizeaux, de l'Institut*.
- 13367 **PISATI** (G., Univ. Rome) Su la DILATAZIONE, la CAPILLARITÀ e la VISCOSITÀ del SOLFO FUSO; with plate, roy. 4to. (pp. 6), *sewn*, 2s
[Roma, 1877]
- 13368 —, ed E. PUCCI: Sulla LUNGHEZZA del PENDOLO a SECONDI; with 4 plates, 4to. (pp. 178), *sewn*, with author's inscr., 4s
ibidem, 1883
- 13369 —, e C. SAPORITO: RICERCHE SPERIMENTALI sulla TENACITÀ dei METALLI a diverse Temperature; with plate, 4to. (pp. 16), *sewn*, 1s 6d
[ib.,] 1877
- PITATI** (Pietro, da Verona) VERE SOLARIS atque LUNARIS ANNI QUANTITATIS . . . EXPLICATIO (1568)—v. PICCOLOMINI, No. 13299, ante.
- 13370 **PITISCUS** (Bartholomæus) TRIGONOMETRIÆ sive de Dimensione Triangulorum Libri V, item Problematum variorum, nempe Geometricorum, Altimetricorum, Geographicorum, Gnomonicorum, et Astronomicorum Libri X, Editio III., cui recens accessit Problematum Architectonicorum Liber unus; with engraved title and numerous diagrams: CANON TRIANGULORUM emendatissimus, et ad Usum accomodatissimus, pertinens ad Trigonometriam—2 vols. sm. 4to. in 1, FINE COPIES in old English calf, with bookplate of the Duke of Sussex (RARE), £2. 2s
Francofurti, N. Hofmann, 1612
The last edition of the first complete text-book of trigonometry. 'It contains the expressions for sin (A±B) and cos (A±B) in terms of the trigonometrical ratios of A and B.'—*W. R. Ball*.
'Both very scarce. Brunet mentions only the first edition (containing solely ten Books of Problemata), as printed in 1600 at Augsburg. The third improved edition was totally unknown to him, as was also the Canon, which is not mentioned by Lalande, and is even rarer than the celebrated 'Thesaurus Mathematicus', published by the same author in 1613.'—*Libri Catalogue*.
- 13371 **PLAATS** (J. D. van der; Utrecht) DÉTERMINATION de quelques POIDS ATOMIQUES, 4to. (pp. 4), *sewn*, 1s 6d
[1855]
- 13372 — ESSAI de CALCUL des POIDS ATOMIQUES de M. STAS, 8vo. (pp. 34), *sewn*, 1s 6d
1886
- 13373 — Sur les POIDS ATOMIQUES de STAS, 4to. (pp. 6), *sewn*, 1s 6d
[1893]

- 13375 **PITOT** (**Henri**; de l'Académie des Sciences, F.R.S.) THE THEORY of the WORKING of SHIPS, applied to Practice, containing the PRINCIPLES and RULES for SAILING with the greatest Advantage possible, translated by EDMUND STONE, F.R.S., with 8 folding plates, 8vo. old calf gilt (joints cracked, and title written on); RARE, 15s
1743
'Ouvrage excellent.'—*Biogr. Générale*. At end are 20 'Tables for the Working of Ships', which were specially recommended for their excellence by the French Academy of Science.
There was no copy of the English translation in the Scott Library, nor is there a copy of either original or translation in that of the Institution of Naval Architects.
- 13376 [**PLACE** (**Le Capitaine de**)] L'ARTILLERIE ACTUELLE en France et à l'ÉTRANGER: Canons, Fusils, Poudres, et Projectiles, par le COLONEL GUN; with 96 woodcuts, cr. 8vo. hf. maroon morocco (stamp on title), 3s
1889
- 13377 **PLANA** (**Giovanni Antonio Amedeo Barone**; Univ. Turin: F.R.S.) ÉQUATION de la COURBE formée par une LAME ÉLASTIQUE, quelles que soient les Forces qui agissent sur la Lame: MÉMOIRE sur l'Intégration des Équations Linéaires aux Différences Partielles du second et du troisième Ordre; with folding plate, 4to. (pp. 54), sewn, 3s
[Turino, 1811]
The author's first publication.
- 13378 ——— MÉMOIRE sur l'EXPRESSION ANALYTIQUE de la SURFACE TOTALE de l'ELLIPTOÏDE dont les Trois Axes sont Inégaux, et sur l'Evaluation de la Surface d'une Voûte Symétrique, à Base Rectangulaire, retranchée dans la Moitié du même Ellipsoïde, 4to. (pp. 20), sewn, 3s 6d [Berlin, 1837]
- 13379 ——— MÉMOIRE sur les FORMULES propres à déterminer la PARALLAXE ANNUELLE des ÉTOILES Simples ou optiquement Doubles, 4to. (pp. 18), sewn, 3s 6d *Impr. Royale, Turin, 1858*
- 13380 ——— MÉMOIRE sur les INTÉGRALES DÉFINIES, 4to. (pp. 48), sewn, 2s 6d [1818]
- 13381 ——— MÉMOIRE sur le MOUVEMENT CONIQUE, à Double Courbure, d'un Pendule Simple, dans le Vide, Abstraction faite de la Rotation Diurne de la Terre, roy. 4to. (pp. 36), sewn, 2s [1859]
- 13382 ——— MÉMOIRE sur différens PROCÉDÉS d'INTÉGRATION, par lesquels on obtient l'Attraction d'un Ellipsoïde Homogène dont les Trois Axes sont Inégaux, sur un Point Extérieur; with plate, 4to. (pp. 96), boards, uncut, with author's inscr., 4s
[Turin, 1838-9]
- 13383 ——— MÉMOIRE sur TROIS INTÉGRALES DÉFINIES, 4to. (pp. 23), sewn, 2s 6d [Bruxelles, s.d.]
- 13384 ——— NOTE où l'on explique une Remarquable OBJECTION faite par EULER en 1751, contre une RÈGLE donnée par NEWTON, dans son Arithmétique Universelle, pour extraire la Racine d'un Binôme Réel de la Forme $\sqrt{a \pm \sqrt{b}}$, quelque soit le Degré Impair de la Racine demandée, si toutefois elle est Possible, 4to. (pp. 7), sewn, 3s
[Berlin, 1837]
- 13385 ——— NOTE sur le PROCÈS de GALILÉE, 4to. (pp. 12), sewn, with author's inscr. as below, 4s
Impr. Royale, Turin, 1858
'Al Signor Duca Di Rignano a Roma. Per parts dell'Autore. Torino li 17 X^{bro} 1858.'—*Inscr. on cover.*
- 13386 ——— OBSERVATIONS ASTRONOMIQUES faites en 1822-5 à l'OBSERVATOIRE ROYAL de TURIN, avec MÉMOIRE sur les RÉFRACTIONS ASTRONOMIQUES, thick 4to. hf. calf, uncut, 10s 6d
apud eandem, ibidem, 1828
- 13387 ——— THÉORIE du MOUVEMENT de la LUNE, 3 thick vols.; avec le Supplément—together 4 vols. 4to. original boards (VERY SCARCE), £2. 17s 6d (p. F. 120.)
a. e., ib., 1832-57
'The method of Plana agrees essentially with that pursued by Clairaut and his successors; but he has introduced into it several ingenious modifications. The entire researches of this distinguished geometer exhibit the most commanding mastery of his subject.—*Prof. R. Grant.*
- 13388 **PLANTE** (**Gaston**, de l'Institut) RECHERCHES sur l'ÉLECTRICITÉ, avec TOME II, FASCICULE 1 (le tout paru), première édition; with 89 woodcuts, 8vo. cl. (cover stained), and Vol. II. i. sewn (SCARCE), 10s 6d
1879
- 13389 ——— RÉIMPRESSION, avec la VI^e Partie (Analogies entre les Phénomènes Électriques et les Effets produits par des Actions Mécaniques, Conséquences relatives à la Nature de l'Électricité); with 89 woodcuts, 8vo. sewn, 5s 6d
1883
- 13390 ——— ANOTHER COPY, cl., 6s 6d
A collection of the results of the author's important researches on electricity made between 1859 and 1879, and containing his discovery of the accumulator, afterwards improved by Camille Faure.
- 13391 **PLARR** (**Gustave**) On the ESTABLISHMENT of the ELEMENTARY PRINCIPLES of QUATERNIONS on an ANALYTICAL BASIS, with diagrams, 4to. (pp. 28), sewn, 2s
[Edin., 1874]
- 13392 **PLAT** (**Sir Hugh**, of Lincoln's Inn) The JEWEL HOUSE of ART and NATURE: containing divers Rare and Profitable INVENTIONS, together with sundry new EXPERIMENTS in the Art of HUSBANDRY; with Divers CHIMICAL CONCLUSIONS concerning the Art of DISTILLATION, and the rare Practises and Uses thereof; also a rare and excellent DISCOURSE of MINERALS, STONES, GUMS, and ROSINS, with the Vertues and Use thereof, by D. B., Gent. [ARNOLD DE BOATE], with numerous woodcuts, sm. 4to. sewn; or, hf. calf (one joint cracked); RARE, £1. 10s
Bernard Alsop, and are to be sold at his house in Grubstreet, 1653
- 13393 ——— ANOTHER COPY, handsomely bound in brown calf extra, inside borders, saffron edges, £1. 17s 6d
Containing important recipes and notes on manures, brewing, mnemonics, moulding and casting of metals, distilling (especially of essential oils), fishing, etc., and a description of his mechanical inventions, which he first announced in a broadsheet in 1592. 'Not the least popular was his collection of recipes for preserving fruits, distilling, cooking, house-wifery, cosmetics, and the dyeing of hair'.—*D. N. B.* The 'Discourse on Minerals' etc. is by the editor, and only contained in this, the last and best edition.
- 13394 **PLATT** (**Franklin**) THE CAUSES, KINDS and AMOUNT of WASTE in MINING ANTHRACITE: Special Report to the Legislature; with the Methods of Mining by JOHN PRICE WETHERILL, with folding plans and map (a large coloured folding plan in pocket), 8vo. cl., 6s 6d *Harrisburg, 1881*
- 13395 **PLENCK** (**Joseph Jacob v.**, Prof. Chemistry, Vienna) ELEMENTA CHYMIAE, Editio altera, ad Editionem Viennensem recusa, 8vo. sewn, 4s
Lugd. Bat., 1801
- 13396 ——— The HYGROLOGY, or Chémico-Physiological Doctrine of the FLUIDS of the HUMAN BODY, translated by ROBERT HOOPER, M.D., 8vo. boards, uncut, 4s
1797

13398 **PLATEAU** (Joseph Antoine Ferdinand; *Univ. Ghent*; F.R.S.) DISSERTATION sur quelques Propriétés des IMPRESSIONS produites par la LUMIÈRE sur l'ORGANE de la VUE; *with folding plate*, 4to. (pp. 32), *sewn*, 3s
Liège, 1829

The author's first work, published in a gallant town whose fame will never die.

13399 ——— ESSAI d'une THÉORIE GÉNÉRALE comprenant l'ENSEMBLE des APPARENCES VISUELLES qui succèdent à la Contemplation des OBJETS COLORIÉS, et de celles qui accompagnent cette Contemplation, c'est-à-dire la Persistance des Impressions de la Rétine, les Couleurs Accidentelles, l'Irradiation, les Effets de la Juxtaposition des Couleurs, les Ombres Coloriées, etc.; *with folding copperplate*, 4to. (pp. 68), *sewn*, *with author's inser. to Dr. P. M. Roget, F.R.S.*, 6s 6d *Bruxelles*, 1834

13400 ——— MÉMOIRE sur l'IRRADIATION; *with folding copperplate*, 4to. (pp. 112), *with author's inser. to the same*, 8s 6d
ibidem, 1839

The author gives in the above memoir the first complete explanation of irradiation. 'He found that irradiation differs very much in different people, and even in the same person on different days. He also found that it increases with the lustre of the object and the length of time during which it is viewed. . . Diverging lenses increase it, condensing lenses diminish it.'—*Prof. A. W. Reinold, F.R.S.*

13401 ——— STATIQUE EXPÉRIMENTALE et THÉORIQUE des LIQUIDES soumis aux SEULES FORCES MOLÉCULAIRES; *with 96 diagrams*, 2 vols. roy. 8vo. *sewn* (SCARCE), 10s
Gand, 1873

Specially valuable for the author's investigations on waves, surface tension, and the theory of jets.

13402 **PLATTNER** (Karl Friedrich) BEITRAG zur ERWEITERUNG der PROBIERKUNST durch ein systematisches Verfahren bei Ausmittlung eines in Erzen, Hütten- und Kunst-Producten befindlichen Gehaltes an Kobalt, Nickel, Kupfer und Blei oder Wismuth auf trockenem Wege; *with 9 woodcuts*, 12mo. *cl.* (scarce), 4s
Freiberg, 1849

It was Plattner's merit to have introduced the use of the blowpipe, till then exclusively confined to metallurgical operations, into analytical chemistry.

13403 ——— Die PROBIERKUNST mit dem LÜTHROHRE, 3. umgearbeitete Auflage; *with 78 woodcuts*, 8vo. *hf. German calf*, *with auto. and MS. note by W. J. Russell, F.R.S.*, 3s
Leipzig, 1853

13404 ——— TABLEAUX des CARACTÈRES que présentent au CHALUMEAU les ALCALIS, les TERRES, et les OXYDES MÉTALLIQUES, soit Seuls, soit avec les Réactifs, traduits par A. SOBRERO, 4to. (pp. 16), *sewn*, 2s 6d
1843

13405 ——— THE USE of the BLOWPIPE, in the Examination of Minerals, Ores, Furnace-Products, etc., translated, with Notes, by JAMES SHERIDAN MUSPRATT, F.R.S.; *with Preface by JUSTUS FREIHERR V. LIEBIG, first English edition, with 50 woodcuts*, 8vo. *cl.*, 3s 6d
1845

This edition contains an appendix: 'A Simple Method of Finding the Weight of any very Minute Metallic Globules, without a Balance,' by OLIVER BYRNE.

13406 ———, and Theodor RICHTER, *Freiberg*: MANUAL of QUALITATIVE and QUANTITATIVE ANALYSIS with the BLOWPIPE [translated by HENRY B. CORNWALL and JOHN H. CASWELL]. LAST EDITION, by T. HUGO COOKESLEY, *with 78 woodcuts*, thick 8vo. *cl.* (scarce), *with auto. of J. M. Thomson, F.R.S.*, 8s 6d (p. £1. 1s)
1875

'This branch of chemical analysis, originally confined to the determination of the noble metals in the dry way, has become expanded into an important branch of analytical chemistry, particularly since C. F. Plattner's comprehensive researches and the publication of his [above] classical book.'—*Prof. E. v. Meyer.*

13407 **PLINIUS Secundus** (Caius) NATURALIS HISTORIA, nunc demum ex Aldinis Archetypis pristino suo Nitore accurate restituta: affixa SIGISMUNDI GALENII Castigatione; accessit Index locupletissimus; *with vignettes*, folio, *old stamped calf*, *newly rebacked, with autos. of Richard Whitlock*, 1654, and THOMAS BRADOCK, *pr.*, 1577 (*headmaster of Reading Grammar School*) on *flyleaf*, and numerous MS. notes and references by them, also *old autos. of J. Dickinson*, 1734, J. Harris, and *Nic. Franckwell de Bexley on title*, £1. 5s
Venetis, Hier. Scotus, 1571

Bradock's autograph is interesting, as he was the translator into Latin (in 637 pp. folio) of Bishop Jewel's 'Confutation of Harding's 'Answer to Jewel's 'Apologia Ecclesie Anglicane.'

13408 ——— NATURALIS HISTORIA, cum Commentariis et Adnotationibus HERMOLAI, BARBARI, PINTIANI, RHENANI, GELENII, DALECHAMPII, SCALIGERI, SALMASII, IS. VOSSII, et variorum; *accident variae Lectiones ex MSS.*, item J. F. GRONOVII Note; *with engraved titles*, 3 thick vols. sm. 8vo. *old smooth red morocco extra, blind tooled backs and borders, g. e., from the library of the DUCHESSE de BERRI* (engraved title to v. 2 backed); *rare, with bookplate of Mr. Henry B. H. Beaufoy*, £2. 10s
Lugd. Bat., apud Hackios, 1669-8

'Belle édition, et l'une des moins communes de la collection des anciens Variorum'.—*Brunel.* 'Edition correcte'.—*Græsse.*

13409 ——— The HISTORIE of the WORLD: commonly called the NATURAL HISTORIE of C. PLINIUS SECUNDUS. Translated by PHILEMON HOLLAND, Doctor of Physicke, original edition, *with woodcut title*, 2 vols. folio in 1, *old panelled calf*, *rebacked* (first title slightly defective and soiled); RARE, £3. 5s
impensis G. B., 1601

The above imprint is very unusual. Vol. II. and the colophon however bear that of Adam Islip.

FROM KING JAMES I'S LIBRARY:

13410 ——— ANOTHER COPY, 2 vols. folio in 1, *old calf gilt*, *rebacked, with Arms of King James I. on sides* (small wormhole through some margins at end of v. 2, otherwise a SOUND AND TALL COPY); *rare*, £10. 10s
Adam Islip, 1601

This is Holland's chief translation, which brought him, together with his other translations, the title of 'Translator-General' of his age. 'Translated by that old worthy, Philemon, who, for the service which he rendered to his contemporaries and his countrymen, deserves to be called the best of the Hollands, without disparaging either the Lord or the Doc.or of that appellation.'—*Southey.*

13411 **PLUTARCH** on the FACE which appears on the ORB of the MOON: Translation and Notes with Appendix, by A. O. PRICKARD, Fellow of New College, Oxford, *with 2 plates*, 8vo. (pp. 78), *figured boards*, 2s
Winchester, 1911

- 13413 **PLAYFAIR** (John, F.R.S.) WORKS, with Memoir [by the EDITOR and LORD JEFFREY, W. edited by JAMES G. PLAYFAIR], 4 thick vols. 8vo. *hf. calf (joints broken)*; SCARCE, £1. 5s *Edin.*, 1822
 Containing all the author's works and papers, save 'Elements of Geometry' and 'Outlines of Natural Philosophy', and including his celebrated 'Illustrations of the Huttonian Theory of the Earth', 'a model of purity of diction, simplicity of style, and clearness of explanation, which not only gave popularity to Hutton's theory, but helped to create the modern science of geology' (*D. N. B.*), and the valuable 'Progress of the Mathematical and Physical Sciences.'
- 13414 ——— ELEMENTS OF GEOMETRY, containing the First Six Books of Euclid, with Supplement on the QUADRATURE of the CIRCLE, and the GEOMETRY of SOLIDS, also Elements of Plane and Spherical Trigonometry, 2nd Edition, enlarged, with numerous diagrams, 8vo. *old sheep (damaged)*, 3s
ibidem, 1804
- 13415 ——— THIRD EDITION, enlarged, with numerous diagrams, 8vo. *old sheep (damaged)*, 3s *ib.*, 1810
- 13416 ——— EIGHTH EDITION, with Additions by WILLIAM WALLACE, F.R.S.E., with numerous diagrams, 8vo. *calf*, 4s
ib., 1831
- 13417 ——— NINTH EDITION, with Additions, by JOHN DAVIDSON, with numerous diagrams, 8vo. *hf. calf (back damaged)*, 3s
ib., 1836
- 13418 ——— On the ORIGIN and INVESTIGATION of PORISMS, with 2 folding copperplates, 4to. (pp. 53), *sewn*, 5s 6d
 [792]

'A learned paper, containing a number of curious observations on the geometry of the ancients in general, as well as forming a complete treatise as it were on porisms in particular.'—*Dr. C. Hutton, F.R.S.*, who quotes extensively from the above paper in his *Philosophical and Mathematical Dictionary*.

- 13419 ——— OUTLINES of NATURAL PHILOSOPHY: Lectures in the University of Edinburgh, first edition, with 6 plates, 2 vols. 8vo. *brown calf gilt*, 5s
ib., 1812-14
- 13420 **PLAYFAIR** (Lyon first Lord, F.R.S.) A CENTURY of CHEMISTRY in the UNIVERSITY of EDINBURGH, 8vo. (pp. 30), *sewn*, with *inscr.* Prof. Tyndall (as below), 3s
Edin., 1858
 'Dr. Tyndal [*sic*] from the Author.'—*inscr. on cover*. It was the author's introductory lecture on his appointment to the chair of chemistry in Edinburgh University.
- 13421 ——— On the FOOD of MAN under different Conditions of Age and Employment, with folding table, 8vo. (pp. 4), *sewn*, 1s 6d
 1853
- 13422 ——— On the GASES EVOLVED during the FORMATION of COAL, roy. 8vo. (pp. 1-16), *sewn*, 1s 6d
n. d.

This memoir was unknown to Poggenorff.

- 13423 ——— INDUSTRIAL INSTRUCTION on the CONTINENT, roy. 8vo. (pp. 54), *sewn*, with *auto.* of Prof. Hilary Bauerman, 1s 6d
 1852

- 13424 ——— On the NATIONAL IMPORTANCE of STUDYING ABSTRACT SCIENCE with a View to the healthy PROGRESS of INDUSTRY, 8vo. (pp. 29), *unbound*, 1s 6d
 1851

- 13425 ——— On the NITROPRUSSIDES, a NEW CLASS of SALTS, 4to. (pp. 42), *sewn*, 5s
 1849

- 13426 ——— ANOTHER COPY, *sewn*, with author's *inscr.*, 6s
 'His most important investigations are those on the nitroprussides, a new class of salts which he discovered, etc.'—*D. N. B.*

- 13427 ——— NOTE on some NUMERICAL RELATIONS between the SPECIFIC GRAVITIES of the DIAMOND, GRAPHITE, and CHARCOAL FORMS of CARBON, and its ATOMIC WEIGHT, 8vo. (pp. 8), *sewn*, 1s 6d
Edin., 1860

- 13428 ——— [PRESIDENTIAL] ADDRESS to the BRITISH ASSOCIATION for the Advancement of Science, 8vo. (pp. 26), *sewn*, 1s 6d
 1885

- 13429 ———, and James Alfred WANKLYN, F.R.S.E.: On a MODE of taking the DENSITY of VAPOUR of VOLATILE LIQUIDS, at Temperatures below the Boiling Point, with 2 woodcuts, 4to. (pp. 25), *sewn*, 3s
Edin., 1861

THE FIRST GRAPHIC STATISTICS:

- 13430 **PLAYFAIR** (William, Inventor of this Method of stating Accounts) LINEAL ARITHMETIC, applied to shew the PROGRESS of the COMMERCE and REVENUE of ENGLAND during the Present Century, with 33 copperplates of graphic statistics (mostly COLOURED), 8vo. *old sheep (binding damaged)*, 10s 6d
 1798

'Not arithmetic, but plates arranging the several matters in curves, in the manner now much more familiar than it was then.'—*Prof. de Morgan*.

The book is probably the first instance of the use of graphic statistics, of which in the preface the author claims to be the inventor. He was the younger brother of John Playfair the geologist, and had a struggling, rough and tumble life, from his first employment as a draughtsman at Boulton and Watt's to his death in London in 1823. He was in Paris in 1789 and probably took part in the taking of the Bastille, but afterwards quarrelled with the Revolution. The above work is not mentioned in *D. N. B.*, but has peculiar interest in connexion with the invaluable method which it introduced, and which was apparently still little used in Prof. de Morgan's day. It was employed however to fine effect by FLORENCE NIGHTINGALE, who found her 'coxcombs' trump cards against Lord Panmure, and the best of all means of bringing the state of the Army in barracks home to the English people.

- 13431 **PLUCHÉ** (Abbé Noel Antoine) The HISTORY of the HEAVENS, considered according to the Notions of the Poets and Philosophers, compared with the DOCTRINES of MOSES, translated by J. B. DE FREVAL, with numerous copperplates. 2 vols. 8vo. *old calf*, 6s 6d
 1740

'La première partie est presque une mythologie complète, fondée sur des idées neuves, mais simples et ingénieuses; la seconde partie est l'histoire des idées philosophiques sur la formation du monde.'—*Biogr. Gén.*

- 13432 [——] SPECTACLE de la NATURE: or NATURE DISPLAY'D: Discourses on such Particulars of Natural History as were thought most proper to excite the Curiosity, and form the Minds of Youth, translated from the original French by [SAMUEL] HUMPHREYS, 4th Edition, with numerous folding copperplates, 6 vols. 8vo. *old calf (cracked)*, 17s 6d
 1740

'Ouvrage instructif et agréable. . . C'est un tableau vivant et animé de l'œuvre de la création.'—*Biogr. Gén.* The work is dedicated to the youthful William Augustus, Duke of Cumberland, known after 1746 as 'the Butcher'.

- 13433 **POCHHAMNER** (Leo August; *Univ. Kiel*) Ueber RELATIONEN zwischen HYPERGEOMETRISCHEN INTEGRALEN N^{TER} ORDNUNG, 4to. (pp. 24), *sewn*, 2s
Berlin, 1870

- 13434 ——— De SUPERFICIEI UNRARUM DERIVATIONE: Dissertatio Inauguralis, 4to (pp. 26), *sewn*, 2s
ibidem [1863]

- 13436 **PLÜCKER** (Julius; *Univ. Bonn*; F.R.S.) COMMENTATIO de CRYSTALLORUM et GAZORUM CONDITIONE MAGNETICA, qualis hodie intelligitur, 4to. (pp. 34), *sewn* (scarce), 6s 6d *Bonnæ* [1854]
 Plücker discovered that a piece of tourmaline, which is itself feebly paramagnetic, behaved as a diamagnetic body when so hung that the axis of the crystal was horizontal. Faraday, repeating the experiment with a crystal of bismuth, found that it tended to point with its axis of crystallization along the lines of the field axially. The magnetic forces acting thus on crystals by virtue of their possessing a certain structure he named *magne-crystallic force*. Plücker endeavoured to connect the magne-crystallic behaviour of crystals with their optical behaviour, giving the following law', etc. etc.—*Prof. Silvanus Thompson, F.R.S.*
- 13437 — NEUE GEOMETRIE des RAUMES gegründet auf die Betrachtung der geraden Linie als Raumelement, mit Vorwort von A. CLEBSCH [herausgegeben von FELIX KLEIN]; *with diagrams*, 2 parts 4to. *sewn*, 9s (p. M. 15) *Leipzig*, 1868-9
- 13438 — SYSTEM der ANALYTISCHEN GEOMETRIE, auf neue Betrachtungsweisen gegründet, und insbesondere eine ausführliche THEORIE der CURVEN DRITTER ORDNUNG enthaltend; *with 6 plates, Berlin*, '35: THEORIE der ALGEBRAISCHEN CURVEN, gegründet auf eine neue Behandlungsweise der analytischen Geometrie; *with plate, Bonn*, '39: SYSTEM der GEOMETRIE des RAUMES, in neuer analytischer Behandlungsweise, insbesondere die Theorie der Flächen zweiter Ordnung und Classe enthaltend, 2. Auflage; *with plate, Düsseldorf*, '52—3 vols. 4to. in 1, *hf. calf, with autops. of S. Hunter Christie, F.R.S. (1784-1865), and Samuel Roberts, F.R.S. (SCARCE)*, £1. 5s 1835-52
 'The *System der analytischen Geometrie*, 1835, contains a complete classification of plane curves of the third order, based on the nature of the points of infinity. The *Theorie der algebraischen Curven*, 1839, contains, besides an enumeration of curves of the fourth order, the analytic relations between the ordinary singularities of plane curves known as 'Plücker's equations', by which he was able to explain 'Poncelet's paradox'. The discovery of these relations is, says Cayley, 'the most important one beyond all comparison in the whole subject of modern geometry.' By considering space [in *Geometrie des Raumes*] as made up of lines he created 'a new geometry of space'. Regarding a right line as a curve involving four arbitrary parameters, one has the whole system of lines in space. By connecting them by a single relation, he got a 'complex' of lines; by connecting them with a twofold relation, a 'congruency' of lines'.—*Prof. Cajori.*
- 13439 —, und Johann Wilhelm HITTOFF, *Univ. Münster*: On the SPECTRA of IGNITED GASES and VAPOURS, with especial regard to the different Spectra of the same Elementary Gaseous Substance, *with 3 folding plates of spectra (one coloured)*, 4to. (pp. 29), *sewn* (scarce), 6s 6d 1864
 'As early as 1862, Plücker pointed out that the same substance may give different spectra at different temperatures. He and Hittoff found for hydrogen, nitrogen, and sulphur fumes two kinds of spectra, namely a weak band spectrum and a bright line spectrum'.—*Prof. Cajori.*
- 13440 —, NOTICE sur les TRAVAUX de [avec Bibliographie (pp. 5)], par ALFRED CLEBSCH, traduit par PAUL MANSION, 4to. (pp. 30), *sewn*, 2s *Roma*, 1872
- 13441 **PLUMMER** (Henry Crozier; *Royal Astronomer of Ireland*) A METHOD of MECHANICALLY COMPENSATING the ROTATION of the FIELD of a SIDEROSTAT, *with 3 diagrams*, 8vo. (pp. 6), *sewn*, 1s 1901
- 13442 — THE SAME; with NOTE on the GEOMETRY of the SIDEROSTAT, *with 2 diagrams*, 8vo. (pp. 10), *sewn*, 1s 6d 1901
- 13443 — On a METHOD of REDUCING OCCULTATIONS of STARS by the MOON, with the Reduction of Occultations observed on three Occasions at the Liverpool Observatory, 8vo. (pp. 12), *sewn*, 1s 6d 1901
- 13444 — NOTE on the GEOMETRY of the SIDEROSTAT, *with 2 diagrams*, 8vo. (pp. 4), *sewn*, 1s 1901
- 13445 — NOTE on MR. BRYAN COOKSON'S PAPER, 'On the ACCURACY of EYE OBSERVATIONS of METEORS, and the DETERMINATION of their RADIANT POINTS', 8vo. (pp. 8), *sewn*, 1s 1901
- 13446 **PLUMMER** (William Edward, F.R.A.S., *Director of Liverpool Observatory*) On the ORBIT of DENNING'S COMET (1881 V.), 4to. (pp. 15), *sewn*, 1s 6d [Dublin, 1883]
- 13447 — PRELIMINARY NOTE on the POSITION of the LIVERPOOL OBSERVATORY; OBSERVATIONS of COMET II. 1894 (GALE), 8vo. (pp. 13), *sewn*, 1s 6d 1894
- 13448 **POEY** (Andrés) ETOILES FILANTES observées à la Havane du 24 Juillet au 12 Août, et Remarques sur le Retour Periodique du Mois d'Août, 4to. (pp. 5), *sewn*, 1s 6d 1864
- 13449 **POGGENDORFF** (Johann Christian; *Univ. Berlin*; founder of 'Annalen der Physik und Chemie') GESCHICHTE der PHYSIK: Vorlesungen an der Universität zu Berlin [herausgegeben von W. BARENTIN]; *with 40 woodcuts*, thick 8vo. *new hf. calf gilt, uncut, t. e. g. (scarce)*, 18s 6d *Leipzig*, 1879
- 13450 — Still one of the best works on the history of physics.
 METHODE zur QUANTITATIVEN BESTIMMUNG der ELEKTROMOTORISCHEN KRAFT INCONSTANTER GALVANISCHER KETTEN; *with 2 diagrams*, 8vo. (pp. 31), *sewn, with author's inscr. to E. Solly, F.R.S. (scarce)*, 6s 6d [ibidem,] 1841
 In this tract the author first published his famous method of compensation for comparing the electromotive force of various galvanic cells.
 'Die Poggendorff'sche Methode ist bis auf den heutigen Tag in ihren verschiedenen Modifikationen die beste, um nicht zu sagen die einzige, welche für inconstante Kräfte angewendet werden darf'.—*Hoppe's Gesch. d. Elektrizität.*
- 13451 **POGSON** (Norman Robert, F.R.A.S., *Govt. Astronomer, Madras*) TELEGRAPHIC DETERMINATIONS of the DIFFERENCE of LONGITUDE between Karachi, Awanashi, Roorkee, Pondicherry, Colombo, Jaffna, Muddapur and Singapore, and the Government Observatory, Madras, 4to. *cl.*, 5s *Madras*, 1834
 This work was privately printed, and copies were presented by order of the Governor in Council at Madras.
 — v. Nos. 11268-71, ante.
- 13452 **POHL** (Georg Friedrich; *Univ. Breslau*) Der ELEKTROMAGNETISMUS, theoretisch-praktisch dargestellt, ERSTE ABTHEILUNG (soweit erschienen); *with 3 folding plates*, 8vo. *sewn*, 5s *Berlin*, 1830
 The author proposed a new theory of the galvanic current, based on that of galvanic and chemical action being identical. He was the inventor of the current reverser (Pohl's gyrotrope).
- 13453 **POHL** (Joseph Johann) Ueber die SIEDEPUNTE mehrerer ALKOHOLHÄLTIGER FLÜSSIGKEITEN und die darauf gegründeten Verfahren den Alkoholgehalt derselben zu chemisch-technischen Zwecken zu bestimmen; *with plate, folio, sewn*, 5s *Wien*, 1850
- 13454 **POINCARÉ** (Lucien, *Inspecteur-Général de l'Instruction publique*) ELECTRICITY: Present and Future, translated by JASPER KEMMIS, 8vo. *cl.*, 4s 6d (7s 6d nett) [1908]

- 13456 **POINCARÉ** (Henri Jules, de l'Institut; F.R.S., brother of the President of the French Republic) CALCUL des PROBABILITÉS: Leçons professées pendant 1893-4, rédigées par A. QUIQUET; with 19 diagrams, roy. 8vo. sewn, 4s (p. F. 9 nett) 1896
- 13457 ——— ÉLECTRICITÉ et OPTIQUE, I. Les Théories de Maxwell, et la Théorie Électromagnétique de la Lumière. II. Les Théories de Helmholtz et les Expériences de Hertz; with 54 diagrams, 2 vols. roy. 8vo. in 1, hf. buckram, 8s 6d 1890-1
- 13458 ——— DEUXIÈME [DERNIÈRE] ÉDITION, revue et complétée par JULES BLONDIN et EUGÈNE NECULCEA; with 62 diagrams, roy. 8vo. (pp. 651), hf. calf gilt, 16s 1901
- 13459 ——— Sur un THÉOREME de M. FUCHS, roy. 4to. (pp. 32), sewn, 2s 6d Stockholm, 1885
- 13460 **POINSON** (Louis; de l'Institut) ÉLÉMENTS de STATIQUE, suivis d'un Mémoire sur la Théorie des Momens et des Aires, 4^e Edition, revue par l'Auteur; with 4 plates, 8vo. hf. calf (back damaged), with auto. of Judge Vernon Lushington [Positivist], 2s 6d 1824
- 13461 ——— HUITIÈME ÉDITION, augmentée, suivie de QUATRE MÉMOIRES; with 4 folding plates comprising 91 diagrams, 8vo. boards, uncut, 4s 6d 1842
- 13462 ——— ANOTHER COPY, having the diagrams pasted to the passages they belong to, hf. calf gilt, 5s 6d
- BEST EDITION, well printed in large type. The mémoires comprise: Sur la Composition des Moments et des Aires; sur le Plan invariable du Système du Monde; sur la Théorie générale de l'Équilibre et du Mouvement des Systèmes; sur une Théorie nouvelle de la Rotation des Corps.
- 13463 ——— DIXIÈME ÉDITION, suivie de QUATRE MÉMOIRES; with 4 plates, 8vo. sewn, uncut, 4s 6d 1861
'This work is remarkable not only as being the earliest introduction to synthetic mechanics, but also as containing for the first time the idea of couples.'—Prof. Cajori.
- 13464 ——— DOUZIÈME ÉDITION, précédée d'une NOTICE par J. BERTRAND, de l'Institut; with 4 folding plates, 8vo. hf. calf gilt (o. p.), 5s 1877
This edition does not contain the Mémoires, but has Bertrand's Life of the author. 'La statique de Poinson est, sous une infinité de rapports, un modèle précieux, presque inimitable, que les savants aimeront toujours à relire.'—M. Marie.
- 13465 ——— THÉORIE des CÔNES CIRCULAIRES ROULANTS; with folding plate, 8vo. sewn, 2s 6d 1852
- 13466 ——— THÉORIE NOUVELLE de la ROTATION des CORPS; with 2 folding plates, roy. 8vo. sewn (scarce), 10s 1852
- 13467 ——— OUTLINES of a NEW THEORY of ROTARY MOTION, translated, with Notes, by CHARLES WHITLEY, F.R.A.S., with 3 plates, 8vo. cl., uncut (VERY SCARCE), 12s 6d Cambridge, 1834
'A clear conception of the nature of rotary motion was conveyed by Poinson's elegant geometrical representation by means of an ellipsoid rolling on a certain fixed plane.'—Prof. Cajori.
- 13468 **POINTER** (John, Rector of Slapton, Northants.) A RATIONAL ACCOUNT of the WEATHER, shewing the Signs of its several Changes and Alterations, with the Philosophical Reasons of them. Collected from Common Observations, etc. etc., first edition, large 12mo. sound copy in old hf. calf (RARE), 15s Oxford, 1723
- 13469 ——— SECOND EDITION, corrected and much enlarg'd: with Three Essays towards accounting for I. A continued Course of Wet Years. II. The Cause of an Aurora Borealis. III. The Cause of the Plague, 8vo. old calf (rare), £1. 1s 1738
This work, which is distinguished for the common-sense views held by the author, comprises: Signs of Rain, Rainy Weather, Fair Weather, Mists, Windy Weather and Tempests, Hail, Cold and Frosty Weather, Hard Winters, Pestilential Seasons, and Signs of the Weather from the Weather-Glasses.
'It was pointed out in the Gentleman's Magazine, 1748 (pp. 255-6), that this volume supplied the groundwork of 'The Shepherd of Banbury's Rules to judge the Weather, by John Claridge, shepherd.'—D. N. B. (v. Nos. 6903-5 ante).
There is no copy of the second edition in the Royal Meteorological Society's Library Catalogue, 1891.
- 13470 **POISEUILLE** (Jean Léon Marie, de l'Académie de Médecine), RAPPORT sur un MÉMOIRE de, ayant pour Titre: RECHERCHES EXPÉRIMENTALES sur le MOUVEMENT des LIQUIDES dans les Tubes de très-petits Diamètres, Commissaires, MM. ARAGO, BABINET, PROBERT, REGNAULT Rapporteur; with plate, 4to. (pp. 21), sewn, 3s [1842]
- 13471 **POISSON** (Siméon Denis; F.R.S.) MÉMOIRE sur les TEMPÉRATURES de la PARTIE SOLIDE du GLOBE, de l'Atmosphère, et du Lieu de l'Espace où la Terre se trouve actuellement; with folding plate, 4to. (pp. 72), sewn, 3s 1837
Forming the supplement to the author's 'Théorie mathématique de la Chaleur.'
- 13472 ——— MÉMOIRE sur la THÉORIE du SON, 4to. (pp. 74), sewn, 3s 6d [1808]
- 13473 ——— NOUVELLE THÉORIE de l'ACTION CAPILLAIRE; with folding plate, 4to. hf. calf gilt, with bookstamp of Francis Bashforth, pr. (SCARCE), £1. 15s 1831
'Reprenant la théorie de l'action capillaire, il trouve la cause de ces phénomènes dans cette remarque, que la densité d'un liquide varie avec la profondeur de la partie que l'on considère et aussi avec la distance de cette partie aux parois du vase qui renferme le liquide.'—E. Merliour.
The above and Laplace's are the chief memoirs published on the subject of capillarity. Poisson's theory differs considerably from Laplace's, although both arrive at the same results.
- 13474 ——— TRAITÉ de MÉCANIQUE, 2^e [dernière] Edition, considérablement augmentée; with 7 folding plates, 2 vols. 8vo. hf. calf; or, calf, 6s 1833
- 13475 ——— ANOTHER COPY, calf extra, 7s 6d
The best-known of the author's works, and long the standard work on the subject.
- 13476 ——— TREATISE on MECHANICS, translated, with explanatory Notes (pp. 190), by HENRY H. HARTE, pr., Fellow T.C.D., with 8 folding plates, 2 thick vols. 8vo. cl., or, hf. calf (scarce), 15s 1842
'The knowledge of mathematical mechanics of solids attained by the great mathematicians of the XVIII. century may be said to be summed up in Lagrange's Mécanique analytique [q. v. ante] and Poisson's Traité de Mécanique.'—W. W. R. Ball.
- 13477 **POLAK** (S.) THE THEORY and PRACTICE of PERSPECTIVE DRAWING, with folding frontispiece and numerous diagrams, oblong 4to. cl., 2s 6d (p. 5s) 1907
- 13478 **POLLASTRI** (Bartolomeo, da Milano) IL SUPPLEMENTO d'ARITMETICA al MAESTRO DE' CONTI, Direttore de' Principanti, ossia il Proseguimento del Vero Modo di Conteggiare all' Uso Mercantile Moderno, dalla Regola del Tre sino alla Falsa Posizione Doppia. Opera dell' ASTRONOMO LOMBARDO, 12mo. boards (one l. slightly defective), 7s 6d Milano [c. 1785]

- 13480 **POLENI** (Giovanni Marchese; Prof. Padua; F.R.S.) *EPISTOLARUM MATHEMATICARUM FASCICULUS; with 10 folding plates, 4to. old calf, newly rebound (partly water-stained), with auto. of Samuel Roberts, F.R.S., 10s 6d* Patavii, 1728
The author's correspondence on astronomical, hydraulic, mathematical and physiological subjects with Manfredi, Guido Grandi, Jacob Hermann, Antonio Conti, and Marinoni.
'Bella e rara edizione . . . pregevole collezione.'—*Ricordi*. 'A learned and scarce work, frequently quoted in consequence of a recent experiment on the pendulum and the rotation of the earth.'—*Libri Catalogue*. The author's statue in Padua was one of the first works of Canova.
- 13481 **POLLARD (J.), et A. DUDEBOUT, professeurs à l'École du Génie Maritime: ARCHITECTURE NAVALE: THÉORIE du NAVIRE; with 3 folding plates, and 764 other illustrations, 4 vols. 8vo. hf. green morocco neat, £1. 15s (p. F. 54 nett sewn) 1890-4
CONTENU:—I. Calcul des Éléments Géométriques, des Carènes droites et inclinées. Géométrie du Navire: II. Statique et Dynamique du Navire. Roulis en Milieu calme, résistant ou non résistant: III. Dynamique du Navire. Mouvement de Roulis sur Houle. Résistance des Carènes: IV. Dynamique du Navire. Mouvements rectiligne horizontal oblique et curviligne. Propulsion. Vibrations des Coques des Navires à Hélice.**
- 13482 **POLLOCK (Sir Montagu Frederick Montagu-) LIGHT and WATER: a Study of Reflexion and Colour in River, Lake and Sea, with 24 interesting plates from photographs, and 28 diagrams,** 1903
sq. 8vo. *cl.*. 5s (p. 10s 6d nett)
- 13483 **POLONCEAU (Antoine Remy, Inspecteur des Ponts et Chaussées) NOTICE sur l'AMÉLIORATION des ROUTES et EMPEREMENTS par l'Emploi de Matières d'Aggrégation, et au Moyen de la Compression par des Cylindres d'un Grand Diamètre et d'un Grand Poids, et sur les Conséquences de ces Perfectionnements pour la Police du Roulage; suivie d'une Instruction sur les DIMENSIONS des CYLINDRES COMPRESSEURS, etc. etc. etc.; with 5 folding plates, 4to. (pp. 100),** 1844
sewn, 6s 6d
The author was the first to introduce macadamising into France on a large scale. He seems to have introduced the heavy roller, a doubtful improvement on McAdam's ramming process; and also a very fierce-looking mechanical scarifier: both illustrated above.
- 13484 **PONCELET (Général Jean Victor; de l'Institut, F.R.S.) INTRODUCTION à la MÉCANIQUE INDUSTRIELLE, Physique, ou Expérimentale, 2^e Édition, contenant un grand Nombre de Considérations Nouvelles; with 3 folding plates, 8vo. hf. calf gilt, 3s 6d** Metz, 1841
- 13485 ——— **ANOTHER COPY, mottled calf gilt, 4s**
- 'Coriolis and Poncelet were among the first promoters of reform in the teaching of rational mechanics.'—*Prof. Cajori*.
- 13486 ——— **MÉMOIRE sur les ROUES HYDRAULIQUES à AUBES COURBES, Mues par-Dessous, suivi d'Expériences sur les Effets Mécaniques de ces Roues; nouvelle Edition, augmentée d'un SECOND MÉMOIRE sur des EXPÉRIENCES en Grand Relatives à la NOUVELLE ROUE, contenant une Instruction Pratique sur la Manière de procéder à son Établissement; with 2 folding plates: EXPÉRIENCES HYDRAULIQUES sur les LOIS de l'ÉCOULEMENT de l'EAU à travers les Orifices Rectangulaires Verticaux à Grandes Dimensions, entreprises à Metz par MM. PONCELET et LESBROS; with 7 folding plates—2 vols. 4to. in 1, hf. brown morocco gilt (fine copies); SCARCE.** Metz, 1827—Paris, Imprimerie Royale, 1832
£1. 1s
The first memoir contains the invention of the water-wheel known by the author's name, an undershot wheel with curved floats, which is still the best when the fall does not exceed 6 feet. 'The principle of this wheel lies in the water being received by the curved floats without any shock and finally discharged with small velocity.' The Poncelet wheel utilises 60% of the water power, against 25% with the ordinary undershot wheel.
- 13487 ——— **RECHERCHES sur le CALCUL des SÉRIES, ou Application de la MÉTHODE des MOYENNES à la TRANSFORMATION au Calcul Numérique et à la Détermination des Limites du Reste des Séries; with plate, 4to. (pp. 88), *sewn, 3s 6d*** 1833
- 13488 ——— **TRAITÉ de MÉCANIQUE INDUSTRIELLE, exposant les Principes de Statique et de Dynamique, les Organes Mécaniques et les Moteurs; with 25 folding plates, 8vo. calf, 3s 6d** Bruxelles, 1839
- 13489 ——— **DEUXIÈME ÉDITION, entièrement corrigée et contenant un grand Nombre de Considérations Nouvelles; with 28 folding plates, 3 vols. large 8vo. in 1, hf. calf (wanting title of v. III), 4s** Liège, 1845
The *Traité* is a Belgian reprint of the above *Introduction*, with the addition of a number of plates.
- 13490 ——— **TRAITÉ des PROPRIÉTÉS PROJECTIVES des FIGURES; with 12 plates, 4to. *sewn, uncut, 8s 6d*** 1822
'Long one of the best-known text-books on modern geometry. By means of projection, reciprocation, and homologous figures he established all the chief properties of conics and quadrics. He also treated the theory of polygons.'—*W. W. R. Bull*.
'He investigated in it the properties of figures which remain unaltered by projection, which is not effected here by parallel rays of prescribed direction, as with Monge, but by centre projection. . . . To him we owe the Law of Duality as a consequence of reciprocal polars.'—*Prof. Cajori*.
The work was written in 1813 while the author was a prisoner of war in Saratoff, with no other help than his memory.
- 13491 **PONTÉCOULANT (Philippe Gustave Doulet Comte de) THÉORIE ANALYTIQUE du SYSTÈME du MONDE, avec les Suppléments aux Livres II et V, 4 vols. 8vo. new hf. brown calf gilt (SCARCE), £1. 15s** 1829-46
Vol. IV, containing the Lunar Theory, is now very scarce. Vols. III and IV have never been reprinted.
- 13492 ——— **TOMES I à III, avec les SUPPLÉMENTS aux Livres II et V, 3 vols. 8vo. hf. calf gilt, 12s** 1829-34
- 13493 ——— **LES MÊMES, avec les SUPPLÉMENTS, 3 vols. 8vo. in 2, hf. calf (worn and soiled copy), 8s**
- 13494 **[PONTHÆUS [Italicè PONTE] (Josephus Dionysius)] COMETRICE OBSERVATIONS habitæ ab Academia Physico-mathematica Romana, Anno 1680 et 1681; with fine star-maps by N. Billy, sm. 4to. extra boards (fine copy); RARE, 12s 6d** Romæ, 1681
One of many accounts of the comet of 1680, which from its nearness to the earth greatly terrified the people. The same comet was also observed by Sir Isaac Newton, whom it enabled to demonstrate that comets as well as planets are subject to the law of gravitation. Cometary astronomy, till then neglected, now entered on a new and more prolific era.
The above account is rare and was unknown to Houzeau and Lancaster; nor is the author mentioned by Poggenorff and other bibliographers.

- 13496 **PONTIÈRE** (Honoré, *Univ. Lowain*) THERMO-CHEMICAL STUDY of the REFINING of IRON, 8vo. (pp. 16), *sewn*, 1s 6d 1897
 Prof. Pontière's lectureroom doubtless added some sticks to the bonfire at the Kulturfest of the Emperor William the Slaughterer.
- 13497 **PONTON** (Mungo, F.R.S.E.) ON CERTAIN LAWS of CHROMATIC DISPERSION, 8vo. (pp. 41), *sewn*, 2s [1859]
- 13498 ——— EARTHQUAKES: their History, Phenomena, and probable Causes, revised Edition, with Account of recent Earthquakes, 23 plates and woodcuts, cr. 8vo. cl. (o. p.), 3s 1888
 This work is not noticed in D. N. B. The author made the discovery that the action of sunlight renders bichromate of potassium insoluble.
- 13499 ——— ON THE LAW of the WAVE LENGTHS corresponding to certain Points in the SOLAR SPECTRUM, 8vo. (pp. 8), *unbound*, 1s 6d [1860]
- 13500 **POOLE** (Cecil Percy, M.A.I.E.E.) DIAGRAMS of ELECTRICAL CONNECTIONS, with 130 diagrams (including folding plates), roy. 8vo. cl., 5s (p. 8s 6d nett) New York, 1907
- 13501 **POOLE** (John; dramatist) CROTCHETS in the AIR; or an (Un)scientific Account of a Balloon Trip, in a Familiar Letter to a Friend, 2nd Edition, 8vo. *original figured cl., with balloon in gold in centre (scarce)*, 10s 6d 1838
 Hatton Turner, who quotes very fully from the above work in his *Astra Castra*, writes 'I much regret that I have not been able to find the name of the author of the amusing paper entitled 'Crotchets in the Air'. He might have done so, had he procured a copy with the title-page.
 It includes an account of the disastrous ascent of Mme. Blanchard, which the author witnessed while staying in Paris.
- 13502 **POOR** (Charles Lane, *Columbia Univ.*; F.R.A.S.) THE FIGURE of the SUN, with the Observations of SCHUR and AMBRONN, with 3 diagrams, 2 parts roy. 8vo. (pp. 25), *sewn, with author's inscr.*, 2s 6d Chicago, 1905
- 13503 **POPE** (Thomas, *Architect and Landscape Gardener*) TREATISE on BRIDGE ARCHITECTURE, in which the SUPERIOR ADVANTAGES of the FLYING PENDENT LEVER BRIDGE are fully proved; with Historical Account and Description of Bridges in various Parts of the World, *frontispiece of an 1800 feet span timber bridge over the East River, New York, and vignette (both in duplicate)*, and 14 plates, 8vo. *original hf. binding, uncut (back damaged)*; VERY SCARCE, £1. 10s New York, 1811
 This was a wonderful idea indeed, for a quasi-cantilever bridge of timber, buildable without centring, and of apparently unlimited span. The author justly claims that its 'principles, shape, construction, and extent differ wholly from all others before invented', and breaks out into much verse in the metre of his namesake, e.g.,
 'Let the Broad Arch the spacious Hudson stride,
 And span Columbia's rivers far more wide.
 Convince the world America begins
 To foster Arts, the ancient work of Kings'.
 The work contains an interesting list of subscribers, containing about 500 American names.
- 13504 **POPE** (William Jackson; F.R.S.; *Prof. Chemistry, Cantab.*) THE CRYSTALLINE FORMS of the SODIUM SALTS of SUBSTITUTED ANILIC ACIDS, with 5 diagrams, 8vo. (pp. 8), *sewn, with author's inscr.*, 1s 6d 1892
- 13505 ——— Die KRISTALLFORMEN der NATRIUMSALZE der SUBSTITUIRTEN ANILSÄUREN; die KRISTALLFORMEN der STEREOISOMEREN *a a'*-DIMETHYLPIMELINSÄUREN; with 8 diagrams, 8vo. (pp. 8), *sewn*, 1s 6d Leipzig, 1895
- 13506 ——— ORTHOBENZOISULPHINIDE, with 3 diagrams, 8vo. (pp. 6), *sewn, with author's inscr.*, 1s 6d 1895
- 13507 ———, and Charles Stanley GIBSON: THE ALKYL COMPOUNDS of GOLD, 8vo. (pp. 6), *sewn*, 1s 6d 1907
- 13508 ———, and John READ: THE OPTICAL ACTIVITY of COMPOUNDS having Simple Molecular Structure, 8vo. (pp. 6), *sewn*, 1s 6d 1908
- 13509 **POPPE** (Johann Heinrich Moritz v., *Univ. Tübingen*) ENCYCLOPÄDIE des GESAMMTEN MASCHINENWESENS, oder vollständiger Unterricht in der praktischen Mechanik und Maschinenlehre, mit Erklärungen der dazu gehörigen Kunstwörter in alphabetischer Ordnung, 2. fast durchgehends umgearbeitete Auflage, mit 3 Ergänzungs Bänden; with numerous folding plates, 8 thick vols. 8vo. *hf. German calf gilt*, 10s Leipzig, 1820-7
 Last edition of this interesting storehouse of contemporary Continental machinery practice.
- 13510 ——— PRAKTISCHES HANDBUCH für UHRMACHER, UHRENHÄNDLER, und für UHRENBESITZER; oder vollständiges Lexikon und Erklärung der Begriffe und Kunstwörter, welche bey Verfertigung, Reparatur und Gebrauch von Uhrwerken vorkommen, neue Ausgabe; with 12 folding plates, 2 vols. 8vo. *sewn*, 7s 6d *ibidem*, 1810
- 13511 **POPULAR ASTRONOMY**: a Review of Astronomy and allied Sciences, edited by WILLIAM W. PAYNE, CHARLOTTE R. WILLARD, HERBERT C. WILSON, etc., from the Beginning in 1893/4 to 1898 (Vols. I—VI), with portraits, numerous plates, coloured maps of constellations, and numerous other illustrations, 6 vols. roy. 8vo. *hf. roan*, £1. 15s (p. £3. 3s nett sewn) Northfield, Minn., 1894-8
- 13512 **PORRO** (Ignazio) NOUVEAU MICROMÈTRE à LIGNES LUMINEUSES REFLECHIES pour les INSTRUMENTS d'ASTRONOMIE; a lithographed MS. on 12 pp., with illustration, 4to. (pp. 12), *sewn*, 3s [1858]
- 13513 **PORTA** (Giovanni Battista della; *Napoletano*) De AERIS TRANSMUTATIONIBUS Libri IV, in quo Opere diligenter pertractatur de iis, quae, vel ex Aere, vel in Aere oriuntur: Μετεωρολόγιον multiples Opiniones, qua illustrantur, qua refelluntur. Demum variarum Causæ Mutationum aperiantur, editio princeps; with arms on title, woodcuts, diagrams, and folding table, sm. 4to. *contemporary limp vellum, with Cardinal's arms in centre (RARE)*, £1. 5s Rome, B. Zannettus, 1610
 'Une météorologie aussi complète qu'il était possible de la former alors par de simples observations sans aucun instrument de mesure. . . . Il faut mentionner spécialement ce qu'il dit sur les marées, dont il s'était occupé à Venise: ce sont probablement les plus anciennes observations de ce genre qui soient arrivées jusqu'à nous. On doit remarquer une table synoptique des transmigrations de l'air, qui . . . décèle dans l'auteur une faculté éminente de classification.'—*Libri*.

13515 **PORTA** (Giovanni Battista della; *Napoletano*) Della CELESTE FISONOMIA Libri Sei [tradotta da SALVATORE SCARANO]; with engraved arms on title, portrait *et.* 76, and numerous other woodcuts, sm. 4to. old limp vellum (some ll. browned as usual, otherwise a sound and very large copy), 17s 6d
Napoli, L. Scorriggio, 1614

13516 ——— **NOVA EDIZIONE** [in fine tituli:] nei quali ributtata la VANITÀ dell' ASTROLOGIA GIUDICIARIA, si dà Maniera di esattamente conoscere per Via delle Cause Naturali tutto quello, che l'Aspetto, la Presenza, e le Fattezze de gl' Huomini possono fisicamente significare, e promettere; with woodcut on title, and the numerous woodcuts re-engraved on an enlarged scale, 4to. sound and clean copy in old hf. calf, 15s
Padova, P. P. Tozzi, 1616

'Il s'y prononce contre certaines aberrations de l'astrologie judiciaire, mais en accordant aux astres une influence très-active.'—*Biogr. Gén.*

13517 ——— **MAGLÆ NATURALIS**, sive de MIRACULIS RERUM NATURALIUM Libri IIII, editio princeps; with curious woodcut initials, folio, old Italian vellum (last l. wanting, and some ll. water-stained, otherwise a CLEAN AND SOUND COPY); excessively rare, £3. 10s
Neapoli, apud Matthium Cancer, 1558

The first edition of this work in its original and more popular form in four books is of excessive rarity, Riccardi, who apparently could trace no copy of it ('rarisissima edizione'), being unable to give a collation, while other bibliographers state that it only contained 3 books.

The *Magia Naturalis* in four books is quite a different work from that in twenty, and contains far more occult and superstitious matter than the latter, which made it however only the more acceptable to the contemporary reader. The author mentions therein the *camera obscura* without the lens, the discovery of which is generally ascribed to Leonardo da Vinci, but was really first mentioned by Levi ben Gerson in a work translated in A.D. 1342 under the title 'De Sinibus et Cordis.' The camera with the lens was first described in the work rewritten in 20 books. Porta also mentions that the declination of the magnetic needle varies with the longitude, which he assumed erroneously could be ascertained by the magnetic variation. The work was written at the age of 15, and is dedicated to Philip II. of Spain. The work as above contains the 'Experimentorium Omnium Magiæ Naturalis Index' (pp. 10), which is absent in the second edition of Antwerp, 1564, and other reprints.

'De tous les écrits de Porta ce fut celui qui eut le plus de succès; dès sa première apparition, on le traduisit en plusieurs langues, et l'impression du public fut tel, ce livre fut lu avec tant d'avidité, il passa par tant de mains, que cet usage continué a détruit les premières éditions, et que l'en connaît plus que des réimpressions. . . Ces apparitions prodigieuses, ces miracles, étaient le roman de l'époque: et c'est ici vrai que lorsque, après des longs travaux, l'auteur le fit imprimer de nouveau avec de si notables additions, en le purgeant d'un grand nombre de prodiges imaginaires, ce livre perdit considérablement de sa vogue, et fut bientôt relégué parmi d'autres ouvrages du même genre.'—*G. Libri.*

13518 ——— **MAGLÆ NATURALIS LIBRI XX**, ab ipso Authore expurgati, et superacti, in quibus Scientiarum Naturalium Divitiæ et Delitiæ demonstrantur. I. De mirabilium Rerum Causis. II. De variis Animalibus gignendis. III. De novis Plantis producendis. IIII. De agenda Supellectili. V. De Metallorum Transmutatione. VI. De Gemmarum Adulteriis. VII. De Miraculis Magnetis. VIII. De portentosis Medelis. IX. De Mulierum Cosmetice. X. De extrahendis Rerum Essentiis. XI. De Myropœia. XII. De incendiariis Ignibus. XIII. De raris Ferri Temperaturis. XIIIII. De miro Conuiuiorum Apparatu. XV. De capiendis Manu Feris. XVI. De inuisibilibus Literarum Notis. XVII. De catoptricis Imaginibus. XVIII. De staticis Experimentis. XIX. De Pneumaticis. XX. Chaos; editio princeps, with title within woodcut border, portrait *et.* 50, and numerous other woodcuts and diagrams, folio, old white vellum (some ll. browned as usual, otherwise a sound copy), very rare, £2. 10s

ibidem, apud Horatium Salvanum, D.D.LXXXVIII [recte 1589]

13519 ——— **ANOTHER COPY**; old white vellum gilt (some ll. slightly water-stained, and others browned, otherwise a sound and UNUSUALLY TALL COPY), £3. 3s

First edition of the complete work in 20 books, and now of great rarity. Numerous reprints were published, and it was translated into many foreign languages.

13520 ——— **EDITIO NOVA**, nunc vero ab Infinitis, quibus Editio illa [princeps] scatebat Mendis, optime repurgata: in quibus Scientiarum Naturalium Divitiæ et Deliciæ demonstrantur, accessit Index copiosissimus; with woodcuts and diagrams, sm. 8vo. contemporary white vellum (fine copy), 12s 6d
Rothomagi, Jo. Berthelin, 1650

13521 ——— **EDITIO ALTERA**, cum Indice copiosissimo; with engraved title, and numerous woodcuts and diagrams, 12mo. hf. calf (binding damaged), 10s
Lugd. Bat., P. Leffen, 1651

13522 ——— **ANOTHER COPY**, white vellum (damaged title wanting, but a very sound copy), 8s 6d

A very neatly printed edition. The engraved title is dated 1650. Porta's *Magia Naturalis* in Twenty Books is quite a different work from that in Four Books, first published in 1558, and is one of the most important works on natural science published during the XVIIth Century. Many of the superstitious and even puerile passages of the latter were left out in this work, and sixteen new books were added. It is a great storehouse of fact and fiction, brought together from every available source and from private conversations, during the author's extensive travels in Italy, France and Spain. Some of the books were afterwards published in an enlarged and separate form.

Of great interest is book VI, which shows that the production of artificial gems must have been far advanced in Porta's time. The seventh contains some important observations on the magnet. The most important however is the seventeenth, which contains Porta's invention of the camera obscura with the lens, and the *laterna magica*, afterwards improved by Father Kircher. A passage of the tenth chapter has also been quoted to ascribe to him (mistakenly) the invention of the telescope.

13523 ——— **NATURAL MAGICÆ**: in Twenty Books, wherein are set forth all the Riches and Delights of the Natural Sciences, with engraved title (including portrait) by R. Gaywood, and numerous woodcuts and diagrams, folio, old calf (binding rubbed and mended); rare, £4. 4s
Thomas Young and Samuel Speed, 1658

13524 ——— **ANOTHER COPY**, old hf. calf (wanting printed and engraved titles, Table (3 ll.), 8s 6d and pp. 353-4 and 359-60); a cheap copy, £1. 1s

This English edition, the only one ever published, has now become very rare, presumably from the constant use this favourite book had to undergo.

The *Natural Magicæ* was the last great storehouse of science with its myriads of 'facts' without any experimental proof or confirmation. It is interesting as having—perhaps the most typical of its kind—been published on the eve of the beginnings of experimental physics, started by William Gilbert and Sir Francis Bacon.

Gobert THE *Bancroft*
Pathway to Knowledge.

Conteyning certaine briefe Tables of
English waights, and Measures, with the propor-
tions, kindes, and numbers belonging properly
vnto the same.

How to cast accompt with Counters, and with
Pen, both in whole and broken numbers

With the Rules of Cossicke, Surd, Binomicall, &
Residvall Numbers, and the Rule of Equa-
tion, or of Algebere, with diuers exam-
ples for the working of the same.

Wherunto is annexed a most excellent Inven-
tion of Iulius Caesar Patauinus, for the buying
and selling of all kinde of Marchandise.

Also the order of keeping of a Marchants
booke, after the Italian manner, by Debtor
and Creditor, with a Instruction to
lead you to the same.

All more briefly done, then any heretofore hath
been set forth.

Together with a Table in the beginning of the
booke, where you may finde the principall
matiers conteyned in the same.

Written in Dutch and translated
into English by W. P.

Printed in London for William Brouncker
are to be sold at his Shop at the west
end of Gracious street.

No. 13020 (page 651).

An early and rare English mathematical work.

MAGIAE NATURALIS,

SIVE

DE MIRACVLIS REVM NATVRALIVM

LIBRI IIII.



IO. BAPTISTA PORTA NEAPOLITANO

A V C T O R E.



NEAPOLI

APVD MATTHIAM CANCER.

M. D. LVIII.

CVM GRATIA ET PRIVILEGIO

PER DECENNIVM.



IO. BAPT. PORTAE
NEAPOLITANI

MAGIAE NATVRALIS

LIBRI IIII

*Ab ipse auctor expurgati, et foperati in auctoris fana
sivum Neapolitanum dantis, et editis
demonstrantur*

- I De nihilum eorum canis.
- II De variis animalibus ingeneris.
- III De nouis plantis productis.
- IV De nouis animalibus productis.
- V De nouis animalibus productis.
- VI De gemmarum adulescentis.
- VII De mineralibus margaritis.
- VIII De portuensis margaritis.
- IX De portuensis margaritis.
- X De extrahendis eorum odentis.
- XI De hydropum.
- XII De neerlandis gubner.
- XIII De neerlandis gubner.
- XIV De mero conuincum sparam.
- XV De conuincum sparam.
- XVI De conuincum sparam.
- XVII De conuincum sparam.
- XVIII De haerit experimentis.
- XIX De haerit experimentis.
- XX Cito.



CVM PRIVILEGIO

NEAPOLI, Apud Horatium Schirraum. D. D. LXXXVIII.

Nos. 13517-19 (page 676).

First editions of the two varieties of this celebrated cyclopedia.

- 13526 **PORTA** (Giovanni Battista della; *Napolitano*) De DISTILLATIONE Lib. IX, quibus certa Methodo, multiplici; Artificio, penitioribus Nature Arcanis detectis, cuiuslibet mixti in propria Elementa Resolutio, perfectè docetur, editio princeps; with fine engraved portrait *et.* 64 by J. Laurus, and numerous large woodcuts of chemical apparatus, etc., sm. 4to. contemporary white vellum (portrait and some ll. stained and browned), 16s
Roma, ex Typogr. Rev. Camera Apostolica, 1608
- 13527 — ANOTHER COPY, contemporary white vellum (sound and clean copy), £1. 1s
- 13528 — A LARGE PAPER COPY, printed on blue paper, 4to. contemporary white vellum gilt, with arms in gold on sides (FINE COPY), £1. 15s
Copies on blue paper are VERY RARE. Græsse only knew one such copy, that in the Biblioteca Riccardiana, Florence. Coloured paper of such an early date is also a curiosity in the art of paper-making.
- 13529 — EDITIO NOVA, nunc primum in Germania Typis vulgata ac Indice Capitum et Materiarum exornata; with fine engraved portrait by J. v. Heiden, and the numerous woodcuts re-engraved, sm. 4to. boards, covered with old MS. on vellum (sound and clean copy); RARE, 15s
Argentorati, L. Zetzner, 1609
- The first edition printed in Germany, and unknown to Græsse. It contains an index which is not included in the first edition; the woodcuts are also more neatly executed than in the former edition.
The above copy belonged to Samuel Eglinger, M.D., professor of mathematics, Basel University (1638-73), and bears the following inscription on its leaf: 'Sam. Eglingeri D. A.º MDCLXIII. Fœlix qui potuit rerù cognoscere causas! Symb.'
'Ouvrage curieux en ce qu'il donne un état exact de la chimie au seizième siècle.'—*Biogr. Gén.*
- 13530 — La FISONOMIA dell' HUOMO, et la CELESTE: Libri Sei, tradotti di Latino in Volgare, et hora in questa Settima Impressione ricorretta, con la Fisonomia Naturale di Monsignor Giovanni Ingegneri, di Polemone, di Adamantio, et il Discorso di Livio Agrippa sopra la Natura e Complessione Humana, con il Trattato di Nei di Lodovico Settali, aggiuntovi da nuovo la Metoposcopia di CIRO SPONTONE; with full-page woodcut portrait (different from the foregoing ones), and very numerous large woodcuts, 4to. boards, uncut, 16s
Venetia, N. Pezzana, 1668
'Tout en profitant des observations d'Aristote, de Poléon et d'Adamantius, Porta a déployé tant de sagacité dans ses propres recherches qu'il peut passer pour le véritable fondateur de la physiognomie.'—*Biogr. Gén.* To this edition is added the *Celeste Fisonomia* (v. No. 13515 *supra*).
- 13531 — De OCCULTIS LITERARUM NOTIS, seu Artis Animi sensa occultè aliis significandi, aut ab aliis significata expiscandi enodandique Libri IIII; explicantur autem inter cætera etc. veterum quoque Scriptorum Loca, hac de Arte loquentia; indidemque petita; with woodcuts and figures, 12mo. sound and clean copy in old pressed calf (RARE), £1. 12s 6d Montisbelgardii, J. Foillet, 1593
- 13532 — EDITIO NOVA, priori castigatior, cui [Liber QUINTUS et] AUCTARIUM accesserunt, Additamenta quædam continens, ad præcedentes Libros, tum novis inventis, tum pluribus Exemplis, auctiores et illustriores reddendis; with numerous woodcuts and figures, thick 12mo. fine copy in contemporary white vellum, £1. 10s
Argentorati, L. Zetzner, 1606
The first edition of this work was published in four books in 1563 as *De Furtivis Literarum Notis*. The fifth book was first published in the edition of Naples, 1592, and the above first contains the 'Auctarium' and is the last mentioned by Riccardi.
'Dans ce traité de chiffres on d'écriture secrète, il indique 180 procédés différents et met en outre sur la voie de les multiplier à l'infini.'—*Biogr. Gén.*
- 13533 — PNEUMATICORUM Libri III, quibus accesserunt CURVILINEORUM ELEMENTORUM Libri II, editio princeps; with vignette on title and numerous woodcuts and diagrams, 2 vols. sm. 4to. in 1, old white vellum (a few ll. very slightly wormed, otherwise a large and fine copy); RARE, £1. 5s
Neapoli, Jo. Jac. Carlinus, 1601
This work is of interest as containing the earliest attempt towards measuring the volume of steam given off by a given quantity of water.
'An apparatus similar to that of Hero of Alexandria is described by della Porta in his Pneumatics, published in 1601, with this addition, that the condensation of steam within a close vessel is described as a means of producing a vacuum, and thereby causing water to ascend and fill the vessel.'—*Prof. Rankine, F.R.S.*
The above volume first contained the author's work on curves, which was republished in an enlarged form in 1610.
- 13534 — I TRE LIBRI de' SPIRITALI, cioè d'INALZAR ACQUE per FORZA dell' ARIA [tradotti, colle Aggiunte dell' Autore, da JUAN ESCRIVANO]; with vignette on title, and numerous woodcuts, cr. 4to. FINE COPY in brown morocco, with bookplate of Henry B. H. Beaufoy, F.R.S. (RARE); £1. 5s
ibidem, a. c., 1606
The Italian translation of the *Pneumatica*, first containing the illustration celebrated in the history of the steam engine.
'On trouve à la page 75 de cet ouvrage une figure représentant la machine inventée par Porta pour élever l'eau à l'aide de la force élastique de la vapeur, figure dont Fr. Arago a donné un fac-simile dans son *Histoire des machines à vapeur*.'—*Brunet*. There is also an illustration of a *thermoscope* on page 76.
'Dans la traduction italienne des *Pneumaticis*, Porta parle des moyens à employer pour connaître en combien d'air se transforme une quantité donnée d'eau. Cet air n'est autre chose que la vapeur, et l'on ne peut se refuser à voir ici une des premières applications faites par les modernes de ce puissant moteur. Au même endroit Porta traite de la raréfaction de l'air par la chaleur, et l'applique à un instrument, qui est une espèce de thermomètre.'—*M. Libri*.
- 13535 **PORTA LEONE** (Abraham [ben David Arie], *Mantuanus, Medicus Hebræus*) De AURO DIALOGI TRES, in quibus non solum de AURI in RE MEDICA FACULTATE, verum etiam de SPECIFICA eius, et cæterarum Rerum Forma, ac Duplici Potestate, qua mixtis in omnibus illa operatur, copiosè disputatur. Cum Licentia SANCÆ INQUISITIONIS, et Illustrissimi Senatūs Venetī; with plate of emblem, sm. 4to. old white vellum (some ll. browned, otherwise a FINE COPY); RARE, £1. 15s
Venetiis, J. B. à Porta, 1584
An iatro-chemical work of importance, in which the author denies that the internal use of gold lengthens life, and containing matters of interest to the historian of chemistry and physics. It was unknown to Poggenдорff, Brunet, Græsse, and other bibliographers.
- 13536 **PORTLOCK** (Major-Gen. Joseph Ellison, R.E., F.R.S.) REPORT on the GEOLOGY of the COUNTY of LONDONDERRY, and of Parts of TYRONE and FERMANAGH, with 38 lithographs of Fossils, 9 folding plates (some coloured), woodcuts, and large coloured map, thick 8vo. cl., 8s Dublin, 1843
'He was a geologist after my own heart.'—*Sir Roderick Murchison*.
- 13537 **POSELGER** (Friedrich Theodor; Berlin) Das TAYLOR'SCHE THEOREM, als GRUNDLAGE der FUNCTIONEN-RECHNUNG, 4to. (pp. 26), *scvæ*, 2s
[Berlin, 1835]

- 13539 **PORTER (George Richardson, F.R.S., author of 'The Progress of the Nation')** The NATURE and PROPERTIES of the SUGAR CANE, with Practical Directions for the IMPROVEMENT of its CULTURE, and the MANUFACTURE of its Products, 6 plates of Machinery, etc., besides woodcuts, 8vo. cl., uncut (scarce), 10s 1830
Written before the abolition of slavery in the British West Indies.
This edition contains an Appendix (pp. 79) left out in the second, containing Extracts from Reports made to the Agricultural Society of Antigua, Tables of Imports and Exports of Sugar to and from Great Britain, and other information giving interesting statistical details.
- 13540 ——— **SECOND EDITION**, with additional Chapter on the Manufacture of Sugar from BEET ROOT, with 6 plates and 3 woodcuts, 8vo. cl., 10s 1843
Published after Abolition, with a view to make up for dearer labour by more efficient processes.
- 13541 **PORTER (Samuel, surveyor and engineer to the Stratford-on-Avon Canal)** The ARTIFICER'S, FARMER'S, and INLAND-NAVIGATOR'S ASSISTANT: shewing by DECIMAL TABLES (at Sight) the most useful Kinds of Admeasurements at any Length, Breadth, or Depth; also an easy and practical Method of Leveling, Surveying, etc., with front. of 'Porter's Balance Level', 4to. hf. bound (back damaged), 7s 6d 1799
Scarce, and unknown to Watt, Lowndes, Allibone, and others. The 'inland-navigator' was the original form of the present word navy.
- 13542 **PORTER (Henry, M.D., F.G.S.)** The GEOLOGY of PETERBOROUGH and its Vicinity, with 10 lithographs, post 8vo. cl., with inscr. to Prof. James Tennant, 4s Peterborough, 1861
- 13543 **PORTS MARITIMES de la FRANCE:** NOTICE sur le PORT de BOULOGNE, par M. VIVENOT, '74: DIEPPE, par M. LAVOINER, '74: CHERBOURG, par M. DE ST-AMANT, '77: LE HAYRE, par M. QUINETTE DE ROCHEMONT, '75: SAINT-MALO et SAINT-SERVAN, par M. FLOUCAUD de FOURCROY, '77: ALGER, par M. TRÈVES, '91: DELLYS, par le même, '92; with a large folding plan to each port (except Cherbourg, Saint-Malo, and Saint-Servan), and numerous smaller plans, and diagrams—7 vols. roy. 4to. in 1, hf. morocco neat, £1. 1s
Imprimerie Nationale, 1874-92
- 13544 **POŠEPNÝ (Franz)** The GENESIS of ORE-DEPOSITS (read before the International Engineering Congress, Chicago, 1893), with portrait (inserted), and 12 plates (pp. 173): DISCUSSIONS on the above Paper, with diagrams, 5 papers (pp. 89): BIOGRAPHICAL NOTICE by R. W. RAYMOND (pp. 13)—in 1 vol. 8vo. cl. (scarce), 6s 6d [New York, 1893-4]
'A complete treatise on the subject, comparable in importance with those of Cotta, Groddeck and Grimm.'—*Engineering and Mining Journal*.
- 13545 **POST (J.), et Bernhard NEUMANN:** TRAITÉ COMPLET d'ANALYSE CHIMIQUE appliquée aux ESSAIS INDUSTRIELS, 2^e Édition française, entièrement refondue, et augmentée par M. PELLET et G. CHENU, Tome II, Fascicule II: SUCRE, Amidon, Dextrose, et Glucose; with 120 illustrations, roy. 8vo. sewn, 3s 6d (p. F. 8 nett) 1910
- 13546 **POST (J. W., Niederländische Staatsbahn)** QUERSCHWELLEN mit DIRECT EINGEWALZTEN, GENEIGTEN und VERSTÄRKTEN AUFLAGEFLÄCHEN; with 3 folding plates, 4to. (pp. 4), sewn, with inscr. to J. Bosscha, inventor of duplex telegraphy, 2s 6d Wiesbaden [1885]
- 13547 **POSTE (Edward. Oriol Coll.)** The LOGIC of SCIENCE: a Translation of the Posterior Analytics of ARISTOTLE, with Notes and Introduction, post 8vo. cl., 5s Oxford, 1850
- 13548 **POTAIN (Le Docteur, ex-chirurgien principal d'armée)** RELATION AÉROSTATIQUE, dédiée à la NATION IRLANDAISE; with fine and large lithographic portrait by Boilly after Bordes, and view of the balloon in mid-air, 4to. (pp. 32), hf. cl., uncut, with the original cover lettered 'Historique d'un Voyage Aérien' bound in (FINE COPY); VERY RARE, £3. 3s 1824
The above copy contains 'Document et Pièces principales à l'Appui du présent Mémoire' (pp. 6), containing the deliberations and correspondence of the Irish Committee, which included the ill-fated Lord Edward Fitzgerald, the Earl of Moira (afterwards Marquess of Hastings), and many other well-known Irishmen.
The work, as well as the ascent (at Dublin, June 17, 1785), was unknown to Hatton Turnor.
- 13549 **POTT (Johann Heinrich; Berlin)** EXERCITATIONES CHYMICAE, de Sulphuribus Metallorum, de Auripigmento, de Solutione Corporum Particulari, de Terra Foliata Tartari, de Acido Vitrioli Vinoso, et de Acido Nitri Vinoso, sparsim hactenus editæ, jam vero collectæ, restitute, a Mendis repurgatæ, variisq; Notis, Experimentis et Discussionibus adauctæ, 4to. contemporary calf gilt (fine copy); rare, 12s 6d Berolini, 1738
'Stahl's disciple and pupil, Johann Heinrich Pott, enriched chemistry by many valuable observations. . . With regard to the nature of phlogiston itself, he expressed the opinion that it was 'a variety of sulphur.'—Prof. E. v. Meyer.
'Pott vereinigte eine gründliche Kenntniss der chemischen Wissenschaft, wie sie seiner Zeit vorlag, mit einem rastlosen Streben nach Förderung derselben. Er hatte eine ungemeine Geschicklichkeit in dem praktischen Theile der Chemie, eine unermüdete Ausdauer bei den langwierigsten Untersuchungen; und was er auf diese Weise neu erlangt hatte, theilte er mit einer Offenheit und Klarheit mit, welche für die damalige Zeit hoch anzuschlagen ist.'—H. Kopp.
- 13550 ——— **LITHOGÉOGNOSIE, ou EXAMEN CHYMIQUE des PIERRES et des TERRES en général, et du Talc, de la Topaze, et de la Stéatite en particulier, avec une Dissertation sur le Feu et sur la Lumière. Ouvrages traduits de l'Allemand: CONTINUATION de la LITHOGÉOGNOSIE PYROTECHNIQUE, où l'on traite plus particulièrement de la Connoissance des Terres et des Pierres, et de la Manière d'en faire l'Examen, 2 vols. 12mo. contemporary French calf gilt, 12s 6d 1753
The author was a disciple of G. E. Stahl, and in the above work did much to promote a knowledge of chemical analysis. He was the first to treat of bismuth and its compounds, and discovered silicic acid, although it was recognised as such only in 1811 by James Smithson, F.R.S., founder of the Smithsonian Institution.**
- 13551 **[POUCHET (Georges)]** ÉCLAIRAGE par la BOUGIE ÉLECTRIQUE [JABLOCHKOFF], des Voies Publiques, des Grands Magasins, Cafés, etc. etc.; with woodcuts, roy. 8vo. (pp. 47), sewn, 2s Lille, 1878
The Jablochkoff 'Candle' was an ingenious expedient for making the Arc Lamp handier for general use before the practicable development of the Glow Lamp by Swan and Edison.
'So they lit up the heights
With Jablochkoff lights,
And now I suppose there's a war.'
—Anglo-Indian verses temp. the annexation of Burma.

- 13553 **POSTLETHWAITE** (John, F.G.S.), and **John George GOODCHILD**, F.G.S.: On some TRILOBITES from the SKIDDAW SLATES, with 4 plates, 8vo. (pp. 15), *sewn*, 1s 6d [1886]
THE NUMBER OF THE BEAST:
- 13554 **POTTER** (Francis, *pr.*, F.R.S.) INTERPRETATIO NUMERI 666, quâ, tum Modus unicus, quo Numerus hic interpretandus est, perspicue probatur et demonstratur; tum ostenditur, Numerum hunc perfectum esse et accuratum Characterem, quo verè exactè et essentialiter, describitur Status ille et Regimen, cui reliquæ omnes ANTICHRISTI Notæ conveniunt; with engraved *symbolic title*, 12mo. *old calf*, 8s 6d *Amstelodami, 1677*
'A wild but ingenious theory of the Number of the Beast, connecting 25, the 'approprique' square root of 666, with various Romish institutions. Pepsys, who read the work in November 1666, considered it 'mighty ingenious'.—D. N. B.
Joseph Mead, the Biblical scholar (1586-1638), in a commendatory note appended to the work, declares it to be 'omnium felissimus qui in mundum hactenus prodierunt: nec legi potest (nisi ab eis qui nolunt credere) sine summa admiratione'.
- 13555 **POTTER** (Richard, *Prof. Astronomy, Univ. Coll., Lond.*) ELEMENTARY TREATISE ON MECHANICS, with diagrams, 8vo. *cl.*, 2s 1846
- 13556 ——— ELEMENTARY TREATISE ON OPTICS, with the Construction of Optical Instruments, with woodcuts, 8vo. *cl.*, 3s 1847
- 13557 ——— PHYSICAL OPTICS, or the Nature and Properties of Light, with 101 woodcuts, 8vo. *cl.*, 3s 1856
- 13558 **POTTER** (Thomas; *Clerk of Works to Lord Ashburton*) CONCRETE: its Use in Building, and the Construction of Concrete Walls, Floors, etc.; New Edition, rewritten, with numerous woodcuts, 2 vols. post 8vo. in 1, *cl.*, 5s Winchester [1891]
- 13559 ——— THE CONSTRUCTION OF SILOS, and the Compression of Green Crops for Silage, with 62 woodcuts, sq. post 8vo. *cl.*, with author's *inscr.*, 3s 6d [1886]
English farmers owed their introduction to ensilage to a succession of wet summers in the 'Eighties.
- 13560 **POTTER** (W. J.) CONCURRENT PRACTICAL AND THEORETICAL GEOMETRY, containing the Substance of Euclid I—XI, treated both experimentally and formally, with diagrams, Parts I—III in 1 vol. thick cr. 8vo. *cl.*, 2s 6d 1910
- 13561 **POUILLET** (Claude Servais Mathias; *de l'Institut*), et V. LE BLANC: PORTEFEUILLE INDUSTRIEL DU CONSERVATOIRE des ARTS et MÉTIERS, ou Atlas et Description des Machines, Appareils, Instrumens, et Outils employés en Agriculture et dans les differens Genres d'Industrie, 1^{ER} VOL. (seul paru), roy. 8vo. *hf. morocco gilt (atlas missing)*, 4s 1834
- 13562 **POUSSIN** (Major Guillaume Tell, *U.S. Army*) CHEMINS de FER AMÉRICAINS: Historique de leur Construction, Prix de Revient et Produit, Mode d'Administration adopté, Résumé de la Législation que les régit; with folding map and 7 plates of permanent way, 4to. *hf. calf*, with *auto.* of George Rennie, *C.E., F.R.S. (SCARCE)*, £1. 1s 1836
Very interesting as probably the first giving details and statistics of the Railways of the United States. The map shows the very extensive system already open or under construction.
The author, according to Allibone, 'soon after the downfall of Napoleon I., accompanied General Bernard to the United States, and assisted him there in the construction of military works, and became a naturalized citizen.'
- 13563 **POWALKY** (Carl Rudolf) NEUE UNTERSUCHUNG des VENUSDURCHGANGES von 1769 zur Bestimmung der Sonnenparallaxe, 4to. (pp. 28), *sewn*, 2s 6d Kiel, 1864
'Powalky in 1864 discussed 44 observations, made at nineteen stations.'—R. A. Proctor.
- 13564 **POWELL** (Baden, *pr.*, *Oriel Coll.*; F.R.S., *Savilian Prof. Geometry*; 'Essayist and Reviewer'; *father of Lt.-Gen. Sir R. S. S. Baden-Powell* ['B.P.']) ON THE ACHROMATISM OF THE EYE, 8vo. (pp. 32), *sewn*, 2s 6d *Ashmolean Soc., Oxford, 1834*
- 13565 ——— ANOTHER COPY, with 1-page Pamphlet: On the Achromatism of the Eye, in Reply to some Remarks in the 'Philosophical Magazine', 8vo. *sewn*, with author's *inscr.*, and *auto.* of Dr. P. M. Roget, *F.R.S.*, 3s 6d 1834-5
- 13566 ——— ELEMENTARY TREATISE on the GEOMETRY OF CURVES and CURVED SURFACES, investigated by the Application of the Differential and Integral Calculus, with folding plate, 8vo. *cl.*, with *auto.* of F. J. Jervis-Smith, *pr.*, *F.R.S.*, 5s *Univ. Press, ibidem, 1830*
Designed as a continuation to the 'Elements of Curves', and 'Short Treatise'.
- 13567 [———] THE ELEMENTS OF CURVES: comprising, I. the Geometrical Principles of the Conic Sections, II. an Introduction to the Algebraic Theory of Curves, with 7 folding plates, 8vo. boards, *uncut*, 5s *Clarendon Press, ib., 1828*
Professor Baden Powell's first published work, issued soon after his appointment to the Savilian chair of geometry at Oxford, which he held till his death.
- 13568 ——— GENERAL and ELEMENTARY VIEW of the UNDULATORY THEORY, as applied to the DISPERSION OF LIGHT, and some other Subjects, with coloured folding front., 8vo. *hf. calf*, or, boards, *uncut*, 7s 6d 1841
The author was the discoverer of 'Powell's Bands', which are noticeable in some cases of interference.
- 13569 ——— HISTORY of NATURAL PHILOSOPHY, from the earliest Periods, with vignette by Finden after Corbould, fcap. 8vo. *cl.*, 3s 6d 1824
- 13570 ——— ANOTHER COPY, *prize calf extra*, 6s 6d
This was the prize copy from University College, London, to LORD LISTER, and is signed by Prof. Richard Potter.
- 13571 ——— ON a NEW CASE of the INTERFERENCE of LIGHT, with 5 diagrams, 4to. (pp. 14), *sewn*, 3s 6d 1848
- 13572 ——— ANOTHER COPY, with special Title, and author's *inscr.* to L. A. Cauchy, 4s 6d
This memoir contains the discovery of a curious phenomenon of the interference of light, known as 'Powell's Bands.' A complete explanation of it was given by Sir G. G. Stokes, F.R.S., in the same year.
- 13573 ——— ON the REPULSIVE POWER of HEAT, roy. 4to. (pp. 5), *sewn*, 2s 1834
- 13574 [———] SHORT TREATISE on the PRINCIPLES of the DIFFERENTIAL and INTEGRAL CALCULUS, with plate, 8vo. boards, *uncut (scarce)*, 7s 6d *Univ. Press, Oxford, 1829*
The first Oxford textbook on the calculus in which the differential notation—introduced into use at English universities by the Cambridge Analytical Society (v. No. 9245 *ante*)—was used.

- 13576 [POWELL (Thomas)] HUMANE INDUSTRY: or a HISTORY of most MANUAL ARTS, deducing the Original, Progress, and Improvement of them; furnished with Variety of Instances and Examples, shewing forth the Excellency of Human Wit, 12mo. *very sound copy in old mottled calf (RARE)*, £1. 1s
H. Herringman, 1661
Containing many other interesting subjects: The Invention of Dials, Clocks, Watches, etc. (pp. 1-13): Of some curious Spheres and Representations of the World (pp. 14-23): Of sundry Machines and Artificial Motions, by Water and Air (pp. 24-45): Of the Art of Spinning and Weaving (pp. 84-101): Of the Invention of Glass (pp. 133-43): Of the Invention of Shipping and Sailing: also of the Mariner's Compass (pp. 144-63).
- 13577 POWELL (Lt.-Col. William H., U.S. Army) THE ARMY OFFICER'S EXAMINER: containing Questions and Answers on all Subjects prescribed for an Officer's Examination; with Rules to guide Boards of Examination, cr. 8vo. cl., 4s (p. 17s nett)
New York, 1894
- 13578 POWER (Henry, M.D., F.R.S.) EXPERIMENTAL PHILOSOPHY: containing NEW EXPERIMENTS, MICROSCOPICAL, MERCURIAL, and MAGNETICAL, with some Deductions and Probable Hypotheses, raised from them, in Avouchment and Illustration of the now famous ATOMICAL HYPOTHESIS, with folding copperplate (mounted on canvas), and 2 woodcuts, sm. 4to. *old calf gilt (newly and neatly rebacked)*; RARE, £1. 1s
T. Roycroft, 1664
The author's only published work.
'The following observations seem to make out, that the Minute particles of most (if not all) Bodies are constantly in some kind of motion, and that motion may be both invisibly and unintelligibly slow, as well as swift, and probably is as unseparable an attribute to Bodies, as well as Extension is.'—*Preface*.
The second and third books have a separate title, which is dated 1663. At end is: Subterranean Experiments: or, Observations about Coal-Mines. There is an interesting 'Conclusion', containing reflexions on contemporary learning.
- 13579 POWER (James, Paris) COMPAGNIE DES SIGNAUX ELECTRIQUES: Systeme TYER, roy. 8vo. (pp. 22), *sewn (rare)*, 7s 6d
1855
Advocating the use of electric signals as a means of preventing the frightfully common railway disasters of the days before the Block System. The author compares the systems of Bonelli and Tyer, deciding in favour of the automatic signalling of the latter.
- 13580 POYNTING (John Henry, F.R.S.; Prof. Physics, Univ. Birmingham) CHANGE OF STATE: SOLID-LIQUID, with plate, 8vo. (pp. 17), *sewn, with author's inser.*, 2s 6d
1881
- 13581 ——— On a DETERMINATION of the MEAN DENSITY of the EARTH and the GRAVITATION CONSTANT by Means of the COMMON BALANCE, with 7 plates and 14 woodcuts, roy. 4to. (pp. 92), *sewn, with author's inser.*, 4s 6d
1892
The first experiment for measuring the earth's density in which the common balance was used. Hitherto, since Cavendish's experiment, the torsion balance had always been used.
- 13582 ——— The MEAN DENSITY of the EARTH, with 7 folding charts and 17 illustrations, 8vo. cl., 6s 6d (p. 12s 6d)
1894
This essay, which was awarded the Adams Prize in 1893, 'gives an account of the various experiments, including one by the author, which have been made to determine the mean density of the earth.' It includes a valuable BIBLIOGRAPHY.
- 13583 ——— NOTE on a METHOD of determining SPECIFIC HEAT by MIXTURE, with 4 diagrams, 8vo. (pp. 8), *sewn*, 1s 6d
Birmingham [1884]
- 13584 ——— On a SIMPLE FORM of SACCHARIMETER, 8vo. (pp. 4), *sewn*, 1s 6d
1880
- 13585 ——— On the TRANSFER of ENERGY in the ELECTROMAGNETIC FIELD, with 6 diagrams, roy. 4to. (pp. 19), *sewn, with author's inser.*, 3s 6d
1884
An important memoir, in which the author's from Maxwell's equations drew the conclusion that in all cases where energy is transferred in an electric system it flows parallel to the surfaces of both electric and magnetic equipotentials.
—Prof. Silvanus Thompson, F.R.S.
- 13586 ———, and Sir Joseph John THOMSON, F.R.S.: TEXT-BOOK of PHYSICS [VOL. I]: PROPERTIES of MATTER, with 168 illustrations, sq. 8vo. cl., 5s 6d (p. 10s 6d)
1902
- 13587 ——— [VOL. II]: SOUND, with 85 illustrations, sq. 8vo. cl., 4s (p. 8s 6d)
1899
- 13588 ——— FIFTH [LAST] EDITION, carefully revised, with 85 illustrations, sq. 8vo. cl., 4s 6d (p. 8s 6d)
1909
- 13589 ——— [VOL. III]: HEAT, with 193 illustrations, sq. 8vo. cl., 7s 6d (p. 15s)
1904
A text-book of well-known excellence, 'intended chiefly for the use of students who lay most stress on the experimental part of physics, and who have not yet reached the stage at which the reading of advanced treatises on special subjects is desirable.'—*Preface*. Parts I and II of the fourth volume (Electricity and Magnetism) were published in February 1914 at 10s 6d. Vol. V, containing Light, has not yet been issued.
- 13590 POZZO (Andrea, S.J.) RULES and EXAMPLES of PERSPECTIVE proper for Painters and Architects, etc., in English and Latin, containing a most easie and expeditious Method to delineate in Perspective all Designs relating to Architecture, after a NEW MANNER, wholly free from the Confusion of Occult Lines, done into English by JOHN JAMES, of GREENWICH, with 105 fine copper-plates, and 200 pretty vignettes on copper, all engraved by JOHN STURT, roy. folio, *old tree-calf, slightly waterstained, a few ll. neatly repaired, and joints cracked, otherwise a sound copy*, £1. 5s 1707
- 13591 ——— ANOTHER COPY, *old calf (binding neatly mended and newly rebacked)*, £1. 7s 6d
Not only celebrated as a treatise of perspective, but of great interest for illustrating the author's own style of architecture, one of the best examples of the decadent Renaissance or Baroque style.
'C'est là qu'on voit porter au dernier point ce qu'on pourrait appeler la caricature de la bizarrerie. - C'est une congeries de piédestaux sur piédestaux, de colonnes portées sur des consoles, de formes en ondulations, de fronts écarés, de figures baroques, de colonnes torses transformées en serpents, de colonnes supposées assises, etc.'—*Quatrième de Quinoy*.
John James the translator was clerk of the works to Greenwich Hospital, and held the high office of Surveyor to St. Paul's Cathedral and to Westminster Abbey; he supervised the fifty new Churches built in the Greater London of Queen Anne's day, the first of the only two occasions on which the post-Reformation Church of England received a State subsidy; and he designed St. George's, Hanover Square and Orleans House, Twickenham.
- 13592 PRACTICAL MECHANIC (The), and ENGINEER'S MAGAZINE, from the Beginning in October, 1841 to September, 1845 (Vols. 1-4), with numerous plates and woodcuts, 4 vols. 4to. cl., 10s
Glasgow, 1842-5
- 13593 PRESCOTT (George Bartlett) THE SPEAKING TELEPHONE, ELECTRIC LIGHT, and other recent Electrical Inventions, with folding front. and 321 woodcuts, 8vo. cl. (o.p.), 4s (p. 12s 6d)
New York, 1879

- 13595 **PRAT (Louis) NOUVEAU PROCÉDÉ de TIRAGE MÉCANIQUE des FOYERS, par Aspiration à Travail Constant ; with 6 illustrations, roy. 8vo. (pp. 20), sewn, 2s 6d** 1898
- 13596 **PRATICA**: cioè NUOVA INVENZIONE di Conteggiare, ridotta à MODO tanto FACILE, che ognuno potrà far ogni gran Conto, si in vendere, come in comprare, sia à Misura, ò Peso, ò in qualsivoglia altro Modo ad ogni Sorte di Prezzo, e Moneta per tutte le Parte del Mondo, ecc.: AGGIUNTA di due TAVOLE utilissime alla Pratica, ò Nuova Invenzione di Conteggiare, nelle quali si hà il Maneggio de' Soldi, e Dinari in varie Sorti di Conti—2 vols. 32mo. in 1, *old vellum (first title soiled, otherwise a sound copy)*, £2. 2s
Milano, Gioseffo Marelli, s. a.
- A very rare edition, unknown to Riccardi. The second volume is not mentioned by him at all. All these old multiplication tables have now become very rare, nearly all having been destroyed by constant thumbing.
- 13597 **PRATT (John Henry, Fellow of Caius ; F.R.S. ; Archdn. of Calcutta) The MATHEMATICAL PRINCIPLES of MECHANICAL PHILOSOPHY, and their Application to the THEORY of UNIVERSAL GRAVITATION, with 5 folding plates, 8vo. cl., 4s** Cambridge, 1836
- This work was largely made use of by Prof. Todhunter in his 'Analytical Statics.'
- 13598 ——— **SECOND [LAST] EDITION, revised and improved, with 5 folding plates, thick 8vo. calf, 6s (p. £1. 1s)** *ibidem*, 1841
- 13599 ——— **REPRINT, 8vo. hf. cl., 6s** *ibidem, Macmillan, Barclay, and Macmillan, 1845*
This verbatim reprint of the second edition was one of the first books issued by Daniel Macmillan, after he began publishing at Cambridge.
- 13600 ——— **ANOTHER COPY ; also, Carmichael (Robert, pr., M.R.I.A.) TREATISE on the CALCULUS of OPERATIONS, to facilitate the Processes of the Differential and Integral Calculus and the Calculus of Finite Differences, with diagrams—2 vols. 8vo. in 1, hf. calf, 14s** 1845-55
Carmichael's work 'contains some interesting theorems respecting attraction.'—Prof. Todhunter.
- 13601 ——— **ANOTHER COPY of the first work ; with : Gregory (Duncan Farquharson ; first editor of the 'Cambridge Mathematical Journal') EXAMPLES of the PROCESS of the DIFFERENTIAL and INTEGRAL CALCULUS, 2nd [last] Edition, by WILLIAM WALTON, with 4 folding plates—2 vols. 8vo. in 1, hf. roan (poor copies), 7s 6d** 1845-6
- 'Gregory's is a work which produced a great change for the better in the Cambridge mathematical books. It is the first in which constant use is made of the method known by the name of the separation of the symbols of operation, and the author has enlivened its pages by occasionally introducing historical notices of the problems discussed.'—D. N. B.
- 13602 ——— **TREATISE on ATTRACTIONS, LAPLACE'S FUNCTIONS, and the FIGURE of the EARTH, 4th [last] Edition, with diagrams, post 8vo. cl. (scarce), 10s 6d** 1871
- LAST EDITION, and now out of print and SCARCE.
'The distinction between the coefficients and functions of Laplace is given for the first time to my knowledge in Pratt's 'Figure of the Earth'.'—Prof. Todhunter.
- Archdeacon Pratt was second son of JOSIAH PRATT, pr., one of the founders of the Church Missionary Society. He was Third Wrangler in 1833, and went to India as Bp. Daniel Wilson's chaplain, and worked there, highly esteemed by Bp. Milman, till his death in 1871.
- 13603 **PRATT (Mason D.), and C. A. ALDEN : STREET-RAILWAY ROADBED, with 157 illustrations, roy. 8vo. cl., 5s (p. 8s 6d nett)** New York, 1898
- 13604 **PRATT (N. A., M.D., Oglethorpe Univ., Ga.) ASHLEY RIVER PHOSPHATES : History of the Marls of South Carolina, and of the Discovery and Development of the NATIVE BONE PHOSPHATES of the CHARLESTON BASIN, etc. etc., roy. 8vo. (pp. 42), sewn, with author's inser., 2s 6d Philadelphia, 1868**
- 13605 **PRAY, Jr. (Thomas) TWENTY YEARS with the INDICATOR : a Practical Text-Book, with no complex Formulæ ; with the Author's Original and Correct Application of the Theoretical Curve, to show exactly where the Steam Valve closed and whether Valves leak or not, etc. etc., with many Tables and Hints, newly arranged, with 189 illustrations, large roy. 8vo. cl., 6s 6d (p. 16s)** New York, 1896
- 13606 **PREBLE (Rear-Adml. George Henry, U.S.N.) CHRONOLOGICAL HISTORY of the ORIGIN and DEVELOPMENT of STEAM NAVIGATION, 1543-1882, large 8vo. cl., 9s (p. 18s)** Philadelphia, 1883
- 'This volume is believed to contain more facts relating to the progress of steam navigation over the world than have ever been gathered together in one book.'—Preface. Pp. 414-21 contain a bibliography.
- 13607 **PREDIGER (C.) Ueber die GENAUGKEIT BAROMETRISCHER HÖHENMESSUNGEN, impl. 8vo. (pp. 40), sewn, 2s** Clausthal, 1860
- 13608 **PREECE (Sir William Henry, F.R.S. ; G.P.O. ; inventor, on the Flat Holm, of wireless telegraphy) LECTURES on a SYSTEM of TELEGRAPHY as applied to RAILWAY PURPOSES, folio (pp. 33), hf. calf, 5s** [1874]
- Bound up with the above is: London and South Western Ry. Special Instructions to Signalmen and all others concerned for the Electric Train Signalling from Station to Station on Double and Single Lines of Railway (pp. 16), with map (73).
- 13609 ——— **On the MAINTENANCE and DURABILITY of SUBMARINE CABLES in SHALLOW WATERS, with Abstract of the Discussion at Inst. C.E., edited by CHARLES MANBY, F.R.S., and JAMES FORREST, A.I.C.E., with folding plate, 8vo. (pp. 82), sewn, 3s 6d** 1862
- 13610 ——— **PRESIDENTIAL ADDRESS to the INSTITUTION of CIVIL ENGINEERS, 8vo. sewn, 1s 6d** 1898
- 13611 ——— **WATT and the MEASUREMENT of POWER, with 2 illustrations, 8vo. (pp. 13), sewn, with author's inser., 1s 6d** 1897
- 13612 ———, and **Julius MAIER : The TELEPHONE, with photographic front., plate, and 290 woodcuts, thick cr. 8vo. cl. (o. p.), 4s (p. 12s 6d)** 1889
- 13613 ———, and **Sir James SIVEWRIGHT, G.P.O. : TELEGRAPHY, first edition, with 161 woodcuts, post 8vo. cl., 2s** 1876
- 13614 ——— **NINTH EDITION, enlarged, with 255 woodcuts, post 8vo. cl., 2s 6d** 1891
- 13615 ——— **NEW EDITION, greatly enlarged, with 267 woodcuts, post 8vo. cl., 3s 6d (p. 7s 6d)** 1901
- 'An excellent manual.'—Prof. Silvanus Thompson.
- 13616 ———, and **Arthur J. STUBBS, G.P.O. : MANUAL of TELEPHONY, with 333 woodcuts, thick cr. 8vo. cl. (o. p.), 6s 6d (p. 15s)** 1893

- 13618 **PREHISTORIC ARCHÆOLOGY** (INTERNATIONAL CONGRESS OF): TRANSACTIONS OF THE THIRD SESSION, Aug. 20-28, 1868, containing the Papers read, with Illustrations chiefly contributed by the Authors, and Abstract of the Discussions, *with numerous plates and woodcuts*, roy. 8vo. *cl.*, *uncut* (*scarce*), 10s 6d
Containing contributions by W. Boyd Dawkins, Sir John Evans, T. H. Huxley, George Rolleston, Sir E. B. Tylor, etc. etc. 1869
- 13619 **PRESTON** (Thomas; T.C.D.; R.U.I.; F.R.S.) The THEORY OF HEAT, *with 190 illustrations*, thick 8vo. *cl.*, 7s (p. 17s nett) 1894
- 13620 ——— The THEORY OF LIGHT, *with 205 diagrams*, 8vo. *cl.*, 5s (p. 12s 6d) 1890
- 13621 ——— SECOND EDITION [greatly enlarged], *with 251 diagrams*, 8vo. *cl.*, 8s 6d (p. 15s nett) 1895
'An accurate and connected account of the most important optical researches from the earliest times up to the most recent date.'
- 13622 **PRESTWICH** (Sir Joseph, F.R.S., *Prof. Geology, Oxon.*) GEOLOGICAL INQUIRY respecting the WATER-BEARING STRATA round LONDON, with Reference especially to its WATER-SUPPLY, with some Remarks on Springs, *original edition, with large coloured map, and woodcuts*, 8vo. *cl.* (*scarce*), 4s 6d 1851
'An excellent volume.'—*Prof. Bonney, F.R.S.*
- 13623 ——— GEOLOGY: Chemical, Physical, and Stratigraphical, *with 23 plates and maps (the large coloured geological map of Europe linen-mounted), and 474 woodcuts*, 2 vols. roy. 8vo. *cl.*, *uncut*, £1. 1s (p. £3. 1s) Clarendon Press, Oxford, 1886-8
Together with the works of Lyell, Geikie and Phillips (*qq. v. ante*) one of the standard works on the subject in the language. The portion on stratigraphical geology is especially important.
- 13624 ——— TABLES of TEMPERATURES of the SEA at different DEPTHS beneath the SURFACE, from Observations between 1749 and 1868, *with folding map, and 3 plates*, roy. 4to. (pp. 88), *sewn*, 4s 1874
- 13625 ———, LIFE and LETTERS of, written and edited by his WIFE, *with numerous portraits, plates, and fs. letter*, 8vo. *cl.*, 5s (p. £1. 1s) 1899
Including a 'Summary of the Scientific Work of Sir J. Prestwich' by Sir Archibald Geikie, F.R.S., and a copious bibliography.
- 13626 **PRÉVOST** (Alexandre Pierre; grandson of Pierre Prévost, and son-in-law of A. A. de la Rive) ESSAI sur la THÉORIE de la VISION BINOCULAIRE; *with 3 copperplates*, 4to. (pp. 50), *sewn*, *with inscr.* 'Dr. Roget from the Author', 5s Genève, 1843
- 13627 ——— De la THÉORIE MATHÉMATIQUE de la MUSIQUE; *with 5 tables*, 8vo. *sewn*, *with auto.* of Dr. P. M. Roget, F.R.S., 3s *ibidem*, 1862
- 13628 **PRÉVOST** (Pierre, Genève; de l'Institut, F.R.S.) De quelques APPARENCES VISUELLES SANS OBJET EXTÉRIEUR; *with plate*, 4to. (pp. 23), *sewn*, *with author's inscr. as below*, 4s 6d Genève, 1832
'Monsieur le Doctr. [P. M.] Roget, F.R.S., etc. de la part de l'Auteur.'—*Inscr. on cover.*
- 13629 ——— Sur une APPARENCE DOUTEUSE de MIRAGE; *with plate*, 4to. (pp. 18), *sewn*, *with inscr.* 'Dr. [P. M.] Roget, F.R.S. London,—from the author', 3s 6d *ib.*, 1834
- 13630 ——— Du CALORIQUE RAYONNANT; *with plate*, 8vo. *hf. calf* (*rare*), 12s *ib.*, 1809
- 13631 ——— ANOTHER COPY, *sound copy in contemporary hf. calf, with auto. of P. A. Favre*, 13s
Containing the author's Theory of Exchanges, the forerunner of the Wave Theory of Heat, and its application to several phenomena. Pp. 265-424 treat of solar heat and other meteorological subjects.
It is valuable as further developing Lambert's theory of terrestrial radiation, and having to some extent anticipated the theories of Dr. Wells (*q. v. post*), who had however developed his theory of dew quite independently of the above work.
Both the above copies contain a leaf of *errata* which is nearly always wanting.
- 13632 ——— DEUX TRAITÉS de PHYSIQUE MÉCANIQUE, comme simple Editeur du Premier [écrit par GEORGE LOUIS LESAGE; F.R.S.] et comme Auteur du Second; *with plate*, 8vo. *sewn*, *uncut* (*RARE*), 18s 6d *ib.*, 1818
- 13633 ——— ANOTHER COPY, *contemporary hf. calf gilt (nice copy)*, £1. 1s
This work is important for containing the following works by GEORGE LOUIS LESAGE, left in MS. by him, and now first published and edited by Prévost: L'Exposition de son Système des Corpuscules Ultramondains: Réfutation des Objections qui pourroient s'élever contre ce Système: La Théorie des Fluides Élastiques d'après ce même Système: Quelques Applications du même Système à certaines Affinités. This is Lesage's latest exposition of his hypothesis of extramundane corpuscles, the earliest attempt—after Newton's own—to find the cause of gravitation. Lesage's theory was again taken up by Lord Kelvin, in 1871, who declared it would be 'a perfectly obvious consequence of the assumptions were the gravific corpuscles sufficiently small.'
- 13634 ——— De l'EFFET du MOUVEMENT d'un PLAN RÉFRINGENT sur la RÉFRACTION, 4to. (pp. 8), *sewn*, 2s 6d *ib.*, 1821
- 13635 ——— EXPOSITION ÉLÉMENTAIRE des Principes qui servent de Base à la Théorie de la CHALEUR RAYONNANTE, faisant Suite à l'Ouvrage intitulé du Calorique Rayonnant; *with folding plate*, 8vo. *sound copy in old hf. calf*, 8s 6d *ib.*, 1832
Elaborating the author's theory of heat as contained in *Du Calorique Rayonnant*, to which this work forms the sequel.
- 13636 ——— MÉMOIRE sur une APPARENCE DOUTEUSE de MIRAGE; *with plate*, 4to. (pp. 18), *sewn*, *with inscr.* 'Dr. Roget, F.R.S. from the author', 3s *ib.*, 1834
- 13637 ——— RECHERCHES PHYSICO-MÉCANIQUES sur la CHALEUR; *with plate*, 8vo. *old sheep* (*binding rubbed*); *rare*, 10s 6d *ib.*, aux dépens de l'Auteur, 1792
Mainly of meteorological interest, pp. 37-186 dealing with solar heat and its effects on the earth. The last chapter contains: 'Application de la Théorie du Froid Austral aux Phénomènes de l'Aiguille Magnétique', giving an outline of the author's hypothesis contained in his *Origine des Forces Magnétiques* (*v. No. 3767, ante*).
- 13638 ——— REMARQUES sur la CHALEUR, et sur l'ACTION des CORPS qui l'INTERCEPTENT, 4to. (pp. 45), *sewn*, 3s 6d [Londres, 1802]
- 13639 ——— REMARQUES d'OPTIQUE, principalement relatives à la RÉFLEXIBILITÉ des RAYONS de la LUMIÈRE; *with copperplate*, 4to. (pp. 21), *sewn*, 3s 6d *ibidem*, 1798
A refutation of Lord Brougham's Memoir on the Inflection, etc., of Light (*Phil. Trans.*, 1796-7).
- 13640 **PRIDEAUX** (Edmund B. R.; Heriot-Watt Coll., Edin.) The SODIUM PHOSPHATE STANDARDS of ACIDITY, *with diagram*, roy. 8vo. (pp. 5), *sewn*, 1s 6d *n. p.*, 1911

- 13642 **PRICE** (Bartholomew, pr., F.R.S., *Master of Pembroke Coll., Oxon.*) TREATISE ON INFINITESIMAL CALCULUS, with plates, 4 thick vols. 8vo. cl., £1. 5s
Univ. Press, Oxford, 1852-62
- 13643 — ANOTHER COPY, Vol. I being 2ND [LAST] EDITION, 4 vols. cl., £1. 10s 1857-62
- 13644 — ANOTHER COPY (Vol. IV 2nd and last Edition), 4 vols. cl., v. I-III with inscr. 'From the Author', £1. 7s 6d 1852-89
- 13645 — SECOND [LAST] EDITION [with many Additions], Vol. II being 1st Edition, with folding plates, 4 thick vols. 8vo. vv. I-II in buckram, uncut, and vv. III-IV in the original modern cl., with AUTHOR'S AUTO. pasted in v. II, £2. 2s
apud eandem, ibidem, 1857-1889
 A standard work on the subject, containing Differential and Integral Calculus, Calculus of Variations, Applications to Algebra and Geometry, and Analytical Mechanics. Vols. 1 and 2 are out of print and SCARCE.
- 13646 — VOLS. I AND II ONLY (comprising DIFFERENTIAL and INTEGRAL CALCULUS, and CALCULUS OF VARIATIONS), Vol I, 2nd Edition, with 7 folding plates, 2 thick vols. 8vo. cl. (SCARCE), 17s 6d
a. e., ib., 1857-4
- 13647 **PRICE** (George; *safe-maker, Wolverhampton*) TREATISE ON FIRE and THIEF-PROOF DEPOSITORIES, and LOCKS and KEYS, with 472 woodcuts, thick 8vo. (pp. 930), cl., 10s 6d 1856
 This is probably the most extensive work on the subject ever published. Pp. 177-531 contain a chapter on early history and old locks and keys, while there are full descriptions of all the best locks of the day; but the most interesting portion is the chapters detailing the great Lock Controversy during and following the Great Exhibition, when A. C. Hobbs came over from America and picked successively almost all the first-class locks then on the market, to the no small surprise of their makers, and considerable public disquiet, which was not lessened at the amusing *faux pas* of the Society of Arts, which awarded its medal and a money prize to a lock which Hobbs picked in three minutes.
- 13648 **PRICE** (Richard, D.D., F.R.S.) OBSERVATIONS ON REVERSIONARY PAYMENTS, ANNUITIES, the Method of Calculating the Values of ASSURANCES on LIVES, and on the NATIONAL DEBT, with Four Essays on different Subjects in the Doctrine of Life-Annuities and Political Arithmetick, and Tables; 2nd Edition, with additional Observations and Tables, 8vo. old calf gilt, 6s 1772
 Containing information on the population of NEW ENGLAND, and forecasting that 70 years hence it will be four millions, and in all North America above twice the number of inhabitants in Great Britain.—pp. 304-5.
- 13649 — FIFTH EDITION, with Algebraical Notes, the Solution of New Problems in Annuities, and General Introduction, by WILLIAM MORGAN, F.R.S., 2 vols. 8vo. old mottled calf, 10s 6d 1792
- 13650 — SEVENTH [LAST] EDITION, with Algebraical Notes, and the Solution of New Problems in Annuities, by WILLIAM MORGAN, F.R.S., 2 vols. 8vo. boards, uncut (fresh copy), 12s 6d 1812
 'One of the most important and long the most popular work on annuities and life-insurance'.—*McCulloch*.
 'Pitt was much indebted to this work in his financial calculations'.—*Allibone*. A 6-column account of the author in *D. N. B.* does not even mention this, the most important of all his works.
- 13651 **PRICE** (William Arthur, *New Coll., Oxon.*; A.M.I.C.E.) TREATISE on the MEASUREMENT of ELECTRICAL RESISTANCE, with 3 folding plates and 70 other illustrations, 8vo. cl., 6s (p. 14s)
Clarendon Press, Oxford, 1894
- DR. PRIESTLEY INVENTS SODA-WATER :
- 13652 **PRIESTLEY** (Joseph, LL.D., F.R.S.; *Birmingham Unitarian*) DIRECTIONS for IMPREGNATING WATER with FIXED AIR, in order to communicate to it the peculiar Spirit and Virtues of Pymont Water, and other Mineral Waters of a similar Nature, with front. on copper illustrating the process, 8vo. (pp. 27), sewn (RARE), 15s 1772
- 13653 — ANOTHER COPY, sewn, uncut (front. and title stained and soiled), 12s 6d
 In this work Dr. Priestley appears as the benefactor of the Man about Town, by discovering SODA-WATER. His method was to produce carbon dioxide by pouring sulphuric acid over chalk, and then to lead the gas into a narrow-necked bottle filled with water, which was inverted in a bowl full of water. He gives directions for using it medicinally (as a cure for cancer, ulcer, scurvy, etc.), and claims for it exceptional antiseptic properties.
- 13654 — EXPERIMENTS and OBSERVATIONS on different KINDS of AIR, VOL. II. ONLY, first edition, with 3 copperplates by Basire, 8vo. old calf, newly rebaked (RARE), 15s J. Johnson, 1775
 The above volume (especially in this first edition) is of importance in connexion with the controversy as to the priority of the discovery of oxygen between Priestley and Lavoisier. On p. 320 he mentions that, while staying in Paris, he mentioned to Lavoisier the experiments he had made with *mercurius calcinatus*, and those he meant to perform with the new gas obtained, adding: 'Lavoisier presently found what I have called *dephlogisticated air*, but without investigating the nature of it, and indeed, without being fully apprised of the degree of its purity.'
 This volume also contains Dr. Priestley's method of 'impregnating water with fixed air', the 'production and properties of dephlogisticated air' [oxygen], etc. etc. etc.
- 13655 — EXPERIMENTS and OBSERVATIONS on different KINDS of AIR, and other Branches of NATURAL PHILOSOPHY, connected with the Subject, with 9 folding copperplates, 3 vols. 8vo. old calf gilt, £1. 1s
Birmingham, 1790
- 13656 — ANOTHER COPY, 3 vols. boards, uncut (plates slightly soiled), 17s 6d
- 13657 — THE SAME, 3 vols. old calf gilt, newly rebaked (fine copy), £1. 5s
 An abridged and methodized edition of 'Experiments and Observations on different Kinds of Air', 3 v., and 'Experiments and Observations relating to various Branches of Natural History', 3 v.
 'In his 1790 edition of 'Experiments on Air' Priestley declared specifically that he told Lavoisier of his experiments [on oxygen] during his visit to Paris'.—*D. N. B.* He also describes in this edition 'interesting experiments on the thermal conductivity of gases, which he found to be much the greatest in hydrogen' (*D. N. B.*)
- 13658 — EXPERIMENTS and OBSERVATIONS relating to various Branches of NATURAL PHILOSOPHY, with a Continuation on the Observations on Air [VOL. I only], with folding plate, 8vo. old hf. calf (nice copy), 10s 6d 1779
 Forming a supplement to the 'Experiments and Observations on different Kinds of Air', and containing a number of important new researches and experiments. The above volume contains an important statement in connexion with the rival claims to the discovery of oxygen between the author, Scheele, and Lavoisier, which mentions (on p. 194) 'I was in possession of [the gas] before the month of November 1771'.
- 13659 — FAMILIAR INTRODUCTION to the THEORY and PRACTICE of PERSPECTIVE, first edition, with 24 folding plates, 8vo. hf. bound (broken), 5s 1770
 With dedication to Sir Joshua Reynolds.
- 13660 — SECOND EDITION, corrected, with 25 copperplates, 8vo. boards, uncut, 5s 1780
- 13661 — FAMILIAR INTRODUCTION to the STUDY of ELECTRICITY, first edition, with 4 fine copperplates by J. Mynde, 4to. (pp. 51), sewn (RARE), 10s 6d 1768

- 13663 **PRIESTLEY** (Joseph, LL.D., F.R.S.; *Birmingham Unitarian*) HEADS OF LECTURES on a COURSE OF EXPERIMENTAL PHILOSOPHY, particularly including CHEMISTRY, delivered at the New College, Hackney, 8vo. *sewn*, 10s 6d 1794
- 13664 ——— The HISTORY and PRESENT STATE OF DISCOVERIES relating to VISION, LIGHT, and COLOURS, with biographical chart, and 24 folding plates, 2 vols. 4to. *contemporary tree-calf gilt (nice copy)*, 15s 1772
- 13665 ——— ANOTHER COPY, in 1 vol. thick 4to. *old hf. calf gilt (one joint cracked)*, or, *boards, uncut*, 12s
 'In the 'History of Light' (pp. 390 et seq.) he announced his adherence to Boscovich's theory of points of force.'—*D. N. B.*
 It was translated into German by G. S. Klügel in 1775-6, and was the most complete work then published on the history of optics. It is still quoted as an authority by historians of optics.
- 13666 ——— The HISTORY and PRESENT STATE OF ELECTRICITY, with original Experiments, **first edition**, with 7 folding copperplates (*linen-mounted*), thick 4to. *old calf, newly and neatly rebacked (RARE)*, £1. 1s 1767
- 13667 ——— ANOTHER COPY (*wanting Plates I and III*), *old hf. calf (joints cracked and back damaged)*, 7s 6d
- The proofs of this edition were corrected by JOHN CANTON and BENJAMIN FRANKLIN.
- 13668 ——— SECOND EDITION, corrected and enlarged, with 8 folding plates and 2 FINE PORTRAITS (INSERTED), 4to. *old calf, newly and neatly rebacked*, £1. 1s 1769
- This edition contains numerous additions, chiefly from the works of German authors, and an additional plate, representing a new type of electrical machine.
- 'Priestley's electrical work is mostly sound, and much of it is brilliant. It shows him at his best. The 'History of Electricity' supplies an excellent account of previous work both treated historically and summarised systematically, and his own reflexions and experiments. . . . He anticipated therein Henry Cavendish and C. A. de Coulomb in the important suggestion that the law of electric attraction is that of the inverse square, deducing this from an experiment suggested by Franklin.'—*D. N. B.*
- This work contains not only the most copious history of the subject written at the time, but many valuable original experiments of the author's. Of special interest are the chapters 'Theories of Electricity' (pp. 441-96 of 1st Ed.), and 'New Experiments in Electricity, made in 1766' (pp. 573-733 of the first Edition). Among the latter the second Edition first contains three new ones: 'Experiments in which rings, consisting of all the prismatic colours, were made by electrical explosions on the surfaces of metals (*containing the discovery of 'Priestley's rings'*): 'Experiments on the lateral force of electrical explosions' (*showing the oscillatory nature of the electric discharge—a discovery erroneously mentioned in D. N. B. as having been made in 1770, and anticipating one by Sir Oliver Lodge*), and 'Various Experiments on the force of Electrical Explosions'.
- 13669 ——— OBSERVATIONS on DIFFERENT KINDS of AIR, with folding copperplate by J. Basire, 4to. (pp. 120), *sewn (VERY RARE)*, £1. 10s 1772
W. Bowyer and J. Nichols
- 13670 ——— ANOTHER COPY, *sewn, uncut (FRESH COPY)*, with author's inscr. (*as below*), £2. 2s
 'Son Altesse Sme. Monsr. Le Duc d'Ararnberg.'—*Inscr. on cover.*
 He was led to study gases by watching the process of fermentation in a brewery next his house; and in March 1772 he read the first paper, 'On Different Kinds of Air'. It was inspired by the work of Stephen Hales, Joseph Black, and Cavendish. This essay marked an epoch in the history of the science. In the first place, Priestley set forth improvements in the methods of collecting gases, and especially the use of mercury in the pneumatic trough, which enabled him to deal for the first time with gases soluble in water. He announced the discovery of marine acid air (hydrochloric acid) and nitrous air (nitric oxide), and showed the feasibility of substituting the latter for living mice as a means of measuring the goodness of air, a suggestion which led, in the hands of Fontana, Landriani, Cavendish, and others, to exact eudiometry. He showed that in air exposed over water, one-fifth disappears in processes of combustion, respiration, and putrefaction, and that plants restore air vitiated by these processes; and that no known gas conducted electricity. The paper also contained a proposal to saturate water with carbonic acid under either atmospheric or increased pressure, which led to the creation of the mineral-water industry. In the same dissertation Priestley noted, without comment, that he had produced two other gases, which were designated respectively carbonic oxide and nitrous oxide, and that he had disengaged from nitre a gas which further examination would have proved to be identical with the as yet undiscovered oxygen. The paper was awarded the Copley medal of the Royal Society, and was at once abstracted at length by Lavoisier and criticised by him.'—*D. N. B.* The above work was unknown to Foggendorf.
- 13671 ——— OBSERVATIONS on RESPIRATION, and the USE of the BLOOD, 4to. (pp. 25), *sewn (RARE)*, 10s 6d 1776
 'Priestley's memoir on respiration, in which he regards it as 'a true phlogistic process', was acknowledged by Lavoisier as the starting-point of his own work on the subject.'—*D. N. B.*
- 13672 ——— PHILOSOPHICAL EMPIRICISM: containing Remarks on a Charge of PLAGIARISM respecting DR. H——s, interspersed with various OBSERVATIONS relating to DIFFERENT KINDS of AIR, 12mo. *sewn (rare)*, 10s 6d 1775
 Written in 'reply to Bryan Higgins, M.D. [v. Nos. 9264-9 ante], who accused him of plagiarising his experiments on air.'—*D. N. B.*
- 13673 ———, MEMOIRS of, to the Year 1795, written by himself, with a Continuation to his Decease, by his Son JOSEPH PRIESTLEY, and Observations on his Writings by THOMAS COOPER, President Judge of the 4th District of Pennsylvania, and WILLIAM CHRISTIE, with fine portrait on copper, 8vo. *new hf. brown calf gilt (SCARCE)*, 17s 6d 1806
 'Priestley's Memoirs to 1787 were written by himself in Birmingham, and survived the destruction of his papers [by the Tory mob] in 1791; at Northumberland [Pennsylvania] he added a brief continuation to 24 March 1795; the work was edited, with a supplementary narrative, by his son Joseph, in 1805; the best edition is by Cooper and Christie, 1806.'—*D. N. B.*
- 13674 **PRINCE** (Charles Leeson, M.R.C.S., F.R.A.S.) OBSERVATIONS on the CLIMATE of UCKFIELD, Sussex, and its Neighbourhood, 1843-70; 2nd Edition, with additional Observations, and STATISTICS of RAINFALL to 1885, plates, 8vo. *cl.*, 5s
privately printed, Lewes, 1886
- 13675 ——— OBSERVATIONS on the late GREAT COMET and TRANSIT of VENUS, made at CROWBOROUGH, Sussex, in 1882, with view of Crowborough Observatory, and 7 plates, 8vo. *boards*, 3s
ibidem, 1883
- 13676 **PRING** (James H., M.D., *Both General Hospital*) OBSERVATIONS and EXPERIMENTS on the NOCTILUCA MILIARIS, the Animalcular Source of the PHOSPHORESCENCE of the BRITISH SEAS; with Remarks on the Phenomena of VITAL PHOSPHORESCENCE, plate, 8vo. (pp. 23), *sewn, with author's inscr.*, 3s 6d 1850
- 13677 **PRING** (John Norman, *Univ. Manchester*) SOME ELECTRO-CHEMICAL [INDUSTRIAL] CENTRES: a Report, roy. 8vo. *cl.*, 3s
Univ. Press, Manchester, 1908

- 13679 **PRITCHARD (Andrew)** MICROSCOPIC ILLUSTRATIONS of LIVING OBJECTS, with Researches concerning the Methods of CONSTRUCTING MICROSCOPES, and Instructions for using them, by C. R. GORING; 2nd Edition, enlarged, with 4 plates (3 finely hand-coloured), and 31 woodcuts, 8vo. *cl.*, uncut, with *inscr.* by C. G. B. Daubeney, M.D., F.R.S., 5s 1838
- 13680 ——— THIRD [LAST] EDITION, with Supplement on the Verification of Microscopic Phenomena, and an Exact Method of testing Microscopes, by C. R. GORING, M.D., with 4 copperplates and 51 woodcuts, 8vo. *cl.*, 5s 1845
Both the above editions contain chapters 'On the Optical Phenomena of certain Crystals' by HENRY FOX TALBOT, F.R.S. The author was an optical instrument maker, and made a lens out of a diamond, and others out of sapphires and rubies.
- 13681 **PRITCHARD (Charles; D.D., F.R.S., Savilian Prof. Astronomy, Oxon.)** NOTE sur les EFFETS de DIFFRACTION produits par les Ecrans placés devant les Objectifs Photographiques et Ordinaires, roy. 4to. (pp. 7), *sewn*, with *author's inscr.*, 2s s. d.
- 13682 ——— RESEARCHES in STELLAR PARALLAX by the Aid of PHOTOGRAPHY, with History of all Parallaxic Researches by other Astronomers, with *frontispiece and diagrams*, 2 vols. impl. 8vo. *sewn*, 6s (p. 12s) Clarendon Press, Oxford, 1892-89
- 13683 ——— PART II only (including History of Parallaxic Researches), *sewn*, 2s (p. 4s 6d)
'The great merit of having rendered photography available for the sounding of the celestial depths belongs to Prof. Pritchard. The subject of his initial experiment was 61 Cygni. From measurements of 200 negatives taken in 1886, he derived for that classic star a parallax of 0.435", in satisfactory agreement with Ball of 0.468". He carried out his project of determining all second magnitude stars to the number of about 80.'—*Miss Agnes M. Clerke.*
- 13684 ——— URANOMETRIA NOVA OXONIENSIS; a Photometric Determination of the Magnitudes of all Stars visible to the Naked Eye, from the Pole to 10° S. of the Equator, impl. 8vo. *hf. bound (worn)*, with *allegorical bookplate of Dr. Moncure D. Conway (South Place Ethical Society)*, 4s 6d a. e., *ib.*, 1885
- 13685 ——— ANOTHER COPY, *sewn*, 4s
Forming a complement to Prof. E. C. Pickering's catalogue.
- 13686 **PRITCHARD (Henry Baden, F.C.S.; son of the above)** About PHOTOGRAPHY and PHOTOGRAPHERS; also Continental Rambles with a Camera, with numerous woodcuts, cr. 8vo. *sewn*, 2s 1883
- 13687 ——— The PHOTOGRAPHIC STUDIOS OF EUROPE, with woodcuts, cr. 8vo. *sewn*, 2s 6d 1882
- 13688 **PROCLUS DIADOCHUS, Philosophus Platonicus:** IN PRIMUM EUCLIDIS ELEMENTORUM LIBRUM COMMENTARIORUM ad Universam Mathematicam Disciplinam Libri IIII, a FRANCISCO BAROCIO, Patritio Veneto, cunctis Mendis expurgati, Scholiis, etc. aucti primum in Romane Lingue Venustate donati, et nunc recens editi, cum Catalogo Deorum et Virorum Illustrium, Elæcho Librorū . . . et Indice; with *engraved title, fine woodcut portrait of F. Barozzi, et. 22, and numerous diagrams, woodcut initials, and ornaments, Patavii, Gratosius Perchacinus, 1560: Finé (Oronce, latinè ORONTIUS FINÆUS) IN SEX PRIORES LIBROS GEOMETRICORUM ELEMENTORUM EUCLIDIS Megarensis DEMONSTRATIONES, quibus ipsius Enclidis Textus Græcus, suis Locis insertus est, cum Interpretatione Latina BARTHOLOMÆI ZAMBERTI Veneti, ad Fidem geometrica per eundem Orontium recognita; with title surrounded by large and very fine woodcut border, and numerous diagrams, also fine woodcut initials, and printer's device on blank l. at end, Parisiis, apud Simonem Colinaeum, 1536—2 vols. folio in 1, old calf gilt (rebacked), with arms in gold and initials 'L B' on sides (blank top of first title cut off, and a few ll. slightly waterstained, otherwise in fine condition (very rare), £2. 2s 1560-36*
Proclus's commentary is of great value for the history of Greek mathematics. The above is the first edition of the work of Finæus.
'Höchst wahrscheinlich war Proklus der Erfinder der Entstehung der Ellipse als geometrischer Ort eines bestimmten Punktes einer gegebenen Strecke von beständiger Länge, welche alle Lagen annimmt, bei denen die beiden Endpunkte die Schenkel eines rechten Winkels durchlaufen.'—*Prof. Moritz Cantor.*
- 13689 ——— IN PRIMUM EUCLIDIS ELEMENTORUM LIBRUM COMMENTARIUM (Græce), ex Recognitione GODOFREDI FRIEDLEIN; with *diagrams*, fcap. 8vo. *hf. morocco neat*, 5s (p. M. 6. 75 *sewn*) Lipsiæ, 1873
- 13690 ———, The PHILOSOPHICAL and MATHEMATICAL COMMENTARIES of, on the FIRST BOOK of EUCLID'S ELEMENTS, and his Life by MARINUS, translated from the Greek [with a HISTORY of the RESTAURATION of PLATONIC THEOLOGY, by the latter Platonists, a Translation of Proclus's Theological Elements], and a Preliminary Dissertation on the Platonic Doctrine of Ideas (pp. 130), by THOMAS TAYLOR ['Platonist'], first English edition, with *diagrams*, 2 vols. 4to. in 1, *hf. calf gilt (binding slightly rubbed)*, with *inscr.* 'FROM THE AUTHOR THOS^S TAYLOR', and *bookplate of, and MS. notes by, Henry Reeve, C.B., editor of the 'Greville Memoirs' (SCARCE)*, £1. 10s
printed for the Author [vere Editor], 1788-9
- 13691 ——— [REPRINT], with 2 finely engraved vignettes, and diagrams, 2 vols. 4to. *tree-calf gilt, rebacked, with bookplate of Sir E. W. Watkin [M.P., Railway Chairman]; SCARCE*, £1. 12s 6d
apud Uudem, 1792
'Containing a great deal of valuable information on the history of Greek mathematics. . . He has preserved for us quotations from other and better authorities.'—*W. W. R. Ball.*
- 13692 ———: The FRAGMENTS that remain of the Lost Writings of PROCLUS, surnamed the Platonic Successor, translated by THOMAS TAYLOR. post 8vo. *boards, uncut (SCARCE)*, 12s 6d 1825
On Light, Fire, the Eternity of the World, etc. etc.
- 13693 ———: LA SFERA di PROCLIO LICEO, tradotta da EGNATIO DANTI, con le Annotazioni, e con l'USO della SFERA del medesimo; with *fine woodcuts, and numerous diagrams*, 2 vols. sm. 4to. in 1, *old Italian white vellum (some ll. slightly water-stained on margin, otherwise a FINE COPY)*; RARE, £1. 5s
Firenza, nella Stamperia de' Giunti, 1573

¹ Raro: dedicato alla famosa Isabella Medici Orsini.—*Biccardi.*

Danti's Treatise on the Sphere has a separate title and pagination.

- 13695 **PROCLUS DIODOCHUS**, *Philosophus Platonicus*: HYPOTYPOSIS ASTRONOMICARUM POSITIONUM [Græce, Curâ S. GRYNÆI]; with diagrams (*side margin of title cut off*), *Basiliæ*, Joa. Vualder, 1540: **NICOMACHI** Gerasini ARITHMETICÆ Libri duo, Græce, nunc primum Typis excusi, *Parisii*, Christ. Wechel, 1538: ASTROLOGICA [Gr. et Lat., edita Curâ J. CAMERARII], *Norimbergæ*, Jo. Petreius, 1532—3 vols. sm. 4to. in 1, *old English calf (broken)*, with *auto.*, 1532-40
- The above copy belonged to the bad M. LIBRI, and is described in his Sale Catalogue of 1861 (No. 6010) as 'With MS. notes copied from MSS. in New College, Oxford, and in the possession of Sir George Wheeler [D.D., oriental traveller, 1650-1723]. This valuable copy has the autograph signature of Floyer Sydenham, the learned translator of Plato, and the MS. notes, containing chiefly various readings and Greek Scholia, are also in his handwriting.'
- The *Arithmetic* of Nicomachus formed the basis of that of Boethius, and 'remained for a thousand years a standard authority on the subject.' 'It was the first exhaustive work in which arithmetic was treated quite independently of geometry. Instead of drawing lines, like Euclid, he illustrates things by real numbers' (*Prof. Cajori*).
- The *Astrologica* consists of the following works: *Circulus Solaris*; *De Judiciis*, sive *Significationibus XII Locorum Orbis Signiferi*; *Decreta Planetarū in singulis Locis Zodiaci*, cum *Libello de Natura Planetarum*; *Medicationes accommodatæ ad Astrologie Rationem*; *Vestii Valentis Excerpta*.
- 13696 —: **SPHAERAE atque ASTROTORUM CELESTIUM RATIO, NATURA, et MOTUS: ad totius Mundi Fabricationis Cognitionē Fundamenta** [*i.e.* **Proclus**: *de Sphæra*, Gr. et Lat.: **Josephus Zieglerus**: *de SOLIDÆ SPHÆRÆ CONSTRUCTIONE*; *HEMICYCLIIUM Berosi*; **Aratus**: *PHÆNOMENA*, cum *Commentariis THEONIS*, Gr.; **PLANISPHAERIUM Ptolemæi et Jordani**]; with *title within fine woodcut border, woodcut initials, and numerous diagrams*, sm. 4to. *old hf. calf (title mounted, and a number of ll. water-stained on lower margin, otherwise a SOUND COPY)*; RARE; [Basileæ], Valderus, 1536
£l. 10s
- FIRST EDITION. 'Proclus n'était pas seulement métaphysicien: il avait des connaissances étendues en mathématiques et particulièrement en astronomie, comme l'atteste son *Traité de la sphère*. . . . Toutes les divisions de la sphère céleste y sont exposées avec autant de clarté que dans nos meilleurs traités d'astronomie.'—*Dr. F. Hoefler (Biogr. Gén.)*.
- 13697 **PROCTOR (Bernard S.)** Some REMARKS upon LIGHT: a Paper read before the Microscopical Society of Newcastle-on-Tyne, 8vo. (pp. 20), *sewn*, 1s 6d *Newcastle-on-Tyne*, 1862
- 13698 **PROCTOR (Richard Anthony, F.R.A.S.)** HALF-HOURS with the TELESCOPE, 12th Edition, with 7 plates and 15 woodcuts, 12mo. cl., 1s 6d 1896
- Perhaps the author's most popular book.
- 13699 — LIGHT SCIENCE for LEISURE HOURS [FIRST SERIES], 4th Edition, post 8vo. cl., 3s (p. 7s 6d) 1880
- 13700 — SECOND SERIES, with 7 woodcuts, post 8vo. cl. (*cover stained*), 2s 6d (p. 7s 6d) 1873
- 13701 — SECOND EDITION, with 7 woodcuts, post 8vo. cl., 3s 1882
- 13702 — NEW EDITION, THE THREE SERIES COMPLETE, with 11 woodcuts, 3 vols. post 8vo. cl. (*o. p.*), 10s 6d (p. £l. 2s 6d) 1886-9
- 13703 — THE MOON: her Motions, Aspects, Scenery, and Physical Condition, first edition, with 3 fine lunar photographs by RUTHERFORD, and 22 plates, thick post 8vo. cl., 6s (p. 15s) 1873
- 13704 — ANOTHER COPY, cl. (*cover stained*), 4s
- Valuable for its lunar photographs, which are best in the above edition. The first edition contains moreover matter left out in later ones as 'being too difficult for the general reader.'
- 13705 — SECOND EDITION, with 2 lunar photographs by Rutherford, 5 plates, map, Beer and Maedler's map by T. W. Webb (*folding*), and 33 woodcuts, post 8vo. cl., 4s (p. 10s 6d) 1878
- 13706 — MYSTERIES of TIME and SPACE, with 24 illustrations, cr. 8vo. cl. (*o. p.*), 3s (p. 7s 6d) 1883
- 13707 — NEW EDITION, with 24 illustrations, cr. 8vo. cl., 3s 6d (p. 7s 6d) 1886
- 13708 — MYTHS and MARVELS of ASTRONOMY, first edition, printed in large type, large 8vo. cl., 6s (p. 12s 6d) 1878
- 13709 — NEW EDITION, with front., post 8vo. cl., 3s 1889
- Including an interesting account of the Moon Hoax, and of some astronomical paradoxes.
- 13710 — NEW STAR ATLAS, 12 maps and 2 index plates, with Introduction on the Study of the Stars; revised Edition by T. H. E. C. ESPIN, pr., F.R.A.S., diagrams, post 8vo. cl., 3s (p. 5s) 1908
- 13711 — THE ORBS AROUND US: Familiar Essays on the Moon and Planets, Meteors and Comets, the Sun and Coloured Pairs of Suns; 4th Edition, with front. and 4 woodcuts, post 8vo. cl., 3s (p. 7s 6d) 1886
- 13712 — OTHER WORLDS than OURS: the Plurality of Worlds studied under the Light of recent Scientific Researches; 3rd Edition [carefully revised], with 6 plates (4 coloured), large folding map and 7 woodcuts, post 8vo. cl. (*cover worn*), 3s (p. 10s 6d) 1872
- 13713 — NEW EDITION [revised], with 7 plates (including 4 coloured ones, and folding map), and woodcuts, post 8vo. cl., 3s 6d (p. 10s 6d) 1886
- 13714 — REPRINT, post 8vo. cl., 2s 6d 1886
- In this, and all the later editions, plain prints were substituted for the fine coloured plates of the planets.
- 13715 — SATURN and its SYSTEM, with Notes on Chaldean Astronomy, Laplace's Nebular Theory, the Habitability of the Moon, a Series of Tables, and Explanations of Astronomical Terms, first edition, with folding frontispiece and 13 steel and copper plates, 8vo. cl. (SCARCE), 10s 6d 1865
- Mr. Proctor's first work, and published at his own expense, 'recognised immediately in the scientific world as the work of a writer of consummate ability, but commercially a dismal failure' (*D. N. B.*). It is the only monograph on Saturn.
- 13716 — SECOND EDITION, revised, with 13 steel and copper plates, 8vo. cl. (*o. p.*), 8s 6d 1882
- 13717 — OUR PLACE among INFINITIES: contrasting our little Abode in Space and Time with the Infinities around us; with Essays on Astrology and the Jewish Sabbath, cr. 8vo. cl., 2s (p. 6s) 1875
- 13718 — THE SOUTHERN SKIES, showing the Position of the principal Star-Groups Night after Night throughout the Year, with Introduction and separate Explanation of each Map, true for every Year, with front. and 12 maps, 4to. boards, 3s (p. 5s) 1896

- 13720 **PROCTOR (Richard Anthony, F.R.A.S)** TRANSITS of VENUS, from the first observed by HORROCKS in 1639 to the Transit of 2012; 4th Edition, with 20 plates (12 coloured), and 38 woodcuts, post 8vo. cl. (o. p.), 4s 6d 1882
 Containing the author's reply to Sir George Airy's acrimonious attack on his paper on the transit of 1874.
 'It was due to Proctor's urgent representations that provision was made for the employment of the method identified with the name of Halley (against Delisle's, which was advocated by Sir George Airy), which had been too hastily assumed inapplicable to the first of each transit-pair.'—*Miss Agnes M. Clerke.*
- 13721 ——— TREATISE on the CYCLOID and all Forms of Cycloidal Curves, and on the Use of such Curves in dealing with the Motion of Planets, Comets, etc., and of Matter projected from the Sun, with 161 diagrams, post 8vo. cl. (o. p.), 3s 6d (p. 10s 6d) 1878
- 13722 ——— The UNIVERSE and the COMING TRANSITS: Researches into, and New Views respecting, the Constitution of the Heavens, with Investigation of the Conditions of the COMING TRANSITS of VENUS, with 22 folding plates (4 coloured), and 22 woodcuts, 8vo. cl. (o. p.), 6s 6d (p. 16s) 1874
- 13723 ——— The UNIVERSE of STARS: Researches into and New Views respecting the Constitution of the Heavens, 2nd Edition, with 12 folding plates and 15 woodcuts, 8vo. cl., 3s 6d (p. 10s 6d) 1878
- 13724 (o. p.), 3s 6d (p. 7s 6d) 1884
 'Among his many gifts that of lucid exposition was the chief, and his main work was that of popularising science as a writer and lecturer. Yet he was no mere exponent. The highest value attaches to his researches into the rotation period of Mars, and to his demonstration of the existence of a resisting medium in the sun's surroundings by its effect on the trajectory of the prominences. His grasp of higher mathematics was proved by his treatment of the Cycloid. Many of his works were illustrated with maps drawn by himself with admirable clearness and accuracy.'—*D. N. B.*
- 13725 ———, and Arthur Cowper RANYARD, F.R.A.S.: OLD and NEW ASTRONOMY, with 31 plates and 472 woodcuts, large impl. 8vo. original cl. gilt, uncut, t. e. g. (SCARCE), £1. 5s 1892
- 13726 ——— ANOTHER COPY, *hf. red morocco gilt, g. e., £1. 10s*
- 13727 ——— THE SAME, *hf. morocco gilt (front. mounted and a number of ll. slightly soiled), £1. 2s 6d*
 The author's *magnum opus*, 'designed to embody the studies of his life.' It is one of the most complete and readable treatises on astronomy, and from the simplicity of its treatment specially to be recommended to amateur astronomers.
 Proctor's scientific writings are as interesting to-day as at the time they were written, and will repay the reader's attention a hundred times more than the scientific inanities offered by the syndicated journalist of the present day.
- 13728 PROELL (R.) VERSUCH EINER GRAPHISCHEN DYNAMIK, 8vo., with ATLAS, consisting of 10 plates, 4to.—2 vols. buckram, 5s 6d (p. M. 8 unbound) Leipzig, 1874
- 13729 PROTEAUX (A., Puy-de-Dôme) PRACTICAL GUIDE for the MANUFACTURE of PAPER and BOARDS, with Additions by L. S. LE NORMAND; translated with Notes by HORATIO PAINE, M.D., with Chapter on the Manufacture of PAPER from WOOD in the United States by HENRY T. BROWN, with 6 folding plates, roy. 8vo. cl., 12s 6d (p. £3.) Philadelphia, 1866
 Written with a view to introduce new methods of paper-making into the United States, where the industry was then passing through a severe crisis from the scarcity of cotton after the Civil War.
- 13730 PRONY (Gaspard Clair François Marie Riche Baron de; de l'Institut, F.R.S.) NOTE sur les INFLEXIONS qu'avaient subies, après un Laps de vingt Années, des LIGNES DROITES tracées sur le PLAN des TÊTES de l'ARCHE du MILIEU du PONT de LOUIS XVI avant son Décintrement; Conséquences relatives à la RÉSISTANCE des CIMENS, Formules, et Table pour le Calcul des Changemens que le Tassement fait éprouver à une Voûte en Arc de Cercle, 8vo. (pp. 19), sewn, 3s 6d 1832
- 13731 ——— NOTE sur un MOYEN de MESURER l'EFFET DYNAMIQUE des MACHINES de ROTATION; with folding plate, 4to. (pp. 8), sewn (rare), 10s 6d F. Didot [c. 1821]
 'A Monsieur Georges Rennie [F.R.S.] de la part de l'auteur.'—*Inscr. on title.*
 This memoir contains a description of his most important invention—the friction-dynamometer (*le frein-Prony*).
- 13732 ——— NOUVEAU SYSTEME de BARRAGE à PORTES TOURNANTES et EQUILIBRÉES autour d'AXES VERTICAUX; with folding copperplate, 8vo. (pp. 19), sewn, 4s 6d 1836
- 13733 ——— NOUVELLE ARCHITECTURE HYDRAULIQUE, contenant l'ART d'ÉLEVER l'EAU au Moyen de différentes Machines, de construire dans ce Fluide, de le diriger, et généralement de l'appliquer, de diverses Manières aux Besoins de la Société; with 55 large folding plates, 2 thick vols. roy. 4to. *russia extra, gold- and blind-tooled* (FINE COPY), £1. 10s Firmin Didot, 1790-6
 The second volume, including 40 plates, treats exclusively of the STEAM ENGINE.
 'Le premier ouvrage élémentaire de mécanique où ait été régulièrement employé le système des coordonnées de Descartes. Les expériences de du Buat sur les eaux courantes ne l'avaient conduit qu'à des formules peu sôres; Prony reprenant à la fois celles de cet ingénieur, de Bossut et de Couplet et adoptant d'ailleurs, pour exprimer la résistance, une fonction du second degré de vitesse, $av + b v^2$ a fourni aux hydrauliciens des règles pratiques qui ont été suivies pendant plus de soixante ans et qui n'ont subi depuis que des corrections, utiles sans doute, mais modifiant peu les résultats.'—*M. Marie.*
- 13734 ——— RECUEIL de CINQ TABLES, 1°. pour faciliter et abrégér les Calculs des Formules relatives au Mouvement des Eaux dans les Canaux découverts et les Tuyaux de Conduite; 2°. pour présenter les Résultats de 167 Expériences employées pour l'Établissement de ces Formules, avec Introduction et un Procédé nouveau pour déterminer très-exactement, sans Calculs ni Opérations graphiques, et dans une grande Longueur, une Suite de Points situés sur une même Surface Horizontale; with folding plate, 4to. (pp. 59), sewn, with author's *inscr.* (as below), 5s 6d Imprimerie Royale, 1825
 'A Madame la Comtesse de Rumford hommage de l'auteur.'—*Inscr. on title.*
 'La théorie et la pratique doivent à Prony des démonstrations et des procédés qui resteront. La théorie du centre de percussion n'avait été, jusqu'à lui, présentée que d'une manière peu satisfaisante; il la refondit pour son cours à l'École polytechnique; elle a été, depuis, redite à presque rien par les travaux de Polinot.'
- 13735 [——] REGEMORTES, Mémoire sur les, Ingénieurs aux XVII^e et XVIII^e Siècles, 8vo. (pp. 4), unbound, with *inscr.* 'A Monsieur Georges Rennie [C. E., F.R.S.] de la part de l'auteur', 2s 6d s. d.
- 13736 ———: NOTICE sur le BARON de PRONY, Pair de France [par P. de P.], 8vo. (pp. 11), sewn, 1s 6d [1839]
- 13737 PROVIS (John, of Truro) TABLES, of the most useful Kind, to FACILITATE BUSINESS in several Branches of the COPPER TRADE, never before printed, from Original Calculations, made with the greatest Circumspection, 4to. contemporary *hf. calf*, 7s 6d (p. £2. 2s) Truro, 1801

- 13739 **PROPOSALS** of a METHOD for Observing the LONGITUDE at SEA, humbly submitted to the Commissioners appointed by Act of Parliament for the Discovery of the Longitude at Sea, 4to. (pp. 8), *unbound (rare)*, 10s 6d 1719
 'I propose that a Frame of Wood, sufficient to contain the Observer and his Instruments, be hung somewhere near the Center of the Ship's Motion, in such a manner and with such weight added to it, as may keep it steady to a Perpendicular.'
- In this problematical position the observer was to use a 6" Newtonian Reflector, and ascertain the longitude from the occultations of the satellites of Jupiter and Saturn.
- 13740 **PROUT (William, M.D., F.R.S.)** CHEMISTRY, METEOROLOGY, and the FUNCTIONS of DIGESTION considered with reference to Natural Theology (Bridgewater Treatise), *woodcuts and folding map*, Svo. *brown calf extra (nice copy)*, 4s *W. Pickering, 1834*
- 13741 — On the ULTIMATE COMPOSITION of SIMPLE ALIMENTARY SUBSTANCES; with Remarks on the Analysis of Organised Bodies in general, 2 plates, 4to. (pp. 36), *sewn, with author's inscr.*, 4s 1827
 The author was the propounder of what is known as 'Prout's Law' (that the atomic weights of all elements are multiples of the atomic weight of hydrogen), 'which has proved a powerful stimulus to the exact experimental investigation of atomic weights' (D. N. B.).
- 13742 **PRUSOL (Joshua)** DREAMS of my SOLITUDE on the MYSTERIES of the HEAVENS, treating, amongst other Subjects, on the CAUSES of MOTION, the Government of COMETS, and the Important Part assigned to these as HERALDS of LIFE to the WORLDS, and lastly, the Natural Operations which have created, and are still creating, the Universe, with 10 plates, 8vo. (pp. 366), *cl. (scarce)*, 10s 6d 1879
 Scientific paradoxes, published too late to be budgeted by Prof. de Morgan, 'the fruit of the author's meditations in the Australian Bush, when he was thrown back in moody pensiveness upon himself.' There are chapters on motion, heat, light (which the author considers 'a property universal to matter, the same as attraction'), comets, the atmosphere, and of course the Deluge.
- 13743 **PRYM (Friedrich E.; Univ. Würzburg)** BEWEIS zweier SÄTZE der FUNCTIONENTHEORIE, 4to. (pp. 16), *sewn*, 1s 6d *Berlin [1869]*
- 13744 — Zur INTEGRATION der DIFFERENTIALGLEICHUNG $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$, 4to. (pp. 16), *sewn, ibidem [1871]*
 1s 6d
- 13745 — Zur INTEGRATION der gleichzeitigen DIFFERENTIALGLEICHUNGEN $\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$, $\frac{\partial u}{\partial y} = \frac{\partial v}{\partial x}$, 4to. (pp. 9), *sewn*, 1s 6d *ib. [1869]*
- 13746 **PRZYBYLLOK (E.)** MIKROMETRISCHE MESSUNGEN von DOPPELSTERNEN, roy. 4to. (pp. 91), *sewn*, 6s (p. M. 10) *Karlsruhe, 1908*
- 13747 — Der PERSÖNLICHE FEHLER bei der BEOBACHTUNG von STERNBEDECKUNGEN; with 3 plates and 2 diagrams, roy. 8vo. *sewn*, 1s 6d *ibidem, 1909*
- 13748 — Das PROFIL der RANDPARTIEN des MONDES; with folding plate, roy. 8vo. *sewn*, 1s 6d *ib., 1908*
- 13749 **PRZYLUSKA (Marie)** GRANDEUR MOLÉCULAIRE à l'ÉTAT LIQUIDE de la DIPHÉNYLAMINE, du TRIPHÉNYLMÉTHANE et du CHLORHYDRATE d'ANILINE; with 6 diagrams, roy. 8vo. (pp. 23), *sewn*, 1s 6d *Genève, 1909*
- 13750 **PSELLUS (Michael)** COMPENDIUM MATHEMATICUM, aliique Tractatus eodem pertinentes [GUIL. XYLANDRO aliique Interpretibus; accedit FREDERICI COMMANDINI de Disciplinis Mathematicis brevis Dissertatio], 12mo. *old hf. vellum (fine copy)*; rare, 15s *Lugd. Bat., ex Officinâ Elzeviriorum, 1647*
 A handsomely printed edition. It contains I. the author's Quadrivivium, sive de IV Scientiis Mathematicis (Arithmetica, Musica, Astronomia et Geometria), II. Aristotle's Quaestiones Mechanicae, III. Compendium Mathematicae, IV. de Sphaera Sermo, both by Francesco Maurolyco, V. Descriptio Partium Terrae, by Conrad Dasypodius, and VI. Typhus, sive de Arte Navigandi, by Willebrord Snellius.
 Psellus (A.D. 1020-1110) was teacher of philosophy in Constantinople, and instructor of the sons of the Emperor Constantine Ducas. The above work, according to Prof. de Morgan (who mistakenly stated that he lived in the Ninth Century), 'is a mere compendium of arithmetical terms, probably from Boethius'.
 'Le traité de musique contient une exposition des principes théoriques selon le système de Pythagore: il est remarquable surtout par sa clareté'.—*Vitis.*
- 13751 **PUBLIC ANALYSTS (Society of)**, PROCEEDINGS of the, containing Chemical Papers read before the Society and contributed by Members, original Articles, Correspondence, Reports of Meetings, etc. etc., VOL. I (all pub.), with 2 woodcuts, post 8vo. *cl. (VERY SCARCE)*, £1. 1s 1876
 This was the only volume published of the original Proceedings, the continuation was issued from 1877 as 'The Analyst', and contains contributions by A. H. Allen, J. Campbell Brown, F.R.S., A. W. Blyth, A. Dupré, F.R.S., Sir T. Stevenson, J. A. Wanklyn, G. W. Wigner, W. C. Young, and others.
- 13752 **PUCCI (Enrico; Univ. Rome)** SULLE FORMULE FONDAMENTALI della GEODESIA GEODICA; with 2 diagrams, 4to. (pp. 28), *sewn, with author's inscr.*, 3s *[Milano, 1886]*
- 13753 **PUCKLE (G. Hale, St. John's Coll., Cantab.; Windermere Coll.)** ELEMENTARY TREATISE on CONIC SECTIONS and ALGEBRAIC GEOMETRY, third Edition [entirely rewritten and] enlarged, with diagrams, post 8vo. *cl.*, 3s (p. 7s 6d) 1868
- 13754 — FOURTH EDITION [revised, with a few Additions], with diagrams, post 8vo. *cl.*, with auto. of F. J. Jervis-Smith, pr., F.R.S., 3s 6d (p. 7s 6d) 1870
- 13755 — [FIFTH AND LAST EDITION], with diagrams, post 8vo. *cl. (o. p.)*, 5s 1903
- 13756 **PUSCHL (Carl)** DAS STRAHLUNGSVERMÖGEN der ATOME, als Grund der physikalischen und chemischen Eigenschaften der Körper, 8vo. *sewn*, 4s 6d (p. M. 8) *Wien, 1869*
 An interesting contribution to molecular physics and the constitution of matter at a time when the atomic theory was thought to be fully established. The atom is here still unconnected with ether and impervious to it. From the resulting pressure of light and heat the author tries to explain the pressure of gases.
- 13757 **PUTNAM (Thomas Milton; Univ. California)** On the QUATERNARY LINEAR HOMOGENEOUS GROUP and the TERNARY LINEAR FRACTIONAL GROUP, roy. 4to. (pp. 48), *sewn*, 3s *[Baltimore, 1901]*

- 13759 **PTOLEMÆUS** (Claudius) HARMONICORUM Libri III, ex Cod. MSS. XI, nunc primum Græce editus [sic]. JOHANNES WALLIS, S.T.D., R.S.S. recensuit, edidit, Versione et Notis illustravit, et Anectarium adject; with fine engraved portrait by J. Savage, and diagrams on copper and wood, 4to. FINE COPY in old mottled calf extra, richly tooled back (RARE), 18s 6d
Oxonii, e Theatro Sheldoniano, 1682
'Traité fort utile pour connoître la théorie de cet art et son histoire chez les anciens.'—*Montucla*.
The above is the first edition of the original Greek, and as only a Latin translation had hitherto been published, at Venice in 1562 (v. No. 5830 ante).
- 13760 ——— **PTOLEMÆE** s'est proposé de fonder une doctrine éclectique, dans laquelle il faisait entrer les principes opposés de Pythagore et d'Aristoxène (r. Nos. 5830 and 11726-7 ante), s'efforçant de démontrer que chacun avait un objet et un mode d'action différens'.—*Félics*.
- 13760 ——— **MAGNÆ CONSTRUCTIONIS** Liber I., cum THEONIS Alexandrini Commentariis, Jo. BAPT. PORTA Interprete; with numerous diagrams, sm. 4to. old Italian vellum (somewhat browned, but a SOUND COPY); RARE, £1. 5s
Neapoli, Fœd. Stelliola, 1605
- 13761 ——— **OPERIS QUADRIPARTITI** in Latinum Sermonem Traductio: adjectis Libris posterioribus, ANTONIO GOGAVA Interprete; item, de SECTIONE CONICA, ORTHOGONA, quæ PARABOLA dicitur: deque Speculo Ustorio, Libelli II, hactenus desiderati: restituti ab ANTONIO GOGAVA, cum Prefatione GEMMÆ FRISII; with diagrams and curious woodcut initials, sm. 4to. sewn (binding torn off); RARE, £1. 15s
Lovanii, P. Phalesius et M. Rotarius, 1548
The street where this book was printed has probably done its part in illuminating the superstitious of the ruffianly Imperial destroyer of Rheims Cathedral.
- 13762 ——— **De PREDICTIONIBUS ASTRONOMICIS** [Versione Latina], cui Titulum fecerunt, Quadrupartitum, Libri IV, eiusdem Fructus Librorum suorum, sive CENTUM DICTA, posterior Editio, 16mo. old vellum (title wormed), 10s
Perusie, 1646
- 13763 **PUISSANT** (Colonel Louis, de l'Institut) TRAITÉ DE GÉODÉSIE, ou Exposition des Méthodes Trigonométriques et Astronomiques, applicables à la Mesure de la Terre, et à la Construction du Canevas des Cartes Topographiques, TROISIÈME [ET DERNIÈRE] ÉDITION; with 14 fine folding plates on copper, chiefly of Geodetic Instruments, 2 vols. 4to. mottled calf gilt (FINE COPY); SCARCE, £2. 17s 6d
1842
'Puisant avait une prédilection toute particulière pour la géodésie, dont on peut dire qu'il fut pendant un demi-siècle le représentant le plus éminent.'—*Biogr. Gén.* He was the first to point out the errors in Delambre and Méchain's *Base du Système métrique décimal* (q. v. ante).
- 13764 **PULKOWA OBSERVATORY**:—LIBRORUM in BIBLIOTHECA SPECULAE PULCOVENSIS contentorum CATALOGUS SYSTEMATICUS, ex Opere Descriptionis Speculae seorsim excudi curavit, Indice et Prefatione auxit F. G. W. [v.] STRUVE, 8vo. (pp. 438), sewn, 5s
Petropoli [Petrograd], 1845
- 13765 **PULLEN** (William Wade Fitzherbert, M.I.M.E.) EXPERIMENTAL ENGINEERING: Vol. I: TREATISE on the METHODS and INSTRUMENTS used in TESTING and Experimenting with Engines, Boilers, and Auxiliary Machinery, with 517 illustrations, thick 8vo. cl., 10s (p. 15s nett)
Manchester, 1900
- 13766 ——— **INJECTORS: their Theory, Construction, and Working**; 2nd Edition, with 111 woodcuts, cr. 8vo. cl., 2s 6d (p. 3s 6d nett)
ib., 1900
- 13767 ——— **MECHANICS: Theoretical, Practical, and Experimental**, with 318 illustrations, cr. 8vo. cl., 2s 6d (p. 4s 6d)
1902
- 13768 ——— **STEAM ENGINEERING**, with Instructions for carrying out numerous simple Experiments; 5th Edition, with 454 illustrations, 8vo. cl., 2s 6d (p. 4s nett)
Manchester, n. d.
- PURBACHIUS** (Georgius)—v. PUEBACH, Nos. 13191-2, ante.
- 13769 **PURSHALL** (Conyers, M.D.) ESSAY on the MECHANICAL FABRICK of the UNIVERSE: or the DEPENDANCE of EFFECTS on their CAUSES, in a New Hypothesis, suited to our Modern and Experimental Philosophy, in which are solved several Phenomena hitherto unaccounted for; as the CAUSE of GRAVITATION, MOTION, REFLECTION, etc., with a Method to find out the Exact Rate that a Ship runs, and consequently the LONGITUDE, with woodcuts, sm. 8vo. old calf (cracked), 10s 6d
1707
A very storehouse of learned ignorance. In spite of all that was known at the time, the author attributes atmospheric pressure to the action of the 'ætherial particles darted from the celestial bodies'. These particles have also to do duty in explaining vegetation, smell, and the subjects mentioned in the title. There is also a description of a curious contrivance to ascertain the longitude. Leeway appears to have been quite unknown to the learned author.
- 13770 **PURVIS** (John Edward); F.I.C., St. John's Coll., Cantab.) THE INFLUENCE of DILUTION on the COLOUR and the ABSORPTION SPECTRA of various PERMANGANATES, with plate, 8vo. (pp. 10), sewn, 1s 6d
[Cambridge,] 1909
- 13771 ———, and R. M. COURTAULD: THE DECOMPOSITION and NITRIFICATION of SEWAGE; (1) in Alkaline Solutions, (2) in Distilled Water, 8vo. (pp. 7), sewn, 1s
[ib.,] 1907
- 13772 ———, and W. H. FOSTER: THE ABSORPTION SPECTRA of COLLIDINE and 9-Chlor-Collidine, 8vo. (pp. 4), sewn, 1s
[ib.,] 1907
- 13773 ———, and W. A. R. WILKS: THE INFLUENCE of LIGHT and of COPPER on FERMENTATION, 8vo. (pp. 12), sewn, 1s
[ib.,] 1907
- 13774 **PUTSCH** (Albert) GAS and COAL DUST FIRING: a Critical Review of the various Appliances patented in Germany for this Purpose since 1885, translated by CHARLES SALTER, with 103 woodcuts, 8vo. cl., 4s (p. 7s 6d nett)
1901
- 13775 **PYE** (Samuel, M.D., author of 'Moses and Bolingbroke') THE MOSAIC THEORY of the SOLAR, or PLANETARY, SYSTEM, 4to. (pp. 124), sewn, uncut (somewhat browned), 10s 6d
1766
'Offering a New Theory, not of the Earth alone, but of the Solar, or Planetary System, on Mosaic principles.'—*Preface*.
The above copy contains a large number of contemporary MS. notes (? by Dr. NEVIL MASKELYNE, F.R.S., Astronomer Royal), exposing some of the author's blunders. Four of the notes are cut out of the margins.
- 13776 **PYMAN** (Frank Lee, Hitchin) ÜBER O-HYDROXYLAMINO BENZOËSÄURE und ihre Ester und über Oxy-ψ-Anthranil: Inaugural-Dissertation, roy. 8vo. (pp. 116), sewn, 2s 6d
Zürich, 1904

- 13778 **QUADRI (Giovanni Lodovico)** TAVOLE GNOMONICHE per le ORE ULTRAMONTANE, con altre Tavole appartenenti alla COSTRUZIONE degli OROLOGI a SOLE, e per altri Usi, con la Descrizione di uno Strumento per osservare con Esattezza quanto l'Ago calamitato declini dalla Meridiana; *with 2 folding plates and 3 other engravings on copper by the Author*, 4to. boards, uncut (fresh copy), 15s
Bologna, 1743
The above work is mentioned by Montucla in his list of the principal works on dialling.
- 13779 **QUARTERLY JOURNAL OF SCIENCE (The)**, edited by JAMES SAMUELSON and SIR WILLIAM CROOKES, P.R.S., complete from 1867 to 1876 (Series I, v. 4-13), with plates (including portraits), and numerous woodcuts, 10 thick vols. 8vo. cl., uncut (cover of one vol. damaged), £1. 10s
1867-76
Including original articles by C. G. B. Daubeny, M.D., F.R.S., Sir Edward Frankland, Edward Hull, Robert Hunt, Edwin Lankester, Sir Charles Lyell, A. R. Wallace, and many other well-known scientists.
- 13780 **QUEKETT (John Thomas; F.R.S.)** PRACTICAL TREATISE on the USE of the MICROSCOPE, including the different Methods of Preparing and Examining Animal, Vegetable, and Mineral Substances, 2nd Edition, with Additions, 12 plates of microscopes and test-objects, and 270 woodcuts, thick 8vo. cl., 5s 6d
1852
This work did much to promote the study among medical men and amateurs, and among those who came to him for instruction was the Prince Consort.—*D. N. B.* The Quekett Microscopical Club was named after him.
- 13781 ——— **MICROSCOPICAL CLUB**, JOURNAL of the, from the Beginning in Jan., 1868 to July, 1870, with plates and woodcuts, 11 Nos., with the FIRST FOUR ANNUAL REPORTS—in all 15 parts 8vo. 4sn, 7s 6d
1868-70
Containing contributions by M. C. Cooke, B. F. Lowne (on the Blow Fly), F. H. Wenham (Observations for correcting Object Glasses), and many others.
- 13782 **QUESNEVILLE (Georges)** De l'INFLUENCE du MOUVEMENT sur la HAUTEUR du SON; *with folding plate*, 4to. (pp. 92), 4sn, 3s 6d
1879
- 13783 **QUET (Jean Antoine)** Sur l'APPLICATION des LOIS de l'INDUCTION à la THÉORIE HÉLIO-ÉLECTRIQUE des PERTURBATIONS du MAGNÉTISME TERRESTRE, 4to. (pp. 4), 4sn, 1s 6d [1884]
- 13784 ——— Sur l'APPLICATION de la MÉTHODE d'AMPÈRE à l'ÉTABLISSEMENT de la LOI ÉLÉMENTAIRE de l'INDUCTION ÉLECTRIQUE par DÉPLACEMENT, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13785 ——— Sur l'APPLICATION de la MÉTHODE d'AMPÈRE à la RECHERCHE de la LOI ÉLÉMENTAIRE de l'INDUCTION ÉLECTRIQUE par VARIATION d'INTENSITÉ, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13786 ——— Les CARRÉS des FORCES d'INDUCTION, produites par le SOLEIL dans les PLANÈTES et dues à la Vitesse de Revolution de ces Corps, etc. etc., 4to. (pp. 4), 4sn, 1s 6d [1882]
- 13787 ——— Sur la FORCE ÉLÉMENTAIRE de l'INDUCTION SOLAIRE dont la Durée Périodique est d'un Jour Moyen, 4to. (pp. 2), 4sn, 1s 6d [1884]
- 13788 ——— Sur la FORCE d'INDUCTION produite au loin par un SYSTÈME quelconque de PETITS COURANTS ÉLECTRIQUES PLANS dont l'Intensité varie. Solénoïde Sphérique Equivalent, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13789 ——— Sur l'INDUCTION due à la VARIATION d'INTENSITÉ du COURANT ÉLECTRIQUE dans un Circuit Plan et dans un Solénoïde Cylindrique, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13790 ——— Sur l'INDUCTION produite par la VARIATION d'INTENSITÉ du COURANT ÉLECTRIQUE dans un Solénoïde Sphérique, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13791 ——— LOIS de l'INDUCTION due à la VARIATION de l'INTENSITÉ dans les COURANTS de Formes Diverses. Courant Circulaire, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13792 ——— Sur le POTENTIEL de la FORCE d'INDUCTION due à un SOLÉNOÏDE FERMÉ, dont le Courant varie d'Intensité, etc. etc., 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13793 ——— Sur les RAPPORTS de l'INDUCTION avec les ACTIONS ÉLECTRODYNAMIQUES et sur une Loi Générale de l'Induction, 4to. (pp. 4), 4sn, 1s 6d [1883]
- 13794 ——— NOTICE sur les TRAVAUX SCIENTIFIQUES de, 4to. (pp. 16), 4sn, 1s 6d
1873
- 13795 **QUETELET (Lambert Adolphe Jacques; Brussels Observatory; F.R.S.)** CATALOGUE (et NOUVEAU CATALOGUE) des PRINCIPALES APPARITIONS d'ÉTOILES FILANTES; *with plate*, 2 parts 4to. (pp. 123), 4sn, 4s
[Bruxelles, 1839-41]
- 13796 ——— Sur le CLIMAT de la BELGIQUE, IRE PARTIE: RAYONNEMENT SOLAIRE et TEMPÉRATURES de l'AIR et du SOL; *with 4 charts (1 folding)*, roy. 4to. (pp. 208), 4sn, *with author's inser.*, 4s *ib.*, 1845
- 13797 ——— PHÉNOMÈNES PÉRIODIQUES des PLANTES; *with folding map and chart*, roy. 4to. (pp. 183), 4sn, *with author's inser.*, 4s *ib.*, 1846
- 13798 ——— : de l'ÉLECTRICITÉ de l'AIR; *with woodcuts*, 4to. (pp. 76), 4sn, 4s *ib.*, 1849
- 13799 ——— FACTS, LAWS, and PHENOMENA of NATURAL PHILOSOPHY; or Summary of a Course of General Physics, translated, with Notes, by ROBERT WALLACE, fcap. 8vo. *hf. calf*, 3s Glasgow, 1835
- 13800 ——— INSTRUCTIONS pour l'OBSERVATION des PHÉNOMÈNES PÉRIODIQUES, 4to. (pp. 16), 4sn, 3s 6d
Bruxelles [1843]
An important memoir in connexion with phenology, in which the author first suggests the observation of four phases: formation of leaf, flower, and fruit, and defoliation.
- 13801 [——] LETTRE à M. le Bourgmestre de la Ville de Bruxelles, sur la CONSTRUCTION de l'OBSERVATOIRE de BRUXELLES, post 8vo. (pp. 12), 4sn, 2s
[*ibidem*, 1831]
The Burgo-master of the City of Brussels will henceforth mean to the civilized world MONSIEUR MAX.
- 13802 ——— LETTRES à S. A. R. le Duc Régnant de Saxe-Cobourg et Gotha, sur la THÉORIE des PROBABILITÉS, appliquée aux Sciences Morales et Politiques; *with diagrams*, roy. 8vo. *hf. calf neat (scarce)*, 15s
ib., 1846
- 13803 ——— ENGLISH TRANSLATION, by OLINTHUS GREGORY DOWNES, of the Economic Life Assurance Society, *with diagrams*, 8vo. cl. (*scarce*), 10s 6d
1849
One of the author's most notable attempts to reduce to mathematical rules the phenomena of social life.

13805 **QUETELET** (Lambert Adolphe Jacques; *Brussels Observatory*; F.R.S.) MÉMOIRE, et DEUXIÈME MÉMOIRE, sur les VARIATIONS DIURNE et ANNUELLE de la TEMPÉRATURE, et en particulier de la Température Terrestre à différentes Profondeurs, d'après les Observations faites à l'Observatoire de Bruxelles, with 3 charts (2 folding), 2 parts 4to. (pp. 132), *sewn*, 5s

[Bruxelles, 1836]-40

13806 ——— The second memoir contains the author's formula on the variation of the Earth's temperature. DEUXIÈME MÉMOIRE sur les VARIATIONS ANNUELLES de la TEMPÉRATURE de la TERRE à différentes PROFONDEURS; with 2 charts (one folding), 4to. (pp. 52), *sewn*, 2s 6d *ibidem*, 1840

13807 [——] OBSERVATIONS des PHÉNOMÈNES PÉRIODIQUES, 4to. (pp. 64), *sewn*, 3s [*ib.*, 1849]

13808 ——— RÉSUMÉ des OBSERVATIONS sur la MÉTÉOROLOGIE, sur le Magnétisme, sur les Températures de la Terre, etc. faites à l'Observatoire Royal de Bruxelles en 1840, 4to. (pp. 78), *sewn*, 3s 6d *ib.*, 1841

13809 ——— ANOTHER COPY, *sewn*, with author's *inscr.*, 4s

Including 'Comparaisons barométriques faites à Bruxelles et dans le Nord de l'Europe, par A. Bravais et Ch. Martins.'

13810 ——— SECOND MÉMOIRE sur le MAGNÉTISME TERRESTRE en ITALIE; with map, 4to. (pp. 27), *sewn*, with author's *inscr.*, 3s *ib.*, 1840

13811 ——— THÉORIE des PROBABILITÉS; with portrait of Laplace, fcap. Svo. *sewn* (scarce), 3s 6d *ib.* [1853]

This valuable little volume was one of the publications of the 'Société pour l'Émancipation intellectuelle'—an offspring of the Broughamian 'Society for the Diffusion of Useful Knowledge'.

13812 **QUINCKE** (Georg Hermann; *Univ. Heidelberg*) Ueber die BESTIMMUNG des BRECHUNGS-EXONENTEN mit totaler Reflexion, 4to. (pp. 8), *sewn*, 1s 6d *Halle*, 1879

13813 ——— Ueber FREIWILLIGE BILDUNG von HOHLEN BLASEN, Schaum und Myelinformen durch ölsäure Alkalien und verwandte Erscheinungen, besonders des Protaplasmas; with plate, Svo. *Leipzig*, 1894

13814 ——— Über die KLÄRUNG TRÜBER LÖSUNGEN, roy. Svo. (pp. 8), *sewn*, 1s 6d [*Heidelberg*, 1901]

13815 ——— MODERNE KRITIK der MESSUNGEN der CAPILLARITÄTSCONSTANTEN von FLÜSSIGKEITEN und die spezifische Cohesion geschmolzener Metalle, Svo. (pp. 14), *sewn*, 1s 6d *Leipzig*, 1897

13816 ——— Ueber ROTATIONEN im CONSTANTEN ELEKTRISCHEN FELDE; with folding plate, Svo. (pp. 70), *sewn*, 2s *ibidem*, 1896

13817 ——— Über UNSICHTBARE FLÜSSIGKEITSSCHICHTEN und die Oberflächenspannung flüssiger Niederschläge bei Niederschlagsmembranen, Zellen, Colloiden und Gallerten, impl. Svo. (pp. 17), *sewn*, 1s 6d [*Berlin*,] 1901

The author's experiments on surface tension are of great importance.

13818 **RAABE** (Joseph Ludwig; *Univ. Zürich*) Die DIFFERENZIAL- und INTEGRALRECHNUNG, mit Functionen einer Variablen, 3 vols. Svo. *calc*, 6s 6d (p. M. 30 *sewn*) *Zürich*, 1839-47

13819 ——— Ueber die INTEGRATION zweier simultan bestehenden LINEAREN DIFFERENZIALGLEICHUNGEN zwischen n Variablen, Svo. (pp. 8), *sewn*, 1s 6d *ibidem*, 1856

13820 **RADAU** (Rodolphe) RECHERCHES MODERNES sur la CONDUCTIBILITÉ CALORIFIQUE, Svo. (pp. 15), *sewn*, 1s 6d [1862]

13821 **RADCLIFFE OBSERVATORY**, Oxford, ASTRONOMICAL and METEOROLOGICAL OBSERVATIONS at the, under the Direction of EDWARD JAMES STONE, F.R.S., from 1885 to 1887 and 1890 to 1910 (Vols. 43-5 and 47-50), 7 vols. roy. Svo. *sprinkled calf gilt* (backs of 3 vv. *rubbed*), with armorial bookplate of Sir W. R. Anson, Warden of All Souls, M.P., £1. 1s *Oxford*, 1885-1910

13822 ———: CATALOGUE of 6424 STARS for the Epoch 1890, formed from Observations during 1890-93, under the Superintendence of EDWARD JAMES STONE, F.R.S.: CATALOGUE of 1772 STARS, chiefly within the Zone 85°-90° N.P.D., for the Epoch 1900, from Observations during 1894-1903, under the Direction of ARTHUR A. RAMBAUT, F.R.S.—2 vols. 4to. *sprinkled calf gilt*, with armorial bookplate of Sir William Anson, 15s *ibidem*, 1894-1906

13823 **RADCLIFFE** (Lionel Guy), and Frank Sturdy **SINNATT**, F.F.C.S.: SYSTEMATIC COURSE of PRACTICAL ORGANIC CHEMISTRY, printed on one side only, Svo. *cl.* (cover lightly soiled), 2s (p. 4s 6d) 1905

13824 **RADICKE** (F. W. Gustav; *Univ. Bonn*) HANDBUCH der OPTIK, mit besonderer Rücksicht auf die neuesten Fortschritte der Wissenschaft; with 9 folding plates (one coloured), 2 vols. Svo. *hf. calf gilt*, with auto. of Prof. J. Bosscha, 4s *Berlin*, 1839

13825 **RADIOLOGY**:—PREMIER CONGRÈS INTERNATIONAL pour l'ÉTUDE de la RADIOLOGIE et de l'IONISATION, tenu à LIÈGE du 12 au 14 Septembre 1905: COMPTES RENDUS [SECTION PHYSIQUE]; with numerous illustrations, roy. Svo. *cl.*, 7s 6d 1906

13826 ——— AUTRE ÉDITION; avec SECTION BIOLOGIQUE; with numerous further illustrations of experiments and therapeutic results, roy. Svo. boards, 10s 6d (p. F. 17.50 net *sewn*) *Bruxelles* [1905] The further contributors include MM. Contremoulins, R. Dubois, O. Lassar, J. Butler Burke, William H. Diefenbach, and others.

13827 **RAEDTS** (Willem, *Maestrichter*) PRACTYCKE om lichtelijc te leeren VISIEREN alle VATEN metter WISSELROEDE, van nieus ouersien, ende in veel plaetsen verbeteret, ende met seer profytelijke aenvvysinghen vermeerderet, ende verciert: Door MICHEL COIGNET; printed in gothic letter; with fine woodcut on title of gaugers at work, and numerous diagrams, 18mo. vellum (title slightly soiled, otherwise A FINE COPY); very rare, £1. 15s *Thantwerpen*, by Hendrick Hendricksen, 1580

A very rare work, unknown to Poggenorff, Brunet, Graesse, and other bibliographers. Nothing seems to be known of the author. The editor was mathematician to Albert Duke of Brabant. The work contains instructions to make gauging rods.

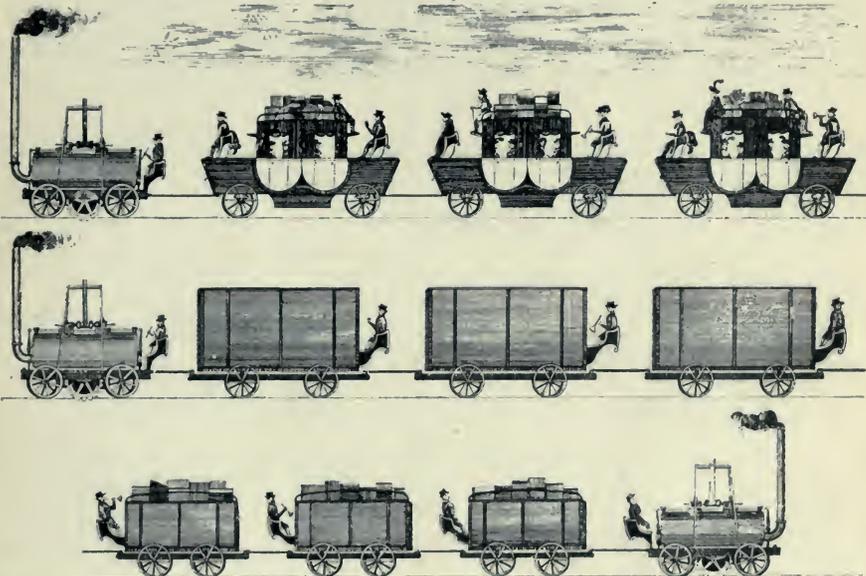
13828 **RAFTER** (George W., C.E.), and Moses Nelson **BAKER**, editor of 'Engineering News': SEWAGE DISPOSAL in the UNITED STATES, with 7 plates (6 folding), and 116 woodcuts and diagrams, impl. Svo. *cl.* (loose in cover), 9s (p. £1. 4s) *New York*, 1894

- 13830 **RAGONA** (Domenico, *Direttore, Osservatorio di Palermo*) OSSERVAZIONI sulla SECONDA COMETA del 1854 : Osservazioni e Risultati, 4to. (pp. 31), *sewn*, 2s 6d *Palermo*, 1854
- 13831 ——— Sulla TERZA COMETA del 1854 : Osservazioni e Risultati, 4to. (pp. 11), *sewn*, 2s *ibidem*, 1858
- 13832 **RAHNENFÜHRER** (Friedrich ; *Sternwarte Königsberg*) Die POLHÖHE von KÖNIGSBERG : Resultate der von H. STRUVE und F. RAHNENFÜHRER in 1899/1900 und 1905/1907 nach der Horrebomethode angestellten Beobachtungen, roy. 4to. (pp. 30), *sewn*, 3s *Königsberg*, 1908
- 13833 **RAIL-WAY**, OBSERVATIONS on a GENERAL IRON : showing its great Superiority, by the GENERAL INTRODUCTION of MECHANIC POWER, over all the present Methods of Conveyance by Turnpike Roads and Canals ; fourth Edition, considerably improved, *with large folding frontispiece, showing steam-coaches and goods-waggons attached to Blenkinsop engines, with engine-drivers and guards in top-hats, and 4 other plates (one folding)*, 8vo. (pp. 143), *sewn* (VERY SCARCE), *with auto. of George Rennie, C.E., F.R.S., on title*, £1. 5s 1823
 'In a treatise entitled *Observations on a General Iron Rail-way* (4th edition, London, 1823) it is proposed to employ Blenkinsop's engines and rack rail, of which views are given. The author exhibits the utmost confidence in regard to the future of the locomotive engine. . . . The pamphlet was published anonymously, but is stated to be from the pen of THOMAS GRAY, a native of Leeds ('Railways, Steamers, and Telegraphs', by George Dodd, 1868, p. 15). . . . He would appear to have been the earliest to propose the construction of the Manchester and Liverpool railway—as a locomotive line.—*Galloway's Steam Engine*, p. 216. The construction work was largely to be done by the forced labour of the varied criminal class with which England then swarmed.
- 13834 **RAILWAY MAGAZINE (The)**, 8 numbers in 1 vol. (all published), *with plates and folding maps*, '35 : with the **New Series**: The RAILWAY MAGAZINE, and STEAM NAVIGATION JOURNAL, containing copious Accounts of all Railways at Home and Abroad, Notices of Inventions, and Scientific Discoveries, by JOHN HERAPATH, *with maps and numerous woodcuts*, '36-9, 6 vols.—in all 7 vols. 8vo. *new hf. calf gilt* (VERY SCARCE), *with auto. of George Rennie, C.E., F.R.S., on title of v. I.*, £5. 5s 1835-9
 A COMPLETE SET OF THE ORIGINAL PUBLICATION, which is now very difficult to get, especially with the volume of the original series. Only 1 vol. of this, and 6 of the new series, were published. The publication was continued after 1839 as 'Herapath's Railway and Commercial Journal,' a weekly paper in quarto. The social as well as the scientific interest of the above volumes is very great, as the first fragmentary openings of most of the original English as well as Continental lines are recorded as they happened, with many details and comments of the most naïf kind. The above copy belonged to GEORGE RENNIE, C.E., F.R.S., a frequent contributor to the journal.
- 13835 ——— **PROSPECTUSES, etc.**, AN INTERESTING COLLECTION of, as under, originally collected by SIR JOHN and GEORGE RENNIE, F.R.S., *folio, in sheets* (VERY SCARCE), £5. 1830-6
 CONTENTS :—BASING to NEWBURY RAILWAY, '34 : COMMERCIAL RAILWAY to Blackwall and the East and West India Docks, *with 2 maps and views, n.d.* : EDINBURGH, GLASGOW, and LEITH RAILWAY, 2 schemes, *with maps*, '31-5 : FOREST of DEAN, Case of the Opponents to a Fourth Railway in the, *with coloured map, n.d.* : GRAND JUNCTION RAILWAY, Astor Park lease against, *with coloured map and end view* ['34] : GRAND SOUTHERN RAILWAY [Dorking and Horsham route to Shoreham, Brighton, and Southampton], *map only*, '33 : LIMERICK and WATERFORD RAILWAY, '33 : LIVERPOOL and MANCHESTER RAILWAY, History of; Bethell's Broad Sheet, c. 1830 (*scarce*) : LONDON and BRIGHTON RAILWAY, with a Branch to Shoreham, 3 different Prospectuses, *with 2 maps*, '36 : ——— Results of the Evidence before the Commons, *n.d.* : LONDON and DOVER RAILWAY, *with extraordinary map, n.d.* : LONDON GRAND JUNCTION RAILWAY [a very cross letter], '36 : ——— : Report of the Directors, *with map and 2 forelorn views of the viaduct and terminus in Skinner St.*, '35 : MIDLAND COUNTIES RAILWAY, *with map*, '33 : NORTHERN and EASTERN RAILWAY from London to Cambridge and York, *with map* ['35] : SOUTH-EASTERN RAILWAY Co. (with Extract from the Brighton Gazette, Sept. 17, 1835), '35 : YORK and NORTH MIDLAND RAILWAY, *map only*, '35.
- 13836 **RAILWAYS**:—A BRIEF STATEMENT of the ADVANTAGES which will result to the PUBLIC from the Establishment of a Communication by RAILROAD between LONDON and BLACKWALL, with Estimate of the probable Return to the Subscribers, *with large folding route-map and view of Brunswick Steam Wharf, East India Docks*, 8vo. (pp. 42), *sewn* (SCARCE), 10s 6d 1837
 This was an advance prospectus of the Blackwall Railway, the next metropolitan line after the Greenwich Railway. It suggests locomotive traction, although steam rope traction was actually adopted and worked for many years. At end is the engineer's report by SIR WILLIAM CUBITT, F.R.S., P.I.C.E., the constructor of the South Eastern Railway.
- 13837 ——— : PRACTICAL INQUIRY into the LAWS of EXCAVATION and EMBANKMENT on RAILWAYS : an Attempt to develop the NATURAL CAUSES which affect the PROGRESS of such Works, and to point out the Means by which the greatest Expedition and Economy in Execution may be obtained, with Appendix, by a RESIDENT ASSISTANT ENGINEER, *with 3 folding lithographs*, 8vo. *cl., uncut* (SCARCE), 15s 1840
 The author claims this to be the first attempt to reduce to formulas the estimating of earthwork, which had hitherto only been done by rule of thumb. 'Few men, not even contractors, make out their estimates of expenditure and time on any fixed principles, . . . and hence doubtless arose the late disastrous effects on the railway system.' The last plate quaintly illustrates 'The Bredon Cutting, as it appeared in March 1840.'
- 13838 ——— : SUB-RAILWAYS : the STREETS of LONDON made PERFECT, as they should be, without Opening the Ground for Sewers, Pipes, or any other Purpose, *with folding plate of a Holborn Viaduct*, 8vo. (pp. 20), *sewn* (VERY SCARCE), 12s 6d 1835
 This is a curious and probably the very earliest adumbration of an underground railway, besides a sewer and pipe subway, which had already been suggested. 'In order to clear the streets from the danger of walking and riding in them from the unusual speed and frequent racing of omnibusses and cabriolets, modern vehicles unknown till within these few years, and to preserve the streets clean from a great proportion of the filth and mud they contain.' No railway of course was yet open in London. The method proposed was cut-and-cover.
- 13839 **RAIN**:—SOGNO FILOSOFICO intorno alle CAUSE della PIOGGIA, di MODERNO AUTORE, 2^{da} Edizione, rivveduta, e diligentemente corretta ; *with 2 copperplates*, post 8vo. *sewn*, 5s *Bologna*, 1753
- 13840 **RALFE** (Charles Henry, *Caius Coll.*) OUTLINES of PHYSIOLOGICAL CHEMISTRY, including the Qualitative and Quantitative Analysis of the Tissues, Fluids, and Excretory Products, *with 18 woodcuts*, 12mo. *cl., with author's inscr., and auto. of W. J. Russell, F.R.S.*, 2s 6d 1873
- 13841 **RAMDOHR** (G.) Ueber STYRACIN und STYRON : Inaugural-Dissertation, 8vo. (pp. 40), *sewn*, 2s *Marburg*, 1857
- 13842 **RAMOND** (G.) GÉOLOGIE des INDES ANGLAISES (Stratigraphie et Tectonique), d'après R. D. OLDHAM, roy. 8vo. (pp. 93), *sewn*, 2s 1895

STEAM CONVEYANCE
on a
GENERAL IRON-RAIL-WAY.

*No speed with this, or fastest Horse compares
No weight like this, canal or Tuffel boat:
As this will Commerce every way promote,
To this, let Sons of Commerce grant their vote.*

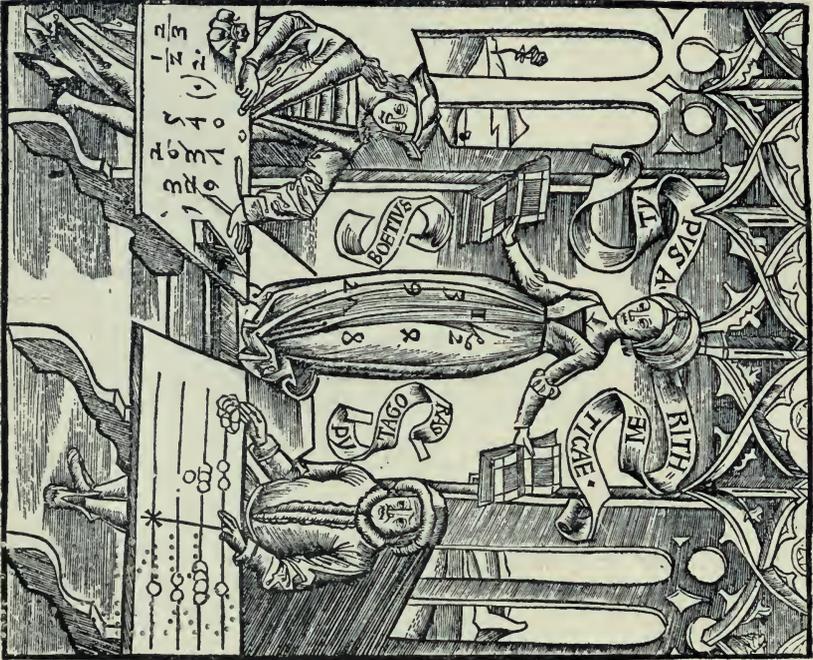
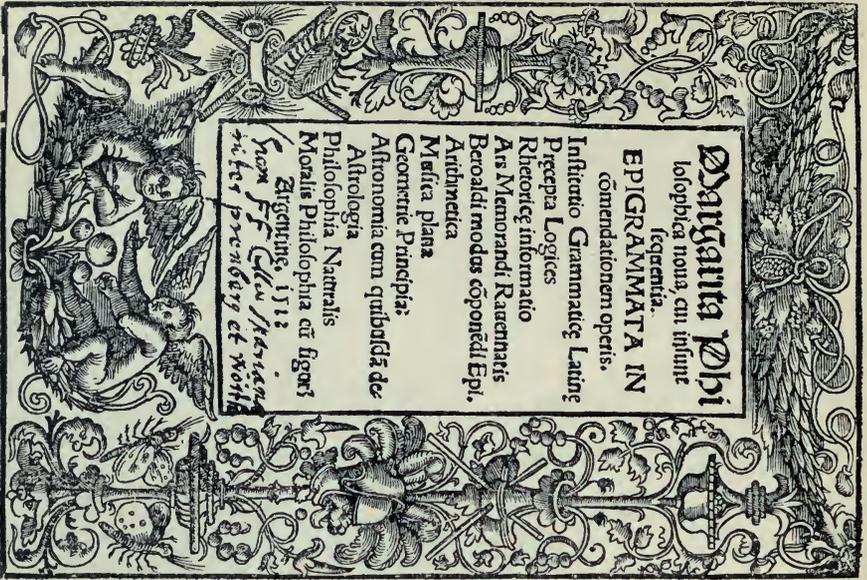
If the conveyance of Mails across the Channels by Royal Mail Steam-Packets prove so highly important: how much more so, the early distribution of the Foreign & Inland Mails, in all our commercial and manufacturing Districts, by Royal Mail Steam-carriages: the safe and expeditious conveyance of Passengers by Steam-coaches, & the rapid transports of Merchandise, of every description, by Steam-caravans and Waggons.



*By the Author of Observations on a General Iron-Rail-way
Published by Baldwin, Cradock & Joy, London.*

No. 13833 (page 692).
An early work on railway engineering.

LIBRARY OF
CALIFORNIA



No. 14026 (page 703).

One of the earliest cyclopedias of science.

- 13844 **RAIMONDO** (*Annibale, Veronese*) TRATTATO utilissimo e particolarissimo del FLUSSO e RIFLUSSO del MARE, il quale introducendo l'Opinione d'altri illustri Scrittori, dimostra à questa Materia quanto habbiamo errato in molte Cose; aggiuntavi una piena Dichiaratione alla Regola già data da GIOVANNI BIANCHINI per trovar col Mezo dell' Hore l'Altezza de' Poli, et appresso un DISCORSO fatto supra il MOTO della TREPIDATIONE dell' OTTAVA SFERA; *printed in italics, with vignettes on title and last l., and woodcuts, 4to. old calf (back slightly damaged), with British Museum duplicate stamp (RARE), £1. 5s*
 'Il avait du goût pour les sciences mathématiques; mais ce ne fut qu'à l'âge de 84 ans qu'il donna au public son meilleur ouvrage, intitulé *Trattato del Flusso e Riflusso del Mare* (1589).—*Biogr. Gén.* This work was unknown to Poggendorff and Lalande, and is rare.
- 13845 **RALPHSON** or **RAPHSON** (*Joseph, F.R.S.*) ANALYSIS ÆQUATIONUM UNIVERSALIS, seu ad Æquationes Algebraicas resolvendas Methodus Generalis, et Expedita, ex nova Infinitarum Serierum Methodo, deducta ac demonstrata. Editio II., cui accessit Appendix de INFINITO INFINITARUM SERIERUM PROGRESSU ad Equationum Algebraicarum Radices eliciendas; annexum est, de SPATIO REALI, seu ENTE INFINITO Conamen Mathematico-Metaphysicum; *with diagrams, 2 vols. 4to. in 1, old calf, or, old calf, newly rebound (RARE), 16s 6d* *Londini, 1702*
 The appendix and the first part have separate titles, both dated 1697.
 'La méthode suivie par Raphson diffère encore fort peu de celle de Newton. Il lui a seulement donné quelques degrés de facilité par certaines tables qu'il a dressées, et qui, sur l'inspection seule d'une equation d'un degré quelconque jusqu'à dixième, font connoître le numérateur et le dénominateur de la fraction qu'il faut ajouter à la racine déjà à-peu près ou déjà approchée par le calcul.—*Montucla.*
- 13846 — ANOTHER COPY, 2 v.; also: DEMONSTRATIO de DEO, sive Methodus ad Cognitionem Dei Naturalem Brevis et Demonstrativa, accedunt Epistolæ quædam Miscellaneæ, 1710: HISTORIA FLUXIONUM, sive Tractatus Originem et Progressum peregrinæ istius Methodi brevissimo Compendio (et quasi Synopticè) exhibens, '15—4 vols. 4to. in 1, *old English calf, with Chippendale bookplate of Philip 2nd Earl Stanhope, F.R.S. (RARE), £2. 5s* *ibidem, 1702-15*
 The *Historia Fluxionum* is very important in connexion with the contest between Newton and Leibniz as to the priority of the invention of the calculus, pp. 97-123 containing the correspondence between Newton and Leibniz and their friends about it. On p. 97 first appears the important letter from Leibniz to the Abbé Conti, in which he admits that 'Collins me fit voir une partie de son commerce'. In a second letter (p. 106) he writes: 'Je n'ay jamais nié qu'à mon second Voyage en Angleterre j'aye vu quelques Lettres de M. Newton chez M. Collins, mais je n'en ay jamais vû ou M. Newton ait expliqué sa Methodo des Fluxions'.
- 13847 — A MATHEMATICAL DICTIONARY: or a Compendious Explication of all Mathematical Terms, abridg'd from Mons. OZANAM, and Others . . . with an Appendix, containing . . . the Explanation of the Characters used in Algebra, also the Definition and Use of the principal Mathematical Instruments, sm. 8vo. *contemporary calf (back damaged, and plate wanting); rare, 5s* *1702*
- 13848 **RAM** (*Gilbert Scott; M.I.E.E.*) The INCANDESCENT LAMP and its MANUFACTURE, *with 69 illustrations, 8vo. cl. (o. p.), 7s 6d* [1898]
 According to the introduction the first comprehensive and detailed account of electric glow-lamp manufacture published.
- 13849 **RAMBAUT** (*Arthur Alcock, F.R.S., Radcliffe Observer, Oxon.*) On the EFFECT of ATMOSPHERIC DISPERSION on the Position of a Star, 8vo. (pp. 23), *sewn, with author's inser., 1s 6d* [1893]
- 13850 — On the INEQUALITY in the APPARENT DIURNAL MOVEMENT of STARS due to REFRACTION, and a Method of Allowing for it in ASTRONOMICAL PHOTOGRAPHY: OBSERVATIONS of the LEONIDS on 1896 Nov. 13 and 14, 8vo. (pp. 18), *sewn, 1s 6d* [1896]
- 13851 — MEAN PLACES of 1012 SOUTHERN STARS, and a few others: deduced from Observations made with the MERIDIAN CIRCLE at DUNSINK, *with folding plate, roy. 4to. (pp. 99), sewn, 3s 6d* *Dublin, 1887*
- 13852 — NOTE on the UNPUBLISHED OBSERVATIONS at the RADCLIFFE OBSERVATORY, OXFORD, 1774-1834, with some Results for 1774, 8vo. (pp. 29), *sewn, 1s 6d* *1900*
- 13853 — PLACES of HALLEY'S COMET, 1909-10, deduced from Photographs taken at the Radcliffe Observatory, 8vo. (pp. 6), *sewn, 1s* *1910*
- 13854 — UNDERGROUND TEMPERATURE at OXFORD in 1899, as determined by Five Platinum Resistance Thermometers, 8vo. (pp. 5), *sewn, 1s* [1900]
- 13855 **RAMMELSBERG** (*Karl Friedrich; Univ. Berlin*) CHEMISCHE MONOGRAPHIE der GLIMMERGRUPPE, 2 parts 8vo. (pp. 64), *sewn, 2s* *Leipzig [1880]*
- 13856 — Die CHEMISCHE NATUR der METEORITEN, 2 vols. 4to. *sewn, 4s 6d* *Berlin, 1870-9*
- 13857 — ZWEITE ABHANDLUNG, 4to. *sewn, 2s* *ibidem, 1879*
- 13858 — HANDBUCH der MINERALCHEMIE, thick sq. 8vo. (pp. 1109), *hf. calf gilt, 5s* *Leipzig, 1860*
- 13859 — ZWEITE [NEUESTE] AUFLAGE [vollständig ungearbeitet], 2 vols. 8vo. in 1, *hf. calf gilt, 9s (p. M. 19 unbound)* *ib., 1875*
 This important work contains much original matter, and is still of great value.
- 13860 — HANDWÖRTERBUCH der CHEMISCHEN THEILS der MINERALOGIE, mit allen Supplementen (I-V), 7 vols. 8vo. in 2, *hf. russia gilt, by C. Lewis (NICE COPY), SCARCE, 15s* *Berlin, 1841-53*
- 13861 — LEHRBUCH der STÖCHIOMETRIE und der allgemeinen theoretischen Chemie, 8vo. *sewn, 4s* *ibidem, 1842*
 — v. MIERS, No. 11846, ante.
- 13862 **RAMSAY** (*Alexander, F.R.MET.S.*) BIBLIOGRAPHY, GUIDE and INDEX to CLIMATE, 8vo. *cl. (o. p.), 8s (p. 16s)* *1884*
 A most valuable meteorological bibliography. It includes an 'Essay on the Connexion between Solar Phenomena and Climatic Cycles', by E. Douglas Archibald.
- 13863 **RAMSAY** (*Sir Andrew Crombie, F.R.S.*) The GEOLOGY of the ISLAND of ARRAN, from Original Survey, *with coloured plate and map, and 26 woodcuts, 8vo. (pp. 86), sewn (scarce), 4s* *Glasgow, 1841*

- 13865 **RAMSAY** (Sir Andrew Crombie, F.R.S.) *The PHYSICAL GEOLOGY and GEOGRAPHY of GREAT BRITAIN*, 5th Edition [greatly enlarged], with coloured map, and 115 woodcuts, thick post 8vo. cl., 4s (p. 15s) 1878
 This edition contains 'an account of British Formations, showing the topographical range of each in succession, their lithological characters, and the general nature of their fossils.'
- 13866 ——— **SIXTH [LAST] EDITION** [rewritten] by HORACE B. WOODWARD, F.R.S., with coloured map, and 137 woodcuts, large cr. 8vo. cl., 6s (p. 10s 6d) 1894
 'No better introduction to the principles of geology could possibly be recommended to the English reader. It is a work of the highest value, and one worthy to take a foremost place among popular manuals of science.'—*Nature*.
- 13867 ——— On the RECURRENCE of CERTAIN PHENOMENA in GEOLOGICAL TIME, 8vo. (pp. 22), sewn, 1s 6d [1880]
- 13868 ——— On the SCIENCE of GEOLOGY and its APPLICATIONS, roy. 8vo. (pp. 24), sewn, 1s 6d 1852
- 13869 ———, **W. T. AVELINE**, and Edward HULL, F.R.S.: GEOLOGY of PARTS of WILTSHIRE and GLOUCESTERSHIRE, with List of Fossils by ROBERT ETHERIDGE, F.R.S., 9 woodcuts, roy. 8vo. Geological Survey, 1858
 sewn, 3s 6d
- 13870 **RAMSAY** (Sir William, F.R.S.; Nobel Laureate) On the ATOMIC VOLUME of NITROGEN, 8vo. (pp. 3), sewn, 1s 1881
- 13871 ——— On the CRITICAL POINT, with 5 diagrams, 8vo. (pp. 12), sewn, with author's inscr., 1s 6d 1880
- 13872 ——— On PICOLINE and its DERIVATIVES, 2 parts 8vo. (pp. 26), with author's inscr., 2s 1876-7
- 13873 ——— UNIVERSITIES ABROAD, 8vo. (pp. 19), sewn, with author's inscr., 1s 6d 1892
- 13874 ———, and Sydney YOUNG; F.R.S., T.C.D.: INFLUENCE of CHANGE of CONDITION from the LIQUID to the SOLID STATE on VAPOUR PRESSURE, with 2 plates, 4to. (pp. 18), sewn, 4s 1884
 'Furnishing an experimental proof of the theory advanced by Prof. James Thomson, that the pressure exerted by the vapour of a solid substance at a given temperature is less than the vapour of the substance in the liquid form at the same temperature.'—P. 1.
- 13875 ——— The INFLUENCE of PRESSURE on the TEMPERATURE of VOLATILIZATION of SOLIDS, with 5 woodcuts, 4to. (pp. 12), sewn, 3s 6d 1884
 'The experiments described in this paper were undertaken to ascertain whether solids have definite volatilizing points under different pressures, as liquids have definite boiling-points and whether these pressures are identical with their vapour-tensions at those temperatures.'—P. 1.
- 13876 ——— RESEARCHES on EVAPORATION and DISSOCIATION, with 4 diagrams, 8vo. (pp. 31), sewn, 2s 1888
 v. RAYLEIGH, No. 13952, post.
- 13877 **RAMSDEN** (Jesse, mathematical instrument-maker; F.R.S.) ACCOUNT of EXPERIMENTS, to determine the SPECIFIC GRAVITIES of FLUIDS, thereby to obtain the Strength of Spirituous Liquors, with Remarks on a Paper entitled, the Best Method of Proportioning the Excise upon Spirituous Liquors, with copperplate, 4to. (pp. 33), sewn, 7s 6d 1792
 Describing a new Balance Hydrometer, invented by the author.
- 13878 ——— DESCRIPTION of an ENGINE for DIVIDING MATHEMATICAL INSTRUMENTS [with Preface by NEVIL MASKELYNE, pr., F.R.S., Astronomer Royal], with 4 large folding copperplates by J. BASIRE, 4to. (pp. 18), sewn (VERY RARE), £1. 1s 1777
- 13879 ——— ANOTHER COPY, sewn (wanting Plates I, III and IV), 7s 6d
 'In the preface by Maskelyne it is stated that he received £315. from the Government by way of premium for this important invention, and £300. for his property in it. . . . A duplicate of his dividing-engine was said to have been introduced by President Saron into France, concealed in the pedestal of a table.'—*Miss Agnes M. Clerke*.
 This work is very rare, most copies having been destroyed in a fire in the printer's warehouse. See Lalande's preface to No. 13881 *infra*.
- 13880 ——— DESCRIPTION of an ENGINE for DIVIDING STRAIT LINES on MATHEMATICAL INSTRUMENTS, with 3 large folding copperplates by J. BASIRE, 4to. (pp. 16), unbound, 12s 1779
 Both the above works were published by order of the Commissioners of Longitude.
 Ramsden was perhaps our greatest mathematical instrument maker, the son of an innkeeper at Salterhebble, near Halifax, and called by Delambre 'le plus grand de tous les artistes'. 'The demand from all parts of Europe for his incomparable instruments was greater than could be satisfied by the constant labour of sixty workmen. His life was one of extreme frugality. His favourite scientific authors were Euler and Bouguer, and in advanced years he learned French enough to read Boileau and Molière. Most of his evenings were spent drawing plates by the kitchen fire, a cat on one side, a mug of porter and plate of bread and butter on the other, while some apprentices sat round, and he whistled or sang. In consequence of his disregard of gain he left but a small fortune, mostly divided by will among his workmen.'—*Miss Clerke*
- 13881 ——— DESCRIPTION d'une MACHINE pour DIVISER les INSTRUMENTS de MATHÉMATIQUES, traduite de l'Anglois, augmentée de la Description d'une MACHINE à DIVISER les LIGNES DROITES, et de la Notice de divers Ouvrages de M. RAMSDEN, par M. DE LA LANDE; with 7 folding plates on copper, roy. 4to. (pp. 46), sewn (some blank margins wormed); RARE, 15s Firmin Didot, 1790
 'Un de ses plus précieux ouvrages est sa machine à diviser: la description, quoique imprimée, n'existe plus, ayant été consumée par un incendie. M. Shepherd, l'un des commissaires du bureau des longitudes, a bien voulu me confier son exemplaire. Cette machine, dont M. Ramsden s'est occupé pendant dix ans, a été regardée comme un trésor pour la marine anglaise, et tous les artistes qui font des sextants pour l'observation des longitudes les envoient diviser chez M. Ramsden.'—*Preface*.
- 13882 **RANCE** (Charles Eugene de, A.I.C.E., F.G.S.) NOTES on the GEOLOGY of the MANCHESTER [SHIP] CANAL, with folding plate, roy. 8vo. (pp. 8), sewn, 1s 6d 1890
- 13883 ——— The WATER SUPPLY of ENGLAND and WALES; its Geology, Underground Circulation, Surface Distribution, and Statistics, with 6 coloured maps, 8vo. cl., 10s (p. £1. 4s) 1882
 A standard work, specially recommended as an authority by Sir Joseph Prestwich, F.R.S.
- 13884 **RAND** (Cater) DESCRIPTION and USE of the PATENT MILITARY and NAVAL TELESCOPE, for MEASURING DISTANCES and the Extension of Objects at Sight; by Means of a new Micrometrical Adjustment, with vignette on title and folding copperplate, post 8vo. sewn (rare), 10s 6d printed for the Author [1799]

An early form of a range-finder, consisting mainly of a micrometer fixed to the eye-piece of a telescope. The inventor, a Lewes man, was encouraged by the Duke of York as Commander-in-Chief.

- 13886 **RAMUS** (Petrus, *Gallice* PIERRE DE LA RAMÉE) ARITHMETICÆ Libri II: GEOMETRIÆ XXVII, a LAZARO SCHONERO recogniti et aucti; *with numerous woodcuts and diagrams, and printer's device on title and blank l. at end, 4to. sewn (a few ll. slightly water-stained, otherwise a VERY SOUND AND TALL COPY); RARE, £1. 1s Francofurti, apud Andrew Wecheli heredes, 1599*
This edition also includes the author's Algebrae Libri II, and 2 treatises by the editor: 'De Numeris Figuratis', and 'De Logistica Sexagenaria'.
In the same way as Ramus first demolished the belief in Aristotelian infallibility (for which he was expelled from the University of Paris and banished from France), so he first showed in his *Geometria* the shortcomings of the Euclidean geometry. He was one of the victims of the Massacre of St. Bartholomew.
The above edition was unknown to Prof. de Morgan, who only mentions that of 1592.
- 13887 — **VIA REGIA ad GEOMETRIAM.** The Way to GEOMETRY, being necessary and usefull, for Astronomers, Geographers, Land-meaters, Sea-men, Engineries, Architects, Carpenters, Paynters, Carvers, etc., now translated and enlarged by WILLIAM BEDWELL, *with numerous woodcuts and diagrams, sm. 4to. old sheep (back damaged; also a few ll. missing at end and wro other defective, otherwise a sound copy); VERY RARE, £1. 1s Printed by Thomas Cotes, 1636*
The translator was rector of St. Ethelburga's, Bishopsgate Street (which seems to have had some remarkable incumbents since the Reformation), one of the translators of the Authorised Version, and 'the father of Arabic studies in England.'
His enlarged version of Ramus's 'Way to Geometry' was posthumously published in 1686. From this book it appears that he was a personal friend of John Greaves and Henry Briggs.—D. N. B.
- 13888 **RANKIN** (Daniel J.) PROSPECTING for GOLD: a Handbook of Practical Information, and Hints for Prospectors, based on Personal Experience, *with front., 32 woodcuts, and linen-mounted table, 18mo. roan. g. e., 4s (p. 7s 6d nett) 1901*
- 13889 **RANKINE** (David) POPULAR EXPOSITION of the EFFECT of FORCES applied to DRAUGHT, with Illustrations of the Principles of Action, and Tables for the Performance of Horses and of Locomotive Engines on Railways, and Appendix of Results of some Experiments on Friction, *with plate, 8vo. (pp. 76), sewn (SCARCE), 10s 6d Glasgow, 1828*
The author was the father of Prof. W. J. Macquorn Rankine, F.R.S., who helped him when superintendent of the Edinburgh and Dalkeith Railway. The work contains the following chapters (pp. 18-65) on RAILWAYS: Of the Mechanical Advantage of a Railway; Operation of Horses on Railways (with 6 Tables); Of Locomotive Engines; Table of Performance of Locomotive Engines; and Speed of Locomotive Engines.
'We hear that experiments are being made relative to the employment of steam carriages on common roads. If these should prove successful, as I have no doubt they will, we shall find animal give place to steam power even on common roads'.—p. 65. But the ordinary roadbed of the period shook the pioneer highway locomotive all to bits, and the roads remained safe and pleasant to walk on for nearly eighty years.
- 13890 **RANKINE** (William John Macquorn, F.R.S.) MISCELLANEOUS SCIENTIFIC PAPERS, from the Transactions and Proceedings of the Royal and other Scientific or Philosophical Societies, and the Scientific Journals, with MEMOIR by PETER GUTHRIE TAIT, edited by W. J. MILLAR, *with fine Napieresque portrait on steel by Adlard, 4 plates, and numerous diagrams, thick roy. 8vo. cl., 16s 6d (p. £1. 11s 6d) 1881*
The work is divided into 3 parts: Temperature, Elasticity, and Expansion of Vapours, Liquids, and Solids; Energy and its Transformations, Thermodynamics, Mechanical Action of Heat in the Steam Engine, etc.; Wave Forms, Propulsion of Vessels, Stability of Structures, etc.; and contains his application (simultaneously with Lord Kelvin and Clausius) of the doctrine that heat and work are convertible, to the discovery of new relations among the properties of bodies; as well as all his important papers on molecular physics.
- 13891 — ABSTRACT of a PAPER on the HYPOTHESIS of MOLECULAR VORTICES, and its Application to the Mechanical Theory of Heat, 8vo. (pp. 14), *unbound, with inscr. to Allen Thomson, F.R.S., 3s 6d [1850]*
'Showing how the laws of the phenomena of elasticity and expansion, as connected with heat, may be reduced to mechanical principles by the hypothesis of molecular vortices'.—P. 1.
- 13892 — On the DECOMPOSITION of FORCES externally applied to an ELASTIC SOLID, 4to. (pp. 13), *sewn, 2s Edin., 1872 [1863]*
- 13893 — On the EXACT FORM of WAVES near the SURFACE of DEEP WATER, *with 2 diagrams, 4to. (pp. 12), sewn, 3s 6d [1863]*
- 13894 — On the EXPANSIVE ENERGY of HEATED WATER, 8vo. (pp. 32), *unbound, 2s 6d [1863]*
- 13895 — INTRODUCTORY LECTURE on the HARMONY of THEORY and PRACTICE in MECHANICS, 8vo. (pp. 22), *unbound, with author's inscr., 2s 1856*
- 13896 — MANUAL of APPLIED MECHANICS, 7th Edition, thoroughly revised by EDWARD FISHER BAMBER, *with 265 illustrations, thick cr. 8vo. cl., 3s (p. 12s 6d) 1873*
- 13897 — THIRTEENTH EDITION, thoroughly revised by W. J. MILLAR, *with numerous diagrams, thick large cr. 8vo. cl., 6s (p. 12s 6d) 1891*
- 13898 — MANUAL of CIVIL ENGINEERING, 9th Edition, thoroughly revised by E. F. BAMBER, C.E., *with 299 diagrams, thick cr. 8vo. cl., 3s 6d (p. 16s) 1873*
- 13899 — MANUAL of MACHINERY and MILLWORK, 2nd Edition, thoroughly revised by E. F. BAMBER, C.E., *with 287 diagrams, thick cr. 8vo. cl., 3s (p. 12s 6d) 1873*
- 13900 — MANUAL of the STEAM ENGINE, and other PRIME MOVERS, 7th Edition, revised by E. F. BAMBER, C.E., *with folding chart, and 184 woodcuts and diagrams, thick cr. 8vo. cl., 3s (p. 12s 6d) 1874*
The first treatise on the steam-engine which was based on the mechanical theory of heat, and still one of the best textbooks on the subject.
- 13901 — On PLANE WATER-LINES in TWO DIMENSIONS, *with 2 plates, 4to. (pp. 23), sewn, 3s 6d [1864]*
- 13902 — On the RECONCENTRATION of the MECHANICAL ENERGY of the UNIVERSE, 8vo. (pp. 3), *sewn, with inscr. to Allen Thomson, F.R.S., 2s 1852*
Containing suggestions in connexion with Lord Kelvin's theory of the Dissipation of Energy.
- 13903 — On the THERMODYNAMIC THEORY of WAVES of FINITE LONGITUDINAL DISTURBANCE, 4to. (pp. 12), *sewn, 3s [1870]*
'Determining the relations which must exist between the laws of the elasticity of any substance, whether gaseous, liquid, or solid, and those of the wave-like propagation of a finite longitudinal disturbance in that substance'.—P. 1.

- 13905 **RANKINE** (William John Macquorn, F.R.S.) USEFUL RULES and TABLES relating to Mensuration, Engineering, Structures, and Machines, 7th Edition, thoroughly revised by W. J. MILLAR, C.E., with ELECTRICAL ENGINEERING TABLES, Tests, and Formule, with plate and diagrams, cr. 8vo. cl. (used copy). 4s (p. 10s 6d) 1889
- 13906 ———, and Edward Fisher **BAMBER**, C.E. : MECHANICAL TEXT-BOOK ; or Introduction to the STUDY of MECHANICS, 2nd Edition, revised, with 158 diagrams, cr. 8vo. cl., 3s (p. 9s) 1875
 Rankine was one of the little group of thinkers to whom, after the wondrous Sadi Carnot, the world is indebted for the pure science of modern thermodynamics. But his services to applied science were relatively even greater. By his admirable teaching, his excellent textbooks, and his original memoirs, he has done more than any other man of recent times for the advancement of British Scientific Engineering'.—Prof. Tait.
- 13907 **RANSOME** (Thomas) On the COMPOSITION and EXPLOSION of GUN-COTTON, 8vo. (pp. 4), unbound, with inser. to Sir Edward Frankland, F.R.S., 2s 6d 1847
 Interesting as an early tract on gun-cotton, discovered by Schönbein in 1845.
- 13908 **RANSOME & CO. (A.)**, ILLUSTRATED CATALOGUE of PATENTED and IMPROVED MACHINES for making TIGHT CASKS, manufactured by, with numerous full-page and other woodcuts, roy. 8vo. cl., with auto. of Sir F. J. Bramwell, 3s [Chelsea, 1876]
- 13909 **RANTZAU** [Latinè **RANZOVIVS**] (Heinrich Graf v.) TRACTATUS ASTROLOGICUS de GENETHLIACORUM [sic] THEMATUM JUDICIIIS pro singulis Nati Accidentibus, ex vetustis et optimis quibusque Auctoribus, cum Indice duplici ; with 2 folding tables, 12mo. old vellum (binding damaged) ; RARE, 10s 6d Francofurti [ad Mornum], 1625
 At end is 'Carmen describens Genethliacum Henrici Ranzovii a GERGIO LUDOVICO FROBENIO' (pp. 13).
- 13910 **RANYARD** (Arthur Cowper, F.R.A.S.) OBSERVATIONS made during TOTAL SOLAR ECLIPSES collated, with 18 plates, and numerous woodcuts, thick 4to. hf. cl., 17s 6d (p. £2. 2s nett) 1879
 The celebrated 'ECLIPSE VOLUME' of the Royal Astronomical Society's Memoirs (vol. XLI).
 His most extensive work in astronomy was the eclipse volume of the R. A. S. (Memoirs, vol. XLI), in which are systematised and discussed the observations of all solar eclipses down to 1878. It was originally commenced in conjunction with Sir George Airy, but soon devolved on Ranyard alone'.—D. N. B.
 In his splendid volume on eclipses, with which the systematic study of coronal structure may be said to have begun, Mr. Ranyard first generalised the synclinal peculiarity by a comparison of records. He further pointed out the curved and branching shapes assumed by the component filaments of massive bundles of rays'.—Miss Agnes M. Clerke.
- 13911 **RAOULT** (François Marie, Univ. Grenoble) La DÉTERMINATION des POIDS MOLÉCULAIRES par la CRYSCOPIE et la TONOMÉTRIE ; with 4 woodcuts, roy. 8vo. (pp. 39), sewn, with author's English inser., 3s 6d 1894
- 13912 ——— Über PRÄZISIONSKRYOSKOPIE, sowie einige ANWENDUNGEN derselben auf WÄSSERIGE LÖSUNGEN [übersetzt von R. LUTHER] ; with 9 illustrations, roy. 8vo. (pp. 45), sewn, 2s Leipzig, 1898
 Containing the author's famous method for ascertaining molecular weights, based on the fact that molecular quantities of different substances, dissolved in equal amounts of a solvent, reduce its point of solidification to the same extent.
- 13913 **RAPER** (Lieut. Henry, R.N., F.R.A.S.) THE PRACTICE OF NAVIGATION and NAUTICAL ASTRONOMY, 6th Edition, with diagrams, thick 8vo. hf. calf, 4s 1857
- 13914 ——— FOURTEENTH EDITION [partly revised by STAFF COMM. THOMAS A. HULL, R.N.], with diagrams, thick roy. 8vo. old sheep (back damaged), 6s 6d 1882
 It was at once recognised as the best work on the subject, a position which it still holds in the opinion of practical navigators.—Sir J. K. Laughton. 'Particularly valuable for its admirable table of [8800] geographical positions'.—Adml. Smyth.
- RAPHSON** (Joseph, F.R.S.)—v. RALPHSON, Nos. 13845-7, ante.
- 13915 **RAPIER** (Richard Christopher, M.I.C.E.) ON THE FIXED SIGNALS of RAILWAYS, with Abstract of the Discussion on the Paper before the Institution of Civil Engineers, edited by JAMES FOREST, M.I.C.E., with 6 folding plates, 11 woodcuts, and 2 folding tables, roy. 8vo. cl., g. e. (SCARCE), 10s 6d 1874
- 13916 ——— ANOTHER COPY, cl., g. e. (title and some ll. stained), 8s 6d
 Of particular interest as written when the Absolute Block System had come largely into use, but was not yet compulsory, and by no means universally accepted. It gives an excellent account of the gradual development of railway signalling and interlocking, and the details of the signalless railways of the 'Thirties, when a policeman with a top-hat, a flag, and a stable lantern controlled what were already busy junctions, are very curious. The Discussion on the paper is of nearly equal value.
- 13917 **RASPE** (Rudolph Erich ; original of Dousterswivel, expelled F.R.S.) ACCOUNT of some GERMAN VOLCANOS, and their Productions, with a new Hypothesis of the Prismatical Basaltes ; established upon Facts. Being an Essay of Physical Geography, etc. etc., with 2 coloured folding plates, sm. 8vo. boards, uncut, or, old calf (RARE), 15s Lockyer Davis, 1776
- 13918 ——— ANOTHER COPY, bound up with two other TREATISES as below, in one thick vol. sm. 8vo. old hf. calf gilt (nice copies), £1. 2s 6d 1776-85
 Including also : BORNON ([Jacques Louis Comte] de) Essai sur la Lithologie des Environs de St.-Etienne-en-Forez, et sur l'Origine de ses Charbons de Pierre, 1785 ; BERGMAN (Torbern) De' Prodotti Vulcanici considerati chemicamente [tradotti da D. DE DOLOMIEU], with 2 tables (no title).
- Raspe was one of the first to adopt the view that basalt was of volcanic origin. The work (which is unknown to Poggenorff), is also of interest for the personality of its author, a German professor at Cassel, who fled to England in 1775 to avoid punishment for theft. He was elected a Fellow of the Royal Society, but struck off the rolls on his antecedents becoming known. He was the author of the original 'Baron Munchausen', and a swindler of a most interesting type, on whom the character of Dousterswivel, and the incidents connected with him, are based in Sir Walter Scott's *Antiquary*. See also BORN (Nos. 6341-2), ante.
- 13919 **RATH** (Gerhard vom ; Univ. Bonn) Ueber das KRYSTALLSYSTEM des LEUCITS ; with folding plate and woodcut, 8vo. (pp. 43), sewn, 1s 6d Leipzig [1873]
- 13920 ——— MINERALOGISCHE MITTHELUNGEN, I und III ; with folding plate, 2 parts 8vo. (pp. 90), sewn, with inser. to Prof. N. Story-Maskelyne, F.R.S., 3s 6d ibidem [1873-4]
- 13921 ——— Ein NEUER BEITRAG zur KENNTNISS der KRYSTALLISATION und der ZWILLINGS-BILDUNGEN des TRIDYMITs ; with folding plate, 8vo. (pp. 42), sewn, 2s ib., o. J.
- 13922 ——— Einige STUDIEN über QUARZ, KÜPFERKIES, und ALBIT ; with plate, 8vo. (pp. 14), sewn, 1s 6d ib. [c. 1872]

- 13924 **RATH** (Gerhard vom; *Univ. Bonn*) NATURWISSENSCHAFTLICHE STUDIEN: Erinnerungen an die Pariser Weltausstellung, 1878 (Sections étrangères), 8vo. *sewn, with author's inscr. to Prof. Nevil Story-Maskelyne, F.R.S., 1s 6d*
 ——— v. REUSCH (F. E.), No. 14119, *post.*
- 13925 **RATHBORNE** (Aaron) THE SURVEYOR, in Four books; with finely engraved title with celestial and terrestrial globes (the latter giving North and South America), and showing surveyors with instruments, large woodcut of the author's Peractor, and numerous diagrams, folio, contemporary English calf (back slightly damaged, and engraved title slightly soiled, otherwise a sound, tall, and clean copy); RARE, £1. 15s
 W. Stansby for W. Burre, 1616
- 13926 ——— ANOTHER COPY, old limp vellum (partly water-stained), £1. 10s
- 13927 ——— THE SAME, old calf (engraved title wanting, binding damaged, and one corner badly water-stained), 15s
 'The most valuable of the kind that was possessed by those times.'—*Donaldson's Agricult. Biog.* It is dedicated to Charles I. when Prince of Wales. Nothing seems to be known of the author, who is not included in D. N. B., and was unknown to Poggendorf. The various books comprise: I. The Elements of Geometrie, with Theorems; II. The Use and Operation of the former Theorems; III. The Exact Operation of Instrumental Dimensions by divers means; IV. The Legal Part of Survey. In the 3rd book the author describes 'the use of an Instrument of mine owne, which I call the Peractor, and of a Chayne, which I call the Decimall Chayne, with the divisions and parts thereof: which rightly understood and practised is farre more usefull and absolute for speed and exactnesse, then any yet euer used'.
 Some copies contain portraits of the author and of the Prince of Wales, which are absent in all the above copies.
 William Leybourn, in his *Compleat Surveyor*, refers to a ruler invented by Rathborne, 'the making of which is so well known, and the use thereof so apparent, that I shall not need to say anything concerning the description and use of it.'
- 13928 **RATIONAL RECREATIONS: the most marvellous SCIENTIFIC EXPERIMENTS, the most astounding FEATS of LEGERDEMAIN, the most puzzling NUMERICAL EXERCISES, with numerous woodcuts, 16mo. contemporary green calf gilt, 5s
 1825**
- 13929 **RATZEL** (Friedrich) Die ERDE und das LEBEN: eine vergleichende Erdkunde; with 46 plates (many coloured), 21 maps, and 487 other illustrations, 2 vols. roy. 8vo. hf. *German morocco gilt, cl. sides, with Dr. Emil Reich's bookplate, 17s 6d* (p. M. 34)
 Leipzig, 1901-2
- 13930 **RAUCOURT** (Antoine) MANUAL OF LITHOGRAPHY, or Memoir on the Lithographical Experiments made in Paris at the Royal School of Roads and Bridges; clearly explaining the whole Art, as well as all the Accidents that may happen in Printing, and the different Methods of avoiding them; translated by CHARLES JOSEPH HULLMANDEL, first English edition, with 2 folding plates, 8vo. calf gilt (nice copy), with bookplate of Lord Gray (SCARCE), £1. 1s
 1820
- 13931 ——— ANOTHER COPY, calf (rebacked), 17s 6d
- 13932 [———] THIRD EDITION, corrected, to which is added (NOW FIRST PRINTED) SELECTIONS from the WORK of M. BRÉGEAUT, forming a SEQUEL, and bringing down the Improvement in the Art to the present Time; translated by CHARLES JOSEPH HULLMANDEL; with 2 folding lithographic plates by the Translator, 8vo. boards, uncut (SCARCE), 15s
 1832
 'Hullmandel's practice and study resulted in the discovery of a new mode of preparing the stones. . . Among other improvements he made in the art were a graduated tint, the introduction of white in the high lights, and the use of the stump on the stone.'—*Cosmo Monkhouse.*
- 13933 **RAVENEK** (H. A.; w.l., *Delft*) VERSLAG omtrent het ONDERZOEK van den DIFFERENTIAAL-KWIKANOMETER van THOMASSET NOËL & CIE. te PARIJS, in gebruik bij den Hoofd-Ingénieur van het Stoomwezen, als Standaard voor het Controoleeren der Manometers zijner Ambtenaren; with folding plate, roy. 4to. (pp. 14), *sewn, 2s 6d*
 's Gravenhage, 1884
- THE SMALL BEER CURE FOR DRUNKENNESS:
- 13934 **RAWLINSON** (James; of *Derby*) A NEW METHOD OF BREWING MALT LIQUOR, in small Quantities, for Domestic Use, 2nd Edition, 8vo. (pp. 32), *sewn (scarce), 8s 6d*
 1807
 Teaching how to make at home 'an excellent small beer', and avowedly written as a remedy against the drunkenness of the time. The work is dedicated to the Humane Society. It was unknown to Allibone, who mentions another work by the same author.
 'I sent some bottles of my beer to the late DR. [ERASMUS] DARWIN, at his request, who declared he had never met with such excellent beer; and added, that he would some time or other [sly dog!] adopt this method of brewing, as a valuable acquisition to the health.'—*Pp. 12-13.*
- 13935 **RAWLINSON** (Sir Robert; P.I.C.E.) DESIGNS for FACTORY, FURNACE, and other TALL CHIMNEY SHAFTS, with title, large vignette, and 24 other tinted lithographs, impl. folio, cl. (cover soiled), 10s 6d (p. £3. 3s)
 [1858]
 Sir Robert Rawlinson was here the pioneer of what we unconsciously recognise as the Waterworks Style of architecture—and a very praiseworthy attempt it was, and a characteristic detail of the Gothic Revival. He based it on the tall towers built with such lavish emulation by the nobles of Pisa and Verona, and on the Moorish towers of Spain. It must be familiar to Londoners in the excellent chimney of the Pumping Station by the Grosvenor Bridge, and less generally at the two great outfalls at Barking and Crossness.
- 13936 **RAWSON** (Christopher, F.I.C.), Walter Myers GARDNER, F.C.S., and William Frederick LAYCOCK: DICTIONARY OF DYES, MORDANTS, and other Compounds, used in Dyeing and Calico Printing, 8vo. cl., 10s 6d (p. 16s nett)
 1901
 Intended as a supplement to Knecht, Rawson, and Loewenthal's 'Manual of Dyeing.'
- 13937 **RAWSON** (Robert, Head Master, School for Shipwright Apprentices, Portsmouth Dockyard) THE SCREW PROPELLER: an Investigation of its Geometrical and Physical Properties, and its Application to the Propulsion of Vessels, with plate, roy. 8vo. cl., 5s
 1851
 The author claims to have discovered 'the surface of vanishing pressure (Cap. II), important as affording an explanation of some curious phenomena which have been observed in the practice of screw propulsion.'—*Preface.*
- 13938 ——— On the CUBIC INTEGRAL $u = \int \frac{dx}{\sqrt{\beta(a-x)(b-x)(c-x)}}$ 8vo. (pp. 13), *sewn, with inscr. to Prof. Lloyd Tanner, 1s 6d*
 1878

- 698 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 13940 **RAY** (John; *pr.*, F.R.S.) THREE PHYSICO-THEOLOGICAL DISCOURSES. I. The PRIMITIVE CHAOS and Creation of the World. II. The GENERAL DELUGE, its Causes and Effects. III. The DISSOLUTION of the WORLD, and Future Conflagration: largely discussing the Production and Use of Mountains; the Original of Fountains, of Formed Stones, and Sea-Fishes Bones and Shells found in the Earth; the Effects of Floods, etc.; Volcanos, and the Cause of Earthquakes, with Account of those Two late Remarkable Ones in Jamaica and England; 2nd Edition, very much enlarged, 12mo. *old calf (back of binding damaged, ink-stain on title, and plates wanting)*, 7s *Sam. Smith, 1693*
- 13941 ——— FOURTH EDITION, *with fine portrait in clerical habit by G. Vertue after Faithorne, and 4 copperplates*, 8vo. *old panelled calf (one joint cracked, otherwise a sound copy)*, 10s 6d 1721
 *This work, and the author's Wisdom of God manifested in the Creation are sufficient to perpetuate Ray's memory as long as the English language is understood or piety regarded.—*Dr. Adam Clarke.*
- 13942 ——— THE WISDOM OF GOD manifested in the WORKS of the CREATION, *viz.* the Heavenly Bodies, Elements, Meteors, Fossils . . . more particularly in the Body of the Earth, its Figure, Motion, and Consistency, and in the admirable Structure of the Bodies of Man, and other Animals, etc. etc., 8th Edition, corrected, 8vo. *old panelled calf*, 7s 1722
 *These [the above] two volumes are his most popular works, and are important on account of the accurate views they propound as to the nature of fossils, and from the use made of them by Paley.—*D. N. B.*
 *Ray was one of the first of our writers who enlarged upon the effects of running water on the land, and of the encroachment of the sea on the shores. His discourses, like those of Hooke, are highly interesting, as attesting the familiar association in the minds of philosophers, in the age of Newton, of questions in physics and divinity.—*Sir Charles Lyell.*
- 13943 ———: PHILOSOPHICAL LETTERS between the late Learned MR. RAY and several of his Ingenious CORRESPONDENTS . . . with those of FRANCIS WILLUGHBY. The Whole consisting of many curious Discoveries and Improvements in the History of Quadrupeds, Birds, Fishes, Insects, Plants, Fossiles, Fountains, etc., published by W. DERHAM, *pr.*, F.R.S., *with diagrams*, 8vo. *sound copy in contemporary panelled calf*, 8s 6d 1718
 ——— *v. No. 3906 ante.*
- 13944 **RAY** (Praphulla Chandra, *Presidency Coll., Calcutta*) A HISTORY of HINDU CHEMISTRY, from the earliest Times to the Middle of the Sixteenth Century, with SANSKRIT TEXTS, Variants, Translation, and Illustrations, VOL. I only, *with 7 plates, showing Hindoo chemical operations, and 41 pp. of Sanskrit texts*, roy. 8vo. *sewn, with inscr. and 3-pp. auto. letter to Sir Edward Thorpe, F.R.S.*, 8s (p. 12s 6d nett) *Calcutta, 1902*
- 13945 **RAYLEIGH** (John William Strutt, 3rd Lord, F.R.S.; *Nobel Laureate*) On the CIRCULATION of AIR observed in KUNDT'S TUBES, and on some Allied Acoustical Problems, 4to. (pp. 21), *sewn*, 2s 6d [1884]
- 13946 ——— On the CLARK CELL as a Standard of Electro-Motive Force, *woodcut*, 4to. (pp. 20), *sewn*, 2s 6d 1886
- 13947 ——— EXPERIMENTS, by the Method of Lorentz, for the further DETERMINATION of the ABSOLUTE VALUE of the BRITISH ASSOCIATION UNIT of RESISTANCE, with Appendix on the Determination of the Pitch of a Standard Tuning-Fork, *with 6 diagrams*, 4to. (pp. 28), *sewn*, 3s [1883]
- 13948 ——— INTERFERENCE of SOUND, *with woodcut*, 8vo. (pp. 7), *sewn*, 2s 1902
 Together with 'The Discovery of the Future', by H. G. WELLS [novelist], (pp. 18).
- 13949 ——— [PRESIDENTIAL] ADDRESS [to the BRITISH ASSOCIATION, MONTREAL, 1884], 8vo. (pp. 21), *sewn*, 2s 1884
- 13950 ——— REPRINT of some OPTICAL PAPERS [on Diffraction Gratings, Experiments on Colour, and the Velocity of Light], 8vo. (pp. 54), *sewn*, 5s [*privately printed, Cambridge,*] 1883
- 13951 ——— The THEORY of SOUND, *with 64 diagrams*, 2 vols. 8vo. *cl.*, 8s 6d (£1. 5s) 1877-8
- 13952 ———, and Sir William RAMSAY, F.R.S.: ARGON, a NEW CONSTITUENT of the ATMOSPHERE, *with 8 woodcuts*, roy. 4to. (pp. 55), *sewn*, 3s 6d 1895
 The announcement of the discovery of argon.
- 13953 **RAYMOND** (Rossiter Worthington; *Sec. American Inst. Mining Engineers*) GLOSSARY of MINING and METALLURGICAL TERMS, *with portrait (inserted)*, roy. 8vo. *cl.*, *with auto. letter from the author to W. S. Gresley, F.G.S., M.I.M.E.*, 5s *Easton, 1881*
- 13954 **REA** (Roger) The SECTOR and PLAIN SCALE, COMPARED: Containing I. The Description of all the Lines on them. II. The True Use of the Sector. III. All the preceding Geometrical Problems and Cases of Right Lin'd Trigonometry compared by the Plain Scale, and IV. performed Arithmetically, without the Help of any Sort of Tables, with so much of Decimal Arithmetick, and the Extraction of the Square Root, as is necessary for the Working of Arithmetical Trigonometry; 2nd Edition, *with 3 folding copperplates*, 12mo. (pp. 102), *sewn*, 8s 6d 1717
 Unknown to Poggendorff, Watt, Allibone, and Lowndes.
- 13955 **READ** (Carveth) On the THEORY of LOGIC: an Essay, *cr. 8vo. cl.*, *with Herbert Spencer's bookstamp on title (scarce)*, 8s 6d 1878
 Professor Carveth Read's first publication, and 'the most real addition that has been made on the subject since the appearance of Prof. Bain's 'Logic', and 'one that cannot henceforward be overlooked by any one interested in the logic of science.'—*Academy.*
- 13956 **READ** (John) METEOROLOGICAL JOURNAL, principally relating to ATMOSPHERICAL ELECTRICITY, kept at Knightsbridge, from the 9th of May, 1790, to the 8th of May, 1791, *with plate by Basire*, 4to. (pp. 32), *sewn*, 4s 6d 1792
 'To him we owe a very elaborate series of researches on atmospherical electricity.'—*Sir John Herschel.*
- 13957 **RECLUS** (Elisée) The EARTH: a Descriptive History of the Phenomena of the Life of the Globe, translated by B. B. WOODWARD, and edited by HENRY WOODWARD; 3rd Edition, *with 24 full-page coloured and 230 other maps*, 2 vols. 8vo. *cl.*, 5s 6d (p. £1. 1s) 1877
 Containing chapters on the Earth as a Planet; the Land; the Circulation of Water; and Subterranean Forces.
- 13958 ——— The OCEAN, ATMOSPHERE, and LIFE, translated by B. B. WOODWARD, and edited by HENRY WOODWARD, F.R.S., *with 207 woodcuts and maps*, 2 vols. 8vo. *cl.*, 5s 6d (p. £1. 1s) 1873

13960 **READE (Joseph, M.D.)** EXPERIMENTAL OUTLINES for a NEW THEORY of COLOURS, LIGHT and VISION: with Critical Remarks on SIR ISAAC NEWTON'S OPINIONS, and some NEW EXPERIMENTS on RADIANT CALORIC, with coloured prismatic front., and diagrams, 8vo. cl., uncut (rare), 12s 6d 1818

The author tries to prove that the analysis of light and heat by the glass prism is a delusion. The following are some of his axioms: 'Blackness is compounded of blue, red and yellow rays, and there is as strong a reflection from black as from any other coloured substance' (p. 1): 'Atoms change colour with every change of condensation' (p. 164): 'The colours in Newton's experiment were occasioned by the black light, reflected from the inner margin of the hole in the quire of paper' (p. 258). There are nevertheless some sound remarks in this painstaking paradox.

13961 **RECKEN (W. A.)** Das GEHEIMNISS, GUSSEISEN . . . zu VERSTÄHLEN: Die KUNST, alle Sorten STAHL . . . auf eine sehr schnelle und sichere Weise zu SCHNEIDEN—2 pamphlets, 12mo. unbound, 3s 6d *Quedlinburg, 1839*

13962 [**RECORDE (Robert, M.D.)** The CASTLE of KNOWLEDGE [on reverse of title:] containing the Explication of the Sphere, bothe celestiall and materiall, and diuers other Things incident thereto.. With sundry pleasant Proofoes and certaine newe Demonstrations not written before in any vulgare Woorkes], first edition, with numerous good woodcuts and diagrams, 4to. hf. bound (binding damaged, title, dedication to Q. Mary (1 l.), and l. of Errata wanting, also some ll. stained); VERY RARE, £3. 3s [*colophon:* *Reginald Wolfe, 1556*]

This book contains a dedication in English to Queen Mary, and another in Latin to Cardinal Pole. D. N. B. erroneously mentions 1551 as the date of the first edition, a statement palpably wrong, as Queen Mary's accession did not take place until 1553, and Cardinal Pole was consecrated Archbishop of Canterbury (the work being dedicated to him as such) only after Abp. Cranmer's execution in 1556.

He was probably the first, certainly one of the first, in England to adopt the Copernican system, which was only put forward as an hypothesis in 1543; though he seems to have thought the world not quite ripe for such a doctrine, and was perhaps afraid to avow it very distinctly. He advises his reader not to rely too much on Ptolemy; but it appears that he had not quite abandoned astrology. . . . In his prefaces, introductions, and conclusions he frequently indulges in very passable poetry (a beautiful and dignified hymn from *The Castle of Knowledge* is quoted in Collier's Bibliographical Account).—D. N. B.

13963 ——— The GROUND of ARTS teaching the perfect Worke and Practise of ARITHMETICKE, both in WHOLE NUMBERS and FRACTIONS, after a more easie and exact Sort, than hitherto hath beneset forth. And now lately diligently corrected and beautified with sundry new Rules and necessarie Additions [by JOHN DEE]: And further endowed with a third Part of Rules of Practise, abridged into a briefer Method than hitherto hath bene published: with diuerse such necessarie Rules as are incident to the trade of MERCHANTISE. Whereunto are also added diuerse Tables and Instructions that will bring great Profit and Delight vnto Marchants, etc. etc., by JOHN MELLIS, black letter, 12mo. old calf, rebacked, £4. 10s *John Harrison, 1605*

This edition is not mentioned in a list of 27 different ones in D. N. B., nor is there a copy in the British Museum.

13964 ——— NEW EDITION, with a COMPENDIUM of INTEREST, and Table of Board and Timber Measure, calculated by R[OBERT] N[ORTON], and now diligently perused, corrected, illustrated and enlarged; with Appendix of FIGURATE NUMBERS, and the Extraction of their ROOTES, by ROBERT HARTWELL, Philomathematicus, partly black letter, thick 16mo. old vellum, £3. 10s *printed by I. B. for Roger Jackson, 1618*

The first edition with Robert Norton's additions. There is no copy in the British Museum Catalogue of English Books to 1640.

13965 ——— NEW EDITION, now the second Time diligently perused, corrected, illustrated, and enlarged; with Appendix of Figurate Numbers, and the Extraction of their Rootes, according to the Method of CHRISTAN [sic] VRSTITIUS; by ROBERT HARTWELL, and NEW TABLES of INTEREST vpon Interest, after 10£ for 100£; with the true Value of ANNUITIES to be bought or sold, present, Respited, or in Reversion: By R. C., partly black letter; 12mo. old calf, gilt ornaments on sides (back rubbed and joints cracked, also stamp on title; otherwise a LARGE AND SOUND COPY), £2. 15s *printed by John Beale for Roger Jackson, 1623*

The first edition enlarged by 'R. C.'

13966 ——— NEW EDITION, with new Tables of Interest vpon Interest, after 10 and 8 per 100; with the true Value of Annuities to be bought or sold present, Respited, or in Reversion: the first calculated by R. C. but corrected, and the latter diligently calculated by ROBERT HARTWELL, Philomathemat., partly black letter; 12mo. contemporary sheep (4 ll. in MS. and title slightly mended), £1. 5s *printed by Tho: Harper, for John Harrison, 1632*

A rare edition, not mentioned in D. N. B., nor is there a copy in Brit. Mus. C. E. B. to 1640.

13967 ——— RECORDS ARITHMETIC: or the Ground of Arts: with New Tables of Interest after 10. 8. and 6. per 100; with the True Value of Annuities, to be bought or sold present, Respited, or in Reversion: the first calculated by R. C. but corrected, and the latter diligently calculated by R. HARTWELL, partly black letter; thick 12mo. old calf (rebacked and joint cracked, otherwise a very sound copy), with auto. of Prof. W. H. Lloyd Tanner, F.R.S., £1. 12s 6d *printed by James Flesher, and are to be sold by Joseph Cranford, 1658*

The first edition edited by Thomas Willsford, who added tables and an address 'To every young Arithmetician'.

13968 ——— REPRINT, partly black letter; thick 12mo. contemporary sheep (a very sound and clean copy), £1. 10s *printed by James Flesher, and are to be sold by Robert Boulter, 1668*

13969 ——— ANOTHER COPY, hf. bound (title mounted and slightly defective), with auto. of Samuel Roberts, F.R.S., £1. 1s

Recorde was practically the founder of an English School of mathematical writers. He was the first writer in English on arithmetic, geometry, and astronomy, and the first to introduce algebra into England. . . . He also uses fractions and Arabic numerals with greater freedom than was usual in his time. . . . Recorde's mathematical works continued to be standard authorities till the end of the Sixteenth Century, and his *Grounde of Artes* was still popular at the end of the Seventeenth. —D. N. B., where 27 different editions of the work are quoted.

He published an arithmetic, termed the *Grounde of Artes*, in which he employed the signs + to indicate excess and - to indicate deficiency. . . . In this book the equality of two ratios is indicated by two equal and parallel lines, whose opposite ends are joined diagonally, e.g. by Z'—W. W. R. *Boll.*

— v. HATTON, nos. 1808 and 9011 ante.

- 13971 **RÉAUMUR** (Réné Antoine Ferchault de, de l'Académie; F.R.S.) L'ART de CONVERTIR le FER FORGÉ en ACIER, et l'Art d'Adoucir le Fer Fondu, ou de faire des Ouvrages de Fer Fondu aussi finis qu'il de Fer Forgé; with 17 folding plates, 4to. contemporary calf gilt (back slightly damaged); rare, £2. 2s 1722
- 13972 ——— THE SAME (wanting plate 14 and pp. 449-56), old calf (back damaged), 15s
 'The art of converting bar-iron into steel is well described by Réaumur in 1722, in his admirable treatise . . . He made an extensive series of experiments on the subject, of which the records are worthy of being perused at the present day. His work is illustrated with engravings, in which cementation is represented similar in all essential respects to those which have so long been in operation at Sheffield,' etc. etc.—*John Percy, F.R.S.*
 It is also valuable for the plates illustrating contemporary apparatus and methods for converting iron into steel.
- 13973 **RECORDS** of the SCHOOL of MINES, Vol. I, Parts I and II, with plate, coloured map, and numerous woodcuts, 2 parts imp. 8vo. cl. (scarce), 12s 6d 1852-3
- Containing contributions by Sir H. T. de la Beche, Lord Playfair, Edward Forbes, Robert Hunt, Sir A. C. Ramsay, Sir W. R. Smyth, J. Beete Jukes (On the Geology of the South Staffordshire Coal Field, pp. 187), and John Percy, F.R.S.
- 13974 **REDDIE** (James, Hon. Mem. Dial. Soc. Edin. Univ.) ANNUAL ADDRESS at the first General Meeting of the VICTORIA INSTITUTE, May 27th, 1867. 8vo. (pp. 30), sewn, 2s [1867]
- 13975 ——— THE MECHANICS of the HEAVENS, and the New Theories of the Sun's Electro-Magnetic and Repulsive Influence: being an Essay on Revolving Bodies and Centripetal Forces, with Postscript, 8vo. (pp. 20), sewn, with author's inscr. pasted on, 3s 6d 1862
 Mainly an attack on Newton's *Principia*. 'There is no mathematical demonstration which even attempts to show rigidly how a gravitating body could revolve round a centre of attraction. The point has been taken for granted by Sir Isaac Newton.'—p. 10.
- 13976 [———] **SCIENTIA SCIENTIARUM**, being some Account of the ORIGIN and OBJECTS of the VICTORIA INSTITUTE, by a MEMBER, 8vo. (pp. 32), sewn, 3s 1865
 An attack on the Geological Society, and Professor Sedgwick, its president.
- 13977 ——— **VICTORIA TOTO CÆLO; or MODERN ASTRONOMY RECAST: a Paper on the Theoretical Motions of the Earth, Sun, Moon, and Planets**, 8vo. (pp. 64), sewn, 4s 1863
 Another attack on the *Principia* by this sturdy paradoxer, submitted to the Newcastle Meeting of the British Association, but unaccountably rejected.
- 13978 ——— **VIS INERTIE VICTA, or FALLACIES affecting SCIENCE: an Essay towards increasing our Knowledge of some Physical Laws, and a Review of certain Mathematical Principles of Natural Philosophy**, with numerous diagrams, 8vo. (pp. 65), sewn, with author's inscr., 4s 1862
 'The laws of the universe are chemical rather than mechanical, and an equally constant and universal repulsive influence must operate to counterbalance any force of gravitation, if gravitation be universal.'—p. 64.
- 13979 **REDDINGTON** (William, of Windsor, brewer) **PRACTICAL TREATISE on BREWING: containing various Instructions and Precautions, Useful and necessary in the Exercise of the Art; 2nd Edition**, sm. 8vo. old calf (cracked), with bookplate of Henry B. H. Beaufof, F.R.S., 7s 6d 1780
- 13980 **REDFERN** (Peter, Univ. Aberdeen) ON the NATURE of the TORBANEHILL and other VARIETIES of COAL, with 3 coloured plates, roy. 8vo. (pp. 25), sewn, 2s [1854]
- 13981 **REDGRAVE** (Gilbert Richard, M.I.C.E.) **CALCAREOUS CEMENTS: their NATURE and USES**, with Observations on CEMENT TESTING, with numerous diagrams, cr. 8vo. cl., 3s 6d (p. 8s 6d) 1895
- 13982 **REDTENBACHER** (Jakob Ferdinand, Karlsruhe) Das DYNAMIDEN-SYSTEM: Grundzüge einer mechanischen Physik; with plate, 4to. hf. cl., 3s 6d Mannheim, 1857
 The *Dynamiden-System*, an elaboration of the atomistic conceptions of Dalton, Fresnel, Ampère, Poisson and Cauchy, was invented by the author as a substitute for the dynamic theory, which he declares to be 'quite useless for the mathematical and practical treatment of physics.'
- 13983 ——— **RESULTATE für den MASCHINENBAU**, 2. erweiterte Auflage; with Atlas, containing 44 plates, 2 vols. sq. 8vo. hf. morocco, with auto. of Prof. Hilary Bauerman, F.G.S., 3s *ibidem*, 1852
- 13984 **REDWOOD** (Sir Boverton; F.R.S.E.) THE TRANSPORT of PETROLEUM in BULK, with Abstract of the Discussion, edited by JAMES FORREST, with 4 folding plates (one coloured), and diagrams, 8vo. (pp. 86), sewn, 3s Inst. C.E., 1894
- 13985 ———, and George T. **HOLLOWAY: PETROLEUM: a Treatise on the Geographical Distribution and Geological Occurrence of Petroleum and Natural Gas; the Physical and Chemical Properties, Production, and Refining of Petroleum and Ozokerite; the Characters and Uses, Testing, Transport, and Storage of Petroleum Products, etc.; with Description of SHALE OIL and Allied Industries**, with 17 folding plates and maps, and 327 woodcuts, 2 vols. 8vo. cl., 15s (p. £2. 5s) 1896
 The standard work on the subject.
- 13986 **REECE** (Richard, M.D., Medical Hall, Piccadilly) THE CHEMICAL GUIDE, or Complete Companion to the Portable Chest of Chemistry, cr. 8vo. old sheep gilt (back damaged), 3s 1814
 'He was consulted by Joanna Southcott, who was then 64, as to the possibility of her supernatural pregnancy.'—*D. N. B.*
- 13987 **REED** (Sir Edward James, F.R.S., Chief Constructor to the Navy) SHIPBUILDING in IRON and STEEL: a Practical Treatise, giving full Details of Construction, Processes of Manufacture, and Building Arrangements: with Results of Experiments on Iron and Steel, and on the Strength and Watertightness of Riveted Work, with 5 plates by Lowry, 266 woodcuts, and folding table, thick 8vo. cl. (o. p.), 10s 6d (p. £1. 10s) 1869
 Containing a full description of the *Bellerophon* and her sister ships. 'With Reed's appointment as Chief Constructor a new epoch of naval construction began. The earliest ironclads were very long and unhandy ships, mounting all their guns on the broadside. His object was to produce shorter ships of great handiness, and to develop their end-on fire without sacrificing their weight of broadside. . . . The *Bellerophon*, the first ship designed by Reed after he took office, was typical of many others that followed, and marked a great advance towards the realisation of the desired qualities. . . . Structurally also the *Bellerophon* was an important ship, for in her Reed introduced a new system of framing, known as the longitudinal and bracket frame system, which was better suited than the old method to the use of iron, which was still quite a novel material for the hulls of men-of-war.'—*D. N. B.*
- 13988 **REES** (George Owen, M.D., F.R.S.) ON the CHEMICAL ANALYSIS of the CONTENTS of the THORACIC DUCT in the HUMAN SUBJECT, 4to. (pp. 5), sewn, with inscr. 'R. Phillips, Esq. [F.R.S.]', with the best wishes of his obliged young friend the Author', 3s 6d 1842

- 13990 **REECH (Ferdinand, ingénieur de la marine)** MÉMOIRE sur les MACHINES à VAPEUR, et leur APPLICATION à la NAVIGATION, 4to. *sewn, with auto. of George Rennie, C.E., F.R.S. (plates wanting), 4s (p. F. 30)* 1844
- 13991 ——— RAPPORT à l'APPEL du PROJET des MACHINES du BRANDON, 4to. *sewn (o. p.), 4s (p. F. 15)* 1844
- 13992 **REEVES (Edward Ayearst, F.R.A.S. F.R.G.S.)** MAPS and MAP-MAKING: Lectures under the Auspices of the Royal Geographical Society, *with map in pocket, 4 coloured plates, and 134 woodcuts, 8vo. cl., 5s* R. G. S., 1910

Describing and illustrating a number of old geoletic and surveying instruments.

- 13993 **REGIOMONTANUS; vel de MONTE REGIO, recte MÜLLER (Joannes)** De TRIANGULIS PLANIS et SPHERICIS Libri V, unâ cum TABULIS SINUM, in quibus tota ipsorum Triangulorum Scientia ex primis Fundamentis Geometricarum ἀποδείξων [sic] absolutissimè extracta continetur, omnia nunc simul in Lucem edita per DANIELEM SANTEBCH; *with numerous diagrams, [1561]: SANTEBCH Noviomagus (Daniel) PROBLEMATUM ASTRONOMICORUM et GEOMETRICORUM SECTIONS VII (De Observationibus τῶν φαινόμενων; et Canonibus Primi Motus; de Rationibus Umbrarum et de Instrumentis Scioticis; de Generalibus Magnitudinum Dimensionibus; de Ratione Librationis, quæ in ducendis Aquis observatur; de Artificio eiaculandi Sphæras e Tormentis; de Observationibus Geographicis); with numerous spirited woodcuts, and diagrams of Astronomical Instruments, Triangulations, Guns and Fortresses, etc. etc., '61—2 vols. folio, old vellum (a few ll. browned as usual, otherwise a FINE AND TALL COPY); VERY RARE, £3. 3s*

Basilæe, per Henr. Petri et Petrum Pernam, 1561

The first work is the THIRD EDITION of Regiomontanus's trigonometry, a second having been published in 1546. Appended is 'Tractatus super Propositiones Ptolemæi de Sinibus et Chordis', by GEORG FEUERBACH (Purbachius), the teacher of Regiomontanus.

'This is the earliest modern systematic exposition of trigonometry, plane and spherical, though the only trigonometrical functions introduced are those of sine and cosine'.—W. W. R. Ball.

'Regiomontanus and Purbach adopted the Hindoo sine in place of the Greek chord of double the arc. Regiomontanus emphasised the use of the tangent in trigonometry, and following out some ideas of his master, calculated a table of tangents . . . He was the author of a complete treatise on trigonometry, containing solutions of both plane and spherical triangles. The form which he gave to trigonometry has been retained, in its main features, to the present day. . . . Regiomontanus ranks among the greatest men that Germany has ever produced.'—Prof. Cajori.

Nothing is known of the author of the second work, who is not mentioned by Montucla or Poggendorff (who mistakenly attributes the work to Regiomontanus), or in other bibliographies. It forms an appendix to the first work, and is especially interesting for its numerous well-executed woodcuts, which include many on artillery bombarding fortresses, which are still based on the contemporary notion that the projectile travels in a straight line, and after its strength is spent, drops vertically (c. No. 8212 ante).

Poggendorff mentions a Johannes Noviomagus (Jan Bronckhorst), 1494-1570, who for some time professed mathematics at Rostock; but there is no evidence to connect him with the above Daniel Santebch Noviomagus.

- 13994 **REGNAULT (Henri Victor, de l'Institut, F.R.S.)** COURS ÉLÉMENTAIRE de CHIMIE, première édition; *with several hundred woodcuts, 4 vols. fcap. 8vo. hf. calf gilt, 7s 6d* [1847-9]
Pp. 7-55 contain an excellent introduction to crystallography.

- 13995 ——— DEUXIÈME ÉDITION [augmentée]; *with hundreds of woodcuts, 4 vols. fcap. 8vo. hf. morocco neat, 3s 6d* [1850]

- 13996 ——— TROISIÈME ÉDITION; *with hundreds of woodcuts, 4 vols. fcap. 8vo. hf. calf gilt (nice copy), with auto. of Prof. Hilary Bauerman, F.G.S., 4s* 1851

An admirable treatise which was soon translated into nearly every European language.

- 13997 ——— ELEMENTARY TREATISE ON CRYSTALLOGRAPHY, *with 108 woodcuts, 8vo. cl., 3s 6d* 1848

- 13998 **REGNAULT (Noël, S.J.)** PHILOSOPHICAL CONVERSATIONS: or, a New System of Physics, by Way of Dialogue, translated, with Notes, by THOMAS DALE, M.D., *with numerous copperplates, 3 vols. 8vo. old sheep (backs slightly damaged), 8s 6d* 1731

This treatise on physics, which is still based on Descartes's theory of vortices, was very popular in its time, and contains many interesting experiments.

- 13999 **REGNIER (Edme)** DESCRIPTION et USAGE du DYNAMOMÈTRE, pour connaître et comparer la Force relative des Hommes, celle des Chevaux et de toutes les Bêtes de Trait; enfin pour juger la Résistance des Machines, et estimer les Puissances Motrices qu'on veut y appliquer; *with folding copperplate, 4to. (pp. 20), sewn (rare), 10s 6d* An VI [1798]

Containing the invention of the spring dynamometer for measuring muscular strength, etc. 'Regnier construisit son premier dynamomètre à la demande de Bufon et de Guéneau de Montbelliard, qui avaient reconnu, pour les recherches qu'ils se proposaient de faire sur la force musculaire, l'imperfection des instruments analogues, précédemment imaginés par G. Graham, Desaguliers et Leroy.'—Diogr. Gén.

- 14000 **REICH (Ferdinand, Bergakademie Freiberg)** FALLVERSUCHE über die UMDREHUNG der ERDE, angestellt in dem DREI-BRÜDERSCHACHTE bei FREIBERG; *with 5 folding plates, 8vo. hf. cl. (scarce), 10s 6d* Freiberg, 1832

The author's was the last of the classic series of experiments made by Robert Hooke, G. B. Guglielmini in 1791, and Benzenberg in 1802 (c. No. 338 ante) to ascertain the Easterly motion of a falling body, caused by the rotation of the earth. All these experiments 'showed, in addition to the predicted Easterly deviation, also a small Southerly displacement. For this no satisfactory explanation has yet been given' (Prof. Cajori).

- 14001 **REICHENBACH (Karl Freiherr v.)** RESEARCHES ON MAGNETISM, ELECTRICITY, HEAT, LIGHT, CRYSTALLIZATION, and CHEMICAL ATTRACTION, on their Relations to the VITAL FORCE, translated and edited, with Notes and Appendix, by WILLIAM GREGORY, M.D., F.R.S.E., *with 3 folding plates, and woodcuts, 8vo. cl., 6s* 1850

This is the work that contains the author's imaginary discovery of *od*, a physical force intermediate between electricity, magnetism, heat, and light, to which the phenomena of hypnotism (then 'mesmerism') are to be due. In its narrower sense it agrees perhaps best with Prof. Forel's *neurckymes*.

The subject may still offer a field of speculation to the scientific mystic in connexion with the undiscovered octaves of ether waves.

It consists of 2 parts, the first treating of 'Physico-Physiological Researches on the Imponderables, in their Relation to the Vital Force', and the second of 'Magnetic or Odyllic Light.'

The author is generally known as the discoverer of creosote and paraffin.

- 14003 **REICHENBACH** (Karl Freiherr v.) PHYSICO-PHYSIOLOGICAL RESEARCHES on the DYNAMICS of MAGNETISM, ELECTRICITY, HEAT, LIGHT, CRYSTALLIZATION, and CHEMISM in their Relations to Vital Force, with Preface and Critical Notes by JOHN ASHBURNER, M.D., *with woodcuts*, thick 8vo. *cl.* (*scarce*), 10s 6d 1851
A rival translation of the 'Researches', with an interesting preface in favour of mesmerism.
- 14004 **REID** (David Boswell, M.D., F.R.S.E.) ELEMENTS of CHEMISTRY, Theoretical and Practical; 3rd Edition [greatly enlarged], *with 609 woodcuts*, 8vo. *hf. calf* (*back torn off*), 3s *Edin.*, 1839
- 14005 ———, TESTIMONIALS in Favour of, for the PROFESSORSHIP of CHEMISTRY in the UNIVERSITY of EDINBURGH, 4to. (pp. 43), *sewn*, 1s 6d *ibidem*, 1843
Dr. Reid did not get the professorship, but he did get the commission for the ventilation of the new Houses of Parliament, the parent of all the schemes at which the delicate legislators of the Lower House have been grumbling ever since. In 1856 he went to the United States as medical inspector to the Sanitary Commission, and died as he was starting on a tour of inspection at the beginning of the Civil War.
- 14006 **REID** (Edward Weymouth, *Univ. Coll., Dundee*), and **Fred. J. HAMBLY**: On TRANSPIRATION of CARBON DIOXIDE through the SKIN of the FROG, *with 3 diagrams*, roy. 8vo. (pp. 14), *sewn*, 1s 6d 1895
- 14007 **REID** (George, M.D.) PRACTICAL SANITATION: a Hand-Book for Sanitary Inspectors and others; with SANITARY LAW by HERBERT MANLEY, M.B., 90 *woodcuts*, cr. 8vo. *cl.*, 2s 6d 1892
(p. 6s)
- 14008 **REID** (John Simpson; *Armour Institution*) COURSE of MECHANICAL DRAWING, *with 168 woodcuts*, 8vo. *cl.*, 3s 6d (p. 8s 6d *nett*) *New York*, 1898
- 14009 **REID** (Major-Gen. Sir William, R.E., F.R.S.) ATTEMPT to develop the LAW of STORMS by means of FACTS, arranged according to Place and Time; and hence to point out a CAUSE for the VARIABLE WINDS, with the view to Practical Use in Navigation, *first edition*, *with 10 large folding charts*, besides *fine woodcuts* by W. J. LINTON, and *diagrams*, impl. 8vo. *cl.*, *uncut*, 12s 6d 1838
'The work laid down, for the guidance of seamen, those broad and general rules which are known as the 'law of storms.'—*Col. Vetch.*
The book is no less interesting for containing some of the earliest work in wood-engraving, representing ships in distress, by WILLIAM JAMES LINTON.
- 14010 **REIFF** (Richard) Ueber den EINFLUSS der CAPILLARKRÄFTE auf die FORM der OBERFLÄCHE einer BEWEGTEN FLÜSSIGKEIT: Inaugural-Dissertation, 4to. (pp. 31), *sewn*, 2s *Tübingen*, 1879
- 14011 **REIMANN** (M.; *editor of the 'Färber-Zeitung'*) On ANILINE and its DERIVATIVES: a Treatise on the Manufacture of Aniline and Aniline Colours, with APPENDIX: The Report on the Colouring Matters derived from Coal Tar, shown at the French Exhibition, 1867, by A. W. v. HOFMANN, F.R.S., G. DE LAIRE, and CH. GIRARD; the whole revised and edited by [SIR] WILLIAM CROOKES, P.R.S., *with 7 woodcuts*, 8vo. *cl.* (*cover slightly damaged*); *scarce*, 8s 6d 1868
The first treatise on aniline dyes, containing much historical information. The 'Report' is not contained in the German edition.
- 14012 ——— La TEINTURE de la SOIE sous Forme de Fils, Soie Cardée et en Pièces, en Noir, Couleurs, et Blanc, etc. etc. [Textes Français et Allemand], 4to. (pp. 42), *unbound*, 2s 6d *Berlin*, s. d.
- 14013 **REINHERTZ** (Carl) Ueber die ELASTISCHE NACHWIRKUNG beim FEDERBAROMETER: Inaugural-Dissertation; *with 14 diagrams*, 4to. *sewn*, 2s 6d *Marburg*, 1887
- 14014 **REINHOLD** [*hic RHEINHOLDUS*] (Erasmus; *Univ. Wittenberg*) PRIMUS LIBER TABULARUM DIRECTIONUM, discentibus Prima Elementa Astronomie, necessarius et utilissimus. Hic insertus est Canon II. ad singula Scrupula Quadrantis propagatus. Item Nova Tabula Climatun et Parallelorum, item Umbrarum. Appendix Canonum II. Libri Directionum, qui in Regionumtani Opere desiderantur; *with diagrams*, thick 4to. *old Italian vellum* (*some ll. wormed, blank bottom corners worn away, and title stamped*); RARE, 17s 6d *Tubingæ, Haredes Utr. Morhardi*, 1554
The author, a friend of Copernicus, and professor of mathematics and astronomy at Wittenberg, is chiefly known as the compiler of the *Prutenic Tables*.
- 14015 **REINOLD** (Arnold William), and Sir Arthur William RÜCKER, F.F.R.S.: On the ELECTRICAL RESISTANCE of THIN LIQUID FILMS, with a Revision of NEWTON'S TABLE of COLOURS, *with 2 plates and 4 diagrams*, roy. 4to. (pp. 43), *sewn*, *with authors' inscr.*, 3s 1881
- 14016 ——— THE LIMITING THICKNESS of LIQUID FILMS, *with plate*, roy. 4to. (pp. 18), *sewn*, *with authors' inscr.*, 3s 1833
'Proving that in the case of a large number of films the mean thickness of that part which was thin enough to display the black of the first order of Newton's rings was $11\frac{1}{2}\mu$.'
- 14017 ——— On the THICKNESS and ELECTRICAL RESISTANCE of THIN LIQUID FILMS, *with diagram*, roy. 4to. (pp. 25), *sewn*, 1s 6d 1893
- 14018 **REIS** (Otto M.) Ueber STYLOLITHEN, DUTENMERGEL, und LANDSCHAFTENKALK (Anthrakolith zum Theil); *with 4 plates* (3 *folding*), impl. 8vo. *sewn*, 4s *München*, 1903
Of interest in connexion with 'cone-in-cone' structures.
- 14019 **REMSEN** (Ira; *President, Johns Hopkins Univ.*) [TEXT BOOK of] INORGANIC CHEMISTRY, *with 78 woodcuts*, thick 8vo. *cl.*, 7s (p. 16s) 1889
- 14020 ——— INTRODUCTION to the STUDY of [INORGANIC] CHEMISTRY, *with 49 woodcuts*, post 8vo. *cl.*, 2s 6d (p. 6s 6d) 1886
- 14021 ——— INTRODUCTION to the STUDY of the COMPOUNDS of CARBON: or ORGANIC CHEMISTRY [new Edition, partly rewritten], *with 17 woodcuts*, post 8vo. *cl.*, 3s (p. 6s 6d) 1896
- 14022 ——— PRINCIPLES of THEORETICAL CHEMISTRY, with special Reference to the CONSTITUTION of CHEMICAL COMPOUNDS, cr. 8vo. *cl.* (o. p.), 3s (p. 6s) 1877
- 14023 ——— On the TWO ISOMERIC CHLORIDES of ORTHOSULPHOBENZOIC ACID, IV—VI, roy. 8vo. (pp. 38), *sewn*, 2s [Baltimore,] 1896

14025 **REINSCH** (Paulus Friedrich) NEUE UNTERSUCHUNGEN über die MIKROSTRUKTUR der STEINKOHLE des CARBON, der DYAS und TRIAS; Beiträge zur Aufhellung des Ursprunges und der Zusammensetzung dieser Mineralkörper, sowie zur Kenntniss des einfachsten Pflanzenlebens der Vorwelt; with 94 plates (1 folding), roy. 4to. *hf. cl.*, £1. 10s (p. M. 50) Leipzig, 1881

14026 **REISCH** (Gregor); *confessor of the Emperor Maximilian I.* MARGARITA PHILOSOPHICA NOVA, cui insunt sequentia. Epigrammata in commendationem operis. Institutio Grammaticæ Latine. Præcepta Logices. Rhetoricæ informatio. Ars Memorandi Ravennatis. Beroaldi modus cõponendi Epi. ARITHMETICA. MUSICA PLANA. GEOMETRIE PRINCIPIA. ASTRONOMIA, cum quibusdã de Astrologia. PHILOSOPHIA NATURALIS. Moralis Philosophia cû figuris; *finely printed in gothic letter; title within woodcut border, large woodcut title to each Book, and numerous very fine and large woodcuts, also plain song and folding table of diapason, 4to. old oaken boards, covered with contemporary pressed pigskin, richly ornamented on sides (one table wanting, binding slightly damaged and some ll. slightly water-stained on lower margin, otherwise a REMARKABLY SOUND, CLEAN AND TALL COPY); very rare, £8. 8s [col. :] Argentine, Joa. Gruninger, 1512*

The fifth edition of this celebrated work, valuable as an encyclopaedia of all that was known of science at the end of the XVth. Century, and regarded as the earliest work containing anatomical illustrations.

This edition contains an 'Appendix Matheseos' (pp. 128), which includes treatises on the astrolabe, perspective, etc. etc. The last four ll. 'Speculum Orbis Declaratio speculi orbis compositi a Gualtero Lud. Canonico Deodatensis' have the signatures A. 1. Many of the woodcuts give illustrations of contemporary astronomical, mathematical, and chemical instruments.

'If the number were sufficient of those who wish to take their notions of liberal education in Europe at the time immediately preceding the Reformation from original sources, and not from the reports of others, a reprint of the *Margarita Philosophica* would be made. The diversity of the matters which it treats, and the largeness of its circulation, stamp it as the best book for such a purpose. . . . The Arithmetic has a frontispiece representing Boethius at one table with Arabic numerals before him; and Pythagoras at another with counters. Pythagoras among the Greeks, Apuleius and Boethius among the Romans, were often made the inventors of arithmetic. The arithmetic is divided into speculative and practical. The former is a summary of Boethius, often in the words of John de Muris. The latter is a short treatise on *Algorithm*, as it was called, or the rules of computation by the Arabic numerals. There is also computation by counters, fractions, common and sexagesimal, and the rule of three. Many works of fifty years later do no more difficult questions,' etc. etc.—*Prof. de Morgan*, who gives an interesting account of the work in his *Arithmetical Books*, pp. 4-9.

Ten editions of this work are known; those of 1496, 1503, 1504, 1508, 1512, 1515, 1517, 1585, 1583, and 1599.

14027 **RÉMOND** (L.) DOUZE CENT MILLE ANS d'HUMANITÉ et l'AGE de la TERRE, par l'Explication de l'Évolution Périodique des Climats des Glaciers et des Cours d'Eau, cr. 8vo. (pp. 164), *sewn, Monaco, 1902*

14028 **RENALDINI** (Carlo, *Univ. Pisa*) OPUS MATHEMATICUM, in quo utraque ALGEBRA, vetus sc., et nova à se in Opere, hac de Re pridem edito, pertractata NOVIS PRÆCEPTIS; novisque Demonstrationibus illustratur. Methodus quoque Resolutionis et Compositionis Mathematicæ longè copiosius, quam ibidem, ad abstrusiora Theoremata, et Problemata enodanda declaratur. PARS PRIOR NUMEROSAM ALGEBRAM complectens; with diagrams, thick 4to. *old limp vellum (back torn off and water-stained), 10s 6d* Bononie, 1655

'Baro.'—*Riccardi*.

'In this almost unknown work Renaldini, who subsequently became one of the most influential members of the *Accademia del Cimento*, relates the discoveries of Vieta and Girard, and uses new curious notations.'—*Libri Catalogue*. It includes, among other problems, an approximate rectification of the circle by trigonometrical means.

14029 **RENARD** (Th.), et Philippe A. GUYE; *Univ. Geneva*: MESURES de TENSIONS SUPERFICIELLES à l'AIR LIBRE; with 2 illustrations, roy. 8vo. (p. 32), *sewn, 1s 6d* Genève, 1907

14030 **RENIERI** [*Latine hic RENERIUS*] (Vicenzo, *da Genova*) TABULÆ MOTUUM CÆLESTIUM UNIVERSALES, Magni Ducis Etruriæ Ferdinandi II. Auspiciis primo editæ, et MEDICÆ nuncupatæ. . . . quibus Planetarum Calculus juxta precipuos Astronomiæ Restauratores, ALPHONSUM Regem, COPERNICUM, atque TYCHONEM facili Methodo exhibetur, et Alphonsini, Prutenici, Daniæ, Rudolphini, Lansbergianique Canones continentur; with engravings, 2 vols. folio in 1, *old vellum (back of binding wormed, otherwise a sound copy), 15s* Florentiæ, 1647

The second and last edition of the *M-dicean Tables*. The second volume contains 'Plena Eclipsium Solis et Lune Doctrina, ac reliquæ Planetarum Passiones.'

14031 **RENNELL** (Major James, *Surveyor-Gen. of Bengal, F.R.S.*) INVESTIGATION of the CURRENTS of the ATLANTIC OCEAN, and of those prevailing between the INDIAN OCEAN and the Atlantic, with 2 folding maps, 8vo. *cl., uncut (RARE), 10s 6d* published for Lady Rodd, 1832

'Rennell devoted an enormous amount of labour and trouble to the study of winds and currents, collecting a great mass of materials from the logs of his numerous friends and correspondents. He was the first to explain the cause of the occasional northerly set to the southward of the Scilly Islands, which has since been known as 'Rennell's Current' [*cf. second chart supra*]. His current charts and memoirs were invaluable at the time.'—*Sir Clements Markham*.

14032 **RENNIE** (George, C.E., F.R.S.; son of John and brother of Sir John Rennie) ACCOUNT BOOK, chiefly with the ADMIRALTY and NAVY BOARD, from 1821 to 1827, a Manuscript, 4to. *scored calf, £2. 2s* 1821-7

14033 ——— COPY-LETTER-BOOK of, containing his CORRESPONDENCE from Sept. 22nd, 1854 to April 25th, 1860, with a few others by his Sons, the MS. copy on 729 pp. of flimsy, 2 vols. 4to. *hf. bound, £3. 3s* 1854-60

The interesting volumes contain all the author's professional and business correspondence. It should be a valuable contribution to the history of mechanical engineering, and in a narrower sense to the writer's biography, which has yet to be written.

14034 ——— JOURNAL of my ABSENCE from HOME, commencing from Tuesday, June 24th, 1817, a Manuscript Note-book on 200 pp., with numerous architectural sketches, and a full-page one of Spanish country scenery, sm. 8vo. *hf. bound, £2. 10s* 1817

A very interesting notebook, written during George Rennie's tour in Spain, Gibraltar, and Morocco soon after the Peninsular War. The last entry is Dec. 5, 1817.

14035 ——— PRIVATE ACCOUNT BOOK in Connexion with ENGINEERING WORKS, from 1836 to 1850, a Manuscript, cr. 4to. *rough calf, £1. 1s* 1836-50

Including the expenses incurred during his supervision of the Railway from Namur to Liège.

- 14037 **RENNIE** (George, C.E., F.R.S.) NOTES ON NATURAL PHILOSOPHY, taken from MR. [JOHN] PLAYFAIR'S Class, during the Winter Session at Edinburgh, 1807-8, a neatly written Manuscript on 120 pages, with numerous illustrations in ink and sepia, sm. 8vo. hf. bound, £2. 2s [1808]
An interesting volume written at the age of seventeen when George Rennie was a student at Edinburgh University.
- 14038 ——— PRIVATE CASH BOOKS from 1829 to 1849: ——— (WINTERSHALL ACCOUNT), from Aug. 1831 to March 1835: BANKER'S CHEQUE BOOK, from Jan. 1848 to Jan. 1851, Manuscripts —5 vols. 8vo. and cr. 4to. in various bindings, £1. 1s 1829-51
- 14039 ——— PRIVATE NOTE BOOK, from Jan. 1st, 1815 to Dec. 31st, 1816, a Manuscript, post 8vo. leather, 12s 1815-16
Interesting as giving an insight into the mind of the great engineer at the age of 24 and 25. An entry under July 6, 1815, mentions the Battle of Waterloo and the Occupation of Paris by the Allies.
- 14040 ——— SKETCH and MEMORANDUM BOOK ON ENGINEERING MATTERS, a Manuscript in his handwriting, and full of original sketches and drawings, oblong 12mo. leather (joints cracked), £1. 5s 1825-41
- 14041 ——— SPECIFICATION of a DOCK with a SEA ENTRANCE, STOP GATES, etc., proposed to be constructed for the LLANGENECH COAL CO. at LLANELLY, a Manuscript on 14 pp. of paper (P. 11 signed: George Rennie, and dated: Stamford Street, 27 March 1829), folio, sewn, £1. 5s 1829
- 14042 ——— WORK mainly in Connexion with NAVAL ENGINEERING, executed by MESSRS. J. & G. RENNIE and (afterwards) G. RENNIE & SONS, a very interesting Manuscript Collection of Copies of Original Documents and Correspondence, with numerous DRAWINGS, SKETCHES, NEWSPAPER CUTTINGS, etc., relating to the Firm's Dealings all over the World, thick folio, russia, £3. 3s 1818-59
- 14043 **RENNIE** (James, King's Coll., London) ALPHABET of SCIENTIFIC CHEMISTRY for the Use of Beginners; new Edition, much improved, with vignette of John Dalton, F.R.S., and numerous other woodcuts, 12mo. cl., 2s 6d 1834
Unknown to the author's biographer in D. N. B.
- 14044 **RENNIE** (John, C.E., F.R.S.; engineer of Waterloo and London Bridges and of the Plymouth Breakwater; father of George and Sir John Rennie); ABERDEENSHIRE CANAL and HARBOUR, REPORTS and SPECIFICATIONS concerning the, by JOHN SMEATON, F.R.S. and JOHN RENNIE: neatly written MS. on 118 pp., with a few MS. additions and an Estimate in the handwriting of John Rennie, folio, hf. bound, £1. 1s 1770-1802
- 14045 [——]: INTERESTING PARTICULARS relative to that Great National Undertaking, the BREAKWATER, now constructing in PLYMOUTH SOUND, with coloured front. and 2 maps, 8vo. (pp. 34), sewn (scarce), 8s 6d Devon: Plymouth Dock [Devonport], and Stonehouse [1820]
Including the Report of John Rennie and Joseph Whibley.
Plymouth Breakwater was the greatest engineering work undertaken by John Rennie. 'It consisted of a wall a mile in length across the Sound, in deep water, and containing 3,670,444 tons of rough stone, besides 22,149 cubic yards of masonry on the surface' (D. N. B.). It was begun in 1811 and finished in 1845 by his son, Sir John Rennie, and has outlived every storm from then till now.
- 14046 ———, NEW SHOREHAM HARBOUR: the Report of, 8vo. (pp. 22), sewn, 4s 1810
The present Shoreham Harbour, the port of Brighton.
- 14047 ——— LECTURE NOTES, and COPIES of MEMOIRS: very neatly written Manuscript on 226 pp., with full-page illustrations, 4to. hf. bound, £4. 4s 1782
This very interesting manuscript, according to MS. note in the work, 'was written by John Rennie when a student at Edinburgh, 1782.' The memoirs include: Theorums for Computing Logarithms, by J. Hellins: Description and Use of a Portable Wind Gage, by James Lind: Researches on the Equilibrium of Arches, by the Abbé Bossut: Experimental Examination of the Quantity and Proportion of Mechanic Power in giving different Degrees of Velocity to Heavy Bodies, by John Smeaton: New Fundamental Experiments on the Collision of Bodies, by the same: On the Centering and Decentering of Bridges, by M. Perronet.
- 14048 ——— REPORT to the SUBSCRIBERS to a CANAL from ARUNDEL to PORTSMOUTH, etc. etc., with folding plate, and 16 pp. of neatly written MS., and sketch, both by the author, added, 4to. (pp. 15), sewn, £1. 10s Portsmouth, 1816
This includes the Chichester Canal, now dried up, but memorable for ever as providing one of the most beautiful paintings of TURNER. The MS. consists of a copy of 'The Causes of the Opposition of the Committee of Navigation of the City of London to the Erection of Pound Locks and Weirs', by Frederick Page (1795), evidently written by John Rennie, with some critical remarks on margin by him.
- 14049 ——— REPORT, PLAN, and ESTIMATE of an entire NEW HARBOUR (the Piers of Stone) proposed to be constructed at the Port of BRIDLINGTON, Yorks. with folding plan, 4to. (pp. 8), sewn, 4s Leeds, 1816
- 14050 ———, REPORT by, on a SURVEY and PLAN of a CANAL from the RIVER CLYDE at Glasgow, to the West Coast of the COUNTY of AIR, at, or near the Harbour of SALTCOATS, by JOHN AINSLIE [with ADDITIONAL REPORT], 4to. (pp. 16), sewn (plan wanting), 5s Air, 1804
- 14051 ——— REPORT on the intended CANAL from CROYDON to ROTHERHITHE; with folding map of Whitehaven Harbour, Cumberland, and 3 pp. of Manuscript, with Sketch, by Sir John Rennie, added, folio (pp. 8), sewn, 12s [1800]
- 14052 ——— REPORT concerning the different LINES surveyed by Messrs. JOHN AINSLIE and ROBERT WHITWORTH, Jun. for a CANAL proposed to be made between EDINBURGH and GLASGOW, and intended to communicate with the Frith of Forth at Leith, and the River Clyde at the Broonie Law; with an Account of a Running Level, taken for a New Line by Linlithgow and Falkirk, with very large folding map, 4to. (pp. 12), sewn, with numerous MS. notes by George Rennie, 10s 6d 1797
- 14053 ——— REPORT of a SURVEY of the RIVER THAMES, between READING and ISLEWORTH, and of several Lines of Canals projected to be made between those Places, with Observations on their comparative Eligibility, 8vo. (pp. 55), sewn (plan wanting), 5s 1794
- 14054 ——— REPORT and ESTIMATE of the GRAND SOUTHERN CANAL, proposed to be made between TUNBRIDGE and PORTSMOUTH, by Means of which and the River Medway, an Inland Navigation will be opened between the River THAMES and PORTSMOUTH, sm. folio (pp. 12), unbound, 5s 1810

- 14056 **RENNIE** (John, C.E., F.R.S.; *engineer of Waterloo and London Bridges and of the Plymouth Breakwater; father of George and Sir John Rennie*) REPORT concerning the PRACTICABILITY and EXPENCE of the Lines surveyed by Messrs. JOHN AINSLIE and ROBERT WHITWORTH, Jun. for a CANAL between EDINBURGH and GLASGOW . . . with the Improvements made, and also the Practicability and Expence of the NEW LINE by LINLITHGOW and FALKIRK, 4to. (pp. 27), *sewn*, with numerous MS. notes by George Rennie, 10s 6d 1798
- 14057 ——— REPORT and ESTIMATE on the IMPROVEMENT of the DRAINAGE and NAVIGATION of the SOUTH and MIDDLE LEVELS of the GREAT LEVEL of the FENS, in Consequence of a Reference from the Hon. Corporation of the BEDFORD LEVEL, 4to. (pp. 18), *sewn*, 5s 1810
- 14058 ——— ANOTHER COPY, extra-illustrated with 8 large folding plates (some coloured), and folding map, 4to. (pp. 18), *sewn*, with Sir John Rennie's auto. £1. 1s 1810
Both John Rennie and his son Sir John were engaged in the improvement of the Bedford Level, although the middle level, the most difficult to manage, was completed—at a cost of £400,000—only in 1852; 'but in May 1862 it gave way under pressure of a strong tide, and the Western bank of the middle-level drain burst, speedily flooding about 6000 acres of fertile land. This led to the construction of a permanent coffer-dam of pile-work to shut off the tidal waters.'
- 14059 ——— REPORT concerning the Practicability and Expence of making a NAVIGABLE CANAL through the WEALD of KENT, to join the Rivers Medway, Stour, and Rother, with large folding plan, 4to. (pp. 9), *sewn*, 7s [1809]
This would have meandered from near Yalding to Wye, with a branch by High Halden to the Royal Military Canal.
- 14060 ——— ANOTHER COPY, with pencil sketch of a Girl at the Albion Hotel, Brighton, by GEORGE RENNIE, 8s
- 14061 ——— THE SAME, without the map, 3s 6d
- 14062 ——— REPORT [and SECOND REPORT] concerning the DRAINAGE of WILDMORE FEN, and of the East and West Fens [Lincolnshire], with folding map, 2 parts 4to. (pp. 22 + 8), *sewn*, 10s 1800
This was the great fen area, roughly triangular, extending from Boston to Dogdyke near Tattershall and thence to Little Steeping.
- 14063 ———: ROMNEY MARSH and RYE HARBOUR: a very interesting Collection of the Reports and Estimates for their Improvement, from SIR NATHANIEL POWELL'S in 1662 to JAMES RENNIE'S in 1801; a very neatly written MS. on 324 pp., 4to. calf, £1. 5s c. 1800
Including the Reports, Proposals, and Estimates (besides those mentioned above) by Robert Colepeper, Thomas Herlackenden, John Perry, Lt.-Col. Justly Watson, R.E., Edward Collingwood, John Major, and John Smeaton, F.R.S.
It would probably be impossible to bring together a collection of these documents, and the Manuscript should therefore be of importance also to the topographer of Kent and Sussex.
- 14064 ———: A SHORT HISTORICAL ACCOUNT of LONDON-BRIDGE, with a Proposition for a NEW STONE-BRIDGE at WESTMINSTER, as also an Account of some Remarkable Stone-Bridges Abroad, and what the best Authors have said and directed concerning the Methods of Building them, by Nicholas Hawksmoor, first edition, with 5 folding copperplates; with MS. Copies of four Works on Bridge Building (as below), mostly in the autograph of John Rennie—4to. old calf (rare and interesting), £2. 15s 1736
Hawksmoor's only literary publication.
'The plates drawn by Hawksmoor and engraved by B. Cole and Toms include 'A Plan of the City of Westminster, with suggestions as to suitable places for a bridge; 'Propositions for London Bridge to be altered for the Navigation under and the Safety of Passengers over it'; and 'Propositions for a New Bridge at Westminster'. Charles de Labelye made from Hawksmoor's draughts a calculation to estimate the fall of the water at the intended bridge at Westminster, and some conjectures as to the probable effect on the navigation.—D. N. B.
Nicholas Hawksmoor was the 'scholar' and greatest pupil of Wren, and helped in building St. Paul's. He did much work at Queen's and All Souls Colleges at Oxford, but his most interesting works to Londoners are St. Mary Woolnoth in Lombard St. and his many East End churches under Queen Anne's 'Fifty' scheme, which include St. Anne's, Limehouse, St. George's in the East, and that noble church, Christ Church, Spitafields.
The above volume is specially interesting for having belonged to JOHN RENNIE, who afterwards actually built New London Bridge, still the noblest bridge in England. The works added by him are: Memorial concerning Hexham Bridge, by JOHN SMEATON, F.R.S., with a brief Reply by a Freeholder (1782); A Copy of Mr. Myles Opinion and Report to the Magistrates of Northumberland respecting the Practicability of building a permanent Bridge at Hexham; Copy of a Letter to Mr. L. Becker, Director and First Secretary of the Batavian Society for Experimental Philosophy at Rotterdam; Treatise on Rivers and Canals, by THEODORE AUGUSTUS MANN.
- 14065 ———, SPECIFICATION of the MODE of executing the proposed NEW LONDON BRIDGE, as designed by the late, folio (pp. 16), *sewn*, 7s 6d November 13, 1823
- 14066 ——— SPECIFICATION of the EARTHWORK of the NEW proposed CUT for the RIVER OUZE, between EAU BRINK and LYNN, folio (pp. 4), *unbound*, 5s 1818
The Eau Brink Cut was one of the latest civil engineering works undertaken by John Rennie, and 'was on the point of completion at the time of his death' (D. N. B.).
- 14067 ———: SPECIFICATIONS for the KENNET and AVON CANAL, between Foxhanger and Devizes; a neatly written MS. Copy of John Rennie's original Reports, with a few MS. Corrections by the latter, sm. folio, law calf (one joint cracked), 12s 1801
The Kennet and Avon was duly carried out, and with the Stroud water Canal gives a through waterway between London and Bristol. Much money was spent on it as lately as a few years ago, and it is in thorough navigable order; but traffic dances not to its piping, and it may be recommended to the oarsman as a charming (if much belocked) route through some of the most beautiful country in England.
- 14068 ———: LAMBERT (Jean Henri) EXPERIMENTS and OBSERVATIONS upon MILLS that are turned by WATER, moving in a HORIZONTAL DIRECTION: REMARKS upon MILLS and other Machines whose Wheels take the Water at a certain Height: REMARKS upon MILLS and other Machines where the Water falls in above the Wheel: REMARKS upon WIND MILLS, with folding plate: ELEMENTS of the THEORY of MACHINES, with folding plate and diagram, the whole translated by JOHN RENNIE, a Manuscript written throughout by him on 90 ll. of paper, 4to. hf. bound, with auto. 'John Rennie' on flyleaf, £2. 10s [c. 1784]
This Manuscript was probably written on or immediately after leaving Edinburgh University, when he established a business on his own account as a millwright.

14070 **RENNIE** (Sir John, C.E., F.R.S., P.I.C.E.); *completer of London Bridge and of the Plymth Breakwater*) HISTORY OF CIVIL ENGINEERING, AN UNPUBLISHED MS. on over 800 pp., in 12 vols. (v. IV. missing) folio, parchment, £15. 15s [1839-? 74]

A very interesting Manuscript, which must have formed the basis of Sir John Rennie's presidential address to the Institution of Civil Engineers on the history of Civil Engineering, in 1846. Some of the volumes bear extensive alterations and corrections, the work having evidently been designed for publication. This is borne out by a passage in the author's *Autobiography* (p. 456): 'I also design to write a history of engineering, enlarged from my address to the Institution of Civil Engineers, and a life of my revered father. All these I have already sketched out, and I hope to complete them, if it please God to spare my life a few years longer.' None of these works were carried out, although the author's wish had been granted.

THE ORIGINAL SCHEME OF THE GREAT EASTERN RAILWAY:

14071 ———: BOOK OF REFERENCE of a Portion of the PROJECTED LINE of the NORTHERN RAILWAY, extending from LONDON to CAMBRIDGE, containing the NAMES of the OWNERS or reputed Owners and OCCUPIERS of PROPERTY, to be taken under the Authority of an Act to be obtained for making a Rail Road from LONDON to CROMFORD, a Manuscript on 138 pp., prepared for Sir John Rennie, 4to. roan, £1. 1s [c. 1837]

This would have made the Great Eastern the original 'Great Northern' railway, and lacking endless tunnels a much more comfortable line. But it stuck at Cambridge. It is plain from the above interesting MS. that the first intention of all was to make it join the very early High Peak Railway, which still exists as a mineral line from Buxton to Wirksworth.

14072 ——— LETTER to the DUKE of BEDFORD, Governor of the Corporation of the BEDFORD LEVEL, on the DRAINAGE of the MIDDLE LEVEL, with large folding map, 4to. (pp. 17), sewn, 5s 1842

14073 ——— OUTLINE of the PROGRESS of CIVIL ENGINEERING in GREAT BRITAIN, since the Time of SMEATON to the present Day (Presidential Address to the Institution of Civil Engineers), 4to. (pp. 109), sewn, 7s 6d 1846

14074 ——— REPORT on the PIER, proposed to be erected at DEAL, 8vo (pp. 15), sewn, 4s 1838

14075 ——— REPORT on the IMPROVEMENT of the RIVER DEE, and PORT and HARBOUR of CHESTER, Svo. (pp. 17), sewn, 4s Chester [1837]

14076 ——— REPORT on the ESTUARY of the NENE, between the Sutton Bridge Embankment, and the Limits prescribed by the Nene Outfall Act, as to the most advisable line for Embanking on the Whole or any Portion of it from the Sea, with folding plan, roy. 4to. (pp. 5), unbound, 4s 1839

14077 ——— REPORT and ESTIMATES on the IMPROVEMENT of the NAVIGATION of the RIVER NENE, from its Outfall to Peterborough; and for the most efficient Drainage of Moreton's Leam Wash and Whittlesea Mere, and a Portion of the adjoining Lands in the Middle District of the Great Bedford Level, with coloured folding plan, roy. 8vo. (pp. 24), sewn, 5s 1837

At this date the boom of the bittern was still to be heard on Whittlesea Mere.

14078 ——— REPORT to the COMMISSIONERS of SCARBRO' HARBOUR, 8vo. (pp. 24), sewn, 4s Scarborough, 1834

14079 ——— The THEORY, FORMATION, and CONSTRUCTION of BRITISH and FOREIGN HARBOURS, with fine portrait by J. Andrews (splendid impression), and 133 fine steel plates by J. W. Lowry, etc., 2 vols. atlas folio, hf. morocco gilt, t. c. g. (joints rubbed), £3. 3s 1854

This great work, the result of the toil of many years, includes examples from almost every country, from the earliest dawn of civilization to the present day, illustrated, when practicable, by the original documents and reports. It can now (1869) be had (and by the architect it must be had) for about £12. 12s.—*Allibone*.

14080 ———, AUTOBIOGRAPHY of, comprising the History of his Professional Life, with Reminiscences dating from the Commencement of the Century, with portrait, roy. 8vo. cl. (o. p.), 6s 6d (p. 12s 6d) 1875

The interesting account of Sir John Rennie's varied professional life, from his early boyhood as a schoolfellow of Shelley's at Isleworth, to his work on Southwark and Waterloo bridges under his father, and his building of London Bridge, and his work in Sweden, Spain, and elsewhere on the Continent.

Sir John Rennie was the first civil engineer to be knighted since Sir Hugh Myddleton of the New River—a small slight on the great succession of English civil engineers, but a big one on the order of knighthood. 'He was the last of his race, and formed a connecting link between the Brindleys, the Smeatons, the Rennies, and the Telfords of the old system and the Stephensons and the Brunels of the new.'—*D. N. B.*

14081 **BENTON** (A. H., C.E.) OBSERVATIONS on ARTIFICIAL LIGHT, with plate of lamp, Svo. (pp. 20), sewn, 3s 6d 1860

The new lamp recommended is an Improved 'Drummond' Lamp (an oxy-hydrogen lime lamp with a single jet). Electricity [in the arc-lamp] is mentioned as 'unsfit for the general purposes of lighting, setting aside its enormous cost' (p. 5).

14082 **REPERTOIRE** (The) of ARTS, MANUFACTURES, and AGRICULTURE, consisting of Original Communications, Patent Specifications, and Select Practical Papers, from the PHILOSOPHICAL SOCIETIES, etc. etc., and NOTICES of all PATENTS granted, 1794-8, 1802-8, and 1818-23 (1st Ser. Vols. 1-9, 2nd Ser. Vols. 1-12, 32-5, and 37-42), with numerous plates (mostly folding) on copper—in all 31 vols. 8vo. old calf and hf. calf (many joints broken), £2. 10s 1794-1823

14083 ——— FIRST SERIES, VOLS. 1-6, with numerous copperplates, 6 vols. 8vo. old hf. calf gilt. 1794-7

A publication very valuable in connexion with the history of engineering and technology, as it contains copious descriptions and illustrations of the more important inventions patented in Gt. Britain.

14084 **RESAL** (Amé Henri, de l'Institut) TRAITÉ ÉLÉMENTAIRE de MÉCANIQUE CÉLESTE, 2^e [DERNIÈRE] ÉDITION [entièrement refondue]; with 26 diagrams, 4to. sewn, 12s 6d (p. F. 25 nett) 1884

Among valuable text-books on mathematical astronomy ranks *Traité de Mécanique Céleste* of H. Resal.—*Prof. Cajori*.

14085 ——— TRAITÉ de MÉCANIQUE GÉNÉRALE, comprenant les Leçons professées à l'École Polytechnique; with chromolithographs, and hundreds of woodcuts and diagrams, 6 vols. 8vo. hf. morocco neat, cl. sides (nice set), £1. 15s (p. F. 63 nett sewn) 1873-81

14086 ——— TRAITÉ de PHYSIQUE MATHÉMATIQUE, 2^e [DERNIÈRE] ÉDITION, augmentée et entièrement refondue; with 65 diagrams, 2 vols. 4to. in 1, hf. morocco (slightly rubbed), 17s 6d (p. F. 27 nett sewn) 1887-8

Containing: I. Capillarité, Élasticité, Lumière. II. Chaleur, Thermodynamique, Electrostatique, Courants électriques, Electro-dynamique, Magnétisme statique, Mouvement des aimants et des courants.

- 14088 **RESPIGHI** (Lorenzo; *Univ. Rome*; *Direttore, Osservatorio del Campidoglio*) L'ANALISI SPETTRALE nelle sue Attinenze ed Applicazioni all' ASTRONOMIA, roy. 8vo. (pp. 47), *sewn*, 2s
Roma, 1877
The author's work was of importance in connexion with solar spectroscopy. Together with Sir Norman Lockyer 'he initiated the transformation of the slitless spectroscope into the prismatic camera.'—*Miss Agnes M. Clerke.*
- 14089 — Sul CANNOCCHIALE ZENITALE dell' OSSERVATORIO della R. UNIVERSITÀ sul CAMPIDOGGIO; *with plate*, roy. 4to. (pp. 20), *sewn*, 2s
ibidem, 1871
- 14090 — CATALOGO delle DECLINAZIONI MEDIE pel 1875,0 di 1463 STELLE, comprese fra i Paralleli 20° E 64° Nord, compilato sulle Osservazioni fatte al Circolo Meridiano nel R. Osservatorio del Campidoglio, 1875-7, roy. 4to. (pp. 90), *sewn*, 3s 6d
ib., 1880
- 14091 — delle DECLINAZIONI MEDIE pel 1880,0 di 1004 STELLE, comprese fra 0° E 20° Nord, 64° E 90° Nord, compilato sulle Osservazioni fatte al Circolo Meridiano del R. Osservatorio del Campidoglio, 1879-81, roy. 4to. (pp. 63), *sewn*, 3s
ib., 1885
- 14092 — Sulla COSTITUZIONE FISICA del SOLE, roy. 4to. (pp. 14), *sewn*, 2s
ib., 1871
- 14093 — ESPERIENZE fatte al R. OSSERVATORIO del CAMPIDOGGIO per la DETERMINAZIONE del VALORE della GRAVITÀ, roy. 4to. (pp. 26), *sewn*, 2s
ib., 1882
- 14094 — Sulla LATITUDINE del REGIO OSSERVATORIO del CAMPIDOGGIO, Nota II., roy. 4to. (pp. 32), *sewn*, 2s
ib., 1877
- 14095 — Sulla NOTA del PROF. P. SECCHI intitolata: Sull' ULTIMA ECLISSE del 12 DICEMBRE 1871, roy. 4to. (pp. 14), *sewn*, 2s
ib., 1872
- 14096 — OSSERVAZIONI METEOROLOGICHE fatte al R. Osservatorio del Campidoglio, 1873-4; *with 3 plates (2 folding)*, 4to. (pp. 42), *sewn*, 3s
ib., 1875
- 14097 — del DIAMETRO SOLARE, fatte al R. OSSERVATORIO del CAMPIDOGGIO, 1874-6 e 1878-81, 5 parts 4to. and roy. 4to. *sewn*, 7s 6d
ib., 1875-82
- 14098 — del DIAMETRO ORIZZONTALE del SOLE, fatte al R. OSSERVATORIO del CAMPIDOGGIO, 1878-9, roy. 4to. (pp. 30), *sewn*, 2s
ib., 1880
- 14099 — dell' ECLISSE TOTALE del 12 Dicembre 1871 a PODOOCOTTAH nell' INDOSTAN; *with folding plate*, roy. 4to. (pp. 23), *sewn*, 2s 6d
ib., 1872
- 14100 — Sulle OSSERVAZIONI SPETTROSCOPICHE del BORDO e delle PROTUBERANZE SOLARI, fatte all' Osservatorio della Università Romana sul Campidoglio, NOTE I—IV e VI—VIII; *with folding plates, and charts*, 7 parts roy. 4to. *sewn*, 10s 6d
ib., 1870-85
The author, together with Father Secchi, was the chief Italian representative for the study of solar spectroscopy, and with Sir Norman Lockyer and Zollner shared the honour of having first distinguished cloud- from flame-prominences. 'From Father Secchi's and Prof. Respighi's observations were derived the first clear ideas on the general distribution of solar prominences. . . The structure of the chromosphere was investigated by Prof. Respighi. Sparar and Bredikhine. They found the supposed solar envelope to be of the same eruptive nature as the vast protusions from it, and to be made up of congeries of minute flames set close together like blades of grass.'—*Miss Agnes M. Clerke.*
- 14101 — Nota VIII; *with 4 double plates (3 tinted)*, roy. 4to. (pp. 44), *sewn*, 2s
ib., 1885
- 14102 — fatte nel 1881 e 1884, 4to. (pp. 8), *sewn*, 1s 6d
ib., 1885
- 14103 — Sulla SCINTILLAZIONE delle STELLE, 4to. (pp. 17), *sewn*, 2s
ib., 1868
- 14104 — Sull' SPETTROSCOPIO OBIETTIVO, 4to. (pp. 7), *sewn*, 1s 6d
ib., 1886
- 14105 — Sulle VARIAZIONI del DIAMETRO del SOLE in Corrispondenza al VARIO STATO di ATTIVITÀ della sua SUPERFICIE, NOTA II^a, 4to. (pp. 41), *sewn*, 2s
ib., 1875
- 14106 — e Giovanni CELORIA, *Osservatorio di Brera*: OPERAZIONI eseguite nell' Anno 1879 per DETERMINARE la DIFFERENZA di LONGITUDINE fra gli Osservatori Astronomici del Campidoglio in ROMA e di Brera in MILANO; *with full-page woodcut*, roy. 4to. (pp. 67), *sewn*, 3s
Firenze, 1882
- 14107 **RESTA** (Carlo Conte) De IGNE PROPOSITIONES PHYSICÆ; *with engraved portrait of Pope Pius VI.*, 4to. *sewn*, 3s 6d
Rome, 1786
- 14108 **RESTA** (Francesco, a Talleacotio, Cler. Reg. Minor.) METEOROLOGIA: de Igneis, Aereis Aqueisque Corporibus; *with engraved title*, thick 4to. (pp. 996), *old Italian vellum (browned and title stamped)*, 15s
Romæ, Fr. Moneta, 1644
One of the most complete treatises on meteorology then published, including also oceanography and seismology. The work was unknown to Poggendorff.
- 14109 **REITGERS** (Jan Willem) Die BESTIMMUNG des SPEZIFISCHEN GEWICHTS von in WASSER LÖSLICHEN SALZEN, roy. 8vo. (pp. 27), *sewn*, 1s 6d
Leipzig, 1889
- 14110 — Das SPEZIFISCHE GEWICHT ISOMORPHER MISCHUNGEN; *with 10 diagrams*, roy. 8vo. (pp. 65), *sewn*, 2s 6d
ibidem, 1889
The author was the first to discover the micro-crystalline structure of amorphous arsenic.
- 14111 **RETROSPECT OF PHILOSOPHICAL, MECHANICAL, CHEMICAL, and AGRICULTURAL DISCOVERIES**: an Abridgment of the Periodical and other Publications, English and Foreign, relative to Arts, Chemistry, Manufactures, Agriculture, and Natural Philosophy, COMPLETE from its Beginning in 1805 to its Conclusion in 1815, 8 vols. 8vo. *hf. roan gilt (SCARCE)*, £1. 1s
1806-15
A complete set of this interesting publication, meant also to show 'to what other useful purposes inventions may be directed, and discoveries extended, beyond the original views of their authors.'
- 14112 **REULEAUX** (Franz) Le CONSTRUCTEUR: Tables, Formules, Règles, Calculs, Tracés et Renseignements pour la Construction des Organes de Machines; Édition française, publiée sur la 3^e Édition allemande par A. DEBIZE et E. MERIJOT; *with 714 woodcuts and diagrams*, large 8vo. *hf. calf (binding damaged)*, 7s 6d (p. F. 20 nett sewn)
1875
- 14113 — The KINEMATICS of MACHINERY; Outlines of a Theory of Machines, translated and edited by [SIR] ALEXANDER B. W. KENNEDY, C.E., F.R.S., *with 451 woodcuts*, thick 8vo. *cl. (SCARCE)*, £1. 5s
1876
- 14114 — ANOTHER COPY, *hf. calf*, £1. 2s 6d
A well-known classic on kinematics, which was translated into nearly every European language, and in which the author introduced a new treatment of the theory of machinery.

- 14116 **REUMAUX (M.)** La MONTÉE, la DESCENTE et la CIRCULATION des OUVRIERS MINEURS, spécialement Parachutes et Recettes; with 7 plates, roy. 8vo. (pp. 77), *sewn*, 2s 6d *St.-Étienne*, 1899
- 14117 **REUSCH (Friedrich Eduard, Univ. Tübingen)** Über gewisse STRÖMUNGS-GEBILDE im INNERN von FLÜSSIGKEITEN und deren morphologische Bedeutung; with plate, 4to. (pp. 28), *sewn*, with *author's inser.*, 2s 6d *Tübingen*, 1860
- 14118 ——— Zur LEHRE von den KRYSTALLZWILLINGEN; with folding plate, 8vo. (pp. 21), *sewn*, 1s 6d *Leipzig* [1872]
- 14119 ———, und Gerhard vom RATH: Ueber FARBENSCHILLERENDE QUARZE vom Weisselberge bei Obernkirchen unweit St. Wendel, 8vo. (pp. 8), *sewn*, 1s *ibidem* [1873]
- 14120 **REUSCHLE (Carl Gustav; Univ. Tübingen)** NEUE SÄTZE und GESICHTSPUNKTE aus der THEORIE der RAUMKURVEN und STABFLÄCHEN, 4to. (pp. 29), *sewn*, 2s *Stuttgart*, 1847
- 14121 ——— TAFELN COMPLEXER PRIMZAHLEN, welche aus Wurzeln der Einheit gebildet sind; auf dem Grunde der KUMMERSCHEN Theorie der complexen Zahlen, 4to. (pp. 678), *boards*, 12s 6d (p. M. 24) *Berlin*, 1875
- 14122 **REUTER (L.)** Ueber die ISOMERISATION höherer HOMOLOGEN des AETHYLENS und ACETYLENS, 8vo. (pp. 29), *sewn*, 1s 6d *Heidelberg*, 1892
- 14123 **REVERE (Giulio)** Le PROVE dei MATERIALI da COSTRUZIONE, e le COSTRUZIONI in CEMENTO ARMATO, specialmente in Relazione alle Norme Ministeriali Italiane; with 341 illustrations, large 8vo. *sewn*, 6s (p. L. 11. nett) *Milano*, 1910
- 14124 **REVUE SEMESTRIELLE des PUBLICATIONS MATHÉMATIQUES**, redigée sous les Auspices de la Société Mathématique d'Amsterdam par P. H. SCHOUTE, D. J. KORTEWEG, W. KAPTEYN, J. C. KLUYVER et P. ZEEMAN; complete from the Beginning in 1893 to 1910 (Vols I—XVIII), with TABLE des MATIÈRES to vv. I—XV, 3 v., and INDEX du RÉPERTOIRE BIBLIOGRAPHIQUE des SCIENCES MATHÉMATIQUES—in all 22 vols. 8vo. the first 2 v. in *hf. cl.*, and the rest *sewn* (SCARCE), £4. 10s *Amsterdam*, 1893-1910
- 14125 **RÉVY (J. J.)** HYDRAULICS of GREAT RIVERS: the PARANÁ, the URUGUAY, and the LA PLATA ESTUARY, with 7 double plates, and 1 coloured map, large impl. 4to. *cl.* (cover slightly damaged), o. p., 15s (p. £2. 2s) 1874
 'Containing an account of surveys undertaken at the expense of the Argentine Confederation by Mr. Révy . . . He appears to be a very competent and sagacious observer, and he discusses his results with great critical ability.'—*Academy*.
 It is specially valuable for the full tidal and current observations it contains. At end is an account of an Improved Current Meter.
- 14126 **REYE (Theodor, Strassburg)** Die GEOMETRIE der LAGE, 2. vermehrte Auflage; with 6 folding plates, 2 vols. large 8vo. in 1, *hf. calf*, uncut, with M.S. annotations by Prof. Lloyd Tanner, F.R.S., 5s (p. M. 12 *sewn*) *Leipzig*, 1892
 One of the best text-books of synthetic geometry.
- 14127 ——— ANOTHER COPY, 2 vols. *hf. morocco gilt*, 6s
- 14128 ——— ERSTE ABTHEILUNG, 3. vermehrte Auflage; with 32 woodcuts, roy. 8vo. *hf. morocco gilt*, uncut, with *author's inser.* to Prof. Lloyd Tanner, F.R.S., 4s (p. M. 7 *sewn*) *ib.*, 1886
- 14129 ——— Ueber QUADRATISCHE KUGELNCOMPLEXE und KUGELNCONGRUENZEN, ihre Kreise und ihre Cykliden, 4to. (pp. 20), *sewn*, 1s 6d *[Berlin]*, 1885
- 14130 ——— Die SYNTHETISCHE GEOMETRIE im ALTERTHUM und in der NEUZEIT: Recorator-Rede, roy. 8vo. (pp. 18), *sewn*, 2s *Strassburg*, 1886
 'Containing interesting summaries of the history of geometry.'—*W. W. R. Ball*.
- 14131 **REYER (Eduard; Univ. Vienna)** KRAFT, das ist animalische, mechanische, soziale Energien und deren Bedeutung für die Machtentfaltung der Staaten, 2. Auflage; with 291 illustrations, 8vo. *sewn*, 4s 6d (p. M. 8) *Leipzig*, 1909
- 14132 ——— ZINN: eine geologisch-montanistisch-historische Monographie; with woodcuts, 8vo. *cl.*, 3s 6d *Berlin*, 1881
- 14133 **REYNAUD (Antoine André Louis Baron)** THÉORIE du PLUS GRAND COMMUN DIVISEUR et de l'ÉLIMINATION; précédée de la RÈGLE des SIGNES de DESCARTES, 8vo. *hf. calf gilt* (scarce), 6s 1833
- 14134 **REYNEAU (Abbé Charles René)** ANALYSE DÉMONTRÉE, ou la Méthode de résoudre les Problèmes des Mathématiques, et d'apprendre facilement ces Sciences, expliquée et démontrée dans le premier Volume, par un PRÊTRE de l'ORATOIRE; TOME I; with 5 plates, and folding table, 4to. *contemporary calf gilt*, 5s 1708
 'L'auteur a recueilli dans cet ouvrage les principales théories répandues dans les œuvres de Descartes, Leibnitz, Newton, les Bernoulli, etc., et démontré plusieurs méthodes qui ne l'avaient pas été jusqu'alors.'—*Quarand*.
- 14135 [———] La SCIENCE du CALCUL des GRANDEURS en GÉNÉRAL, ou les ÉLÉMENTS des MATHÉMATIQUES, par l'AUTEUR de l'ANALYSE DÉMONTRÉE, 4to. *contemporary calf gilt*, 6s 6d 1714
- 14136 **REYNOLDS'S GEOLOGICAL ATLAS of GT. BRITAIN: a SERIES of MAPS GEOLOGICALLY COLOURED** from the best Authorities; with a Description of the Geological Structure of Gt. Britain and the Geological Features of its Counties, Mineral Products, etc., second Edition, with 34 coloured maps, besides woodcuts, cr. 8vo. *cl.*, 7s 6d (p. 15s 6d) 1889
- 14137 **REYNOLDS (James Emerson; M.D., F.R.S., P.C.S.)** DISCOURSE on ALCOHOLS from FLINT and QUARTZ, 8vo. (pp. 14), *sewn*, with *author's inser.*, 2s 1873
 'I hope to satisfy you that by indirect and purely chemical means, we can obtain from these widely diffused minerals, and from native silicates, bodies resembling in chemical action and even in appearance, the well-known alcohol of wine'—a suggestion of some possible importance in connexion with petrol substitutes.
- 14138 ———, and Valentine BALL; F.R.S.: On an ARTIFICIAL MINERAL produced in the MANUFACTURE of BASIC BRICKS at Blaenavon, Mon., 8vo. (pp. 2), *sewn*, with *inser.* to Prof. Story-Maskelyne, F.R.S., 1s *[Dublin]*, 1878

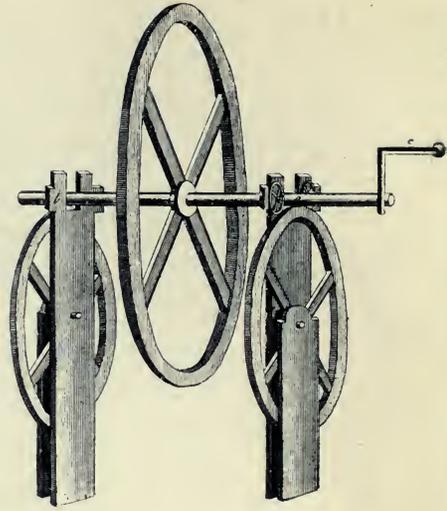
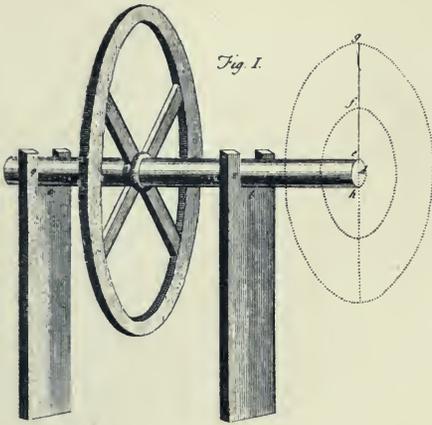
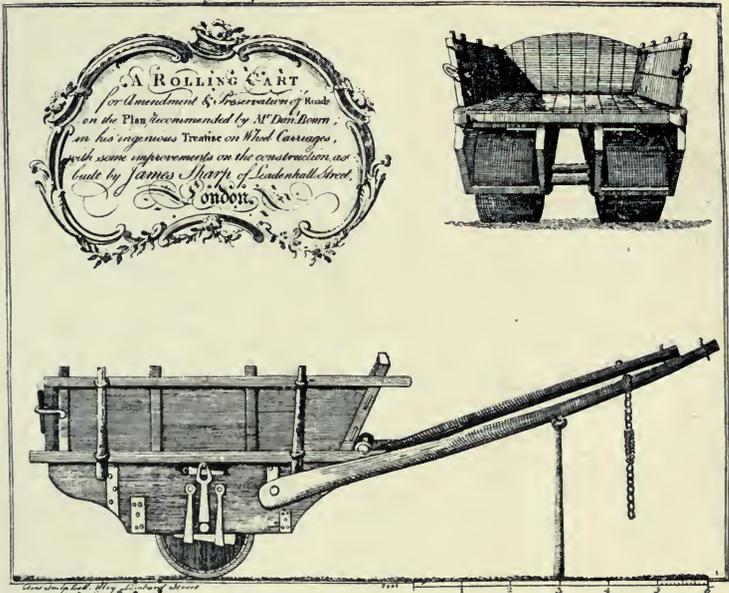


Fig. II.

Gent. Mag. Aug. 1768.



Nos. 14527-9 (page 726).

The first suggestion of ball-bearings.

- 14140 [REYNOLDS (Joseph William, *pr.*, *President of Sion College*)] The SUPERNATURAL in NATURE: a Verification by FREE USE of SCIENCE [2nd Edition], 8vo. *cl.*, 5s (p. 14s) 1878
A book of a different type from the usual deplorable 'Reconciliation of Religion and Science'.
- 14141 REYNOLDS (Michael) STATIONARY ENGINE DRIVING: a Practical Manual, first edition, with fine steel portrait of James Watt by W. H. Mote, 5 folding plates, and 44 woodcuts, cr. 8vo. *cl.*, 3s 1881
- 14142 ——— SIXTH EDITION, with Watt's portrait, 5 folding plates, and numerous woodcuts, 12mo. *cl.*, 2s 1898
- 14143 REYNOLDS (Osborne, F.R.S.; *Prof. Engineering, Univ. Manchester*) EXPERIMENTAL INVESTIGATION of the Circumstances which determine whether the MOTION of WATER shall be Direct or Sinuous, and of the Law of Resistance in Parallel Channels, with 3 plates and 9 woodcuts, roy. 4to. (pp. 48), *sewn*, 3s 6d 1883
- 14144 ——— On the FORCES caused by the COMMUNICATION of HEAT between a SURFACE and a GAS; and on a NEW PHOTOMETER, roy. 4to. (pp. 11), *sewn*, 2s 6d 1876
Giving an explanation of the radiometer.
- 14145 ——— On the INTERNAL COHESION of LIQUIDS and the SUSPENSION of a COLUMN of MERCURY to a Height more than double that of the Barometer, 8vo. (pp. 19), *sewn*, 2s [Manchester, 1878]
- 14146 ——— On ROLLING-FRICTION, with 8 woodcuts, roy. 4to. (pp. 20), *sewn*, 2s 6d 1875
- 14147 ——— SEWER GAS, and how to keep it out of Houses; 2nd Edition, with 8 woodcuts, post 8vo. *cl.* (*scarce*), 3s 6d 1872
In this work the author first describes his system of man-holes and water-traps to prevent the escape of sewer gas.
- 14148 ——— The SUB-MECHANICS of the UNIVERSE, impl. 8vo. boards, uncut, 6s 6d (p. 10s 6d nett) *Univ. Press, Cambridge, 1903*
'By this research is shown that there is one, and only one, conceivable purely mechanical system capable of accounting for all the physical evidence, as we know it, in the Universe. The system is . . . an arrangement, of indefinite extent, of uniform spherical grains generally in normal piling so close that the grains cannot change their neighbours, although continually in relative motion with each other.'—*Introduction*.
- 14149 REYNOLDSON (John) PRACTICAL and PHILOSOPHICAL PRINCIPLES of MAKING MALT, in which the EFFICACY of the SPRINKLING SYSTEM is contrasted with the Hertfordshire Method; with an Address to the Commissioners of Excise, in Answer to MR. CARR'S REPORT, and a Recapitulation of the Principles elucidated, 8vo. original boards, uncut, 8s 6d Newark, 1808
- 14150 ——— SECOND EDITION [with new Preface], 8vo. boards, uncut, 7s 1809
- 14151 REZZI (Luigi Maria, *Bibliotecario Corsiniano*) Sulla INVENZIONE del MICROSCOPIO, giuntovi una Notizia sulle Considerazioni al Tasso, attribuite a GALILEO GALILEI, ecc. ecc., roy. 4to. (pp. 51), *sewn*, with author's *inscr.*, 4s 6d Roma, 1852
- 14152 RHODES (Ebenezer, *cutler, Sheffield*) ESSAY on the MANUFACTURE, CHOICE, and MANAGEMENT of a RAZOR, with 2 copperplates showing 7 different shapes, 8vo. (pp. 27), *sewn* (*scarce*), 8s printed for the author, by J. Montgomery, *Iris Office, Sheffield, 1809*
This collection of practical hints on razor making, as practised by the author in his 'Patent Temper Razors, hardened by an entirely new process, and Patent Plated Tang Razors, for the purpose of preventing the accumulation of rust in the hand-hold of the blade,' has the added interest of being written by the author of 'Peak Scenery', and printed by his friend James Montgomery, the most poetical as well as devotional hymn-writer of the early Nineteenth Century. Rhodes himself had been Master Cutler the year before its publication.
- 14153 RICCARDI (Pietro) SAGGIO di una BIBLIOGRAFIA EUCLIDEA, 4 parts 4to. in 1, *sewn*, 10s Bologna, 1887-93
The only complete bibliography of Euclid and his commentators ever published.
- 14154 RICCATI (Giordano Conte) Delle CORDE, ovvero FIBRE ELASTICHE: Schediasmi Fisico-Matematici; with 7 folding plates, and folding table, 4to. boards, uncut, 6s 6d Bologna, 1767
A valuable work (*Poggendorf*), containing original investigations on the vibration of violin-strings.
'A scarce work, celebrated in the history of mathematical acoustics.'—*Libri Catalogue*.
- 14155 ——— LETTERE DUE all' Padre D. FRANCESCO MARIA FRANCESCHINI, Bernabita; with folding plate, 8vo. (pp. 11), *sewn*, 4s 6d [Bassano, 1784]
This was published as a supplement with Franceschini's 'Dissertazione delle Tensione delle Funi,' and was unknown to *Poggendorf*.
- 14156 RICCATI (Vincenzo Conte, S.J.) OPUSCULA ad RES PHYSICAS et MATHEMATICAS pertinentia; with vignettes, 16 folding plates, and 3 folding tables, 2 vols. 4to. calf (*joints weak*); RARE, £1. 1s Bononic, 1757-62
- 14157 ——— ANOTHER COPY, wanting 10 plates of v. I, 3 of which are replaced in MS., 2 vols. 4to. in 1, boards, 10s 6d
'Opera rara e pregiata.'—*Riccardi*. 'On y trouve d'intéressantes recherches sur le calcul intégral.'—*Biogr. Gén.*
'Ouvrage qui contient une foule de choses propres à justifier la réputation dont il jouissoit parmi les géomètres italiens.'—*Montucla*.
- 14158 ——— VOL. I ONLY, with 10 folding plates, 4to. old hf. calf (*binding rubbed*), 7s 6d
- 14159 RICE (Herbert Louis) The THEORY and PRACTICE of INTERPOLATION, including Mechanical Quadrature, and other important Problems concerned with the TABULAR VALUES of FUNCTIONS, with the requisite Tables, large impl. 8vo. *cl.*, 10s 6d (p. 16s nett) Lynn, Mass., 1899
Written to unite in one single volume all the information contained only in small pamphlets and memoirs by various authors on differences, interpolation, tabular differentiation, and mechanical quadrature.
- 14160 RICE (John Minot, *Prof. Math., U.S.N.*), and William Woolsey JOHNSON, U.S. Naval Academy: ELEMENTARY TREATISE on the DIFFERENTIAL CALCULUS, founded on the Method of Rates or Fluxions, fourth Edition, with 80 diagrams, thick 8vo. *cl.* (*o. p.*), 10s 6d (p. 18s) 1888
- 14161 ——— ABRIDGED EDITION, with 40 diagrams, 8vo. *cl.*, 4s 6d (p. 9s) 1888
Discarding Lagrange's method of derived functions as objectionable, the authors improved on Newton's conception of rates and fluxions 'by deriving the differentials of the functions by an analytical method founded on the notion of rates, and entirely independent of the difficult conceptions of infinitesimal increments and of limiting ratios . . . resulting in a satisfactory method of obtaining the differentials of the simple functions' (*Preface*).

- 710 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14163 **RICCIARDI** (Leonardo) L'ETNA e l'ERUZIONE del MESE di MARZO 1883; Ricerche e Relazione; with 2 plates, 4to. (pp. 35), sewn, with author's inscr. to the Duca di Rignano, 3s 6d
Catania, 1883
- 14164 **RICCIOLI** (Giovanni Battista, s.j.) ALMAGESTUM NOVUM, Astronomiam Veterem Novamque complectens, Observationibus aliorum, et propriis, novisque Theorematis, Problematibus, ac Tabulis promotam, TOMI I. PARS PRIOR; with engraved title, 2 etched lunar maps, and numerous woodcuts and diagrams, roy. folio, old vellum (pp. 77-8 missing, and some ll. browned); RARE, 15s
Bononia, 1651
Only one volume (in 2 parts) was published of this monumental work, which was intended to be published in three. The above first part contains: De Sphæra Mundi in communi: De Sphæra Elementari: De Sole: De Luna: De Eclipsibus: De Stellis Fixis: De Planetibus Minoribus.
'Opera rara e pregiata.—Riccardi. 'A l'exemple de Ptolémée il y a rassemblé toutes les pensées des astronomes jusqu'à son temps, ainsi que les siennes propres, ce qui en fait un vrai trésor d'érudition et de savoir astronomique.—Montfauca.
- The author was one of the most important antagonists of the Copernican System, and the above work contains his objections to it.
'The first volume contains a list of astronomers, with short biographies; as far as they go, valuable. The whole work is full of historical information, and has a good index.—Prof. de Morgan.
- 14165 ——— **ASTRONOMIA REFORMATA**; with arms of Ferdinand Duke of Bavaria on title, 2 etched lunar maps, woodcuts, and numerous diagrams, 2 vols. roy. folio in 1, old vellum (RARE), £2. 5s
ibidem, 1665
This work forms the third and supplementary volume of the *Almagestum Novum*. 'Ce 3^e volume est plus rare que les deux autres; il est plus important par le recueil des observations qu'il renferme.—Lalande.
- 14166 ——— **CHRONOLOGIA REFORMATA** et ad certas Conclusiones redacta continens Doctrinam Temporum, Ætates Mundi, Tria Chronica, et Catalogos plurimos; with 2 engraved titles, 3 vols. roy. folio in 1, old vellum (corner of v. I water-stained), £1. 1s
ib., 1669
'Rara e pregiata.—Riccardi.
- 14167 ——— **GEOGRAPHIE** et **HYDROGRAPHIE REFORMATÆ** Libri XII, editio princeps; with engraved frontispiece, woodcuts, and numerous diagrams, folio, old Italian vellum (joints cracked, otherwise a sound copy); RARE, £1. 10s
ib., hæres Vict. Benatii, 1661
- 14168 ——— **EDITIO NOVA**, nuper recognita et aucta; with woodcuts and numerous diagrams, roy. folio, old vellum (back torn off, also somewhat browned); RARE, £1. 5s
Venetiis, 1672
'Due edizioni ugualmente pregiata. Dotta opera del Riccioli, quale può considerarsi come il più completo dei trattati di geografia matematica fino allora publicati.—Riccardi. It contains his method for ascertaining the size of the earth, which was again made use of in 1720 by Jacques Cassini.
- 14169 **RICHARD** (Gustave) **TRAITÉ** des MACHINES-OUTILS: Tours, Alésoirs, Raboteuses, Mortaises, Étaux Limeurs, Raineurs et Perceuses, Fraisuses, Meules, Tarandage, Machines Auxiliaires et Petit Outillage; with 5854 illustrations, 2 vols. impl. 4to. cl., £3. 3s (p. F. 150 nett) 1895-6
The best and most complete French work on machine tools.
- 14170 **RICHARD** (P. J.) **ÉTUDE** sur l'ASSURANCE COMPLÉMENTAIRE de l'ASSURANCE sur la VIE, avec de nombreux Développemens sur les Assurances contre la MÂLADIE et l'INVALIDITÉ, sq. post 8vo. sewn, 2s
1911
- 14171 **RICHARDS** (Ellen Henrietta) **LABORATORY NOTES** on INDUSTRIAL WATER ANALYSIS, 8vo. buckram, 1s 6d
New York, 1908
- 14172 ———, and **Alpheus Grant WOODMAN**: AIR, WATER, and FOOD, from a Sanitary Standpoint, with map, plate, and 10 woodcuts, 8vo. buckram, 4s 6d (p. 8s 6d nett)
ibidem, 1900
- 14173 **RICHARDS** (Frank, M.A.S.M.E.) **COMPRESSED AIR**: Practical Information on Air-Compression, and the Transmission and Application of Compressed Air, with front. and 25 diagrams, cr. 8vo. cl., 3s 6d (p. 6s 6d nett)
New York, 1898
- 14174 **RICHARDS** (John) **TREATISE** on the CONSTRUCTION and OPERATION of WOOD-WORKING MACHINES, including a History of the Origin and Progress of their Manufacture, with 117 plates (some folding), 4to. cl. (o. p.), 6s (p. £1. 5s)
1872
- 14175 ——— **ANOTHER COPY**, hf. morocco neat, t. e. g., with author's inscr., 7s
Interesting for containing a history of the subject, from Sir Samuel Bentham's first planing machine in 1780 to 1851 (pp. 20).
- 14176 **RICHARDS** (Joseph William, Lehigh Univ.) **ALUMINIUM**: its History, Occurrence, Properties, Metallurgy and Applications, including its Alloys, with 15 woodcuts, large post 8vo. cl., 4s (p. 12s 6d)
Philadelphia, 1887
- 14177 ——— **THIRD [LAST] EDITION**, enlarged, with 2 portraits and 45 illustrations, thick roy. 8vo. cl., 15s (p. £1. 10s)
ibidem, 1896
LAST EDITION of the only treatise in the language on this increasingly important metal. It includes a history and bibliography.
- 14178 **RICHARDS** (Robert Hallowell, Mass. Inst. Technology) **ORE DRESSING**, with 560 illustrations (including folding plate), 2 thick vols. sq. 8vo. cl., £1. 8s 6d (p. £2. 2s nett) New York, 1905
The most complete work in English on the subject hitherto published. Two supplementary volumes were published in 1909 at £2. 2s nett. A very complete bibliography is added at the end of each chapter.
- 14179 **RICHARDS** (Theodore William; Harvard Univ.) **THE ANALYSIS** of CUPRIC BROMIDE, and the ATOMIC WEIGHT of COPPER. On CUPRIC OXYBROMIDE, roy. 8vo. (pp. 23), sewn, with inscr. to Sir Edward Thorpe, F.R.S., 2s
[Cambridge, Mass., 1890]
- 14180 ——— On the CAUSE of the RETENTION and RELEASE of GASES occluded by the Oxides of Metals, with 2 illustrations, roy. 8vo. (pp. 32), with inscr. to Sir Edward Thorpe, 2s [ibidem, 1898]
- 14181 ——— **THE FUNDAMENTAL PROPERTIES** of the ELEMENTS (Faraday Lecture), with 3 illustrations, 8vo. (pp. 18), sewn, with inscr. to Sir Edward Thorpe, 2s
[1911]
The author advances a theory of compressible atoms—against that of freely-moving molecules—to account for expansion and compression.
- 14182 ——— **NOTE** concerning the SILVER COULOMETER, roy. 8vo. (pp. 3), sewn, 1s
[Cambridge, Mass., 1908]

- 14184 **RICHARDS** (Theodore William ; *Harvard Univ.*) NOTE on the RATE of DEHYDRATION of CRYSTALLIZED SALTS, roy. 8vo. (pp. 5), *sewn*, 1s [Cambridge, Mass., 1897]
- 14185 ——— The POSSIBLE SIGNIFICANCE of CHANGING ATOMIC VOLUME, roy. 8vo. (pp. 17), *sewn*, 1s 6d [ib., 1901]
- 14186 ——— The POSSIBLE SOLID SOLUTION of WATER in CRYSTALS, roy. 8vo. (pp. 6), *sewn*, 1s [ib., 1911]
- 14187 ——— A REDETERMINATION of the ATOMIC WEIGHT of CALCIUM : Preliminary Paper, roy. 8vo. (pp. 4), *sewn*, 1s [Easton, 1902]
- 14188 ——— The RELATION of the TASTE of ACIDS to their Degree of Dissociation, roy. 8vo. (pp. 6), *sewn*, 1s [ib., 1898]
- 14189 ——— A REVISION of the ATOMIC WEIGHT of BARIUM : The ANALYSIS of BARIUM BROMIDE, and CHLORIDE, 2 parts roy. 8vo. (pp. 67), *sewn*, 2s 6d [Cambridge, Mass., 1893]
- 14190 ——— REVISION of the ATOMIC WEIGHT of COPPER, IVth Paper, with 2 illustrations, roy. 8vo. (pp. 55), *sewn*, with *inser.* to Sir Edward Thorpe, F.R.S., 2s [ib. 1891]
- 14191 ——— The SIGNIFICANCE of CHANGING ATOMIC VOLUME. II. The Probable Source of the Heat of Chemical Combination, and a New Atomic Hypothesis, with 2 diagrams, roy. 8vo. (pp. 13), *sewn*, 1s 6d [ib., 1902]
- 14192 ——— The STANDARD of ATOMIC WEIGHTS, roy. 8vo. (pp. 5), *sewn*, 1s [ib., 1901]
- 14193 ——— TABLE of ATOMIC WEIGHTS, roy. 8vo. (pp. 10), *sewn*, 1s 6d [ib., 1898]
- 14194 ——— TABLE of ATOMIC WEIGHTS of SEVENTY-SEVEN ELEMENTS, roy. 8vo. (pp. 2), *sewn*, 1s [ib., 1902]
- 14195 ———, and Ebenezer Henry **ARCHIBALD** : The DECOMPOSITION of MERCUROUS CHLORIDE by DISSOLVED CHLORIDES : a Contribution to the Study of Concentrated Solutions, roy. 8vo. (pp. 15), *sewn*, 1s 6d [ib., 1902]
- 14196 ——— : A STUDY of GROWING CRYSTALS by INSTANTANEOUS PHOTOGRAPHY, with 3 plates, roy. 8vo. (pp. 13), *sewn*, 2s [ib., 1901]
- 14197 ———, and Gregory Paul **BAXTER** : REVISION of the ATOMIC WEIGHT of COBALT : Analysis of Cobaltous Bromide, Chloride and Oxide, and Determination of Cobalt in Cobaltous Bromide, with 5 woodcuts, 3 parts roy. 8vo. (pp. 45), *sewn*, with Prof. Richards's *inser.*, 3s [ib., 1897-9]
- 14198 ———, and Gustavus Edward **BEHR**, Jr. : The ELECTROMOTIVE FORCE of IRON under Varying Conditions, and the Effect of Occluded Hydrogen, with 6 illustrations, roy. 8vo. (pp. 43), *sewn*, 2s Carnegie Inst., Washington, 1906
- 14199 ———, and Jesse Briggs **CHURCHILL** : The USE of the TRANSITION TEMPERATURES of COMPLEX SYSTEMS as Fixed Points in Thermometry, roy. 8vo. (pp. 4), *sewn*, 1s [Cambridge, Mass., 1899]
- 14200 ———, Edward **COLLINS**, and George W. **HEIMROD** : The ELECTROCHEMICAL EQUIVALENTS of COPPER and SILVER, with 6 illustrations, roy. 8vo. (pp. 28), *sewn*, with Prof. Richards's *inser.*, 1s 6d [ib., 1899]
- 14201 ———, and Allerton Seward **CUSHMAN** : REVISION of the ATOMIC WEIGHT of NICKEL. I. Analysis of Nickelous Bromide, II. Determination of the Nickel in Nickelous Bromide, with 5 illustrations, 2 parts roy. 8vo. (pp. 37), *sewn*, 2s 6d [ib., 1897-9]
- 14202 ———, and George Shannon **FORBES** : ENERGY CHANGES involved in the DILUTION of ZINC and CADMIUM AMALGAMS, with 10 illustrations, roy. 8vo. (pp. 68), *sewn*, 2s Carnegie Inst., Washington, 1906
- 14203 ———, and Otto **HÖNIGSCHMID** : REVISION of the ATOMIC WEIGHT of CALCIUM. II. Analysis of Calcium Chloride, roy. 8vo. (pp. 8), *sewn*, 1s [Cambridge, Mass., 1910]
- 14204 ———, and Richard Henry **JESSE**, Jr. : The HEATS of COMBUSTION of the OCTANES and XYLENES, with 2 illustrations, roy. 8vo. (pp. 31), *sewn*, 2s [ib., 1910]
- 14205 ———, and George Leslie **KELLEY** : The TRANSITION TEMPERATURES of SODIUM CHROMATE as convenient Fixed Points in Thermometry, roy. 8vo. (pp. 17), *sewn*, 1s 6d [ib., 1911]
- 14206 ———, and Gilbert Newton **LEWIS** : Some ELECTROCHEMICAL and THERMOCHEMICAL RELATIONS of ZINC and CADMIUM AMALGAMS, roy. 8vo. (pp. 13), *sewn*, 1s 6d [ib., 1898]
- 14207 ———, Charles T. **McCAFFREY**, and Harold **BISBEE** : The OCCLUSION of MAGNESIUM OXALATE by CALCIUM OXALATE, and the Solubility of Calcic Oxalate, with illustration, roy. 8vo. (pp. 17), *sewn*, 1s 6d [ib., 1901]
- 14208 ———, and J. Howard **MATHEWS** : METHOD for DETERMINING HEAT of EVAPORATION as applied to Water, with 6 illustrations, roy. 8vo. (pp. 28), *sewn*, 1s 6d [ib., 1911]
- 14209 ———, and Benjamin Shores **MERIGOLD** : On the CUPROSAMMONIUM BROMIDES and the CUPRAMMONIUM SULPHOCYANATES, roy. 8vo. (pp. 8), *sewn*, 1s [ib., 1897]
- 14210 ———, and Harry George **PARKER** : On the OCCLUSION of BARIUM CHLORIDE by BARIUM SULPHATE, roy. 8vo. (pp. 29), *sewn*, 1s 6d [ib., 1894]
- 14211 ——— : REVISION of the ATOMIC WEIGHT of MAGNESIUM, with 3 illustrations, roy. 8vo. (pp. 19), *sewn*, 1s 6d [ib., 1896]
- 14212 ———, and Elliot Folger **ROGERS** : On the OCCLUSION of GASES by the OXIDES of METALS, roy. 8vo. (pp. 12), *sewn*, 1s 6d [ib., 1893]
- 14213 ——— : REVISION of the ATOMIC WEIGHT of ZINC. I. The Analysis of Zincic Bromide, with 4 illustrations, roy. 8vo. (pp. 22), *sewn*, 1s 6d [ib., 1895]
- 14214 ———, Allen W. **ROWE**, and L. L. **BURGESS** : The ADIABATIC DETERMINATION of HEATS of SOLUTION of METALS in ACIDS. II. The Heat of Dilution of the Acid Solutions, roy. 8vo. (pp. 11), *sewn*, 1s 6d [ib., 1910]
- 14215 ———, and Hubert Grover **SHAW** : On the CUPRAMMONIUM DOUBLE SALTS, roy. 8vo. (pp. 13), *sewn*, 1s 6d [ib., 1893]

- 14217 **RICHARDS** (Theodore William; *Harvard Univ.*), and Wilfred Newsome **STULL**: NEW METHOD for DETERMINING COMPRESSIBILITY, with 5 illustrations, cr. 4to. (pp. 45), *sewn*, 2s 6d
Washington, 1903

The author's work is of importance for having revised the atomic weight of 19 different elements, and invented in this connexion a number of ingenious apparatus and devices for drying the substances that had to be investigated.

- 14218 **RICHARDS** (William, C.E.) PRACTICAL TREATISE on the MANUFACTURE and DISTRIBUTION of COAL GAS, with 29 plates (10 double), and 103 woodcuts, thick 4to. cl. (o. p.), 10s 6d
(p. £1. 8s) 1877

A considerable degree of detail has been entered into in the work, alike in the description of the various apparatus as well as in the modes of operation, which has never been attempted in any production of the kind hitherto published.—*Preface.*

- 14219 **RICHARDSON** (George, *pr.*, *Winchester Coll.*), and A. S. **RAMSEY**: MODERN PLANE GEOMETRY: the Proofs of the Theorems in the Syllabus of Modern Plane Geometry, issued by the A.I.G.T., with diagrams, fcap. 8vo. cl., with auto. and bookplate of Prof. Lloyd Tanner, F.R.S., 2s 1894

An excellent introduction to advanced books on plane geometry.

- 14220 **RICHARDSON** (John) THEORETIC HINTS on an IMPROVED PRACTICE of BREWING MALT LIQUORS; including some Strictures on the Nature and Properties of Water, Malt, and Hops; the Doctrine of Fermentation, the Agency of Air, the Effect of Heat and Cold on Fermented Liquors, etc. etc.; 2nd Edition, 8vo. (pp. 74), *sewn*, 6s 1777

The author was the first to bring to the knowledge of brewers the use and value of the saccharometer, as Combrune in 1762 had first recommended the thermometer.—*D. N. B.*, wherein the above pamphlet is not mentioned.

- 14221 **RICHARDSON** (Owen Williams, F.R.S., *Prof. Physics, Princeton Univ.*) The IONISATION produced by HOT PLATINUM in different GASES, with 17 diagrams, roy. 4to. (pp. 64), *sewn*, 2s 6d 1906

- 14222 **RICHARDSON** (T.), and G. W. **JAFFREY**, *Hartlepool Iron Works, Durham*, HARBOUR of REFUGE proposed by [at HARTLEPOOL], with 2 folding plates, 8vo. (pp. 7), *sewn*, with *inser.*
'given to G. Rennie' [C.E., F.R.S.], 3s 6d [1860]

A suggestion for a breakwater consisting of a row of cylinders on the lines of the piers of Charing Cross Railway Bridge, 'made either of cast or wrought iron, or of stone, each having a clear intermediate distance or space between each at the top, equal to its diameter, connected by a lattice-work of timber or iron.

- 14223 **RICHARDSON** (Thomas), and Henry **WATTS**, F.R.S.: The MANUFACTURE and APPLICATIONS of ACIDS, ALKALIES, and SALTS; founded on DR. KNAPP'S TECHNOLOGY, 2nd [last] Edition [wholly rewritten], with folding plates and 752 woodcuts, 3 thick vols. 8vo. cl., 10s
(p. £4. 10s) 1863-7

Vol. III contains a very complete list of abstracts of patent specifications (pp. 395).

- 14224 **RICHARDSON** (Wigham) PRACTICAL DIRECTIONS for the CONSTRUCTION and FIXING of SUN-DIALS, with 3 folding plates and 3 diagrams, cr. 4to. (pp. 16), *sewn*, 2s 1889

- 14225 **RICHARDSON** (William, *Greenwich Observatory*) CATALOGUE of 7385 STARS, chiefly in the SOUTHERN HEMISPHERE, prepared from Observations, 1822-6, at the OBSERVATORY at PARAMATTA, N.S.W., founded by LT.-GEN. SIR THOMAS M. BRISBANE, F.R.S., with front. of *Paramatta Observatory (demolished in 1855)*, 4to. cl., uncut (SCARCE), £1. 5s 1835

This important work, generally known as the 'Brisbane Catalogue', procured for its author the Copley medal from the Royal Society. 'Brisbane was the founder of Australian science' (*Sir John Herschel*), as well as the hero eponymus of the capital of Queensland.

The Brisbane Observatory was the first regular one established in the Southern Hemisphere.

- 14226 **RICHE** (Jean Baptiste Léopold Alfred) RECHERCHES sur le TUNGSTÈNE et ses Composés: Thèse, 4to. (pp. 81), *sewn*, with auto. of T. L. Phipson, F.C.S., 3s 6d 1857

- 14227 **RICHELOT** (Friedrich Julius; *Univ. Koenigsberg*) DE TRANSFORMATIONE atque COMPUTATIONE INTEGRALIUM ABELIANORUM PRIMI ORDINIS, 4to. (pp. 124), *sewn*, 3s *Berolini*, 1837

- 14228 **RICHMOND** (Herbert William; F.R.S., *King's Coll., Cantab.*), and Thomas **STUART**: The INFLEXION CONIC of a TRINODAL QUARTIC CURVE, impl. 8vo. (pp. 3), *sewn*, 1s [1903]

- 14229 **RICHMOND** (W. D.) The GRAMMAR of LITHOGRAPHY: a Practical Guide in Commercial and Artistic Lithography, Chromolithography, Zincography, Photo-Lithography, and Lithographic Machine Printing, edited and revised, with Introduction, by the Editor of 'The Printing Times and Lithographer'; 2nd Edition, with woodcuts, cr. 8vo. cl., 5s 1880

With appendix containing original recipes for preparing chalks, inks, transfer-papers, etc.

- 14230 **RICHTER** (Georg Friedrich; *Univ. Leipzig*) DISSERTATIO GEOMETRICA de SECTIONIBUS in INFINITUM ALTERNATIS; with plate, sm. 4to. (pp. 24), *sewn* (rare), 8s 6d *Lipsie*, 1712

The author's first published work, which was unknown to Poggendorff.

- 14231 **RICHTER** (M. M.) LEXIKON der KOHLENSTOFF-VERBINDUNGEN, mit Supplement I-III, umfassend die Litteraturzeit v. 1 Apr., 1889 bis 31. Dec., 1904, 5 vols. sq. impl. 8vo. *hf. German morocco (backs rubbed)*, £3. 3s (p. M. 133) *Hamburg*, 1900-5

This important work, unique of its kind, is arranged according to the atomicity of carbon, from C₁ to C₈₆₇, with a Table of Percentages, and an alphabetical Index. The text is in four languages—German, English, French, and Italian.

'Ein General-Register für das Gesamtgebiet der organischen Chemie. . . Das vollkommenste Werk, welches auf dem Gebiete des Litteraturnachweises geschaffen ist.'—*Ber. d. deutsch. pharm. Ges.*

- 14232 **RICKETTS** (Louis Davidson) The ORES of LEADVILLE, and their MODE of OCCURRENCE, as illustrated in the Morning and Evening Star Mines, with Chapter on the Methods of their Extraction, with 6 plates (1 coloured), roy. 4to. *sewn*, with author's *inser.*, 4s *Princeton*, 1833

- 14233 **RICKETTS** (Pierre de Peyster, *Columbia Coll.*) NOTES on ASSAYING and ASSAY SCHEMES; fifth Edition, enlarged, with 31 woodcuts, and table, 8vo. cl., 3s 6d (p. 10s 6d nett) *New York*, 1880

- 14234 **RICOUR** (Théophile) INTRODUCTION à la NOTICE sur le TUBE d'INVERSION; with 4 woodcuts, 8vo. (pp. 15), unbound, 2s [1869]

The author claims priority over PAUL LECHATÉLIER in the introduction of a jet of steam into the exhaust-passages when reversing the locomotive engine, thus preventing the ingress of dust-laden air and the wear of brake surfaces.

- 14235 **RIECKE** (Eduard; *Univ. Göttingen*) Ueber die ELECTRISCHEN ELEMENTARGESETZE, 4to. (pp. 35), *sewn*, 2s 6d [Göttingen, 1875]

- 14237 **RIDDELL** (Maj.-Gen. Charles James Buchanan, F.R.S.) MAGNETICAL INSTRUCTIONS for the USE of PORTABLE INSTRUMENTS, adapted for Magnetical Surveys and Portable Observatories, etc., with Forms for the Registry of MAGNETICAL and METEOROLOGICAL OBSERVATIONS, *illustrated*, 8vo. *sewn*, 3s 6d 1844
- 14238 **RIDDLE** (Edward; F.R.A.S., *Nautical School, Greenwich Hospital*) TREATISE ON NAVIGATION, and NAUTICAL ASTRONOMY, adapted to Practice and Elementary Instruction, etc., with the Method of keeping a SEA JOURNAL; concise and simple RULES, with their Investigations, for FINDING the LATITUDE and LONGITUDE, etc., and with all the TABLES requisite in Nautical Computations, first edition, with diagrams, 8vo. *calfs* (joints cracked, and title stamped), 6s 1824
- 14239 ——— FOURTH EDITION, with the Rules and Examples adapted to the Nautical Almanac in its new and improved Form, with diagrams, 8vo. *sheep*, with *Greenwich Hospital stamp* (binding slightly damaged), 5s 1842
 'His most valuable work, forming a complete course of mathematics for sailors, and combining practice and theory in just proportion; which was not usually done at that time in books of this class.'—*D. N. B.*
- 14240 **RIEM** (Johannes, *Sternwarte Göttingen*) Ueber eine FRÜHERE ERSCHEINUNG des KOMETEN 1881 III TEBBUT, im Anschluss an die chinesischen Annalen; with plate, 8vo. (pp. 26), *sewn*, 1s 6d *Göttingen*, 1896
- 14241 **RIEMANN** (Georg Friedrich Bernhard, *Univ. Göttingen*) GESAMMELTE MATHEMATISCHE WERKE und wissenschaftlicher Nachlass, herausgegeben, unter Mitwirkung von R. DEDEKIND, von H. WEBER; with illustrations, roy. 8vo. *hf. bound*, uncut, 8s (p. M. 20) *Leipzig*, 1876
 'Like all of Riemann's researches, those on functions were profound and far-reaching. He laid the foundation for a general theory of functions of a complex variable. The theory of potential, which up to that time had been used only in mathematical physics, was applied by him to pure mathematics.'—*Prof. Cajori*. The above contains also his celebrated thesis, *Grundlagen für eine allgemeine Theorie der Functionen einer veränderlichen complexen Grösse*, 'which excited the admiration of Gauss to a very unusual degree', and his famous memoir on the hypotheses on which geometry is founded.
- 14242 ——— BEITRÄGE zur THEORIE der durch die GAUSS'SCHE REIHE $F(a, \beta, \gamma, x)$ DARSTELLBAREN FUNCTIONEN, 4to. (pp. 22), *sewn*, 2s 6d *Göttingen*, 1857
- 14243 ——— : Die BEWEGUNG eines KREISFÖRMIGEN RINGES in einer UNENDLICHEN und INCOMPRESSIBELN FLÜSSIGKEIT, nach dem Vortrage von B. RIEMANN, bearbeitet von E. GOEDECKER, 4to. (pp. 22), *sewn*, 2s *ibidem*, 1879
- 14244 ——— GRUNDLAGEN für eine allgemeine THEORIE der FUNCTIONEN einer VERÄNDERLICHEN COMPLEXEN GRÖSSE, 2. Abdruck, 4to. (pp. 32), *sewn*, 3s 6d *ib.*, 1867
 A reprint of the author's inaugural dissertation, 'which gave rise to a new method of treating the theory of functions'.—*W. W. R. Ball*.
- 14245 ——— Ueber die HYPOTHESEN, welche der GEOMETRIE zu GRUNDE liegen, 4to. (pp. 20), *sewn*, 3s 6d *ib.*, 1867
 'His celebrated memoir on the hypotheses on which geometry is founded attracted general attention to the subject of non-Euclidean geometry.'—*W. W. R. Ball*.
- 14246 ——— PARTIELLE DIFFERENTIALGLEICHUNGEN und deren Anwendung auf physikalische Fragen, bearbeitet und herausgegeben von KARL HATTENDORF; with 46 diagrams, 8vo. *hf. calfs*, 3s *Braunschweig*, 1869
- 14247 ——— ZWEITE [VERMEHRTE] AUFLAGE; with 46 diagrams, 8vo. *hf. cl.*, 4s *ibidem*, 1876
- 14248 ——— DRITTE AUFLAGE; with 46 diagrams, 8vo. *boards*, 5s (p. M. 3 *sewn*) *ib.*, 1882
- 14249 ——— THEORIE der ABEL'SCHEN FUNCTIONEN; with 4 woodcuts, 4to. (pp. 55), *sewn* (scarce), 5s *Berlin*, 1857
 'In multiple periodic functions it is hardly too much to say that in his memoir [*supra*] in *Borchard's Journal* for 1857, he did for the Abelian functions what Abel had done for the elliptic functions.'—*W. W. R. Ball*.
- 14250 **RIESE** (Adam): RECHNUNG auff der LINIEN und FEDERN | auff allerley Handthierung | gemacht durch ADAM RISEN. Auff's neue durchlesen und zu recht gebracht; printed in gothic letter; with curious woodcut portrait *at* 58 (but looking much older) on title, and printer's device at end, 16mo. *hf. roun* (one l. (sign. F₁) wanting, title mended and soiled, and many ll. browned and soiled); excessively rare, £2. 15s
 [col.:] gedruckt zu Leipzig | durch Valentin. am Ende. *Typis Hæredum Beyerri*, 1605
 A very rare edition, unknown to Graesse and Ebert; while Brunet does not mention the work at all. Prof. de Morgan seemingly did not know of its existence either, for he mentions no edition in his *Arithmetical Books*.
 Owing no doubt to constant thumbing, copies of any edition have now become excessively rare, and practically disappeared from the market.
 Adam Riese was the Cocker of Germany, 'Nach Adam Riese' being the exact equivalent of 'according to Cocker.' He uses the symbols + and -, and, according to Ludwig Darmstaedter, first introduced the symbol $\sqrt{\quad}$ for square root (attributed by Mr. W. W. R. Ball to Rudolff).
 'Er hat zu vereinigen und zweckdienlich zu ordnen gewusst, was vorhanden war. Aus seiner Anordnung konnte der Rechenunterricht die methodischen Vorschriften sich bilden, welche heute als selbstverständlich gelten. Die Vorschrift des Aufstiegens vom concreten Denken zum abstrakten wird in jedem Rechenunterrichte heute beachtet; bei Riese ist das Rechnen mit Rechenpennigen dem mit Ziffern vorausgeschickt. Die zweite Grundregel ist die des Übergangs vom Einfacheren zum Zusammengesetzteren, und auch diese war Riese's Rechenbuch zu entnehmen. . . . Michael Stifel nannte seine Aufgaben 'holdselig' und entnahm sie ihm für sein eigenes Werk. Andere folgten diesem Beispiele. . . ., und so galt hinfür für einen Meister der Rechenkunst, wer Adam Riese's Rechnung nach der Länge vollständig durchgearbeitet hatte.'—*Prof. M. Cantor*.
 At end is an interesting old inscription: 'Hans Melchior Diem In Moss dem ist dass Rechen Büchlein lieb verress Ihm stilt der ist ein Dieb. Er sey gleich Rrither oder Knecht so ist er an den galgen gerecht. Año Doimln. 1683.'
- 14251 **RIESS** (Peter Theophil; *Univ. Berlin*) Ueber die ANORDNUNG der ELEKTRICITÄT auf LEITERN; with folding copperplate, 4to. (pp. 47), *sewn*, 4s 6d *Berlin*, 1844
 'Riess found the density at the middle of the edges of a cube to be nearly two and a half times as great as the density at the middle of a face; while the density at a corner of a cube was more than four times as great.'—*Prof. Stévanus Thompson*, F.R.S.
- 14252 ——— Ueber die ELEKTRISCHEN RINGFIGUREN, 4to. (pp. 33), *sewn*, 2s 6d *ibidem*, 1861
- RIGAUD** (Stephen Peter, *Savilian Prof. Astron., Oxon.*, F.R.S.) HISTORICAL ESSAY on the FIRST PUBLICATION of SIR ISAAC NEWTON'S PRINCIPIA (1838)—v. NEWTONIANA, No. 12622, *ante*.

- 14254 **RIGG (James)** TIPPING and SCREENING COAL; and the SURFACE-PLANT at KIRKBY COLLIERY, by THOMAS GILLOTT, M.I.C.E., with Abstract of the Discussion, edited by J. H. T. TUDSBURY, M.I.C.E., with 2 folding plates, besides woodcuts, 8vo. (pp. 57), sewn, 2s 6d 1897
- 14255 **RIGGENBACH (Albert)**; *Univ. Basel* HISTORISCHE STUDIE über die ENTWICKLUNG der GRUNDBEGRIFFE der WÄRMEOFORTPLANZUNG [mit Literatur-Nachweis], roy. 4to. (pp. 39), sewn. 2s *Basel*, 1884
- 14256 **RIGGING**, The ART of, containing an ALPHABETICAL EXPLANATION of TERMS, DIRECTIONS for the most minute OPERATIONS, and the Method of PROGRESSIVE RIGGING, with full and correct Tables of the Dimensions and Quantities of every Part of the Riggings of all Ships and Vessels; 2nd Edition, considerably enlarged, with 11 copperplates (9 folding), 8vo. old sheep (joints cracked), with auto. 'Admiral Douglas. 1815' on flyleaf, 8s 6d 1806
This work was unknown to Watt. There is no copy in the Library of the Institution of Naval Architects, though it is 'particularly useful to boatswains'.
- 14257 **RIGGS (Louis Warner, Cornell Univ.)** ELEMENTARY MANUAL for the CHEMICAL LABORATORY, 8vo. cl., 3s 6d (p. 5s 6d nett) *New York*, 1904
- 14258 **RIGHI (Augusto, Univ. Bologna)**, und Bernhard **DESSAU**; *Univ. Perugia*: Die TELEGRAPHIE ohne DRAHT; with 258 illustrations, 8vo. sewn, 4s (p. M. 12) *Braunschweig*, 1903
- 14259 **RIGNANO (Mario Massimo Duca di) De' PASSAGGI di MERCURIO sul DISCO SOLARE** ed in Ispezie di quello del 1832, osservato in Roma nella SPECOLA MASSIMO, square 8vo. boards, or, sewn, 2s 6d *Roma*, 1835
- 14260 **RIJCKEVORSEL (— van)** KONSTANT AUFTRETENDE SECUNDÄRE MAXIMA und MINIMA in dem jährlichen Verlauf der METEOROLOGISCHEN ERSCHEINUNGEN, V. Abteilung; with 3 plates, roy. 4to. (pp. 14), sewn, 2s *Rotterdam*, 1908
- 14261 **RIJKE (Pieter Leonard, Univ. Leyden)** IETS over den MICROPHOON; with 8 illustrations, 8vo. (pp. 26), sewn, 2s *z. p. [c. 1878]*
- 14262 **RIOS (Capt. Joseph de Mendoza [y]; Spanish Navy; F.R.S.)** TABLES for FACILITATING the CALCULATIONS of NAUTICAL ASTRONOMY, and particularly of the Latitude of a Ship at Sea, from Two Altitudes of the Sun, and that of the Longitude from the Distances of the Moon from the Sun or a Star, etc. etc., and several other Tables useful in Astronomy and Navigation, 4to. contemporary tree-calf, 7s 6d 1801
The appendix contains Tables for clearing the Lunar Distances of Refraction and Parallax, by the HON. HENRY CAVENTISH, F.R.S.
His discoveries completely changed the bases of nautical astronomy. Overwork at length told on him, and having found in one of his tables a grave miscalculation, he shot himself at Brighton on 3 March, 1815.—D. N. B.
- 14263 **RIPPER (William, M.I.C.E., Univ. Sheffield)** STEAM-ENGINE THEORY and PRACTICE, with 4 folding plates and 434 other illustrations, 8vo. cl., 4s 6d (p. 9s) 1899
Containing a description of the author's Mean-Pressure Indicator.
- 14264 **RIQUET (Pierre Paul, Baron de Bonrepos)** HISTOIRE du CANAL de LANGUEDOC, rédigée sur les PIÈCES AUTHENTIQUES conservées à la Bibliothèque Impériale et aux Archives du Canal, par les DESCENDANS de PIERRE-PAUL RIQUET de BONREPOS; with finely engraved front, by R. Delvaux, containing portrait and view, and folding map on copper, 8vo. russsia, blind-tooled, g. e. (SCARCE), 10s 6d 1805
The Languedoc Canal was the first important one constructed (between 1667 and 1681) in France, and connected the Bay of Biscay with the Mediterranean; thus avoiding the long detour by the Strait of Gibraltar. 'It proved the prototype of the modern ship-canal, though, as its depth is only 6½ feet, it is not adapted for vessels above 100 tons. The Gironde and the Garonne give access up to Toulouse; and from this point, the Languedoc Canal, or Canal des deux Mers, 148 miles long, rises gradually by locks to a summit level of 600 feet at Narouse, and then descends in a similar manner to Narbonne on the Gulf of Lyons, the number of locks being 119.'—Prof. L. F. Vernon-Harcourt.
- 14265 **RISTENPART (Friedrich Wilhelm; Chile Observatory)** Über DIFFERENTIALREDUKTION vom SCHEINBAREN auf den MITTLEREN ORT, mit besonderer Berücksichtigung der Kometen- und Planetenbeobachtungen, 4to. (pp. 10), sewn, with inscr. to A. M. W. Downing, F.R.S., 2s *Berlin*, 1902
- 14266 ——— NORMALÄQUINOKTIEN für STERNKATALOGE, 8vo. (pp. 14), sewn, with inscr. to A. M. W. Downing, F.R.S., 1s 6d *Leipzig*, 1906
- 14287 ——— UNTERSUCHUNGEN über die CONSTANCE der PRÄCESSION und die Bewegung der Sonne im Fixsternsysteme; with folding plate, roy. 4to. (pp. 96), sewn, with inscr. to A. M. W. Downing, F.R.S., 4s *Karlsruhe*, 1892
'Fresh precautions of refinement were introduced into the treatment of the subject [the sun's motion] by Ristenpart (supra), Kaptajn, Newcomb, and Porter, who ably availed themselves of the copious materials accumulated before the close of the century.'—Miss Agnes M. Clerke.
- 14268 **RITCHIE (Archibald Tucker)** The CREATION: the EARTH'S FORMATION on DYNAMICAL PRINCIPLES, in Accordance with the MOSAIC RECORD and the LATEST SCIENTIFIC DISCOVERIES; 5th Edition, revised and considerably abridged by the Author, thick 8vo. cl. (o. p.), 7s 6d (p. 18s) 1874
The author's great contribution to the reconciliation of religion and science is that, 'on the authority of the immutable word of God, from which, assisted by the discoveries of science, there can be derived the necessary data to prove, during the period called in scripture 'the beginning', the earth had, in reality, no diurnal rotation around its axis.'—Introduction.
- 14269 **RITCHIE (Robert, A.I.C.E.)** RAILWAYS: their RISE, PROGRESS, and CONSTRUCTION, with Remarks on RAILWAY ACCIDENTS, and Proposals for their Prevention, 64 woodcuts, post 8vo. cl. (SCARCE), 8s 6d 1846
Interesting as having been published during the height of the Railway Mania. 'Parliament, during the recent session, has with very great liberality passed bills for railways to the enormous extent of 2841 miles, with a capital of £44,322,235.'
It deals judiciously with the strange 'atmospheric' fallacy, and with the happy-go-lucky railway accidents of the time, of which many queer examples are given.
- 14270 ——— TREATISE on VENTILATION, Natural and Artificial, with 7 plates and 35 woodcuts, 8vo. cl., 3s 6d 1862
Describing the various devices employed from Egyptian times to the date of publication.

- 14272 **RITCHIE** (William, F.R.S.; *Prof. Nat. Philosophy, Univ. London*) On the ELASTICITY of THREADS of GLASS, with some of the most useful Applications of this Property to Torsion Balances, with 2 woodcuts, 4to. (pp. 8), *sewn*, 2s 6d 1830
- 14273 ——— EXPERIMENTAL RESEARCHES in VOLTAIC ELECTRICITY and ELECTRO-MAGNETISM, with plate, roy. 4to. (pp. 20), *sewn, with inscr. to William Scoresby, D.D., F.R.S.*, 3s 6d 1832
- 14274 **RITSERT** (Eduard, Darmstadt) UNTERSUCHUNGEN über das RANZIGWERDEN der FETTE. Inaugural Dissertation, roy. 8vo. (pp. 48), *sewn*, 2s
Including an historical introduction (pp. 11). Berlin [1890]
- 14275 **RITT** (Georges) PROBLÈMES d'APPLICATION de l'ALGÈBRE à la GÉOMÉTRIE, avec les Solutions développées; with 17 folding plates, 2 vols. 8vo. in 1, *hf. calf*, 2s 6d 1836-7
- 14276 **RITTER** (August, Aachen) ELEMENTARY THEORY and CALCULATION of IRON BRIDGES and ROOFS, translated from the third German Edition by H. R. SANKEY, with 502 diagrams, 8vo. cl. (o. p.), 6s (p. 15s) 1879
'Advocating the use of the 'Method of Moments' in calculating the stresses in bridges and roofs.'—*Translator's Preface.*
- 14277 **RITTER** (Franz) SPECULUM SOLIS, das ist: SONNEN-SPIEGEL, oder kunstständiger, leichter und grundrichtiger Bericht von den SONNENUHREN, und was denselben angehöret; nunmehr mit dem DRITTEN THEIL, allerhand NEUER ERFINDUNGEN vermehret durch einen Liebhaber dess Studii Mathematici; with engraved title, and numerous woodcuts, sm. 4to. *hf. crimson Levant morocco extra (stamp on title, and 2 ll. slightly water-stained, otherwise a FINE COPY)*, £1. 10s
Nürnberg, 1652
Best edition of the work, which was unknown to Poggendorff and Graesse. It first contains 3 parts, and was republished in 1660. The original edition, comprising the first 2 parts only, appeared in 1609-11. The last part contains some curious conceits on sun-dials, including one sounding all hours by either exploding a charge of gunpowder by means of a burning-glass, or by sound caused by steam generated by the same means; also how to make a sun-dial out of a sun-flower, etc. etc.
- 14278 **RITTER** (Johann Wilhelm) Die PHYSIK als KUNST: ein Versuch, die Tendenz der Physik aus ihrer Geschichte zu deuten, 8vo. *sewn*, 2s 6d München, 1806
The author was the discoverer of the ultra-violet spectrum, and the first to promote the chemical theory of galvanism.
- 14279 **RITTER** (Wilhelm, Zürich) Die ELASTISCHE LINIE und ihre Anwendung auf den continuirlichen Balken, 2. gänzlich umgearbeitete Auflage; with folding plate, and 12 woodcuts: Der ELASTISCHE BOGEN, berechnet mit Hilfe der graphischen Statik; with 2 plates and 20 diagrams Zürich, 1883-6
- 14280 ——— Die STATIK der TUNNELGEWÖLBE; with 2 folding plates, and 17 diagrams, roy. 8vo. (pp. 66), *sewn*, 2s Berlin, 1879
- 14281 **RIVA** [*hic a RIPA*] (Ludovicus, astronomie ac meteorologie in Gymnasio Patavino professor) MISCELLANEA [*viz.*: de Meteoro Ignito, etc.: de Vi Vaporum in Hygrometris Dissertatio Geometrico-Mechanica: Demonstrationes Theorematum ad Quadraturas spectantium, etc. etc.]; with plate and vignettes on copper, 4to. *sewn, with auto.* 'F[ranciscus] Maseres [F.R.S.]. Feb: 2, 1759' on title, 7s 6d Venetiis, 1725
RARE, and unknown to Poggendorff, Brunet, or Graesse.
- 14282 **RIVARD** (Dominique François, Univ. Paris) ABRÉGÉ des ÉLÉMENTS de MATHÉMATIQUES, 6^e Edition, revue et augmentée par l'Auteur; with 6 folding plates, 8vo. *old calf gilt*, 3s 1765
- 14283 ——— TRAITÉ de GNOMONIQUE, ou de l'Art de faire des Cadrans, première édition; with 4 folding plates, 8vo. *old calf gilt*, 10s 6d 1741
A work still valued, which superseded Ozanam's. It was recommended by Montucla.
- 14284 ——— TRAITÉ de la SPHERE et du CALENDRIER, 6^e Edition, augmentée par JÉRÔME DE LALANDE [F.R.S.]; with 3 folding plates, 8vo. *old tree-calf gilt*, 5s 1804
- 14285 **ROADS and RAILROADS**, VEHICLES, and MODES of TRAVELLING, of Ancient and Modern Countries: with Accounts of Bridges, Tunnels, and Canals, in various Parts of the World, with plates and numerous smaller woodcuts by J. W. WHYMPER, R.I., etc., post 8vo. cl., *uncut (scarce)*, J. W. Parker, 1839
Pp. 262-340 deal with railways, and contain interesting railway views and scenes. A special chapter is devoted to the Liverpool and Manchester Railway.
- 14286 **ROBERT** (Henri, horloger de la Marine de l'État) USAGE du TABLEAU des LONGUEURS du PENDULE, donnant les Quantités dont il faut l'allonger ou le raccourcir pour régler le Mouvement auquel il est appliqué; with folding table, 8vo. (pp. 4), *sewn*, 1s 6d s. d.
- 14287 **ROBERT** (Louis, ingénieur-avoué, Reims) Les VINS MOUSSEUX: Manuel pratique donnant des Méthodes rationnelles, suivi d'une Étude sur la DÉGUSTATION des VINS; with 53 woodcuts, cr. 8vo. cl., 2s 6d 1897
- 14288 **ROBERTS** (Charles, F.R.C.S.) The NATURALISTS' DIARY: a Day-Book of METEOROLOGY, PHENOLOGY, and Rural Biology, with coloured folding map, cr. 8vo. cl., 2s 6d [1886]
- 14289 **ROBERTS** (Michael, Erasmus Smith's Prof. Math., T.C.D.) TRACT on the ADDITION of ELLIPTIC and HYPER-ELLIPTIC INTEGRALS, 8vo. cl. (*scarce*), 3s 6d Dublin, 1871
'In it is constructed a trigonometry of hyperelliptic functions analogous to that of elliptic functions. Roberts was the discoverer of many striking and beautiful properties of geodesic lines of curvature on the ellipsoid, and in particular concerning their relations to umbilics.'—*D. N. B.*
- 14290 **ROBERTS** (Ralph Augustus, T.C.D.) COLLECTION of EXAMPLES on the ANALYTIC GEOMETRY of PLANE CONICS, with some Examples on Sphero-Conics, cr. 8vo. cl., with Prof. H. W. Lloyd Tanner's bookplate, 2s 6d (p. 5s) Dublin, 1834
'I believe that either the examples themselves, or the methods of their solution, are to a great extent original.'—*Preface.*
- 14291 ——— TREATISE on the INTEGRAL CALCULUS, PART I (all pub.): Elementary Account of ELLIPTIC INTEGRALS, and APPLICATIONS to PLANE CURVES, with 34 diagrams, post 8vo. cl. (o. p.), with bookplate of Prof. Lloyd Tanner, F.R.S., 5s 6d (p. 10s 6d) *ibidem*, 1887

- 716 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14293 **ROBERTS (E.)** FAMOUS CHEMISTS [from G. E. Stahl to Victor Meyer], cr. 8vo. *cl.*, 2s 1911
- 14294 **ROBERTS (H. A.)** TREATISE ON ELEMENTARY DYNAMICS, dealing with Relative Motion mainly in Two Dimensions, with numerous diagrams, cr. 8vo. *cl.*, 2s 6d (p. 4s 6d) 1900
- 14295 **ROBERTS (Isaac, F.R.S.)** PHOTOGRAPHS of the NEBULÆ in the PLEIADES, of Stars in the Surrounding Regions and of Spurious Nebulosity, with plate, 8vo. (pp. 6), *sewn*, 1s 6d 1898
- 14296 — SELECTION of PHOTOGRAPHS of STARS, STAR-CLUSTERS, and NEBULÆ, with Information concerning the Instruments and the Methods employed in the Pursuit of Celestial Photography, with 53 collotype plates from photographs taken by the author with his 20" Reflector, roy. 4to. *cl.* (SCARCE), £2. 2s 1894
- 'Presented to Adam Sedgwick, M.A., F.R.S. with compliments of the author, ISAAC ROBERTS, June 1894'.—*Inscr. on note paper.*
- 'In March, 1885, Sir Howard Grubb mounted for Dr. Isaac Roberts, at Maghull, near Liverpool (his observatory has since been transferred to Crowborough in Sussex), a silver-on-glass reflector of 20" aperture, constructed expressly for use in celestial photography. A series of nebula-pictures, obtained with this fine instrument, have proved highly instructive both as to the structure and extent of these wonderful objects; above all one of the great Andromeda nebula.'—*Miss Agnes M. Clerke.*
- 'With a view of obtaining very prolonged exposures, Roberts spared no trouble or expense in providing his telescope with an exceedingly perfect driving-clock, and at length Grubb succeeded in supplying him with one, electrically controlled, which met his requirements. With this Roberts has made successful exposures, even 4 hours in length, with astonishing results, particularly in respect to nebule. The Pleiades have been shown to present an almost continuous mass of nebulous matter; the great Orion nebula has been traced far beyond the old limits, whilst the Andromeda nebula, 'now for the first time shown in an intelligible form', has proved to be a vast Saturniform body. . . . A single plate exposed on a region in Cygnus has shown more than 16,000 stars; whilst the spiral nebula in Canes Venatici has been depicted with most wonderful distinctness.'—*G. F. Chambers, F.R.A.S.*
- 14297 — : WILLIAM HERSCHEL'S 52 OBSERVED NEBULOUS REGIONS, compared with I. R.'s Photographs, with 2 plates, 8vo. (pp. 9), *sewn*, 1s 6d 1902
- 14298 **ROBERTS (Samuel, F.R.S.; P.L.M.S.)** On certain TETRAHEDRA specially related to FOUR SPHERES meeting in a POINT, 8vo. (pp. 4), *sewn*, 1s [1878]
- 14299 — ON THE MECHANICAL DESCRIPTION of some SPECIES of CIRCULAR CURVES of the THIRD and FOURTH DEGREES, with plate, 8vo. (pp. 12), *unbound*, 1s 6d 1869
- With a Paper 'On the Generalization of the Theory of Polars,' by W. K. CLIFFORD, F.R.S. (pp. 4).
- 14300 — ON the MOTION of a PLANE under certain Conditions, with diagrams, 8vo. (pp. 33), *sewn*, 2s [1871]
- 14301 — NOTE on the EXPRESSION of the LENGTH of the ARC of a CARTESIAN by ELLIPTIC FUNCTIONS, 8vo. (pp. 4), *unbound*, 1s [1873]
- 14302 — NOTE on NORMALS and the Surface of Centres of an Algebraical Surface, 8vo. (pp. 6), *sewn*, 1s 6d [1873]
- 14303 — NOTE on the PLÜCKERIAN CHARACTERISTICS of Epi- and Hypo-Trochoids and Allied Curves, 8vo. (pp. 4), *unbound*, 1s [1873]
- 14304 — NOTE on the SYMMETRICAL EXPRESSION of the CONSTANTS in the EQUATIONS of ALGEBRAICAL CURVES, 8vo. (pp. 8), *unbound*, 1s 6d 1856
- 14305 — Sur l'ORDRE des CONDITIONS de la COEXISTENCE des ÉQUATIONS ALGÈBRIQUES à PLUSIEURS VARIABLES, 4to. (pp. 14), *sewn*, 1s 6d [1867]
- 14306 — ON the ORDER of certain SYSTEMS of ALGEBRAICAL EQUATIONS, 8vo. (pp. 13), *unbound*, 2s [1867]
- With a Paper 'On a General Theory of Anharmonics,' by W. K. CLIFFORD, F.R.S. (pp. 6).
- 14307 — ON the ORDER and SINGULARITIES of the PARALLEL of an ALGEBRAICAL CURVE, 8vo. (pp. 12), *sewn*, 1s 6s [1871]
- 14308 — ON the OVALS of DESCARTES, with diagrams, 8vo. (pp. 21), *sewn*, 1s 6d [1870]
- 14309 — ON PARALLEL SURFACES, 8vo. (pp. 20), *sewn*, 1s 6d [1873]
- 14310 — ON the PARALLEL SURFACES of CONICOIDs and CONICS, 8vo. (pp. 35), *sewn*, 2s [1872]
- 14311 — ON the PARALLEL SURFACES of DEVELOPABLES and CURVES of DOUBLE CURVATURE, 8vo. (pp. 5), *unbound*, 1s [1874]
- 14312 — ON the PEDALS of CONIC SECTIONS, with 2 diagrams, 8vo. (pp. 12), *sewn*, 1s 6d [1870]
- 14313 — Sur le 25^e PROBLÈME du 5^e LIVRE de DIOPHANTE et la SOLUTION par FERMAT, roy. 8vo. (pp. 7), *sewn*, 1s 6d [Nancy, 1885]
- 14314 — ON PROFESSOR CREMONA'S TRANSFORMATION between TWO PLANES, and Tables relating thereto, 8vo. (pp. 19), *sewn*, 1s 6d [1872]
- 14315 — ON a SIMPLIFIED METHOD of OBTAINING the ORDER of ALGEBRAICAL CONDITIONS, 8vo. (pp. 12), *sewn*, 1s 6d [1875]
- 14316 — ON THREE-BAR MOTION in PLANE SPACE, with diagrams, 8vo. (pp. 10), *sewn*, 1s 6d [1876]
- 14317 — ON the TRANSFORMATION of COORDINATES, 8vo. (pp. 23), *sewn*, 1s 6d [Cambridge, 1857]
- 14318 **ROBERTS (W. H.)** The SCOTTISH ALE-BREWER: a Practical Treatise, with a Simplified Process of Sparging, and the Method of conducting SLOW FERMENTATION: containing also Four Tables of Original Gravities and Attenuations, etc. etc., first edition, with woodcuts, 8vo. *cl.*, 6s 6d *Edin.*, 1837
- 'Scotch Ale deservedly held, as it still holds, the first [strongest] rank amongst fermented liquors of British manufacture.'—*P. XI.*
- 14319 — THIRD EDITION: The Scottish Ale-Brewer and Practical Maltster . . . with the Method in the Making and Managing of INDIA PALE ALE, and Supplement on the Relative Value of Malt and Sugar, with woodcuts, 8vo. *cl.*, 7s 6d *ibidem*, 1847
- 14320 **ROBERTS (William Ralph Westropp, pr., T.C.D.)** ON the REDUCTION of an INTEGRAL, 8vo. (pp. 7), *sewn*, with author's *inscr.* and *MS. notes* (only 50 copies privately printed), 1s 6d *Dublin*, 1900

- 14322 **ROBERTS-AUSTEN** (Sir William Chandler, F.R.S., *Royal Mint*) ALLOYS RESEARCH COMMITTEE: SECOND REPORT, with 5 woodcuts, 8vo. (pp. 36), *sewn*, 1s 6d [1893]
- 14323 ———: FOURTH REPORT, with 16 plates, 8vo. (pp. 70), *sewn*, 3s 6d [1897]
- 14324 ———: FIFTH [and LAST] REPORT (STEEL), with 22 photomicrographic plates and 6 other illustrations, 8vo. (pp. 68), *sewn*, 4s 6d [1899]
- This report is of especial importance on fractures of steel rails.
 'The work of alloys-research he initiated is now carried on at the National Physical Laboratory. The practical value of these labours led the council of the Institution of Mechanical Engineers to enrol him an honorary life member.'—*D.N.E.*
- 14325 ——— CANADA'S METALS: a Lecture at the Toronto Meeting of the British Association, with 6 plates and coloured map, 8vo. *cl.*, with author's *inscr.*, 2s 1898
- 14326 ——— CANTOR LECTURES ON ALLOYS, with 40 illustrations, roy. 8vo. *sewn*, with author's *inscr.*, 2s 6d 1893
- 14327 ——— CANTOR LECTURES ON ALLOYS used for COINAGE, with 2 plates of ancient gold and silver trial-plates, and woodcuts, roy. 8vo. *sewn*, 2s 6d 1884
- 14328 ——— ON CERTAIN PROPERTIES COMMON TO FLUIDS and SOLID METALS, with 14 woodcuts, impl. 8vo. *sewn*, 1s 6d 1886
- 14329 ——— ON THE DIFFUSION OF METALS: Bakerian Lecture, with 2 plates, and 7 illustrations, roy. 4to. (pp. 33), *sewn*, with author's *inscr.*, 2s 6d 1896
- 14330 ——— THE EXTRACTION OF NICKEL from its ORES by the MOND PROCESS, with folding plate and 3 other illustrations, 8vo. (pp. 18), *sewn*, 2s 1898
- A description of Ludwig Mond's process for manufacturing pure nickel (*v. No. 11993 ante*).
- 14331 ——— ON THE HARDENING and TEMPERING OF STEEL: a Lecture, with 11 woodcuts, impl. 8vo. (pp. 51), *sewn*, with author's *inscr.*, 2s 6d 1889
- 14332 ——— NOTE on the EXPERIMENTAL ILLUSTRATION of the EXPANSION of PALLADIUM attending the Formation of its Alloy with Hydrogenium, with woodcut, 8vo. (pp. 3), *sewn*, with *inscr.* to Prof. N. Story-Maskelyne, F.R.S., 1s 6d 1869
- 14333 ——— PRESIDENTIAL ADDRESS to the IRON and STEEL INSTITUTE, 8vo. (pp. 28), *sewn*, 1s 6d 1900
- 14334 ——— THE RARER METALS and their ALLOYS, with plate and 8 woodcuts, 8vo. (pp. 35), *sewn*, with author's *inscr.*, 2s 1895
- 14335 **ROBERTSON** (Abraham, D.D., F.R.S., *Savilian Prof. Geometry, Oxon.*) THE BINOMIAL THEOREM DEMONSTRATED by the PRINCIPLES of MULTIPLICATION, 4to. (pp. 24), *sewn*, 4s 6d 1795
- Added are:—Experiments and Observations to investigate the Nature of a Kind of Steel called Wootz, etc. etc., by GEORGE PEARSON, M.D., F.R.S. (pp. 25); On Welding Cast Steel, by SIR THOMAS FRANKLAND (pp. 2).
- 14336 ——— SECTIONUM CONICARUM Libri VII; accedit TRACTATUS de Sectionibus Conicis, et de Scriptoribus qui earum Doctrinam tradiderunt; with 45 folding plates, 4to. *cl.*, 6s 6d *Oxonii*, 1792
- 'His chief work, with an exhaustive survey of the history of the study.'—*D. N. B.*
- 14337 **ROBERTSON** (C., M.D., *Deputy Surgeon-Gen., I.M.D.*) MODERN GEOGRAPHY and the COPERNICAN HYPOTHESIS, with 2 plates, and diagrams, 8vo. boards, 2s 6d *Stirling*, 1908
- Intended to show the fallacy of the Copernican System. The author published another geocentric work in 1897: 'Is the Earth a Planet?' (*v. No. 4038, ante*).
- 14338 **ROBERTSON** (John, F.R.S., *Librarian to the Royal Society*) TREATISE of such MATHEMATICAL INSTRUMENTS, as are usually put into a PORTABLE CASE, with Account of the Authors who have treated on the PROPORTIONAL COMPASSES and SECTOR, first edition, with 7 folding plates, 8vo. contemporary calf, with fine armorial bookplate of Sir Robert Throckmorton, Bart., 6s 1747
- 14339 ——— ANOTHER COPY, old calf (joints cracked), 5s
- 14340 ——— SECOND EDITION, with many Additions, and Appendix of the Description and Use of GUNNER'S CALLIPERS, with 9 folding plates, 8vo. old calf (back damaged), 6s 6d 1757
- 14341 ——— THIRD EDITION, with the Description of, and Precepts for the Delineation of, SHIP-GUNS and SEA MORTARS, and brief Account of AUTHORS who have written on the PROPORTIONAL COMPASSES and SECTOR, with 12 folding plates, 8vo. contemporary sheep (cracked), 8s 1775
- The introduction of the above editions contains an interesting historical account of inventors of mathematical instruments.
 According to Chasles, Robertson was the first to discover the theorem that in stereographic projection the angle between two circles of the sphere equals the angle between the two circles on projection.
- 14342 **ROBERTSON** (P., *Naval Instructor H.M.S. Excellent*) THE THEORY and PRACTICE of GREAT CIRCLE SAILING under one General Rule, with Examples, 8vo. (pp. 24), *sewn*, 2s 1855
- 14343 **ROBINET** (Stephano) PROCÉDÉ pour le BATTAGE des COCONS, ou Moyen d'obtenir des Cocons le plus de Soie possible, 8vo. (pp. 28), *sewn*, 2s 6d 1843
- 14344 ——— RECHERCHES sur la PRODUCTION de la SOIE en FRANCE, VI^e MÉMOIRE: Nouvelles Études sur le Cocon, 8vo. (pp. 81), *sewn*, 3s 6d 1856
- 14345 **ROBINS** (Benjamin, F.R.S., *Engineer General to H. E. I. C.*) MATHEMATICAL TRACTS, published [with LIFE (pp. 42)] by JAMES WILSON, M.D., with 3 plates and diagrams, 2 vols. 8vo. old calf gilt (joints of v. I cracked); VERY RARE, £1. 10s 1761
- CONTENTS:—I. New Principles of Gunnery, with several subsequent Discourses on the same Subject, the greatest Part never before printed [including the invention of the Ballistic Pendulum]. II. Discourse on the Methods of Fluxions, and of Prime and Ultimate Ratios, with other Miscellaneous Pieces.
- 'Robins was one of the most accurate and elegant mathematical writers that our language can boast of; and he made more real improvements in artillery, the flight and the resistance of projectiles, than all the preceding writers on that subject.'—*Dr. Charles Hutton, F.R.S.*
- His Discourse on . . . Fluxions (*v. II*) is a reply to Bp. Berkeley's *Analyst* (*v. Nos. 347 and 6144-5, ante*), and 'a very clear, neat, and elegant performance' (*Dr. Hutton*). He was an unsuccessful competitor for the professorship of fortification and gunnery at R.M.A. Woolwich against John Muller (*Nos. 12268-73 ante*), whose powerful influence secured him the position. Robins's work on gunnery is said to have been due to this disappointment, 'as he wanted to show to the world, what sort of man he was that they had rejected.'—*V. Nos. 4044-5 ante*.
- 14346 **ROBINS** (Edward Cookworthy, F.S.A., F.R.I.B.A.) ON THE VENTILATION and WARMING of CHEMICAL LABORATORIES and Applied Science Schools generally, 8vo. (pp. 14), *sewn*, 1s 6d 1885

- ROBINSON** (Bryan, M.D., T.C.D.) A DISSERTATION on the AETHER of SIR ISAAC NEWTON (1747)—*v. NEWTONIANA*, No. 12623, *ante*.
- 14348 **ROBINSON** (Charles Stanley), and Humphrey Owen JONES: COMPLEX THIO-OXALATES, 8vo. (pp. 15), *sewn*, 1s 1912
- 14349 **ROBINSON** (H. O. and Albert) ACCOUNT of some recent IMPROVEMENTS in the SYSTEM of NAVIGATING the GANGES by IRON STEAM VESSELS, with 8 plates of steamboats and machinery, old native boat, and chart (5 folding), 8vo. *cl.* (*scarce*), 10s 6d 1848
An attempt to quicken Indian travel up country between Calcutta and Allahabad when the railway system was still a dream.
- 14350 **ROBINSON** (Harry Perry) The ELEMENTS of a PICTORIAL PHOTOGRAPH, with numerous illustrations by the Author, 8vo. *hf. buckram*, 2s 6d Bradford, 1896
- 14351 ——— LETTERS on LANDSCAPE PHOTOGRAPHY, with woodcuts, 12mo. *sewn*, 1s 1888
- 14352 ——— PICTORIAL EFFECT in PHOTOGRAPHY: Hints on Composition and Chiaroscuro for Photographers; 2nd Edition, with woodcuts, 12mo. *sewn*, 2s 6d 1879
- 14353 ——— PICTURE MAKING in PHOTOGRAPHY, with 4 plates, and woodcuts, 12mo. *sewn*, 2s 1884
- 14354 ——— SECOND EDITION, with Chapters on Instantaneous Photography and the Persistence of Vision and Naturalistic Photography, with 2 plates and woodcuts, *cr.* 8vo. *cl.*, 2s 6d 1889
- 14355 ——— The STUDIO: and what to do in it, with woodcuts, 12mo. *sewn*, 2s 1885
- 14356 **ROBINSON** (Henry, M.I.C.E., King's Coll., London) HYDRAULIC POWER and HYDRAULIC MACHINERY; 2nd Edition, enlarged, with 69 plates (mostly folding), and 50 smaller illustrations, 8vo. *cl.*, 8s 6d (p. £1. 14s) 1893
Dedicated to the late Lord Armstrong, under whom Professor Robinson first worked.
- 14357 ——— SEWAGE DISPOSAL; for the Guidance of Sanitary Authorities; 2nd Edition, post 8vo. *cl.*, 2s 6d (p. 5s) 1882
- 14358 ——— SEWERAGE and SEWAGE DISPOSAL, with folding diagram, 8vo. *cl.* (o. p.), 4s (p. 12s 6d) 1896
- 14359 **ROBINSON** (John, M.I.M.E.) ON GIFFARD'S INJECTOR for FEEDING STEAM BOILERS (Supplementary Paper), 8vo. (pp. 9), *sewn*. 1s 6d Birmingham, 1860
Written at the time when Mr. Giffard's paradoxical invention was just coming into use.
- 14360 **ROBINSON** (Thomas Romney; T.C.D., Prebendary of St. Patrick's; F.R.S.) DESCRIPTION of an IMPROVED ANEMOMETER for registering the Direction of the Wind, and the Space which it traverses in given Intervals of Time, with plate and 2 woodcuts, 4to. (pp. 24), *sewn*, 4s 6d [Dublin, 1850]
- Describing the author's invention of the cup anemometer, which now forms part of every Meteorological Observatory.
- 14361 ——— ON the DETERMINATION of the CONSTANTS of the CUP ANEMOMETER by Experiments with a WHIRLING MACHINE, PART II, roy. 4to. (pp. 16), *sewn*, with *inscr.* to Prof. A. S. Herschel, F.R.S., 2s 6d 1880
- Written at the ripe age of 88.
- 14362 ——— PLACES of ONE THOUSAND STARS OBSERVED at the ARMAGH OBSERVATORY, 4to. (pp. 32), *unbound*, 2s 1878
- 14363 ——— ON the RELATION between the TEMPERATURE of METALLIC CONDUCTORS, and their RESISTANCE to ELECTRIC CURRENTS, with 3 woodcuts, 4to. (pp. 24), *sewn*, 3s 6d [Dublin.] 1848
- 14364 ——— SECOND ARMAGH CATALOGUE of 3300 STARS for the Epoch 1875, deduced from Observations made at the ARMAGH OBSERVATORY, 1859-83, under the Direction of, and prepared for Publication by J. L. E. DREYER, F.R.A.S., roy. 8vo. *cl.*, 4s *ibidem*, 1886
- 14365 ——— ON SPECTRA of ELECTRIC LIGHT, as modified by the Nature of the Electrodes and the Media of Discharge, 4to. (pp. 48), *sewn*, with *inscr.* to the Abbé Moigno (*shorn*), 3s 6d 1862
- 14366 **ROBINSON** (John, F.R.S.E., Prof. Natural Philos., Univ. Edin.) ELEMENTS of MECHANICAL PHILOSOPHY, VOL. I (all published): DYNAMICS and ASTRONOMY, with 22 plates, thick 8vo. *calf.*, 5s Edin., 1804
Miss C. Bally presented by her affectionate Uncle [FRANCIS BALLY, F.R.S.]. June 9. 1838.—*Inscr.* on flyleaf.
- 14367 ——— ON the MOTION of LIGHT, as affected by Refracting and Reflecting Substances, which are also in Motion, with plate, 4to. (pp. 31), *sewn*, with *inscr.* to Dr. Nevil Maskelyne, *pr.*, F.R.S. (*as below*), 6s 6d *ibidem*, 1788
To the Revd. Dr. Maskelyne Astr. Royal from his most obed^t: hble^t Serv^t: the Author.—*Inscr.* on title.
- Treating of the aberration of light while passing through the telescope tube, and on Boscovich's water telescope.
- 14368 ——— SYSTEM of MECHANICAL PHILOSOPHY, with Notes by SIR DAVID BREWSTER, F.R.S., with 50 folding plates, 4 thick vols. 8vo. *hf. cl.*, *uncut*, 12s 6d *ib.*, 1822
- 14369 ——— ANOTHER COPY, with the Plates bound separately, 5 vols., boards, *uncut*, 12s 6d
- 14370 ——— ANOTHER COPY, 5 vols., *hf. calf* (Plates in *cl.*), 14s
- Consisting of reprints of papers contributed to the Transactions of the Royal Society of Edinburgh, and articles in the *Encyclopedia Britannica*. The article on the steam engine in v. II was revised and enlarged by JAMES WATT, the author's friend, who acknowledged that Robison suggested to him the application of the steam engine to locomotion in 1759.
- Watt kept Robison informed of all his later inventions, and Robison's evidence proved afterwards of great service in defending Watt's patent against infringement before a court of law in 1796. . . . In 1769 Robison anticipated Meyer in the important electrical discovery that the law of force is very nearly or exactly in inverse square.—*D. N. B.*
- Exhibiting a more complete view of the modern improvements of physical science than has ever before been in the possession of the British public, and displaying such a combination of acquired knowledge with original power of reasoning as has fallen to the lot of a very few of the most favoured of mankind.—*Dr. Thomas Young, F.R.S.*
- One of the greatest mathematical philosophers of his age.—*Sir James Mackintosh*.
- 14371 ———, BIOGRAPHICAL ACCOUNT of, by JOHN PLAYFAIR, F.R.S., 4to. (pp. 47), *sewn*, with author's *inscr.* to Thomas Allan, F.R.S., 3s 6d [ib.] 1815
- 14372 **ROBINSON** (Robert), and Frederic Stanley KIPPING; F.R.S.: ORGANIC DERIVATIVES of SILICON: Part V: Benzylethylsilicone, Dibenzylsilicon, and other Benzyl and Benzylethyl Derivatives of Silicane, 8vo. (pp. 18), *sewn*, 1s 6d 1908

- 14374 **ROBSON** (John Henry, *pr.*, *Downing Coll.*) SOLUTIONS of the EXAMINATION PAPERS in ALGEBRA, MENSURATION, and the THEORY and USE of LOGARITHMS, set for Entrance to the Royal Military College, Sandhurst, 1880-8, cr. 8vo. *cl.*, 2s 6d [1889]
- 14375 **ROBSON** (Joseph) THE BRITISH MARS: containing several SCHEMES and INVENTIONS, to be practised by LAND or SEA against the Enemies of Gt. Britain, showing more plainly the great Advantage Britain has over other Nations by being Masters at Sea, with Appendix of a Scheme for Manning the British Navy, with less Grievance to the Subject, etc. etc., 11 *folding plates*, 8vo. *hf. bound (title trimmed)*; RARE, 12s 6d 1763
'The best work on the art of war, next to Bobadil.'—*Watt*. The author was surveyor and supervisor of buildings to the Hudson's Bay Co. He is not included in *D. N. B.* The work was apparently unknown to Lowndes.
- 14376 **ROBSON** (Philip W.) POWER GAS PRODUCERS: their Design and Application, with 105 *illustrations (including 2 folding plates)*, 8vo. *cl.*, 6s (p. 10s 6d nett) 1908
- 14377 **ROCH** (Gustav) ANWENDUNG der POTENTIALAUSDRÜCKE auf die Theorie der MOLEKULAR-PHYSISCHEN FERNEWIRKUNGEN und der Bewegung der Electricität in Leitern, 4to. (pp. 28), *Göttingen*, 1862
sewn, 2s 6d
Treating the subject mathematically.
- 14378 **ROCHE** (Édouard Albert: *Univ. Montpellier*) THÈSES de PHYSIQUE MATHÉMATIQUE et d'ASTRONOMIE, 4to. (pp. 47), *sewn*, 2s 6d *Montpellier*, 1844
Containing: Sur la Distribution de la Chaleur dans une Sphère: Sur la Figure des Planètes.
- 14379 **ROCHEMORE** (François Comte de) De GEOMETRIÆ SUBLIMIORIS THEORIA, et USU de SPHERA ARMILLARI atque INSTRUMENTORUM GEOMETRICORUM PRAXI in Altimetria, Geodæsia, et Architectura publica Exercitatio, in qua selecta Propositioes ad audientium Libitum evolvit, demonstrat Difficultatibus Propendens Responsurus; with 4 *plates*, 4to. (pp. 40), *sewn*, 5s *Romæ*, 1769
'In planetario systemate, vel sol circa terram in elliptica moveatur, vel tellus circa solem in systemate Copernicano, corporis moti phenomena explicari non possunt, nisi motus orbita sit ellipsis.'—*P.* 25.
- 14380 **ROCQUES** (X.) LES INDUSTRIES de la CONSERVATION des ALIMENTS; Préfaces par P. BROUARDEL et A. MUNTZ; with 111 *illustrations*, 8vo. *cl. (cover stained)*, 6s 6d (p. F. 15 nett) 1906
- 14381 **RODGER** (James Wyllie), and William WATSON; F.R.S., *Roy. Coll. of Science*: On the MAGNETIC ROTATION on the PLANE of POLARIZATION of LIGHT in LIQUIDS, PART I: CARBON BISULPHIDE and WATER, with *illustrations*, roy. 4to. (pp. 35), *sewn*, 2s 1895
- 14382 **RODRIGUES de PASSOS** (Joaquim Antonio, *ingénieur civil*) THÈSE d'ASTRONOMIE pour le Doctorat ès Sciences Mathématiques, 4to. (pp. 42), *sewn*, 2s 1853
- 14383 **RODWELL** (George F., F.R.A.S., F.C.S.) THE BIRTH of CHEMISTRY, with *portrait of John Mayow*, and 24 *woodcuts from old prints*, etc., cr. 8vo. *cl. (scarce)*, 6s 1874
An interesting introduction to the history of chemistry to the time of Lavoisier, Priestley, and Scheele.
- 14384 ——— On the EFFECTS of HEAT on certain HALOID COMPOUNDS of SILVER, MERCURY, LEAD, and COPPER, with *plate and 11 woodcuts*, roy. 4to. (pp. 44), *sewn*, with *inscr.* to Prof. A. S. Herschel, F.R.S., 3s 6d 1882
- 14385 **ROEHLING** (Herman Alfred, M.I.C.E.) SEWER GAS and its INFLUENCE on HEALTH, with 3 *folding plates*, and *other illustrations*, 8vo. *cl.*, 2s 6d (p. 5s) [1895]
- 14386 **ROEDDER** (O. C.) Die ELEKTROTECHNISCHEN EINRICHTUNGEN MODERNER SCHIFFE; with 2 *plates and 222 illustrations*, impl. 8vo. *sewn*, 4s 6d (p. M. 8.60) *Wiesbaden*, 1903
Including wireless telegraphy installations on shipboard.
- 14387 **ROERDANSZ** (R.) Das GEZOGENE VIERPÜNDIGE FELDGESCHÜTZ; with 4 *folding plates (3 coloured)*, 8vo. *cl.*, 3s *Berlin*, 1865
- 14388 **ROGERS** (Samuel Baldwyn, *Nant-y-Glo*) ELEMENTARY TREATISE on IRON METALLURGY, up to the Manufacture of Puddled Bars, built upon the Atomic System of Philosophy, etc., comprising Snggestions relative to important Improvements in the Manufacture of Iron and Steel, and the Conduct of extensive Iron Works, with Analytical Tables of Iron-Making Materials, 20 *plates (2 folding)*, 8vo. (pp. 556), *cl. (scarce)*, 9s (p. £1. 5s) 1858
Containing an interesting account of the author's invention of iron bottoms to puddling furnaces, which is extensively quoted in Dr. Percy's 'Metallurgy of Iron and Steel'. According to the latter the author 'died in absolute penury at the age of 85'.
- 14389 **ROGERS** (Thomas, *Engineer and Light House Builder*) DOCUMENTS relating to PORTDYNLLAEN HARBOUR, Caernarvonshire, with a View to its Improvement for the better Security of Trade, and a shorter and safer Communication between IRELAND and ENGLAND, with 3 *folding copperplates*, 12mo. (pp. 51), *sewn*, 6s *Dublin*, 1807
Forthdinllynn, midway between Holyhead and Fishguard, nearly cut them both out as the mail-port for Dublin; but when railways were made the impossibility of getting one across the transverse mountain-chains of Central Wales spoilt its chance for ever.
- 14390 **ROGERS** (William A.; *Harvard College Observatory*) COMPARISON of the HARVARD COLLEGE OBSERVATORY CATALOGUE of STARS for 1875.0, with the Fundamental Systems of AUWERS, SAFFORD, BOSS, and NEWCOMB, 4to. (pp. 40), *sewn*, 3s *Cambridge [Mass.]*, 1882
- 14391 ———, and Clement Henry McLEOD, *McGill Univ.*: THE LONGITUDE of the MCGILL COLLEGE OBSERVATORY, 4to. (pp. 67), *sewn*, 2s 6d *Montreal*, 1886
- 14392 ———, and Anna WINLOCK: CATALOGUE of 130 POLAR STARS for the EPOCH of 1875.0, resulting from all the available Observations made between 1860 and 1885, and reduced to the System of the Catalogue of Publication XIV. of the Astronomische Gesellschaft, 4to. (pp. 73), *sewn*, 3s *[Cambridge, Mass.]*, 1886
- 14393 **ROHDE** (Gen.-Major Johann Philipp v.; *Prussian Army*) MATHEMATISCHE ABHANDLUNGEN. I. Ueber das BALLISTISCHE PROBLEM. II. Ueber die ÄENDERUNGEN der ELEMENTE, der PLANETEN- und COMETENBAHNEN in einem widerstehenden Mittel. 4to. (pp. 52), *sewn*, 3s 6d *Potsdam*, 1797

- 14395 **ROGET (Peter Mark, M.D., F.R.S.; author of 'Thesaurus of English Words and Phrases')**, DESCRIPTION OF THE NEW SLIDING RULE OF INVOLUTION invented by, with Instructions for Using it, made by JOHN ROOKER, 8vo. (pp. 11), *sewn (scarce)*, 7s 6d 1828
The inventor's own copy, with a few MS. corrections. 'In 1814 he had contrived a sliding rule, so graduated as to be a measure of the powers of numbers, in the same manner as the scale of Gunter was a measure of their ratios. It is a logarithmic rule, the slide of which is the common logarithmic scale, while the fixed line is graduated on the logarithm of logarithms.'—D. N. B.
- 14396 [—] **GALVANISM** (Encyclopædia Metropolitana), with plate, 4to. (pp. 52), *unbound*, 3s 6d [1826]
- 14397 **ROHAULT (Jacques) PHYSICA**, Latine vertit, recensuit et Adnotationibus ex illustrissimi ISAACI NEWTONI Philosophiæ maximam Partem haustis, amplificavit et ornavit SAMUEL CLARKE, S.T.P.; Editio III., in quâ Annotationes sunt dimidiâ Parte auctiores; with 27 folding plates, 8vo. *old calf gilt (one joint cracked, otherwise a sound copy)*, 10s Londini, 1710
- 14398 ——— EDITIO QUARTA; with 27 folding plates, 8vo. *old calf, with Chippendale bookplate of [Sir] John Cullum [Bart., pr., F.R.S., F.S.A.]*, 10s 6d *ibidem*, 1718
- 14399 ——— SYSTEM OF NATURAL PHILOSOPHY, with DR. SAMUEL CLARKE'S Notes, taken mostly out of Sir I. Newton's Philosophy, with Additions, done into English by JOHN CLARKE, Dean of Sarum, 2nd Edition, with 27 folding plates, 2 vols. 8vo. *old panelled calf (joints cracked)*, RARE, 1729-8
- 14400 ——— ANOTHER COPY, contemporary panelled calf (one joint cracked), with fine bookplate of John Baker Holroyd, first Earl of Sheffield, friend of Gibbon (1735-1821), 16s
This work long formed the text-book of physics at Cambridge. The translation itself (by the Arianising Rector of St. James's, Westminster), is of importance in the history of science as having been instrumental (although still wholly based on the Cartesian philosophy) in introducing the Newtonian system there, by means of judicious marginal notes in which the translator exposed the fallacies of the Cartesian system, then still all-powerful at Cambridge University.
- 14401 ——— TRAITÉ DE PHYSIQUE, première édition; with 2 copperplates, and numerous woodcuts and diagrams, 2 vols. 4to. in 1, *old calf gilt (back slightly damaged)*, RARE, £1. 10s C. Savreux, 1671
All editions of this work are now rare.
'Il construisait avec trois tubes de verre une espèce de baromètre, connu aujourd'hui sous le nom de chambre de Rohault. Il démontrait, par les différentes réfractions de la lumière, que les couleurs n'étaient que des modifications de cette matière. Ses expériences sur l'aimant furent aussi très-remarquables.'—*Biogr. Gén.*
The author was a whole-hearted supporter of the physical doctrines of Descartes. The above work, which went through many editions, and was translated into most European languages, was *par excellence* the physical text-book of Cartesian philosophy.
- 14402 [—] TREATISE OF MECHANICKS, or the Science of the Effects of Powers or Moving Forces, as apply'd to Machines, demonstrated from its first Principles, translated by THOMAS WATTS, with 4 folding plates, 8vo. *old panelled calf (back slightly damaged)*; rare, 10s 6d 1716
'In this Translation are inserted Particular References to the several Propositions in Euclid on which the Demonstrations are built; with considerable Additions, whereby the Whole is more compleat and Universal, and particularly the Rising and Falling of the Quicksilver in the Weather-Glass explained and accounted for.'
- 14403 **ROHLAND (Paul)** Der KOLLOIDE und KRISTALLOIDE ZUSTAND der MATERIE, roy. 8vo. (pp. 50), *sewn*, 1s Stuttgart, 1910
- 14404 **ROHR (Moritz v., wissenschaftlicher Mitarbeiter der optischen Werkstätte von Carl Zeiss in Jena)** THEORIE und GESCHICHTE des PHOTOGRAPHISCHEN OBJEKTIVS, nach Quellen bearbeitet; with 4 folding plates, and 143 other illustrations, large 8vo. *cl.*, 7s 6d (p. M. 12 *sewn*) Berlin, 1899
The only authoritative work on the subject, and of great historical importance. Pp. 399-435 comprise a valuable bibliography.
- 14405 **ROHR'S (J. H., Jesus Coll., Cantab.)** On the OSCILLATIONS of a SUSPENSION CHAIN, 4to. (pp. 20), *sewn*, 3s 6d [Cambridge, 1851]
'Determining the tension and other circumstances of motion at any point of a disturbed chain; principally with a view to exhibit the causes of fracture by vibration in suspension bridges, and to suggest means for obviating as much as possible the danger arising from such vibrations.'—P. 1.
- 14406 **ROITI (Antonio)** Sulla PROPAGAZIONE del SUONO nella odierna TEORIA degli AERIFORMI, 4to. (pp. 15), *sewn*, 2s [Firenze, 1877]
- 14407 **ROLFE (George William, Mass. Inst. Technology)** The POLARISCOPE in the CHEMICAL LABORATORY: an Introduction to Polarimetry and related Methods, with 38 woodcuts, post 8vo. *cl.*, 5s (p. 8s *nett*) New York, 1905
- 14408 **ROLLAND (Camille)** NOTE sur l'APPLICATION de la LOCOMOTIVE à VAPEUR sans FOYER au Transport des Wagons dans l'Intérieur des MINES de CHARBON; with folding plate, roy. 8vo. (pp. 10), *sewn*, 1s 6d [Liège,] 1889
- 14409 **ROLLAND (Eugène)** MÉMOIRE sur l'ÉTABLISSEMENT des RÉGULATEURS de la VITESSE, with folding plate, 4to. (pp. 56), *sewn*, 4s [1870]
'Renfermant une excellente étude de la question des regulateurs isochrones, et faisant connaître plusieurs solutions nouvelles, à la fois nette et simple, de cette intéressante question.'—*Delormay.*
- 14410 **ROLLER (Frank W., M.A.I.E.E.)** ELECTRIC and MAGNETIC MEASUREMENTS and MEASURING INSTRUMENTS, with 312 woodcuts and diagrams, large 8vo. *cl.*, 9s (p. 15s *nett*) New York, 1907
- 14411 **ROLLET (Augustin)** MÉMOIRE sur la MEUNERIE, la BOULANGERIE, et la CONSERVATION des GRAINS et des FARINES, contenant une Description complète des Procédés, Machines et Appareils appliqués jusqu'à nos Jours, et plus particulièrement dans les diverses Usines de France, d'Angleterre, d'Irlande, de Belgique, de Hollande, etc., avec Considérations sur le Commerce des Blés en Europe; with 15 folding plates, 4to. *hf. calf (Atlas wanting)*, 6s 1846
- 14412 **ROMBURGH (P. van; Univ. Utrecht)** On the CRYSTALLISED CONSTITUENT of the ESSENTIAL OIL of KAEMPPERIA GALANGA L., impl. 8vo. (pp. 4), *sewn*, 1s 6d [Amsterdam,] 1900
- 14413 ——— On the NITRATION of DIMETHYLANILINE dissolved in CONCENTRATED SULPHURIC ACID, impl. 8vo. (pp. 3), *sewn*, 1s 6d [*ibidem.*] 1900

- 14415 **ROLLMANN** (Wilhelm) Die THERMOELEKTRICITÄT, I. Theil, 4to. (pp. 38), *sewn*, 2s 6d
Stralsund, 1859
- 14416 **ROMAIN** [*hic ROMANUS*] (Adrien, *Univ. Würzburg*) PYROTECHNIA, hoc est, de Ignibus Festivis, Jocosis, Artificialibus et Serijs, variisque eorum Structuris Libri II, ex Scriptoribus Latinis, Italis, et Germanis collecti, et in Methodum succinetam reducti; *with vignette on title, and numerous woodcuts*, sm. 4to. *figured boards* (VERY RARE), £1. 10s [s. l.], in *Officina Paltheniana*, 1611
A very rare and curious work which was unknown to the author's biographer in *Biogr. Générale*. He also wrote a number of mathematical works, yet was wholly unknown to Poggeдорff.
- 14417 **ROMÉ** de l'ISLE (Jean Baptiste Louis) L'ACTION du FEU CENTRAL DÉMONTRÉE NULLE à la SURFACE du GLOBE, CONTRE les Assertions de MM. le COMTE de BUFFON, BAILLY, de MAIRAN, etc., 2^e Edition, augmentée de nouvelles Preuves et de plusieurs Eclaircissemens, 8vo. (pp. 132), *unbound* (rare), 10s 6d
Stockholm, 1781
‘Une critique sage et modérée de la Théorie de la Terre par Buffon, qui rendit lui-même justice à l'auteur.’—*Quérard*.
- 14418 ——— ESSAI de CRISTALLOGRAPHIE, ou Description des Figures Géométriques, propres à différens Corps du Règne Minéral, connus vulgairement sous le Nom de CRISTAUX; *with 10 folding plates* (the figures cut up, and pasted carefully to the passages they belong to), 8vo. *contemporary French mottled calf* (back slightly damaged); RARE, 12s 6d
1772
This important work first demonstrated the law of constancy of angles in crystallography.
- 14419 **ROMME** (Charles) L'ART de la MARINE, ou Principes et Préceptes Généraux de l'Art de construire, d'armer, de manœuvrer et de construire des Vaisseaux; *with 8 folding copperplates*. 4to. *old calf gilt*, 17s 6d
1787
‘Ouvrage fort estimé des navigateurs.’—*Quérard*. ‘M. Romme déduit aussi un phénomène important, c'est l'influence de la forme de l'arrière sur la résistance de l'avant.’—*Lalande*.
‘C'est un des savants qui ont le plus contribué aux progrès de la navigation dans le 18^{me} siècle.’—*Biogr. Gén.*
- 14420 **RONALDS** (Sir Francis, F.R.S.; *inventor*, in 1816, of the electric telegraph) DESCRIPTIONS OF AN ELECTRICAL TELEGRAPH, and of some other Electrical Apparatus, 2nd Edition [with PREFACE], *with 4 plates* (one folding) of the installation and the electrical apparatus used, 8vo. cl. (SCARCE), 12s 6d
1871
This work contains the account of the electric telegraph invented by the author, which transmitted signals from his house at Hammersmith (occupied later on by WILLIAM MORRIS, the poet, and known as ‘Kelmiscott House’) over a system of wires 8 miles long, by observing at one end the divergence of a pair of pith balls when a charge of electricity was sent into the other.
‘Ronalds's instrument was of real practical use, and the brilliant idea of using synchronously rotating discs, now employed in the Hughes printing apparatus, was entirely his own. The only defect in his invention was the comparative slowness with which a succession of symbols could be transmitted.’—*D. N. B.* He at once offered the invention to the Admiralty, and was officially answered that now the French war was over telegraphs of any kind were wholly needless, and that no other than the semaphore then in use would be adopted. The inventor published the above account first in 1823, and then dropped telegraphy for good.
This second edition contains an interesting preface dated *Battle*, Oct. 9, 1871, and written in the inventor's 83rd year and 48 years after the publication of the first edition. There are however only 4 plates, instead of the 8 contained in the original edition.
It is pleasing to remember that an Englishman, DR. WILLIAM GILBERT, wrote the first scientific treatise on electricity in Elizabeth's reign, and another invented the electric telegraph in George the Third's, and another wireless telegraphy (on the Flat Holm in the Bristol Channel) in Queen Victoria's.
- 14421 **RONAYNE** (Philip) TREATISE OF ALGEBRA, in two Books, the First treating of the ARITHMETICAL, the Second of the GEOMETRICAL PART; 2nd Edition, with Additions, *numerous diagrams*, 8vo. *old calf*, 8s 6d
1727
This work was unknown to Poggeдорff (who does not even mention the author), Lowndes, and Allibone. Pp. 395-461, treat of the obsolete METHOD OF EXHAUSTION, with applications to draw tangents, to find the maxima and minima of curves, and to quadratures, yet the author does not even remotely refer to Newton's Method of Fluxions, or the principles underlying it. The author was doubtless an ancestor of Joseph Philip Ronayne, railway and hydraulic engineer in Ireland and California, and Home Rule M.P., who died in 1876.
- 14422 **RONCA** (Cap. di Fregata G.) MANUALE di BALISTICA ESTERNA; *with tables and diagrams*, 8vo. *sewn*, 4s
Livorno, 1901
- 14423 ——— MANUALE del TIRO, con un Appendice del PROF. [G.] PESCI sulla ‘NOMOGRAFIA’; *with 10 tables and 202 other illustrations*, thick 8vo. *sewn*, 6s (p. L. 10 nett)
ibidem, 1901
- 14424 ——— ed A. BASSANI: BALISTICA ESTERNA; *with 78 illustrations*, 8vo. *sewn*, 5s *ib.*, 1901
This work was awarded its gold medal by the Italian Ministry of Marine.
- 14425 **RONDELET** (Antoine Jean Baptiste; *son of Jean Rondelet*) ESSAI HISTORIQUE sur le PONT de RIALTO; *with 12 engraved plates, folio, boards* (back damaged), 6s 6d
1836
One of the few monographs on the glorious Venetian bridge. It includes the alternative schemes of Scamozzi, and that carried out by Antonio da Ponte, and a discussion of the covered monumental bridge in the Third Book of Palladio.
- 14426 **RONDELET** (Jean, *de l'Institut*) MÉMOIRE sur la MARINE des ANCIENS, et sur les NAVIRES à PLUSIEURS RANGS de RAMES; *with 10 folding copperplates*, roy. 4to. *sewn* (RARE), 15s
chez l'auteur, 1820
This is probably the only complete work ever written on this interesting subject, and fully discusses the ships of many-banked oars which must have added a horror of their own to the slavery of a cultured Antiquity. There was no copy of the work in the Scott Library, nor is there one in that of the Institution of Naval Architects.
- 14427 ——— TRAITÉ THÉORIQUE et PRATIQUE de l'ART de BÂTIR, 10^e Edition, 5 vols. 4to., and Atlas containing 210 plates, roy. folio—6 vols. *hf. russia* (backs rubbed), 15s
1842-3
‘Cette édition doit être préférée à toutes celles antérieures, parce qu'elle renferme, non-seulement les corrections faites par l'auteur lors des réimpressions entières ou partielles de l'ouvrage, mais encore les corrections et additions du fils de l'auteur à partir de la 1^{re} édition, publiée de 1827 à 1832. Cet important ouvrage est indispensable à tout architecte. La clarté avec laquelle est rédigé ce grand corps de doctrine, tout à la fois théorique et pratique, en rend la lecture facile à quiconque veut surveiller par lui-même ses constructions.’—*Quérard*.
- 14428 **RONEY** (Sir Cusack Patrick) RAMBLES on RAILWAYS, *with 11 plates and folding maps*, 8vo. cl., 5s
1868

- 14430 **RONDELLI (Geminiano)** SEX PRIORA EUCLIDIS ELEMENTA [Versione Latina], quibus accesserunt XI. et XII.; with engraved title, and numerous diagrams, 4to. *old Italian vellum (somewhat browned, otherwise a sound copy)*, 6s 6d
Bononicæ, 1719
 'Edizione assai migliore dell' antecedente (di 1684 e 1695). L'autore refuse e migliorò in questa edizione il suo lavoro assai pregiato per l'esattezza colle quale curò di renderci gli elementi di Euclide. Le due prime edizioni riboccano di errori tipografici.'—Riccardi.
- 14431 **RONDOT (Natalis)** NOTICE du VERT de CHINE, et de la TEINTURE en VERT chez les CHINOIS; suivie d'une Étude des PROPRIÉTÉS CHIMIQUES et TINCTORIALES du LO-KAO, par J. PERSOZ, et de Recherches sur la MATIÈRE COLORANTE des NERPRUNS INDIGÈNES, par A. F. MICHEL; with 2 folding plates, and 4 specimens of dyed silk, roy. 8vo. *sewn, with auto. and MS. notes by T. L. Phipson (SCARCE)*, 17s 6d (p. F. 30 nett) 1858
 Important as the first work containing information on the Chinese green dye Lo Kao.
 'Cet ouvrage m'a été donné par M. Persey le 20 Avril 1858. Paris. T. L. PHIPSON.'—Inscr. on title.
- 14432 **RONNA (Antoine, Ingénieur)** Les INDUSTRIES AGRICOLES: Sucrerie, Distillerie, Brasserie, etc. etc.; with 8 folding plates, and 75 woodcuts, 8vo. *hf. calf*, 3s 6d (p. F. 10 *sewn*) 1869
- 14433 **RÖNTGEN (Wilhelm Konrad)** Een NIEUW SOORT van STRALEN; with *skiagraph*, 8vo. (pp. 21), *sewn*, 1s 6d *Amsterdam*, 1896
- 14434 **ROSA (Edward Bennett, Bureau of Standards)** The MUTUAL INDUCTANCE of a CIRCLE and a COAXIAL SINGLE LAYER COIL. The LORENZ APPARATUS and the AYRTON-JONES ABSOLUTE ELECTRODYNAMOMETER, with 12 diagrams, roy. 8vo. (pp. 23), *sewn*, 2s 6d *Washington*, 1907
- 14435 —, and Louis COHEN, Bureau of Standards: The MUTUAL INDUCTION of COAXIAL SOLENOIDS, with 11 diagrams, roy. 8vo. (pp. 20), *sewn*, 2s *ibidem*, 1907
- 14436 **ROSA (Paolo, s.j., Osservatorio Pontificio)** STUDIUM intorno ai DIAMETRI SOLARI; with 5 charts (2 folding), roy. 4to. *sewn*, 3s 6d *Roma*, 1874
- 14437 **ROSACCIO (Guiseppe)** MONDO ELEMENTARE et CELESTE, nel quale si tratta de' Moti, ed Ordini delle Sfere, della Grandezza della Terra, dell' Europa, Africa, Asia, ed America . . . co' Nomi Antichi e Moderni de' Luoghi; discorrendo si delle Generazioni, che si fanno nell' Aria, della SALSEDINE del MARE, e del suo FLUSSO e RIFLUSSO, con Tavole, ecc.; with woodcuts (including many full-page maps), 16mo. *sewn (binding torn off, also title stamped)*; RARE, £1. 1s
Trevigi, Ev. Deuchino, 1604
 The earliest edition known to Riccardi of this once popular work, the last having been published in 1724. It is of interest for its maps, which include a large one of AMERICA on ff. 177-8, with a description and list of places on ff. 178-92. The author is not mentioned by Poggendorf.
- 14438 **ROSCOE (Rt. Hon. Sir Henry Enfield, F.R.S.)** ALUMINIUM, with diagram, 8vo. (pp. 14), *sewn*, 1s 6d 1889
- 14439 — Die FRIEDENSMISSION der NATURWISSENSCHAFTEN (Sonderabdruck aus 'Deutsche Revue'), roy. 8vo. (pp. 9), *sewn*, 1s 6d [Stuttgart, 1908]
 The 'Peace Mission of the Natural Sciences' must have made the Prusso-Nietzscheian professoriate who heard or read it grin.
- 14440 — The HISTORY of the CHEMICAL ELEMENTS, with folding spectrum plate, 12mo. (pp. 22), *sewn*, 2s 1875
- 14441 — INDIGO, and its ARTIFICIAL PRODUCTION: a Discourse at the Royal Institution, 8vo. (pp. 15), *sewn*, 1s 6d 1881
- 14442 — LESSONS in ELEMENTARY CHEMISTRY, Inorganic and Organic [new Edition], with folding spectrum plate and 78 woodcuts, fcap. 8vo. *cl.*, 1s 6d (p. 4s 6d) 1888
- 14443 — The LIFE WORK of a CHEMIST [LOUIS PASTEUR], 8vo. (pp. 20), *sewn*, 1s 6d *Birmingham*, 1889
- 14444 — On the MEASUREMENT of the CHEMICAL ACTION of the SOLAR RAYS, 8vo. (pp. 8), *sewn, with inscr. to Sir Edward Frankland, F.R.S.*, 2s 1860
 The author was awarded the Royal Society's Royal Medal for his researches.
- 14445 — A NEW CHEMICAL INDUSTRY, established by M. CAMILLE VINCENT, with 2 woodcuts, 8vo. (pp. 8), *sewn*, 1s 6d 1879
 An account of Vincent's process to obtain chloride of methyl from the by-products of beet sugar manufacture.
- 14446 — RECENT PROGRESS in the COAL-TAR INDUSTRY, 8vo. (pp. 17), *sewn*, 2s 1886
- 14447 — On a SELF-RECORDING METHOD of MEASURING the INTENSITY of the CHEMICAL ACTION of TOTAL DAYLIGHT, with plates, roy. 4to. (pp. 19), *sewn*, 3s 6d 1874
- 14448 — SPECTRUM ANALYSIS: six Lectures before the Society of Apothecaries of London, with Appendixes, second Edition [enlarged], with 7 spectrum plates (2 coloured), and 94 woodcuts, 8vo. *cl. extra, t. e. g.*, 4s (p. £1. 1s) 1870
- 14449 — THIRD EDITION [greatly enlarged], with 10 spectrum and other plates (3 coloured), and 94 woodcuts, thick 8vo. *cl. extra, t. e. g.*, 6s 6d (p. £1. 1s) 1873
- 14450 — FOURTH [LAST] EDITION, revised and considerably enlarged by the Author and ARTHUR SCHUSTER, F.R.S., with 6 plates (3 coloured), and 119 woodcuts, 8vo. *cl. extra, t. e. g.*, 12s (p. £1. 1s) 1885
 Including appendixes of important memoirs by various authors on the subject.
- 14451 — TECHNICAL CHEMISTRY, with woodcuts, post 8vo. (pp. 46), *sewn*, 1s 6d 1877
- 14452 —, and Arthur HARDEN; F.R.S.: NEW VIEW of the ORIGIN of DALTON'S ATOMIC THEORY, with Letters and Documents concerning Dalton's Life, now first published, with steel portrait of Dalton by Jeens, and 6 plates and fss., 8vo. *buckram*, 3s 6d (p. 6s nett) 1896
 Comprising: On the Genesis of Dalton's Atomic Theory; Dalton's Scientific Diary, 1802-8; Dalton's Atomic Weight Numbers; Notes of Lectures delivered at the Royal Institution, 1810; and Letters from and to Dalton.
- 14453 — INORGANIC CHEMISTRY for ADVANCED STUDENTS; with 54 woodcuts, post 8vo. *cl.*, 2s (p. 4s 6d) 1903

- 14455 **ROSCOE** (Rt. Hon. Sir Henry Enfield, F.R.S.), and Carl SCHORLEMMER, F.R.S.: TREATISE ON CHEMISTRY, VOL. I: The NON-METALLIC ELEMENTS, with fine steel portrait of Dalton by C. H. Jeens, and 357 woodcuts, thick 8vo. cl., 3s (p. £1. 1s) 1887 or '8
- 14456 ——— NEW EDITION, completely revised, with steel portrait of Dalton by Jeens, and 364 woodcuts, thick 8vo. cl., 4s 6d (p. £1. 1s) 1888
- 14457 ——— NEW EDITION, completely revised by the AUTHOR, assisted by H. G. COLMAN, and ARTHUR HARDEN; F.R.S., with steel portrait of Dalton by Jeens, and 374 woodcuts, thick 8vo. cl., 7s 6d (p. £1. 1s.) 1894
- 14458 ——— VOLUME II: METALS, with 327 woodcuts and diagrams, 2 vols. 8vo. cl., 3s 6d (p. £1. 11s 6d) 1879
- 14459 ——— NEW [THIRD] EDITION, completely revised by the Author, assisted by H. G. COLMAN and ARTHUR HARDEN; F.R.S., with 191 woodcuts, thick 8vo. cl., 10s (p. £1. 11s 6d) 1897
- 14460 ——— NEW [FOURTH] EDITION, completely revised by the Author and ARTHUR HARDEN; F.R.S., with 239 illustrations, thick 8vo. cl., 18s 6d (p. £1. 10s nett) 1907
- 14461 ———, VOLUME III: CHEMISTRY of the HYDROCARBONS and their DERIVATIVES, or ORGANIC CHEMISTRY, PART I, with 98 woodcuts, thick 8vo. cl. (o. p.), 10s 6d (p. £1. 1s) 1881
This part includes an interesting historical introduction.
- 14462 ——— PART II, with 155 woodcuts, 8vo. cl., 6s (p. £1. 1s) 1884
- 14463 ——— PART IV, with 6 woodcuts, 8vo. cl., 6s (p. £1. 1s) 1888
- 14464 **ROSCOE** (Thomas; editor of the *Novelists' Library*), and Peter LECOUNT, F.R.A.S.: The LONDON and BIRMINGHAM RAILWAY, with the Home and Country Scenes on each Side of the Line; including Sketches of Kenilworth, Leamington, Warwick, Guy's Cliff, Stratford, etc., with coloured folding map, 18 fine steel plates by J. H. Le Keux, W. Radclyffe, etc., and numerous woodcuts, 8vo. original hf. morocco gilt, 15s [1838]
- 14465 ——— A LARGE PAPER COPY, with the map plain, roy. 8vo. calf (margins slightly spotted), 15s
Written in the amusing materialistic bombast of the 'Thirties, and interesting besides for the engineering details, and the numerous sidelights on the primitive signalling (by policemen with flags and lanterns) and other practices of the first decade of railways.
- 14466 ——— THE SAME: with the BOOK of the GRAND JUNCTION RAILWAY: a History and Description of the Line from BIRMINGHAM to LIVERPOOL and MANCHESTER, by the SAME, assisted by the RESIDENT ENGINEERS of the LINE, with 16 steel-engravings after C. Radclyffe, large folding map, COLOURED, and 8 plans of Liverpool, Manchester, and Birmingham, 2 vols. 8vo. original cl. gilt, £1. 8s 18[38]-9
- The Grand Junction, with the London and Birmingham and Liverpool and Manchester, completed the first English trunk line, and had its share in bringing the politics as well as the products of Lancashire into closer touch with London.
- 14467 **ROSE** (Heinrich; Univ. Berlin; F.R.S.) TABULE ATOMICÆ: the CHEMICAL TABLES for the CALCULATION of QUANTITATIVE ANALYSES, recalculated for the more recent Determinations of Atomic Weights, and with other Alterations and Additions, by WILLIAM P. DEXTER, roy. 8vo. cl., with editor's inscr. (scarce), 5s Boston (Mass.), 1850
- 14468 ——— HANDBUCH der ANALYTISCHEN CHEMIE, 3. Auflage, 2 vols. 8vo. sewn, with author's inscr. (as below), 4s Berlin, 1833-4
'Herrn Ed. Solly [F.R.S.] jun. freundschaftlichst der Verfasser. Berlin d. 27. März 1836.'—Inscr. on flyleaf.
- 14469 ——— SECHSTE (NEUESTE) AUFLAGE, nach dem Tode des Verfassers vollendet von R. FINKENER, 2 vols. 8vo. hf. calf (SCARCE), £1. 1s Leipzig, 1867-71
'In his *Handbuch der analytischen Chemie* he collected together in a masterly manner the best of the then known methods in qualitative and quantitative analysis.'—Prof. E. v. Meyer.
- 14470 ——— MANUAL of ANALYTICAL CHEMISTRY, translated by JOHN GRIFFIN, with woodcuts, 8vo. hf. cl., 4s 1831
The first English translation of Rose's *Handbuch*, containing 'original matter of considerable importance', which is not included in the original.
- 14471 ——— PRACTICAL TREATISE of CHEMICAL ANALYSIS, including Tables for Calculations in Analysis, translated from the French, and from the 4th German Edition, with Notes and Additions by A[LPHONSE RENÉ LE MIRE DE] NORMANDY, with woodcuts, 2 thick vols. 8vo. cl., 7s 6d 1848-9
Another English translation of the *Handbuch*, with many additions by the English and French translators.
- 14472 ——— TRAITÉ PRATIQUE d'ANALYSE CHIMIQUE, suivi de TABLES, traduit sur la 4^e Édition, par A. J. L. JOURDAN, avec Notes et Additions par EUGÈNE PÉLIGOT; with woodcuts, 2 vols. 8vo. hf. calf gilt, with auto. of W. J. Russell, F.R.S., 3s 6d 1843
- 14473 ——— Über die VERBINDUNGEN des CHROMS mit dem FLUOR und CHLOR, 4to. (pp. 9), sewn, with inscr. to Edward Solly, F.R.S., 2s 6d [Berlin,] 1832
- 14474 ——— Über eine VERBINDUNG des PHOSPHORS mit dem STICKSTOFF, 4to. (pp. 18), sewn, with inscr. to Edward Solly, F.R.S., 2s 6d [ibidem,] 1833
- 14475 ——— Über das WASSERFREIE SCHWEFELSAURE AMMONIAK: Über das WASSERFREIE SCHWEFELSAURE AMMONIAK, 4to. (pp. 14 + 10), sewn, with inscr. to Edward Solly, F.R.S., 3s 6d [ib.,] 1834
- 14476 **ROSE** (Thomas Kirke, Assayer of the Mint) The METALLURGY of GOLD, 4th Edition [enlarged], with front. and 94 illustrations (including folding plates), thick 8vo. cl., 8s 6d (p. £1. 1s) 1902
Containing a long bibliography at end, which includes many interesting works of historical interest.
'The most complete description of the chlorination process which has yet been published.'—*Mining Journal*.
- 14477 **ROSEN** (P. G.) SVERIGES PRECISIONSAFVÄGNING, 1886-1905; with 10 illustrations and 11 maps (some coloured and folding), cr. 4to. (pp. 197), sewn, 4s Stockholm, 1906
- 14478 **ROSENBERG** (Alexander; Univ. Dorpat) VERGLEICHENDE UNTERSUCHUNGEN betreffend das Alkalialbuminat, Acidalbumin, und Albumin: Inaugural-Dissertation, 8vo. (pp. 39), sewn, 1s 6d Dorpat, 1883

- 724 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14480 **ROSENHAIN** (Walter; *Supt. Dept. of Metallurgy, National Physical Laboratory*) *The METALLURGICAL and CHEMICAL LABORATORIES in the NATIONAL PHYSICAL LABORATORY, with 4 plates and 9 other illustrations*, 8vo. (pp. 22), *sewn*, 2s 1908
- 14481 ——— *OBSERVATIONS on RECALESCENCE CURVES, with folding plate, and 6 diagrams*, 8vo. (pp. 29), *sewn*, 1s 6d 1908
- 14482 ———, and **P. A. TUCKER**: *EUTECTIC RESEARCH, NO. I.: the ALLOYS of LEAD and TIN, with 5 plates, and 14 diagrams*, roy. 4to. (pp. 34), *sewn*, 2s 6d 1908
- 14483 **RÖSLING** (Christian Lebrecht) *Der GALVANISMUS aus dem DUNKEL in das LICHT hervorgezogen; with 6 folding plates*, 2 vols. 8vo. in 1, *sewn*, 7s 6d Ulm, 1824
The author was an adherent of the two-fluid theory of electricity, which he tried to establish by a number of experiments. He is not mentioned in Hoppe's *Geschichte der Elektrizität*.
- 14484 **ROSOCHATIUS** (Ernst) *Über BEWEGUNGEN eines PUNKTES: Inaugural-Dissertation*, 4to. (pp. 32), *sewn*, 2s Berlin, 1877
- 14485 **ROSS** (Rear-Adml. Sir John; *Arctic explorer*) *On COMMUNICATION to INDIA, in LARGE STEAM-SHIPS, by the Cape of Good-Hope [with Appendix on Collier's improved Patent Steam Boilers], with folding plate and map*, 8vo. (pp. 63), *sewn*, 3s 6d 1838
Sir John Ross was an undoubted pioneer of steam for the Navy, at a period 'of apathy and indifference to the subject, which has been the baleful consequence of the ridicule that had been cast on the supposition that steam might one day supersede every former mode of warfare' (p. 4-5).
- 14486 **ROSS** (Owen Charles Dalhousie, M.I.C.E.) *AIR as FUEL; or, Petroleum and other Mineral Oils utilized by carburetting Air and rendering it inflammable*, 2nd Edition, cr. 8vo. *cl. (o. p.)*, 3s 6d 1875
Interesting both in connexion with oil fuel and the carburetted air now so largely used in gas-lighting.
- 14487 **ROSS** (Lt.-Col. William Alexander, R.A., F.G.S.) *ALPHABETICAL MANUAL of BLOWPIPE ANALYSIS, showing all known Methods, Old and New, with 44 diagrams*, cr. 8vo. *cl. (scarce)*, 5s 1880
With interesting 3-page dedication to Prince Bismarck.
- 14488 **ROSSE** (William Parsons, third Earl of; P.R.S.) *OBSERVATIONS on some of the NEBULÆ, with 2 plates*, 4to. (pp. 4), *sewn*, 3s 1844
Lord Rosse's great reflector at Parsonstown was the first that satisfactorily analysed nebulae.
- 14489 **ROSSEL** (Contre-Amiral Elisabeth Paul Edouard de) *PRACTICAL TREATISE on FINDING the LATITUDE and LONGITUDE at SEA; with Tables designed to facilitate the Calculations, translated by THOMAS MYERS, Royal Military Academy, Woolwich, with Practical Examples, an Introduction to the Tables, and some Additional Tables, with front. and folding tables*, 8vo. *old calf (back damaged, and title stamped)*, 8s 6d 1815
- 14490 ——— *ANOTHER COPY, boards, uncut*, 10s
'Travail important dans lequel il indique des méthodes très-simples pour donner aux latitudes et aux longitudes toute l'exactitude dont elles sont susceptibles; il forme, aux jugements des savants, non-seulement un excellent traité d'astronomie nautique, mais un recueil de toutes les observations de latitude et longitude fait à la mer et à terre pendant le cours du voyage 'à la recherche de La Pérouse'.—*Dezob de La Roquette*.
There was no copy of this work in the Scott Library.
Among the trade subscribers to its publication on the titlepage is 'T. Sotheran, York', who came to London and founded the firm publishing the present catalogue in 1816.
- 14491 **ROSSEY** (William Henry) *ELEMENTARY NAVIGATION for YOUNG SEAMEN, with folding map, plate, and diagrams*, 8vo. *cl.*, 2s [1879]
- 14492 ——— *The LAW of STORMS CONSIDERED PRACTICALLY, with numerous diagrams*, 8vo. *cl.*, 4s 1876
- 14493 ——— *A SHIP'S POSITION at SEA: PRACTICAL METHODS of FINDING the LATITUDE and LONGITUDE by Two Altitudes of the Sun, or other Celestial Objects, and of determining the Bearing of the Land from a single Altitude*, 8vo. (pp. 23), *sewn*, 2s 1862
Published to make practically serviceable the 'Method of Finding a Ship's Position at Sea' of Captain T. H. Sumner, Boston, Mass., 1843, and of Commander Thomas Lynn, of the Indian Navy, of ten years earlier.
- 14494 **ROSSETTI** (Donato, di Livorno) *DIMOSTRAZIONE FISICO-MATEMATICA, delle SETTE PROPOSIZIONI [qual sia la VERA CAUSA FISICA degl' EQUILIBRI]; with numerous woodcuts*, 8vo. *boards, uncut (rare)*, 10s 6d Firenze, 1668
At end is: Lettere al . . . Carlo Facassati [con Lettera del Montanari], Risposta alle Opposizione del Signor Geminiano Montanari (pp. 45).
The above work, which is dedicated to Cosimo III., Duke of Tuscany, was written in opposition to Galileo.
- 14495 **[ROSSI (D.)]** *ETUDE sur l'ORIGINE du CALCAIRE*, roy. 8vo. (pp. 20), *sewn, with author's inscr.*, 1s 6d [c. 1865]
- 14496 ——— *La HOUILLE, ou la RÉFUTATION du SYSTÈME de W. F. A. ZIMMERMANN; 8vo. (pp. 19), sewn*, 1s 6d [c. 1858]
- 14497 **ROST** (Johann Leonhard) *Der AUFRICHTIGE ASTRONOMUS, welcher von verschiedenen, so wol zur Doctrina Sphaerica als zur Bewegung der Cometen und zu den Observationibus Astronomicis gehörigen Materien, einen ausführlichen Unterricht ertheilet. Dabey er ferner auf eine überaus deutliche Art lehret: Wie man die Eclipses Primi Satellitis Jovis durch blosses Addiren erforschen; dessgleichen alle Mond- und SONNEN-FINSTERNISSE bis 1750, ohne einige Rechnung, nur durch CIRCKEL und LINEAL sehr genau anzeigen soll; with engraved frontispiece, 12 folding copperplates, and 18 folding tables*, thick sm. 4to. *old boards*, 10s 6d Nürnberg, 1727
- 14498 **ROTCH** (Abbott Lawrence, Director) *OBSERVATIONS at the BLUE HILL METEOROLOGICAL OBSERVATORY in 1888, with Statement of the Local Weather Predictions*, roy. 4to. (pp. 123), *sewn*, 5s Cambridge [Mass.], 1889
- 14499 ——— *RESULTS of the METEOROLOGICAL OBSERVATIONS at the BLUE HILL METEOROLOGICAL OBSERVATORY in 1886, with plate and 7 charts*, sm. folio, *sewn*, 3s 6d Boston [Mass.], 1887
- 14500 **ROTHE** (Heinrich August; *Univ. Erlangen*) *De DIVISIONE PERIPHERIAE CIRCULI in XVII et XIII PARTES AEQUALES Disquisitio Analytica*, 4to. (pp. 32), *sewn*, 2s 6d Erlangae, 1805

- 14501 **ROTH (Justus Ludwig Adolf; Univ. Berlin)** ALLGEMEINE und CHEMISCHE GEOLOGIE, BAND II (PETROGRAPHIE: Bildung, Zusammensetzung und Veränderung der Gesteine), 3 parts roy. 8vo. *sewn*, 8s (p. M. 20)
The author's work on petrography is of great importance. *Berlin*, 1883-7
- 14502 ——— III. BAND. I. ABTHEILUNG: Die ERSTARRUNGSKRUSTE und die LEHRE vom METAMORPHISMUS, roy. 8vo. *sewn*, 3s (p. M. 6) *ibidem*, 1890
- 14503 **ROTHERHAM (John, M.D.; Prof. Natural Philosophy, St. Andrews)** PHILOSOPHICAL INQUIRY into the NATURE and PROPERTIES of WATER, with folding plate of the several salts, 8vo. *sewn*, 5s 6d *Newcastle upon Tyne* [1770]
Containing a chapter on 'the specific gravity of water, with a new and accurate method of determining it.' The author became in 1793 coadjutor to Prof. Joseph Black in the chemistry chair at Edinburgh University (D. N. E.).
- 14504 **ROTHSCHOLZ (Friedrich; bookseller)** BIBLIOTHECA CHEMICA ROTHSCOLTZIANA, darinnen man alle diejenigen Auctores findet, die von dem STEIN der WEISEN, von Verwandlung der schlechten Metalle in bessere, von Bergwerken, von Mineralien, u. s. w. geschrieben haben; samt Lebens-Beschreibungen berühmter Philosophorum, III. und IV. STÜCK; with portraits of *Flamellus and Helvetius*, 12mo. boards, 8s 6d *Nürnberg und Alldorf*, 1727-8
- 14505 **ROUBAIS du TOURCOIN (Jaques de)** PHYSICAL DISSERTATION concerning the CAUSE of the VARIATION of the BAROMETER, the Form of the Globe of the Earth, the Diminution of Heavy Bodies, the Flux and Reflux of the Sea; wherein some MISTAKES of SIR I. NEWTON'S SYSTEM are rectified; also, that it is impossible to find out the Longitude; and that those who pretend to make that Discovery, are Impostors, translated into English, sm. 8vo. (pp. 74), *sewn*, (rare), 9s 1721
- 14506 **ROUCHÉ (Eugène)** Sur le DÉVELOPPEMENT des FONCTIONS en SÉRIES ORDONNÉES suivant les Dénominateurs des Réduites d'une Fraction Continue, 4to. (pp. 35), *sewn*, with author's inscr., 2s 1858
- 14507 ——— Sur les INTÉGRALES communes à plusieurs Problèmes de Mécanique relatifs au MOUVEMENT d'un Point sur une SURFACE, 4to. (pp. 23), *sewn*, 2s [1854]
- 14508 ——— MÉMOIRE sur la SÉRIE de LAGRANGE, 4to. (pp. 32), *sewn*, 2s 6d [1861]
- 14509 ———, et Charles de COMBEROUSSE: TRAITÉ de GÉOMÉTRIE ÉLÉMENTAIRE; 3^e Edition, revue et augmentée; with 612 diagrams, 2 vols. 8vo. in 1, *hf. calf*, 3s 6d 1873
- 14510 ——— CINQUIÈME ÉDITION, augmentée; with 620 diagrams, 2 vols. 8vo. *sewn*, 5s (p. F. 16 nett) 1883
- 14511 ———, et L. LACOUR: LEÇONS NOUVELLES de TRIGONOMÉTRIE RECTILIGNE et SPHÉRIQUE; with 49 diagrams, 8vo. *sewn*, 2s 1857
- 14512 ———, et Lucien LÉVY: ANALYSE INFINITÉSIMALE à l'Usage des INGÉNIEURS, Tome II: CALCUL INTÉGRAL (Intégrales Indéfinies et Définies, Séries de Fourier, Fonctions Elliptiques, Équations Différentielles Ordinaires et aux Dérivées Partielles, Calcul des Variations; with 50 diagrams, thick roy. 8vo. *sewn*, with auto. of Prof. Lloyd Tanner, F.R.S., 8s (p. F. 15 nett) 1902
- 14513 **ROULET (Louis)**, OFFICIELE STUKKEN betrekkelijk het DRINKBAAR MAKEN van ZEEWATER door den TOESTEL van, roy. 8vo. (pp. 56), *sewn*, 2s 6d *z. p.*, 1851
- 14514 **ROUTH (Edward John, F.R.S., Fellow of Peterhouse)** TREATISE on ANALYTICAL STATISTICS, with numerous Examples, diagrams, 2 vols. 8vo. cl., 10s (p. £1. 4s) *Univ. Press, Cambridge*, 1891-2
- 14515 ——— TREATISE on DYNAMICS of a PARTICLE, with numerous Examples, diagrams, 8vo. cl. (*fresh copy*), SCARCE, £1. 5s *apud eandem, ibidem*, 1893
- 14516 ——— ELEMENTARY TREATISE on the DYNAMICS of a SYSTEM of RIGID BODIES, with numerous Examples, with diagrams, post 8vo. cl., 2s 6d *ibidem*, 1860
- 14517 ——— SECOND EDITION [greatly enlarged], with diagrams, post 8vo. cl., 3s 1868
- 14518 ——— THIRD EDITION, revised and enlarged, with diagrams, 8vo. cl., 4s 6d (p. 14s) 1877
Containing a new chapter on Motion in Two Dimensions, and Historical Notices.
- 14519 ——— FOURTH EDITION, revised and enlarged, with diagrams, 8vo. cl., 6s (p. 14s) 1882
In this edition the work was split into two parts, Elementary and Advanced. The above, as well as the following editions, contain the Elementary Part only.
- 14520 ——— FIFTH EDITION, revised and enlarged, with diagrams, 8vo. cl., 7s (p. 14s) 1891
- 14521 ——— SIXTH EDITION, revised and enlarged, with diagrams, 8vo. cl., 7s 6d (p. 14s) 1897
'A masterly elementary treatise.'—D. N. B. It was translated into German, with a preface by Prof. Klein.
'These [the above] three dynamical treatises constitute an encyclopaedia and bibliography on the subject which have no equal either here or abroad.'—D. N. B. A distant kinsman of Dr. Martin Joseph Routh, he was the chief mathematical coach at Cambridge for thirty years, and produced twenty-eight Senior Wranglers and forty-two Smith's Prizemen.
- 14522 **ROUTLEDGE (Thomas)** BAMBOO, considered as a PAPER-MAKING MATERIAL, with Remarks on its Cultivation and Treatment, 8vo. (pp. 40), *sewn*, 1s 6d 1875
- 14523 **ROUVROY (Friedrich Gustav, Direktor der Militär-Akademie [zu Dresden])** VORLESUNGEN über die ARTILLERIE zum Gebrauch der Königl. Sächs. Militär-Akademie, 2. gänzlich umgearbeitete Auflage; with 23 folding plates, 3 vols. 8vo. *calf gilt* (binding slightly damaged), 6s *Dresden*, 1821-5
Containing copious descriptions and illustrations of contemporary artillery.
- 14524 **ROWAN (Frederick John)** On GAS-PRODUCERS; with Abstract of the Discussion, edited by JAMES FORREST, M.I.C.E., with 78 woodcuts, 8vo. (pp. 115), *sewn*, 3s 6d 1886
- 14525 **ROY (Andrew, State Inspector of Mines, Ohio)** THE COAL MINES: a Description of the various Systems of WORKING and VENTILATING MINES, with Sketch of the principal Coal Regions of the Globe, and Statistics of the Coal Production, with portrait, maps, and numerous woodcuts, 8vo. cl. (*cover stained*), 5s *Cleveland*, 1876
- ROY (Maj.-Gen. William, F.R.S.)** Mode of determining the relative SITUATION of the ROYAL OBSERVATORIES of GREENWICH and PARIS (1787)—v. MASKELYNE, No. 11545, *ante*.

14527 **ROWE** (Capt. Jacob) ALL SORTS OF WHEEL-CARRIAGE, IMPROVED: wherein it is plainly made appear, that a much less than the Usual Draught of Horses, etc., will be requir'd in Waggon, Carts, Coaches, and all other Wheel Vehicles, as likewise all Water Mills, Wind-Mills, and Horse-Mills. This Method being found good in Practice, by the Trial of a Coach and Cart already made, shews of what great Advantage it may be to all Farmers, Carriers, etc. etc. by saving them one half of the Expenses . . . according to the common Method, with Explanation of the STRUCTURE of a COACH and CART, according to this Method, with 5 folding copperplates. sm. 4to. *hf. bound (sound copy)*; RARE, £1. 15s 1734

14528 ——— ANOTHER COPY, *sewn (wanting Plate V)*, £1. 1s

14529 ——— THE SAME, FURTHER ILLUSTRATED with 2 copperplates of a 'Gravel Cart' and a 'Rolling Cart' from the 'Gentleman's Magazine', *hf. smooth maroon morocco extra, uncut, t. e. g.* (FINE COPY), £2. 10s

This copy fetched £3. 1s at auction in 1905.

This work, which is not noticed by Lowndes or Poggendorff, contains the important suggestion of reducing friction by letting the axle run on the top of friction wheels, which in their turn have axles running on other wheels. This suggestion does not seem to have been adopted, but is undoubtedly the forerunner of ball-bearings. It was however used in the friction wheels of Atwood's machine to reduce friction to a minimum. The work also describes contrivances 'to take off the friction of a truck of any single, double, treble, etc. blocks,' 'to diminish the friction of a pendulum by the application of a single sector,' 'a method of cancelling the friction of all wheel-carriages,' etc. The author also claims that he was the first to discover that friction does not depend on the extent of the surfaces in contact, but on the pressure.

The 'Rolling Cart' depicted in the third copy is a prototype of the modern road roller.

14530 ——— NAVIGATION IMPROVED: containing an exact Account of the FLUID QUADRANT for the LATITUDE; or Quadrants reduc'd to the utmost Degree of Portableness, whereby Quadrants of a small Radius are contriv'd to be equally useful, and as exact as the largest Quadrant now in Use, etc. etc.; and ESSAY on the DISCOVERY of the LONGITUDE, by a NEW INVENTION of an EVER-LASTING HOROMETER, etc., with 4 folding copperplates, sm. 8vo. (pp. 59), *sewn (very rare)*, 12s 1725

The author claims to have overcome the difficulty of taking observations in cloudy or misty weather by his Fluid Quadrant, which does not require the observation of the horizon. 'Till the Invention of this Instrument, no Altitudes at Sea could ever be taken to Exactness, nor no Lunar Observations, till now, could ever be exact enough for discovering the Longitude' (p. VIII).

The above work was quite unknown to Watt and Allibone, who only mention the author's 'Wheel Carriages'; nor is there any account of him in *D. N. B.*, or other works of reference.

14531 **ROWE** (John) INTRODUCTION to the DOCTRINE of FLUXIONS, 2nd Edition, with Additions and Alterations, with numerous diagrams, 8vo. *old calf (rare)*, 8s 6d 1757

Interesting as the earliest elementary treatise on the fluxional calculus. The above edition is divided into the Direct and Inverse Method of Fluxion (Differential and Integral Calculus), and contains an appendix of Miscellaneous Questions with their Answers.

14532 **ROWE** (R. C., *Trinity Coll., Cantab.*) MEMOIR on ABEL'S THEOREM, roy. 4to. (pp. 48), *sewn, with author's inscr.*, 2s 6d 1881

Presenting the subject 'in a shortened and simplified form.'—P. 1.

14533 **ROWELL** (George Augustus) CONJECTURES on the CAUSE of RAIN, STORMS, the AURORA, and MAGNETISM, with a Suggestion for CAUSING RAIN at WILL, 8vo. (pp. 16), *sewn (scarce)*, 4s Cambridge, 1840

The author would cause rain 'by raising electrical conductors to a cloud by means of balloons, withdrawing the surcharge of electricity, and causing rain to fall.' (p. 9.) There is no copy of the above pamphlet in the R. Met. Society's Library Catalogue (1891).

14534 ——— ELECTRIC METEOROLOGY: a Letter to the Earl of Carnarvon on the CAUSE of RAIN, Storms, the Aurora and Terrestrial Magnetism; also a Paper on the Excavative Force in Dynamite Explosions, and on the Nature of Gases, with folding chart and plate, 8vo. *cl.*, 8s 6d privately printed, Oxford, 1887

Bound up with the above are numerous pamphlets and brochures by the author on the same subject, published between 1866 and 1888.

14535 ——— ESSAY on the CAUSE of RAIN and its allied Phenomena, with folding chart, 8vo. *cl.*, 5s *ibidem*, 1859

The author objects to the cyclonic theory of storms, and advances one of his own, mainly based on the quantity of atmospheric electricity.

He was a very interesting personality. A native of Oxford, he was the son of a cabinet maker, to which trade, and that of a paperhanger, he was brought up, while his parents at the same time excited in him a passion for meteorology and astronomy. Befriended by Professor Baden Powell (*q. v. ante*), he eventually became an assistant at the new University Museum, and pursued his scientific interests till he died an old man in 1892.

14536 **ROWLAND** (David) BRIEF DESCRIPTION of the PATENT DOUBLE SEXTANT, and CIRCLE, with which Lunar Distances, and one of the Altitudes, can be simultaneously observed, and any Arc to the Extent of 240° may be measured with the utmost Accuracy, with front., cr. 8vo. (pp. 6), *sewn*, 4s 6d 1834

The merits of this invention, which consists in the application of a second index and horizon glass, with a graduated arc, to the common sextant or circle, were acknowledged by the Lords Commissioners of the Admiralty by a 'handsome gratuity'.

14537 **ROWLAND** (Henry Augustus, *Johns Hopkins Univ.*) On the MECHANICAL EQUIVALENT of HEAT, with subsidiary Researches on the VARIATION of the MERCURIUM from the AIR THERMOMETER, and on the VARIATION of the SPECIFIC HEAT of WATER, with plate and 9 diagrams, roy. 8vo. (pp. 201), *sewn (SCARCE)*, 12s Cambridge [Mass.], 1880

A valuable complement to Joule's researches (*v. Nos.* 9919, 9921, and 9924-5 *ante*).

'One of the most accurate determinations on the mechanical equivalent of heat (*supra*) was made by H. A. Rowland. The part of the work which received greater attention than Joule had given it, was the subject of thermometry. Joule used Mercury thermometers. Rowland, for convenience, used a mercury thermometer too, but compared it with an air thermometer and then reduced his data to the absolute scale. Rowland paid attention also to variations in the specific heat of water for different temperatures. Starting with the water at different temperatures, he obtained by friction of water in a calorimeter different values for the mechanical equivalent. This variation in the values he attributed to changes in the specific heat of water. The latter was found by him to reach a minimum at 30° C.'—*Prof. Cajori*. Added is an 'Appendix containing the Comparison with Dr. Joule's Thermometer' (pp. 8).

- 14539 **ROWLAND** (Charles, *harbour-master of the Port of London*) OBSERVATIONS and ARGUMENTS in Favour of the proposed COLLIER DOCK, in the ISLE of DOGS, 8vo. (pp. 44), *sewn*, 3s 1825
- 14540 **ROWLAND** (John) THE CALOTYPE and COLLODION PROCESSES, 12mo. (pp. 12), *sewn*, 2s 1855
- 14541 **ROWNEY** (Thomas H., F.C.S.) On the CHEMICAL COMPOSITION of MINERAL CHARCOAL, 8vo. (pp. 7), *sewn*, 1s 6d [Edin., 1855]
- 14542 ——— RESEARCHES on the AMIDES of the FATTY ACIDS, 4to. (pp. 10), *sewn*, 2s *ibidem*, 1855
- 14543 **ROWNING** (John, *Rector of Anderby*) A COMPENDIOUS SYSTEM of NATURAL PHILOSOPHY, PART III: OPTICS, with DISSERTATION on the Subject of the HORIZONTAL MOON. with 5 folding plates, 8vo. (pp. 96), *sewn*, 2s 1737
- 14544 ——— COMPENDIOUS SYSTEM of NATURAL PHILOSOPHY: with Notes, containing Mathematical Demonstrations, and some Occasional Remarks; 6th Edition, with Additions, numerous plates, 2 vols. 8vo. *old calf* (joints weak and binding damaged), 7s 6d 1767
- Prof. de Morgan (*Budget of Paradoxes*) quotes 'a very pretty conceit on the subject of attraction' in this work, 'which Boscovich afterwards developed.'
- 14545 **ROYAL INSTITUTION of Great Britain, JOURNALS of the, VOL. I, 8vo. in sheets** (VERY SCARCE), £1. 1s 1802

The only volume published. It contains original contributions by SIR HUMPHRY DAVY, F.R.S.: Account of a new Eudiometer: Outlines of a View of Galvanism: Method of constructing Simple and Compound Galvanic Combinations, without the Use of Metallic Substances: Some Experiments in Galvanic Electricity: Method of copying Paintings on Glass, and others: THOMAS YOUNG, M.D., F.R.S.: On the Velocity of Sound: Description of his Apparatus for exhibiting the Colour of Thin Plates: SIR BENJAMIN THOMPSON, COUNT RUMFORD, F.R.S.: The Means of increasing the Quantities of Heat in the Combustion of Fuel: On the Use of Steam, as a Vehicle for conveying Heat from one Place to another; and by other well-known authors. It was edited by the above three authors.

A COMPLETE SET TO 1912:

- 14546 ——— **SOCIETY of LONDON, ABSTRACTS of the PAPERS** printed in the PHILOSOPHICAL TRANSACTIONS of the, COMPLETE from the Beginning in 1800 to 1854, 6 v., and the PROCEEDINGS, from 1854 to 1912 [Continuation of the foregoing], 82 v.—together 88 vols. 8vo. (13 v. roy. 8vo.), with numerous plates and woodcuts; *hf. red roan* (some *vv. newly bound*), in the rest in parts, *sewn as issued* (VERY SCARCE), £36. 1832-1912
- 14547 ——— ———, PHILOSOPHICAL TRANSACTIONS of the, complete from their Beginning in 1665 to 1910, *viz.*, the Abridgement to 1750 by Lothrop, Jones, Eames, and Martyn, 11 vols. *calf*, and Continuation at large (including both A and B Series) to 1910, *viz.*, 1751-1817 (Vols. 47-107), 61 v. *calf gilt* (a number of *vv. newly rebounded*); 1818-34 (Vols. 108-24), 17 v. *hf. calf*; 1835-52 (Vols. 125-42), 18 v. *in parts as issued*; 1853-77 (Vols. 143-67), 48 parts *cl.*; Extra Volume 168, *cl.*; 1878-86 (Vols. 169-77), 23 parts *cl.*; 'A' Series, Vols. 178-210 (1887-1910), 33 v. *cl.*; 'B' Series, Vols. 178-201 (1887-1910), 24 v. *cl.*—in all 199 vols. 4to., with many hundred plates and other illustrations: *calf, hf. calf, cl., and sewn, as detailed above* (a sound library set); VERY RARE, £185. 1665[1705]-1910

Complete sets of the *Philosophical Transactions*, even abridged to 1750 as the above, are increasingly difficult to get, many of the volumes issued between 1750 and 1830 being VERY SCARCE.

- 14548 ——— ———: CATALOGUE of the SCIENTIFIC BOOKS in the LIBRARY of the ROYAL SOCIETY, thick 8vo. *cl.*, with *auto. of George Rennie, C.E., F.R.S.*, 3s 6d 1839
- 14549 ——— [NEW EDITION, greatly enlarged], 2 vols. 8vo. (pp. 262 + 1199), *cl.*, with *auto. of Sir Frederick Bramwell, F.R.S.*, 12s (p. £1. nett) 1881-3
- Vol. I contains Transactions, Journals, Observations and Reports, Surveys, and Museums; and vol. II Books. This catalogue is valuable for tracing old scientific books.
- 14550 ——— VOL. I ONLY [as detailed above]. 8vo. *cl.*, 2s 6d (p. 5s nett) 1881
- 14551 ——— ———: A COLLECTION of AUTHENTIC TRACTS, relating to some late DISPUTES in the ROYAL SOCIETY, 8vo. boards, *uncut* (RARE), with *auto. of NEVIL MASKELYNE, pr., F.R.S., Astronomer Royal*, 12s 6d 1784
- Tantene animis cælestibus iræ? They arose in the revolt of some of the Fellows against the high-handed manner of Sir Joseph Banks, the President, who forced Dr. Charles Hutton to resign his appointment of Foreign Secretary. The pieces are:—Authentic Narrative of the Dissensions and Debates of the Royal Society, containing Speeches at large of Drs. Horsley and Maskelyne, and Messrs. Maseres, Poore, Glenie, Watson, and Matv (pp. 155): Appeal to the Fellows concerning the Measures taken by Sir Joseph Banks, their President, to compel Dr. Hutton to resign the Office of Secretary to the Society for their Foreign Correspondence, by a Friend to Dr. Hutton, with SUPPLEMENT (pp. 31 + 16): History of the Instances of Exclusion from the Royal Society, which were not suffered to be argued in the Course of the late Debates by some Members in the Minority (pp. 27).
- 14552 ——— ANOTHER COPY, with an Article 'STATE of the DISSENTIONS of the ROYAL SOCIETY', published by FRANCIS MASERES, F.R.S., and corrected by him; 8vo. *old calf* (joints cracked), with *auto. of Baron Maseres*, 14s
- 14553 ——— ———, The RECORD of the, with 2 fine plates of portraits, and illustrations of the medals, etc., 8vo. *cl.*, 2s 6d 1897
- 14554 ——— SECOND EDITION [enlarged], with 11 plates and 3 other illustrations, 8vo. *cl.*, 5s (p. 12s 6d nett) 1901
- This edition contains a complete list of the membership, and is very useful for tracing past Fellows.
- 14555 ——— ———: REPORT of the COMMITTEE of PHYSICS, including METEOROLOGY, on the Objects of Scientific Inquiry in those Sciences, with 4 folding charts, 8vo. *sewn*, 3s 1840
- 14556 ——— ANOTHER COPY, with SUPPLEMENTAL and REVISED INSTRUCTIONS for the MAGNETICAL OBSERVATORIES (pp. 9 + 47), 8vo. *sewn*, 4s 1840-2

- 14558 **ROYAL SOCIETY OF LONDON**, METEOROLOGICAL JOURNAL kept at the Apartments of the, by Order of the President and Council, 1787-95, 9 parts 4to. *sewn (rare)*, 8s 1788-96
- 14559 **ROZIER** (*Abbé François, Chevalier de l'Église de Lyon*) MÉMOIRE sur la MEILLEURE MANIÈRE de FAIRE et de GOUVERNER les VINS de PROVENCE, soit pour l'Usage, soit pour leur faire passer les Mers; with 3 *folding copperplates*, 8vo. *sound copy in contemporary mottled calf gilt*, 10s 6d Lausanne, 1772
With old trade-label 'Du Catalogue des Freres Perisse, Imprimeurs-Libraires à Lyon, 177-'.¹
- 14560 ——— ANOTHER COPY [with Paris Imprint], *hf. brown morocco neat, with bookplate of, and numerous MS. notes by, Henry B. H. Beaufoy, F.R.S.*, 10s
This work was awarded the prize by the Marseilles Academy. The above copies contain three dissertations: 'Sur les Moyens employés pour renouveler une Vigne; Sur les Usages Economiques des différentes Parties de la Vigne; Sur les Vaisseaux propres à perfectionner le Vin, et sur les Objets qui y ont Rapport'.
- 14561 **RUBIN** (*Tryggve*) Le RÉSEAU de la BASE SUÉDOISE au SPITZBERGEN: Thèse; with 2 *folding plates*, 4to. (pp. 49), *sewn*, 2s Stockholm, 1903
- 14562 **RUCHONNET** (*Charles, de Lausanne*) EXPOSITION GÉOMÉTRIQUE des PROPRIÉTÉS GÉNÉRALES des COURBES, 4^e Édition; with 6 *folding plates*, 8vo. *sewn*, 1s 6d 1880
- 14563 **RÜCKER** (*Sir Arthur William, F.R.S.*) On the DENSITY and COMPOSITION of DILUTE SULPHURIC ACID, No. II, 8vo. (pp. 6), *sewn*, 1s 1892
- 14564 ——— On the RELATION between the DENSITY and COMPOSITION of DILUTE SULPHURIC ACID, 8vo. (pp. 10), *sewn*, 1s 1891
- 14565 ——— SUMMARY of the RESULTS of the RECENT MAGNETIC SURVEY of GT. BRITAIN and IRELAND, conducted by Professors RÜCKER and THORPE, with *diagrams*, roy. 8vo. (pp. 42), *sewn*, 2s 1896
- 14566 ———, and *Sir Thomas Edward THORPE, F.R.S.*: A MAGNETIC SURVEY of the BRITISH ISLES for the Epoch January 1, 1886 (*Bakerian Lecture*), with 14 *plates* (2 *folding*), and 31 *diagrams*, roy. 4to. *hf. roan (cracked)*, 10s 1889
The third magnetic survey of Gt. Britain, being preceded by those of *Sir Edward Sabine* of 1834-8 and 1857-62. The authors were awarded the Royal Society's Royal Medal for the above work.
- 14567 **RUDD** (*Capt. Thomas, Chief Engineer to his late Majesty*) PRACTICAL GEOMETRY, shewing how to perform the Four Species of ARITHMETICK (viz. Addition, Subtraction, Multiplication, and Division), with Reduction and the Rule of Proportion in Figures, and containing a HUNDRED GEOMETRICALL QUESTIONS, with their Solutions and Demonstrations, some of them being performed Arithmetically, and others Geometrically, yet all without the Help of Algebra, with numerous *diagrams*, 2 vols. sm. 4to. in 1, *sound and clean copy in contemporary sheep (back and one side rubbed)*; RARE, £1. 1s Robert Leybourn, for Robert Boydel, 1650
This work was unknown to *Pogendorff* and *Prof. de Morgan*. The author was the editor of an English edition of *Euclid's Elements* (v. No. 1216 *ante*).
- 14568 **RUDIO** (*Ferdinand; Zürich*) Ueber die BEWEGUNG DREIER PUNKTE in einer GERADEN, 4to. (pp. 6), *sewn*, 1s 6d [Berlin, 1886]
- 14569 **RUDOLF** (*August Gottlieb*) ABHANDLUNG vom OEKONOMISCHEN FELDMESSEN, wie solches mittelst des Messisches ohne Zuziehung irgend eines andern Winkel-Instruments . . . verrichtet werden kann, mit Anhang, wie man einzelne Flächen etc. durch Hilfe der Ketten und Stäbe aufnehmen und in Grund legen kann, 2. Auflage; with 17 *folding plates*, 8vo. boards, 3s 6d Leipzig, 1813
- 14570 **RUDZKI** (*Maurycy P.; Univ. Cracow*) Ueber die GESTALT ELASTISCHER WELLEN in GESTEINEN. IV. Studie aus der THEORIE der ERDBEBEN; with *diagram*, 8vo. (pp. 12), *sewn*, 1s [Krakau], 1899
- 14571 **RUFF** (*Francis, C.E., Frankfort on the Maine*) REFERENCE BOOK for STATICAL CALCULATIONS (RAPID STATICS): Force-Diagrams for Frameworks, Tables, Instructions for Statical Calculations, etc., VOL. I, with *folding chart and numerous diagrams*, post 8vo. cl., 2s 6d (p. 4s nett) 1912
'The first attempt to present the applications of statics to the constructions most frequently appearing in technical work, in a comprehensive and easily graspable manner.'—*Preface*.
- 14572 **RUFFINI** (*Paolo; Univ. Modena*) Sopra la DETERMINAZIONE delle RADICI nelle EQUAZIONI NUMERICHE di QUALUNQUE GRADO, impl. 4to. (?) LARGE PAPER; *sewn, uncut (title stamped)*; rare, 10s 6d Modena, 1804
This work, which contains the author's method of finding the radicals of numerical equations of any degree, received the prize of the *Società Italiana*.
- 14573 ——— TEORIA GENERALE delle EQUAZIONI, in cui si dimostra impossibile la Soluzione Algebraica delle Equazioni Generali di Grado Superiore al Quarto; with 2 *folding tables*, 2 vols. sq. 8vo. *hf. morocco (RARE)*, 16s 6d Bologna, 1799
Important as first maintaining the impossibility of solving algebraic equations of the fifth or of a higher degree, the proof of which was given by *Abel* in 1826. 'This theorem was the more important since it definitely limited a field of mathematics which had previously attracted numerous writers.'—*W. W. R. Ball*.
'Though inconclusive, *Ruffini's* demonstrations are remarkable as containing anticipations of *Cauchy's* theory of groups.'—*Prof. Cajori*.
- 14574 **RUFFNER** (*Col. Ernest Howard, U.S. Army*) The PRACTICE of the IMPROVEMENT of the NON-TIDAL RIVERS of the UNITED STATES, with Examination of the Results thereof, *folding chart*, roy. 8vo. cl. (o. p.), 4s 6d New York, 1886
- 14575 **RÜHLMAN** (*Christian Moritz; Hannover*) On HORIZONTAL WATER-WHEELS, especially TURBINES or WHIRL-WHEELS; their History, Construction, and Theory; edited, with Introduction and Notes, by *Sir Robert Kane*, cr. 4to. (pp. 76), *sewn (plates wanting)*, 3s Dublin, 1846
- 14576 **RUHMER** (*Ernst*) DRAHTLOSE TELEPHONIE; with 139 *illustrations*, impl. 8vo. *sewn*, 3s 6d (p. M. 6) Berlin, 1907
Containing an interesting history of wireless telephony.

- 14577 **RUMFORD** (Sir Benjamin Thompson, Count, F.R.S., *Commander in Chief of the Bavarian Army; founder of the Royal Institution*) ESSAYS, POLITICAL, ECONOMICAL, and PHILOSOPHICAL, fourth Edition, with numerous plates on copper and wood, besides woodcuts, 3 vols. 8vo. *second copy in old calf* (RARE), £1. 5s 1798-1802
The first collected edition of the author's works.
- 14578 ——— THIRD EDITION, Vols. I and II only (Vol. II 1st edition), with numerous plates and woodcuts, 2 vols. 8vo. *hf. calf*, 15s 1797-8
This copy has two essays from v. III added, viz., On the Construction of Kitchen Fire-Places and Kitchen Utensils; Of the Management of Light in Illumination.
- 14579 ——— FIFTH EDITION, Vols. I and II only, with numerous plates and woodcuts, 2 vols. 8vo. *old calf*, 12s 6d 1800
'To him pertains the honour of having first determined that 'heat is a mode of motion' and of annihilating, as Tyndall says, 'the material theory of heat.' Tyndall gave Rumford the credit of travelling with Sir John Leslie over common ground on the subject of radiant heat and of anticipating Thomas Graham in experimenting on the diffusion of liquids, and also for the first accurate determinations for the calorific power of fuel.'—*D. N. B.*
- 14580 ——— NEW EXPERIMENTS upon GUN-POWDER, with occasional Observations and practical Inferences; to which are added, an Account of a NEW METHOD of DETERMINING the VELOCITIES of all kinds of MILITARY PROJECTILES, and the Description of a very accurate EPROUETTE for GUN-POWDER, Manuscript, very neatly written in a contemporary hand on 117 pp., with 5 folding plates also in MS., 4to. *hf. bound*, £1. 1s [c. 1782]
- 14581 ———, MEMOIR of, with Notices of his DAUGHTER, by GEORGE EDWARD ELLIS, with portraits and plates on steel and wood and in photography, thick roy. 8vo. *cl. (o. p.)*, 10s 6d Philadelphia [1875]
- 14582 **RUNGE** (Friedrich Ferdinand; *Univ. Breslau*) ANLEITUNG zu einer BESSEREN ZERLE- GUNGSWEISE der VEGETABILIIEN, durch Theorie und Versuche erläutert; with 3 folding tables, 8vo. *sewn (scarce)*, 5s Berlin, 1820
Containing the author's discovery of caffeine. The work forms the first part (of two published) of 'Neueste phytochemische Entdeckungen zur Begründung einer wissenschaftlichen Phytochemie.'
- 14583 **RUNKLE** (John Daniel) NEW TABLES for determining the VALUES of the COEFFICIENTS, in the PERTURBATIVE FUNCTION of PLANETARY MOTION, which depend upon the Ratio of the Mean Distances, roy. 4to. (pp. 64), *sewn*, 3s 6d [Washington.] 1855
- 14584 **RUSCELLI** (Girolamo) PRECETTI della MILITIA MODERNA, tanto per Mare quanto per Terra: Trattati da diuersi nobilissimi Ingegneri, e raccolte con molta Diligenza; ne' quali si contiene tutta l'ARTE del BOMBARDIERO, e si mostra l'Ordine che ha da tenere il Maestro di Campo, quando vuole accompagnare il suo Essercito, ecc. ecc. ecc.; with numerous curious woodcuts, and the cat-and-mouse device, sm. 4to. *sewn* (RARE), 15s Venetia, appresso gli Heredi di Marchio Sessa, 1583
'An interesting work with curious woodcuts, one of which exhibits the form of the life-belt.'—*Libri Catalogue.*
- 14585 **RUSSELL** (Edward John) THE REACTION between PHOSPHORUS and OXYGEN; Part I, with 7 diagrams, 8vo. (pp. 22), *sewn*, 1s 6d 1908
- 14586 **RUSSELL** (Hon Francis Albert Rollo, F.R. MET. S.) ON CIRRUS and CIRRO-CUMULUS, roy. 8vo. (pp. 10), *sewn, with author's inscr.*, 1s 6d [1883]
- 14587 ——— FURTHER OBSERVATIONS and CONCLUSIONS in Relation to ATMOSPHERIC TRAN- PARENCY, roy. 8vo. (pp. 5), *sewn, with author's inscr.*, 1s 1902
- 14588 ——— OBSERVATIONS on DEW and FROST, roy. 8vo. *sewn, with author's inscr.*, 1s 6d 1892
- 14589 ——— The UNTENABILITY of the ATMOSPHERIC HYPOTHESIS of EPIDEMICS, roy. 8vo. (pp. 9), *sewn, with author's inscr.*, 1s 1892
- 14590 **RUSSELL** (Henry Chamberlaine, F.R.S.) THE METEORS of JUNE 27th, 1894, and MAY 7th, 1895, 2 pamphlets 8vo. (pp. 16), *sewn*, 1s 6d 1894-5
- 14591 **RUSSELL** (John Scott, C.E., F.R.S.) GEOMETRY in MODERN LIFE: the Substance of two Lec- tures on Useful Geometry before the Literary Society at Eton, with diagrams, 8vo. *cl.*, 4s Eton, 1878
These interesting lectures to Eton boys were unknown to the author's biographer in *D. N. B.*
- 14592 ——— TREATISE on the STEAM ENGINE, from the seventh Edition of the Encyclopædia Britannica, with 15 folding plates, and 247 woodcuts, cr. 8vo. *cl., uncut*, 5s Edin., 1841
Mr. Scott Russell's first publication.
Pp. 171-316 contain Steam Navigation, and pp. 316-61 Steam Locomotion. The author constructed the *Great Eastern S.S.*, and designed the *Warrior*, the first sea-going armoured frigate. 'He also constructed some common steam road carriages, which ran successfully for a time between Paisley and Glasgow' (*D. N. B.*).
- 14593 **RUSSELL** (John Wellesley, *Balliol Coll.*) ELEMENTARY TREATISE on PURE GEOMETRY, with numerous Examples, numerous diagrams, cr. 8vo. *cl.*, 4s 6d (p. 10s 6d) Clarendon Press, Oxford, 1893
'Attempting to bring together all the well-known theorems and examples connected with Harmonics, Anharmonics, Involution; Projection (including Homology), and Reciprocation.'—*Preface.*
- 14594 **RUSSELL** (Thomas) METEOROLOGY: WEATHER, and METHODS of FORECASTING, Description of METEOROLOGICAL INSTRUMENTS, and RIVER FLOOD PREDICTIONS in the UNITED STATES, with numerous charts and other illustrations, sq. 8vo. *cl.*, 10s (p. 17s nett) New York, 1895
- 14595 **RUSSELL** (William Henry Leighton; F.R.S.) ON THE THEORY of DEFINITE INTEGRALS, roy. 4to. (pp. 22), *sewn*, 2s 1854
- 14596 **RUSSELL** (William James, F.R.S.) ON the ACTION of WOOD on a PHOTOGRAPHIC PLATE in the DARK, with 9 plates, roy. 4to. (pp. 9), *sewn, with author's inscr.*, 2s 1904
- 14597 ——— ON the FORMATION of DEFINITE FIGURES by the DEPOSITION of DUST, with 51 wood- cuts, roy. 4to. (pp. 20), *sewn, with author's inscr.*, 2s 1903
- 14598 ——— ON the IMPURITIES in LONDON AIR, with 2 woodcuts, roy. 4to. (pp. 10), *sewn*, 2s 1885
But where are the fogs of yester-year?
- 14599 ———, and Augustus MATTHEIJSSEN, F.R.S.: ON the CAUSE of VESICULAR STRUCTURE in COPPER, 8vo. (pp. 4), *sewn, with inscr. to Sir E. Frankland, F.R.S.*, 1s 1862

- 750 HENRY SOTHEKAR & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14601 **RUTHERFORD** (Sir Ernest, F.R.S., *McGill Univ., Montreal; Univ. Manchester; Nobel Laureate*) RADIO-ACTIVITY, first edition, with illustrations (including plate), 8vo. cl., 5s (p. 10s 6d nett)
 'I scarcely think any other person has spent more hours in reading the first and second editions of Rutherford's 'Radioactivity' than I have'.—*Lord Kelvin.*
- 14602 ——— SECOND EDITION [greatly enlarged and partly rewritten], with plate and 108 illustrations, 8vo. cl., 7s 6d (p. 12s 6d nett) *apud eandem, ibidem, 1905*
- 14603 ——— RADIOACTIVE TRANSFORMATIONS, with 53 illustrations, 8vo. cl. (o. p.), 9s (p. 16s nett) 1906
- 14604 ——— AMERICAN EDITION, 8vo. cl., 8s *New York, 1906*
 The standard works on the subject. They contain the author's important investigations and discoveries. The second work includes an Historical Introduction (pp. 1-36).
 Both works are new out of print, and have been partly replaced by the author's 'Radio-active Substances and their Radiations.'
- 14605 **RUTHERFORD** (William, F.R.A.S., *Roy. Military Academy*) STATICAL FRICTION, Friction of Cords, and Revetments; third Edition, with 2 folding plates, 8vo. (pp. 52), sewn, 2s 6d *Woolwich, 1862*
- 14606 ——— Die VOLLSTÄNDIGE LÖSUNG NUMERISCHER GLEICHUNGEN bei welcher durch ein und dasselbe Verfahren sowohl die imaginären, als auch die reellen Wurzeln leicht bestimmt werden, übersetzt von AUGUST WIEGAND, 4to. (pp. 30), sewn, 2s *Halle, 1849*
- 14607 **RUTLEY** (Frank, F.G.S.) The STUDY OF ROCKS: an Elementary Text-Book of Petrology, with 89 woodcuts, 12mo. cl., 2s 6d 1879
- 14608 **RUTTER** (J. O. N., F.R.A.S.) GAS-LIGHTING: its Progress and its Prospects, with Remarks on the Rating of Gas-Mains, and a Note on the ELECTRIC-LIGHT, 8vo. sewn (scarce), 6s 1849
 Especially interesting for the note, which is probably one of the earliest references to electric lighting. The author mentions that 'about six years since it was shown in the streets of Paris, where, for a short time, it excited as much attention as it has lately done in this country.' The current of course was produced by a galvanic battery, and the continuous adjustment of the carbon points then proved an insuperable practical difficulty.
- 14609 ——— HUMAN ELECTRICITY: the Means of its Developement, illustrated by Experiments, with front., and woodcuts, cr. 8vo. cl., 4s 1854
 'My special object has been to invite attention to electricity in its various relations with vitality. This is no longer a topic for vague speculations or uncertain conjectures,' etc. etc.—*Preface.*
 The Appendix includes 'Od' (v. *Reichenbach*, Nos. 14001-2, ante), and Table-Moving.
- 14610 ——— PRACTICAL OBSERVATIONS on GAS-LIGHTING; second Edition, post 8vo. (pp. 58), sewn, 3s 6d 1833
- 14611 **RYAN** (John, M.D.) The PREPARATION of LONG-LINE, FLAX-COTTON, and FLAX-WOOL, by the CLAUSSEN PROCESSES; with Description of the Chemical and Mechanical Means employed, and Claussen's System of Bleaching Fibres, Yarns, and Fabrics, with 12 woodcuts, 8vo. cl. (cover torn); scarce, 6s 6d. 1852
 According to the preface, the first description of the Claussen Process, written at the inventor's own wish.
- 14612 **RYDER** (Adml. Sir Alfred Phillipps) TREATISE on ECONOMY of FUEL: showing how it may be attained on Board MEN-OF-WAR STEAMERS; with the Considerations which should be carefully studied when Engines are being ordered for Steamers-of-War, Mail Packets, or Merchant Ships, in Order that their respective Duties may be performed with the least possible Consumption of Fuel, with diagrams, and folding table, 8vo. cl., 5s 6d 1852
 The work was unknown to the author's biographer in D. N. B. There were not many steamships in the Navy in 1852! and those nearly all paddle-boats, with masts and sails, and the multifarious methods of wasting coal here denounced are very curious. Admiral Ryder of course urges working expansively.
- 14613 **SABATIER** (Paul, de l'Institut), et Jean Baptiste SENDERENS; *Institut Catholique, Toulouse*: NOUVELLES MÉTHODES GÉNÉRALES d'HYDROGÉNATION et de DÉDOUBLEMENT MOLÉCULAIRE basées sur l'Emploi des Métaux Divisés, 8vo. sewn (o. p.), 4s 1905
 Containing a description of the author's method of distinguishing primary, secondary, and tertiary alcohols. This M. Paul Sabatier is not the client of St. Francis of Assisi.
- 14614 **SABIN** (Alvah Orton; *Univ. Vermont*) The INDUSTRIAL and ARTISTIC TECHNOLOGY of PAINT and VARNISH, with numerous plates and other illustrations, 8vo. cl., 7s 6d (p. 12s 6d nett) *New York, 1906*
- 14615 **SABIN** (Louis Carlton, C.E., *U.S. Army*) CEMENT and CONCRETE, with 16 diagrams, 8vo. cl., 10s 6d (p. £1. 1s nett) 1905
 'The original investigations forming the basis of the work were made in connexion with the construction of the Poe Lock at St. Mary's Falls Canal, Michigan, under the direction of the Corps of Engineers, U.S. Army.'—*Preface.*
- 14616 **SABINE** (General Sir Edward, R.A., P.R.S.) CONTRIBUTIONS to TERRESTRIAL MAGNETISM, Nos. II and VI, with 5 maps (3 folding), 2 parts 4to. (pp. 163), sewn, 4s 6d 1841-4
 'General Sabine discovered that magnetic disturbances of the earth are due to the sun, but not to his heat and light; and are invariably accompanied by the aurora and by electric currents in the surface of the earth.'—*Alex. Buchan, F.R.S.*
- 14617 ——— On the COSMICAL FEATURES of TERRESTRIAL MAGNETISM (Reade Lecture), with diagrams, post 8vo. (pp. 24), sewn, 2s 6d 1862
- 14618 ——— MAGNETIC OBSERVATIONS, 8vo. (pp. 32), sewn, 2s 1837
- 14619 ——— OBSERVATIONS made at the MAGNETIC OBSERVATORIES of TORONTO, TREVANDRUM, and ST. HELENA, during a remarkable Magnetic Disturbance, Sept. 25-26, 1841, with folding chart, 8vo. (pp. 19), sewn, 2s 6d 1841
- 14620 ——— REPORT on the VARIATIONS of the MAGNETIC INTENSITY observed at different Points of the EARTH'S SURFACE, with 3 folding plates, 8vo. cl., uncut (scarce), with inscr. 'George Rennie, Esq. from the Author', 8s 6d 1838
 This work was unknown to the author's biographer in D. N. B. It contains an historical account of observations from Rossel, 1791 to 1836.
- 14621 **SALTER** (Mary) A NEW SYSTEM of GEOLOGY, with Archæological Proofs of the Destruction of the World by Fire and Water, with portrait and 11 other plates (2 folding), cr. 8vo. cl., 3s (p. 10s nett) [1908]

- 14623 **SABINE** (Robert) *The ELECTRIC TELEGRAPH, first edition, with 189 woodcuts, 8vo. cl.* (SCARCE), 10s 6d 1867
Historically important as the first complete English work on the subject. It is dedicated to Sir William Siemens. The later editions were much condensed.
- 14624 **SAGE** (Balthazar Georges, de l'Institut) *L'ART d'ESSAYER l'OR et l'ARGENT; Tableau comparé de la COUPELLATION des Substances métalliques, par le Moyen du PLOMB ou du BISMUTH: Procédés pour obtenir l'Or plus pur que par la voie du Départ; with 4 folding plates on copper, 8vo. old mottled calf extra (loose in cover); rare, 12s* Imprimerie de Monsieur, 1780
'Sage peut être regardé comme ayant créé la doctriane en France, et c'est là son plus beau titre de gloire.—*Biogr. Gén.* He was the first to mention in this work that ferrocyanide of potassium may be obtained in solid form.
- 14625 — **EXAMEN CHYMIQUE de DIFFÉRENTES SUBSTANCES MINÉRALES; ESSAI sur le VIN, les PIERRES, les BÉZOARDS, et d'autres Parties d'Histoire Naturelle et de Chymie; Traduction d'une Lettre de M. LEHMANN, sur la MINE de PLOMB ROUGE, 12mo. old hf. calf, 7s 6d** 1769
- 14626 — **MÉMOIRES de CHIMIE; with folding plate of chemical symbols, 8vo. hf. bound, 8s** Imprimerie Royale, 1773
- 14627 — **ANOTHER COPY, old calf (joints cracked), with book-stamp of the HON. HENRY CAVENDISH, F.R.S., on rev. of title, 10s 6d**
The author describes in the above work hydrofluoric acid, which he considers a variety of phosphoric acid. He was one of the last French adherents of the Phlogiston Theory.
- 14628 **SAIGEY** (Jacques Frédéric) *TRAITÉ de MÉTROLOGIE, ancienne et moderne, suivi d'un Précis de CHRONOLOGIE, et des SIGNES NUMÉRIQUES; with 3 copperplates (one folding), 12mo. hf. cl., 3s 6d* L. Hachette, 1834
- 14629 — **ANOTHER COPY, hf. morocco gilt, by Belz-Niedrte (nice copy), 5s 6d**
- 14630 **SAIL-MAKING, The ART of, as practised in the ROYAL NAVY, and according to the most approved Methods in the Merchant Service, with the PARLIAMENTARY REGULATIONS relative to SAILS and SAIL CLOTH, with etched front. of a sail-loft with its tackle, and numerous woodcuts of all the sails, and elaborate tables of dimensions, 8vo. boards, uncut (rare), 12s 6d** David Steel, 1796
Very interesting as showing the elaborate art and science which went to give motive power to the old man-of-war, and made possible the manœuvres which gave England victory after victory.
There was no copy of this edition in the Scott Library, which contained only those of 1821 and 1843, nor is there a copy of any edition in the Library of the Institution of Naval Architects.
At end is a 4-p. Catalogue of Charts, Pilots, and Navigation Books, sold by Heather and Williams.
- 14631 **ST. LEGER** (Mathew) *ESSAY on the IMPROVEMENT of the ART of NAVIGATION; or a NEW INVENTED METHOD for FINDING the LONGITUDE at SEA MECHANICALLY, by the Help of a Simple Theorem founded in true Principles of Spherical Geometry, with frontispiece, 12mo. (pp. 64), sewn (rare), 7s 6d* Dublin, printed for the author, 1776
This work, which begins with a quotation from the Bible and ends with a receipt signed by the author, was unknown to Watt, Allibone, and Lowndes. Pp. 49-63 contain 'An Absolute Time-Keeper for finding the Longitude by Celestial [sic] Observations.'
- 14632 **SAINT-LÉON** (—, chef de gare du Chemin de Fer de Paris à Rouen) *MANUEL PRATIQUE des CHEMINS DE FER, à l'Usage des Voyageurs, des Industriels, des Administrations spéciales, des Practiciens, des Employés, et des Personnes qui se destinent à des Emplois actifs dans les nouvelles Compagnies; with folding plate of carriage and signal lamps, 12mo. sewn (scarce), 7s 6d* 1845
- 14633 **STE.-MARIE MAGDELAINE** (Pierre de, de la Congregation des Feuillans) *TRAITÉ d'HORLOGIOGRAPHIE, contenant plusieurs Manières de construire sur TOUTES SURFACES, toutes Sortes de LIGNES HORAIRES, et autres Cercles de la Sphère, avec quelques INSTRUMENTS pour la mesme Pratique, et pour connoître les HEURES durant NUIT: l'Heure de Flus et Reflus de la Mer; plus la Méthode de couper, en Pierre ou en Bois, les Corps Reguliers et autres Polyèdres, par le Cube et par le Cylindre; 2^e Édition, augmentée de plusieurs Propositions; with engraved title, and 76 fine copperplates, 12mo. sound copy in contemporary vellum (RARE), £1. 10s* François l'Anglois, dit Chortres, 1645
- 14634 — **TROISIÈME ÉDITION, neuve, corrigée et augmentée de plusieurs Propositions et Figures; with engraved title and 72 copperplates, 12mo. old calf (back damaged and somewhat browned), 17s 6d** Jean Dupuis, 1665
This edition contains a number of new Propositions.
- 14635 — **NOUVELLE ÉDITION [RÉIMPRESSION DE LA TROISIÈME ÉDITION]; with 72 copperplates, 12mo. old calf (back damaged; wanting the engraved title and plate 33), 10s 6d** Antoine Dezallier, 1680
- 14636 — **QUATRIÈME ÉDITION, revue et augmentée de plusieurs Remarques et Figures; with engraved title and 72 copperplates, 12mo. sound copy in old calf, 18s 6d** Lyon, L. Plaignard, 1691
- 14637 — **ANOTHER COPY, old calf (engraved title and Plates 37 and 69 wanting, and some others slightly soiled), 10s**
This edition contains a number of Tables, and 5 new Propositions.
- 14638 — **NOUVELLE [CINQUIÈME ET DERNIÈRE] ÉDITION; with engraved title, and 72 copperplates, 12mo. old calf, 15s** A. Dezallier, 1701
- 14639 — **ANOTHER COPY, old calf gilt (wanting engraved title and part of printed title, otherwise a sound copy), 8s 6d**
Unknown to Poggenorff, Graesse, Brunet, etc., while Quéraud only knows the editions of 1645, 1665, and 1701. It is no. 11,455 in Honzean-Lancaster.
- 14640 **SALVERTE** (Anne Joseph Eusèbe Baconnière) *THE PHILOSOPHY of MAGIC, PRODIGES, and APPARENT MIRACLES, translated, with Notes illustrative, explanatory, and critical, by ANTHONY TODD THOMSON, M.D. [and Biographical Sketch by FRANÇOIS ARAGO], 2 vols. 8vo. in 1, cl. (o.p.), 10s 6d (p. £1. 4s)* 1846
'L'auteur prétend y expliquer par la physique et la chimie tous les actes attribués par les religions anciennes et modernes à une intervention surnaturelle.—*Biographie Générale.* He would find himself in a strangely inverted world in eunte Sæculo Vigesimo, when all the prodigies are swallowed whole and only Religion is disbelieve!

- 14642 **SAKURAI (Joji)**; *Prof. Chemistry, Univ. Tokyo*, COLLECTION of PAPERS, contributed on the Occasion of the JUBILEE CELEBRATION of [with Biographical Sketch by NAOICHI MATSUI], with portrait, 3 plates, and numerous other illustrations, 4to. sewn, 7s 6d Tokyo, 1903
Consisting of 13 original contributions, including: On the Viscosity of Dilute Alcoholic Solutions, by T. HIRATA: Ueber die Anomalie der starken einwertigen Elektrolyte, von M. KATAYAMA: Studies on the Chemical Theory of Solutions, Part I, by K. IKEDA.
- 14643 **SALADIN (E.)**, et **Georges CHARPY**: La SITUATION de la GROSSE MÉTALLURGIE en FRANCE, 4to. (pp 41), sewn, 2s [1906]
- 14644 **SALMON (George, pr.)**; F.R.S., *Provost T. C. D.* LESSONS INTRODUCTORY to the MODERN HIGHER ALGEBRA, 8vo. *hf. morocco gilt*, 8s Dublin, 1859
Bound up with the above is Dr. Salmon's Treatise on Conic Sections, 3rd Edition, '55.
- 14645 ——— FOURTH [LAST] EDITION [enlarged and rewritten], 8vo. *cl.* (VERY SCARCE), £1. 10s *ibidem*, 1885

'The investigations of Cayley and Sylvester [to whom the work is dedicated] into the invariants of quantities were beginning to attract attention; and Salmon proceeded to apply their results to geometrical theory, the result being *Lessons Introductory to the Modern Higher Algebra*, in which he incorporated much original matter.'—*Bp. Bernard*.

'No account of contemporary writings on higher algebra would be complete without a reference to the admirable textbooks of G. Salmon, in his *Higher Algebra*, and by J. A. Serret, in his *Cours d'algèbre supérieure* [i. v. post], in which the chief discoveries of their respective authors are embodied.'—*W. W. R. Ball*.

- 14646 ——— TREATISE on the ANALYTIC GEOMETRY of THREE DIMENSIONS, 2nd Edition [enlarged], 8vo. *cl.*, uncut (worn), with auto. and pencillings of *Prof. Lloyd Tanner*, F.R.S., 6s *ib.*, 1865
- 14647 ——— THIRD EDITION [greatly enlarged], thick 8vo. *cl.* (cover worn), 10s *ib.*, 1874
This edition contains a new chapter; 'Properties of Quadrics in General'.
- 14648 ——— FOURTH EDITION [enlarged and rewritten], thick 8vo. *cl.*, 15s *ib.*, 1882
'The sections on the general theory of surfaces are specially remarkable.'—*Bp. Bernard*.
- 14649 ——— TREATISE on CONIC SECTIONS, with Account of some of the most important Modern Algebraic and Geometric Methods, second Edition, revised and enlarged, *diagrams*, 8vo., *cl.*, 2s 6d *ib.*, 1850

- 14650 ——— THIRD EDITION, revised and enlarged, *diagrams*, 8vo., *cl.*, 2s 6d *ib.*, 1855

- 14651 ——— FIFTH EDITION, with *diagrams*, 8vo. *cl.*, 4s 6d 1869

- 14652 ——— SIXTH [FINAL] EDITION [enlarged, with *diagrams*, 8vo. *cl.*, 6s (p. 12s) 1879

- 14653 ——— ANOTHER COPY, *cl.* (inked, and cover damaged), 5s

'Admirably arranged, and constructed with an unerring sense of the distinction between important principles and mere details, it exhibited more fully than any other book of the time at once the power of the Cartesian co-ordinates and the beauty of geometrical method; and for half a century it was the leading text-book on its subject.'—*Bp. Bernard*.

- 14654 ——— TREATISE on the HIGHER PLANE CURVES: a Sequel to 'Conic Sections', with *diagrams*, 8vo. *cl.* (worn), with MS. notes by *Samuel Roberts*, F.R.S., 8s 6d Dublin, 1852

- 14655 ——— SECOND EDITION [enlarged], with *diagrams*, 8vo. *cl.* (SCARCE), £1. 5s *ib.*, 1873

- 14656 ——— THIRD [LAST] EDITION, with *diagrams*, 8vo. *cl.* (VERY SCARCE), £2. 10s *ib.*, 1879

'Embodying the chief discoveries of its author.'—*W. W. R. Ball*.

'A subject of which little was then known, and which was introduced to the ordinary student by Salmon's labours.'—*Bp. Bernard*.

'Salmon helped powerfully towards the spreading of a knowledge of the new algebraic and geometric methods by the publication of an excellent series of text-books.'—*Prof. Cajori*.

'Upon these four treatises his fame as a mathematician rests. . . . Salmon's methods made little use of the calculus, or of the quaternion analysis invented by his contemporary, Sir W. R. Hamilton; nor, again, did he ever handle the non-Euclidean geometry. His strength lay in his complete mastery of geometric and algebraic processes, and this, coupled with his indefatigable industry as a calculator, enabled him to produce original work of permanent value.'—*Bp. Bernard*.

The always striking fellowship of theology and mathematics has seldom had a greater example than in Dr. Salmon, and the weight it lent him was a source of strength to the Irish Church throughout the throes of disestablishment and reconstruction.

- 14657 **SAMPITÉ (A.)** Les CHEMINS de FER à FAIBLE TRAFFIC en FRANCE: Lignes Secondaires des Grands Réseaux: Chemins de Fer d'Intérêt Local et Tramways à Vapeur: Établissement et Exploitation; with *Atlas*, containing 16 folding plates, 2 vols. large 8vo. in 1, *hf. cl.* (o. p.), 7s 1888
(p. F. 15 nett sewn)

THE ENGRAVER'S DOOM:

- 14658 **SAMPSON (Thomas)** ELECTROTINT, or the ART of making PAINTINGS in such a Manner that Copper Plates and 'Blocks' can be taken from them by Means of Voltaic Electricity, with 3 plates, 8vo. (pp. 38), sewn (scarce), 8s 6d 1842

- 14659 ——— A LARGE PAPER COPY, roy. 8vo. *cl.*, 10s

This is the public announcement of the doom of the engraver on copper, steel, and wood, though the sentence was not executed for many years afterwards. It contains a copy of the Patent Specification (dated June 12th, 1841) of EDWARD PALMER, for 'Improvements in producing PRINTING SURFACES, and in printing China, Pottery Ware, Music, Maps, and PORTRAITS,' being the invention of glyptography (a process for producing woodcut-like plates by electrolyte), of which Sampson's account gives a description. From it sprang in time the whole fell tribe of Process Blocks, which have starved out a beautiful art, and made each new and pushful publisher a terror to the tasteful.

- 14660 **SAN GIOVANNI (Antonio, Nobile Vicentino)** SECONDA SQUADRA MOBILE, et ARITMETICA, nella quale s'insegna il Maneggio de Numeri Intieri, e Rotti con tutte le Regole dependenti per sbrigare ogni Negotio, misurar Terreni et Fabriche in tutte le Maniere; e meterli in Dissegno; misurar Corpi Cubi, et ogni Cosa Terrena, ecc., con Aggiunta d'un breve Trattato d'Agricoltura; with large woodcut of the Squadra, and numerous diagrams, sm. 4to. boards (fine copy); RARE, 15s Vicenza, 1666

'Raro. . . . L'autore intende per squadra mobile un circolo graduato con alidade, cui va unita la bussola.'—*Riccardi*.

This work was unknown to Professor de Morgan.

STO. VINCENTIO (Gregorius a, S.J.) OPUS GEOMETRICUM (1647)—v. GREGORIUS, No. 8652, ante.

- 14661 **SANDEMAN (Archibald)** TREATISE on the MOTION of a SINGLE PARTICLE, and of Two Particles acting on oneanother, with *diagrams*, 8vo. *hf. cl.*, 3s Cambridge, 1850

14663 **SAMUDA** (Joseph d'Aguiar, M.P., M.I.C.E.) TREATISE ON THE ADAPTATION OF ATMOSPHERIC PRESSURE to the Purposes of LOCOMOTION ON RAILWAYS, with 2 folding plates, and 2 woodcuts, 8vo. (pp. 50), *sewn* (SCARCE), 12s 6d 1841

The author, the pioneer iron shipbuilder of the Isle of Dogs, was with Samuel Clegg the elder the first to utilize George Medhurst's suggestion to obtain locomotive power by differential atmospheric pressure, by constructing an exhaust railway between London and Wormwood Scrubbs in 1840. The impossibility of maintaining a working vacuum however produced an enormous coal bill, and the scheme came to an end, as mentioned in the next article. It had one final modified trial in the system of the Pneumatic Dispatch Co., but their tube too has long been derelict, and the new Post Office Railway is to have electric draught.

14664 — RAILWAYS ATMOSPHÉRIQUES, ou Application de la Pression Atmosphérique à la Traction sur les Railways, traduit et annoté par C. DU PERRON; with 3 folding plates, 8vo. (pp. 62), *limp smooth maroon morocco gilt, t. e. g.* (fine copy); scarce, 10s 1842

The 'Atmospheric Railway' actually worked the St. Germain incline till 1860, the only instance of its practical employment after its costly collapse on the South Devon Railway.

14665 **SANDS** (Benjamin W.) The PRIMORDIAL ENERGY, with 2 plates (including 'ozone image'), roy. 8vo. (pp. 18), *sewn*, 3s 6d *Springfield, Mo.*, 1906

'All the various kinds of energy are but the different phases of magnetic vibrations.'—*Preface.*

14666 **SANFORD** (Percy Gerald, F.C.I.) NITRO EXPLOSIVES: a Practical Treatise concerning the Properties, Manufacture, and Analysis of Nitrated Substances, including the Fulminates, Smokeless Powders, and Celluloid, with *frontispiece and 43 illustrations*, cr. 8vo. cl., 3s 6d (p. 9s) 1896

'One of the very few text-books in which can be found just what is wanted.'—*Engineer.*

14667 **SANSONE** (Antonio) DYEING: comprising the Dyeing and Bleaching of Wool, Silk, Cotton, Flax, Hemp, China Grass, etc. with 45 plates (mostly folding), 27 woodcuts, 29 pattern cards (in a separate volume), comprising over 200 dyed patterns, 2 vols. 8vo. cl. (pattern card XXI missing); o. p., 12s 6d (p. £1. 1s) Manchester, 1888

14668 **SANTUCCI** (Antonio, da Ripomaranci, *cosmografo del Gran Duca di Toscana*) TRATTATO NUOVO delle COMETE, che le siano prodotte in Cielo, e non nella Regione dell' Aria, come alcuni dicono, con l'Aggiunta che le Sferè del Fuoco, e dell' Aria non si muovono di Moto Circolare delle 24 Hore, prima edizione; with the Medici arms on title, and 12 copperplates (some folding), sm. 4to. LARGE AND SOUND COPY in contemporary limp vellum (RARE), 15s

Firenze, Giov. Ant. Caneo, 1611

'Raro.'—*Riccardi.* 'The author maintains against Aristotle that comets are produced in the heavens by the sun. The work was unknown to Nelli.'—*Libri Catalogue.*

SARASA (Aelfonsus Antonius de, S.J.) SOLUTIO PROBLEMATICI (1649)—v. GREGORIUS, No. 8652, ante.

14669 **SATLER** (Wolfgang, *Basel*) ΔΙΑΝΟΙΑ ΑΣΤΡΟΛΟΓΙΚΑ, quæ omnium Prædictionum astrologicarum veras Causas inquirat, falsas vero examinat et damnat; nulli non perutilissima. Coronidis Loco defenditur Aristoteles contra Neotericos plosque, qui de Apparentia Stellarum prorbibus Annis modò deprehensarum scripserunt, accessit tandem et succincta EXEGESIS ΑΣΤΡΟΛΟΓΙΚΑ, Definitionum et Divisionum Astrologicarum verum Sistema; with folding table, 16mo. old hf. vellum (a number of ll. browned), 12s 6d *Montisbelgardt, J. Foillet*, 1605

Rare, and unknown to Poggendorf and other bibliographers.

SAUNDERSON (Nicholas, F.R.S., *Lucasian Prof. Mathematics*) COMMENTARIUS IN PRINCIPIA PHILOSOPHIE NEWTONIANÆ, a Manuscript—v. NEWTONIANA, No. 12624 ante.

14670 — THE ELEMENTS OF ALGEBRA, to which are prefixed I. His Life and Character, II. His Palpable Arithmetic Decyphered, with fine portrait et. 56, holding an armillary sphere, by v. d. Gucht after Vanderbanck; and folding plates, 2 vols. 4to. old calf, 10s

Univ. Press, Cambridge, 1741-40

'A model of careful exposition, reminding one of the 'Algebra' which Euler dictated after having been overtaken by blindness. It contains an account of Euclid's doctrine of proportion, a good deal of what we now call mensuration, a consideration of Diophantine problems, and of magic squares, and it finished with the solution of biquadratic equations.'—*D. N. B.* The memoir prefixed, the chief authority on this blind mathematician, is supposed to be derived from his friends Thomas Nettleton, Richard Wilkes, J. Boldero, Gervas Holmes, and others.

14671 — LECTURES ON MECHANICKS, HYDROSTATICKS, OPTICKS, ASTRONOMY, and OBSERVATIONS ON THE BAROMETER, a Manuscript, closely and neatly written on about 300 pp., with numerous diagrams, sm. 4to. boards (back torn off), £1. 10s [c. 1712]

14672 — THE METHOD OF FLUXIONS applied to a select Number of USEFUL PROBLEMS, with the Demonstration of Cotes's Forms of Fluents, the Analysis of the Problems in his Scholium Generale, and an Explanation of the principal Propositions of SIR ISAAC NEWTON'S PHILOSOPHY, with 12 copperplates, 8vo. old calf, 5s 1756

14673 — ANOTHER COPY, boards, uncut, with very numerous MS. additions and marginal notes by RICHARD WATSON, F.R.S., *absentee Bp. of Llandaff* (1737-1816), and his Calgarth Park book-label, £1. 1s

'An interesting manual of elementary mathematical physics.'—*D. N. B.*

14674 — SELECT PARTS OF THE ELEMENTS OF ALGEBRA, 3rd Edition, with 2 plates, 8vo. old tree-calf gilt (fine copy), 4s 6d 1771

14675 — FOURTH EDITION, revised and corrected, with 2 plates, 8vo. old calf, 3s 6d 1776

14676 — A TREATISE OF FLUXIONS, a Manuscript very neatly written on 335 pp., with numerous diagrams, 2 vols. 4to. in 1, old panelled calf (joints weak), £1. 5s [1742]

'This Book was copied in June 1742 from a Manuscript of the Revd. Mr. John Hill; which he transcribed from Professor Saunderson's own Copy in February 1738/9; by me WILLIAM WARD.'—*Inscr. on last leaf.*

'At the age of 25 he was brought to Cambridge by Joshua Dunn, a fellow-commoner of Christ's College, with whom he resided there, but he was not admitted a member of the College or of the University, owing to want of means. He hoped to make a position as a teacher, and with the consent of the Lucasian Professor, William Whiston, formed a class, to which he lectured on the Newtonian philosophy, hydrostatics, mechanics, sound, astronomy, the tides, and optics: . . . Lord Chesterfield, who was at Trinity Hall, 1712-14, and attended Saunderson's lectures, described him as a professor who had not the use of his own eyes, but taught others to use theirs.'—*D. N. B.*

- 14678 **SAUNIER (Claudius)** TREATISE ON MODERN HOROLOGY in Theory and Practice, translated by JULIEN TRIPPLIN; F.R.A.S., and EDWARD RIGG, Royal Mint, with 21 coloured copperplates and 78 woodcuts, thick impl. Svo. cl. (cover worn), 17s 6d [1852]
A standard work on the subject, and having the plates finely engraved on a large scale.
- 14679 ——— The WATCHMAKER'S HAND-BOOK: a Workshop Companion for those engaged in Watchmaking and the allied Mechanical Arts, translated and considerably enlarged by JULIEN TRIPPLIN, F.R.A.S., and EDWARD RIGG, Royal Mint; 3rd Edition, with Appendix, with 14 folding plates and 36 woodcuts, thick cr. Svo. cl., 4s 6d (p. 9s) 1891
- 14680 **SAUR (L., M.D.)** BETRACHTUNGEN über die ELECTRICITÄT, post 8vo. (pp. 88), sewn (scarce), 6s 6d *Berlin*, 1832
An attempt to form a new theory of electricity, from which the author tries to explain a number of physical and chemical phenomena.
- 14681 **SAUSSURE (Horace Bénédicte de, de Genève; first climber of Mont Blanc)** DÉFENSE de l'HYGROMÈTRE à CHEVEU, pour servir de Supplément aux Essais sur l'Hygrométrie; with copperplate, Svo. (pp. 82), sewn, 6s *Genève*, 1788
- 14682 ——— ESSAIS sur l'HYGROMÉTRIE. I. Description d'un nouvel Hygromètre comparable. II. Théorie de l'Hygrométrie. III. Théorie de l'Évaporation. IV. Application des Théories précédentes à quelques Phénomènes de la Météorologie, première édition; with 2 copperplates, 4to. boards, uncut, or, hf. bound (RARE), 15s *Neuchâtel*, 1783
- 14683 ——— Les MÈMES, avec DÉFENCE de l'HYGROMÈTRE à CHEVEU; with copperplate—2 vols. 4to. in 1, hf. parchment, £1. 1s *ib.*, 1783—*Genève*, 1788
The Défence is directed against Jean André de Luc (v. No. 11059 ante), who proposed his own ivory and whalebone hygrometers.
- 14684 ——— RÉIMPRESSON; with 2 copperplates, thick Svo. boards, uncut, 10s 6d *ib.*, 1783
Containing the author's invention of the hair hygrometer. 'His ingenious and extensive researches, conducted with the simple hair hygrometer, entitle him to be considered the founder of hygrometry.'—*Alexander Buchan*.
'Un des plus beaux ouvrages dont la science se soit enrichie à la fin du XVIII^e siècle.'—*Cuvier*.
'C'est là que Saussure fit connaître son importante découverte que l'air se dilate et devient spécifiquement plus léger à mesure qu'il se charge d'humidité.'—*Biogr. Gén.*
- [——] DELLA MANIERA di PRESERVARE gli EDIFICI dal FULMINE; with vignette, Venezia, 1772
—v. TOALDO, post.
- 14685 ——— VOYAGES dans les ALPES, précédés d'un Essai sur l'Histoire Naturelle des Environs de Genève [Nouvelle Edition], with numerous folding maps and plates, 8 vols. post 8vo. hf. morocco gilt (partly stained), £1. 1s *ib.*, 1803-1796
The foundation of the Alpinist's library, and containing many valuable original researches on METEOROLOGY, e.g., the diurnal periodicity of the electric tension of the atmosphere, the decrement of temperature with height, etc. etc.
- 14686 **SAUVEUR (Albert, Harvard Univ.)** The METALLOGRAPHY of IRON and STEEL, with several hundred illustrations, sq. impl. Svo. cl., 16s 6d (p. £1. 5s nett) *Cambridge, Mass.*, 1912
- 14687 **SAVÉRIEN (Alexandre, Ingénieur de la Marine)** HISTOIRE des PROGRÈS de l'ESPRIT HUMAIN dans les SCIENCES EXACTES, et dans les Arts qui en dépendent, avec un Abrégé de la Vie des Auteurs les plus célèbres dans ces Sciences; with frontispiece by Massard, 8vo. sound copy in old hf. calf gilt, with Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of *Llandaff*, 5s 6d 1766
- 14688 **SAVERY (Thomas)** NAVIGATION IMPROV'D: or, the Art of ROWING SHIPS of all Rates, in CALMS, with a more easy, swift, and steady Motion, than Oars can; also, a DESCRIPTION of the ENGINE that performs it; and the Author's Answer to all Mr. Dummer's Objections that have been made against it, original edition, with folding plate, and 3 smaller engravings on copper, sm. 4to. (pp. 30), sewn (folding plate in fs.); very rare, £5. 5s
printed and sold by James Mozon, at the Atlas in Warwick-Lane, 1693
- 14689 ——— FACSIMILE REPRINT, with folding plate, and 3 woodcuts, cr. 4to. hf. parchment (ONLY 70 COPIES PRINTED), 18s 6d [1880]
'In 1696 he invented a contrivance for rowing ships in a calm by means of two paddle-wheels, one at each side of the vessel, worked by a capstan placed between. William III. thought highly of it, but, although Savery demonstrated its practicability by fitting it to a small yacht, official jealousy prevented its adoption by the navy. He was obliged to content himself by publishing an account (the above) of his invention. . . . This treatise contained a vehement protest against the treatment accorded him in official circles.'—*D. N. B.*
- 14690 **SAVONAROLA (Girolamo, o.p.)** OPUS EXIMIUM, adversus DIVINATRICES ASTRONOMICAM, in CONFIRMATIONEM Confutationis eiusdem Astronomicæ Prædictionis JOAN. PICI MIRANDULE COMITIS, ex Italico in Latinum translatum, Interprete THOMA BONINSIGNIO, O. Præd.; ab eodem Scholiis, Adnotationibus, atque Indice illustratum; accedit eiusdem Interpretis Apologeticus, adversus huius Operis Vituperatores, 12mo. old white vellum (large and sound copy); rare, 12s 6d *Florentiæ, G. Marescotus*, 1582
The Italian original was published in 1495, in the same year as Pico della Mirandola's tract, and during the high tide of Savonarola's reign over the Florentines.
- 14691 **SAXELBY (F. M.)** A COURSE in PRACTICAL MATHEMATICS, with 200 diagrams, Svo. cl., 3s 6d (p. 6s 6d) 1905
- 14692 **SCACCHI (Francesco, Fabrianense)** De SALUBRI POTU Dissertatio; with engraved title, and woodcut of the author's warming and cooling apparatus for wine, sm. 4to. fine copy in old red vellum, WITH AUTOGRAPH and ENGRAVED BOOKPLATE OF ALBRECHT V. HALLER, F.R.S. (1708-77), 15s *Rome, Alec. Zannettus*, 1622
Containing chapters on wine and the purification of bad water. The author also mentions a freezing mixture, consisting of 24 pounds of sea salt melted in 100 parts of water. The author and his work was unknown to Poggendorff.
- 14693 [**SCAFE (John)**] KING COAL'S LEVEE, or Geological Etiquette, with explanatory Notes; and the COUNCIL of the METALS; 4th Edition, to which is added BARON BASALT'S TOUR, 12mo. boards, uncut (scarce), 4s 1820
A poetical effusion, with explanatory notes in prose, which were revised by Dean Conybeare and Dean Buckland, F.R.S.

- 14695 **SAWER (J. Ch., F.L.S.)** ODOROGRAPHIA: a NATURAL HISTORY of RAW MATERIALS and DRUGS used in the PERFUME INDUSTRY [Vol. I], with 13 woodcuts and folding map, 8vo. cl., 6s (p. 12s 6d) 1892
- 14696 **SCHARNWEBER (L.)** Die ELEKTRISCHE HAUSTELEGRAPHIE: Handbuch für Techniker, Mechaniker und Bauschlosser; with 97 woodcuts, 8vo. sewn, 1s 6d Berlin, 1880
- 14697 **SCHÉELE (Carl Wilhelm)** CHEMICAL ESSAYS, translated from the Transactions of the Academy of Sciences at Stockholm, with Additions [and Preface, by THOMAS BEDDOES, M.D.], 8vo. old calf, newly rebounded (fine copy); VERY RARE, £1. 15s 1786
- The author's most important work, containing accounts of his discovery of hydrofluoric, tartaric, benzoic, arsenious, molybdic, lactic, citric, malic, oxalic, gallic, and other acids. He also separated independently chlorine, laryta, oxygen, glycerine, and sulphuretted hydrogen gas, obtained the salts of manganese, and showed how manganese colours glass. His name is familiar in 'Scheele's green', the pigment produced by arsenite of copper, which he first described, and for a strong solution of prussic acid, first obtained from ferrocyanide of potassium, which is well-known to the medical profession.
- 14698 ——— TORBERN BERGMAN; translated from the German by J. R. FORSTER, F.R.S., with Notes by RICHARD KIRWAN, F.R.S., with Letter to him from JOSEPH PRIESTLEY, F.R.S., with plate, 8vo. old hf. calf (VERY RARE), £1. 10s 1780
- 'In his treatise on 'Air and Fire' he showed that the air consists essentially of two gases, one of which supports combustion whilst the other does not. The former he identified with the 'fixed air' he obtained from saltpetre, nitric acid, black oxide of manganese, and other substances. He endeavoured to associate several phenomena with the action of this gas, particularly connecting it with the respiratory function and the growth of plants. Incidentally he prepared and described sulphuretted hydrogen, and by his experiments on the action of light upon chloride of silver and other substances, he took the first step in the direction of discovering the art of photography.
- 14699 ——— SUPPLÉMENT AU TRAITÉ CHIMIQUE de l'AIR et du FEU, contenant un Tableau abrégé des Nouvelles Découvertes sur les diverses Espèces d'Air, par J. G. LÉONHARDY, des Notes de RICHARD KIRWAN, et une Lettre du DR. PRIESTLEY sur l'Ouvrage de M. Scheele, traduit et augmenté de Notes, et du Complément du Tableau abrégé par le BARON DE DIETRICH, avec la Traduction des Experiences de M. Scheele sur la Quantité d'Air Pur qui se trouve dans l'Atmosphère, 12mo. mottled calf (back slightly damaged); RARE, 12s 6d 1785
- 14700 ——— : CLEVE (P. T.) CARL WILHELM SCHEELE: ett MINNESBLAD på Hundrade Årsdagen af hans Död; with portrait, woodcuts and fs. letter, 8vo. (pp. 54), sewn, 2s 6d Köping [1886]
- 14701 ——— : CARL WILHELM SCHEELE, Pharmacist and Chemist: a brief Account of his Life and Work, 1742-1786, reprinted from the Pharmaceutical Journal, with portrait, plate, and woodcut, post 8vo. (pp. 24), sewn, 2s 1893
- 14702 **SCHEERER (Karl Johann August Theodor, Bergakademie Freiberg)** Einige ALLGEMEINE BEMERKUNGEN über den POLYMEREN ISOMORPHISMUS, 8vo. (pp. 20), sewn, with inscr. to SIR CHARLES LYELL, F.R.S., as below, and Prof. N. Story-Maskelyne's auto. (scarce), 5s [Leipzig, 1850]
- 'Herrn Professor Dr. Ch. Lyell hochachtungsvoll der Verfasser.'—Inscr. on cover.
- 14703 ——— BEITRÄGE zur NÄHEREN KENNTNISS des POLYMEREN ISOMORPHISMUS; with 2 woodcuts, 8vo. (pp. 90), sewn, with inscr. to SIR CHARLES LYELL, F.R.S., and Prof. N. Story-Maskelyne's auto., 4s 6d ibidem [1851]
- 14704 ——— LEHRBUCH der METALLURGIE, mit besonderer Hinsicht auf chemische und physikalische Principien, I. Band (soweit erschienen); with numerous woodcuts, 8vo. hf. calf, 4s (p. M. 10.50 sewn) Braunschweig, 1848
- 14705 ——— LÖTHROHRBUCH: eine Anleitung zum Gebrauch des Löthrohrs, nebst Beschreibung der vorzüglichsten Löthrohrgebläse; with 26 woodcuts, 12mo. sewn, 1s 6d ibidem, 1851
- 14706 ——— Upon a PECULIAR KIND of ISOMORPHISM that plays an important Part in the MINERAL KINGDOM, translated by W. G. LETTSOM, 8vo. (pp. 45), sewn, 4s 1848
- 14707 ———, und E. DRÉCHSEL: KÜNSTLICHE DARSTELLUNG von FLUSSSPATH und SCHWERSPATH, 8vo. (pp. 13), sewn, 2s Leipzig, 1873
- 'Scheerer pointed out cases of the so-called polymeric isomorphism, which proved that elementary atoms might be replaced by atomic groups without change of crystalline form.'—Prof. E. v. Meyer.
- 14708 **SCHÉFFELT (Michael)** PES MECHANICUS ARTIFICIALIS, oder NEU-ERFUNDENER MASS-STAB, auf welchem alle Proportionen der gantzen Matheseos ohne mühsames Rechnen, allein durch Hülffe eines Hand-Zirkels, sowohl in Arithmetica, Geometria, Stereometria, als auch Trigonometria, etc. mit niemahls versuchter Behendigkeit, zur höchstem Vergnügen eines Liebhabers, können gesucht und gefunden werden; with frontispiece and 11 folding plates, sm. 4to. fine copy in old hf. vellum (rare), 15s Ulm, 1699
- Instead of using the circle of proportion, the author advocates a primitive form of sliding rule, including trigonometrical functions, of his own invention.
- 14709 **SHELLBACH (Karl Heinrich)** Die LEHRE von den ELLIPTISCHEN INTEGRALen und den THETA-FUNCTIONEN; with numerous diagrams, 8vo. hf. morocco gilt, 3s Berlin, 1864
- 14710 **SCHENCK (Frederick)** SHORT TREATISE on LITHOGRAPHY, 8vo. (pp. 22), sewn, 2s 6d Edin., 1857
- 14711 ———, and L. GHÉMAR: EXPLANATION of the TREATMENT of an INVENTION in LITHOGRAPHY, with fine lithographic plate, 8vo. (pp. 5), sewn (very scarce), 10s 6d ibidem, 1850
- 'The important merit which this invention possesses consists in its taking advantage of the chemical composition of the lithographic stone, and the chemical nature of its printing. . . . The chief feature in lithography will in future be the remarkable ease with which great power, depth, and brilliancy of tone, together with a variety of texture, can be attained.'—Pp. 1-2.
- 14712 **SCHERFFER (Carl; s.J., Univ. Vienna)** NEUE VERBESSERUNG DIOPTRISCHER FERNRÖHREN, welche ohnlängst von dem berühmten DOLLOND in England sind erfunden worden, aus dem Lateinischen übersetzt; with copperplate, 4to. (pp. 36), sewn, 5s Leipzig, 1764
- The earliest German account of John Dollond's great invention of the achromatic telescope.
- 14713 **SCHMEISSER (Johann Gottfried)** SYLLABUS of LECTURES on MINERALOGY, 8vo. (pp. 155), sewn, 3s 6d 1794

- 14715 **SCHEFFER** (**Henrik Theophilus**) CHEMISCHE VORLESUNGEN über die Salze, Erdarten, Wässer, entzündliche Körper, Metalle und das Färben, gesammelt, in Ordnung gestellt und mit Anmerkungen herausgegeben von TOBERN [OLOF] BERGMANN [*sic*], aus dem Schwedischen übersetzt von CHRISTIAN EHRENFRIED WEIGEL; with 5 folding plates, and 2 folding tables on copper, sm. 8vo. (pp. 752), *sewn* (rare), 10s 6d
Greifswald, 1779
The author was the first to explain correctly some of the properties of platinum, and to ascertain the quantitative composition of a few chemical compounds. He was a supporter of the phlogiston theory, and advanced an hypothesis ascribing to the phlogiston negative weight.
- The above is the only translation of the Swedish original ever published in any language.
- 14716 **SCHEFFER** (**Johann**) De MILITIA NAVALI VETERUM Libri IV, ad Historiam Græcam Latinamque utiles; with frontispiece and 3 other fine copperplates, and numerous interesting woodcuts, sm. 4to. *old vellum* (small hole in front, and binding somewhat defective), with fine engraved bookplate by du Vivien, of Liège, and of Thomas Phillips of Ickford (1708-74) with another of Francis North Lord Guilford, 1703 (rare), £1. 10s
Ubsalia, Joh. Jansson, 1654
- 14717 — ANOTHER COPY, printed on stouter paper, but without the 3 copperplates, 4to. *old vellum* (back of binding damaged, otherwise a FINE COPY), with bookplate of Patrick Hume, first Earl of Marchmont, 1702, £1. 1s
This is next to Snellius's (v. No. 4484 *ante*) the earliest work on the naval arts of the ancients. It is chiefly collected from the Greek and Roman Classics, and treats the subject far more fully than that of Snellius, which is more exclusively devoted to navigation, while the present work treats more especially of naval architecture.
- 14718 **SCHNEIDER** (**Christoph, s.j.**) OCVLUS hoc est: FUNDAMENTUM OPTICUM, in quo ex accurata Oculi Anatomie, abstrusarum Experimentarum sedula Pervestigatione, ex Invisis Specierum visibilium tam everso quam erecto Situ Spectaculis, necnon Solidis Rationum Momentis Radius Visualis eruitur; sua Visioni in Oculo Sedes decernitur; Anguli Visorii Ingenium aperitur; Difficultates veteres, novæ, innumere expediuntur, abstrusæ, obscura, curiosa plurima in medium proferuntur, etc. etc. etc.; with numerous woodcuts and diagrams, sm. 4to. *contemporary limp vellum* (some ll. wormed on margin and others browned, but a large and otherwise sound copy); RARE, £1. 10s
Eniponti, apud Danielem Agricolam, 1619
'Eines für seine Zeit ausgezeichnetes optisches Werk.'—Poggendorf.
This work contains many important investigations in physiological optics, and the experiments known by the author's name, in which he showed that the rays of light cross each other when passing through a small hole. He called attention to the fact that the retina is the organ of seeing, gave the first satisfactory explanation of accommodation, and the first correct illustration of the human eye.
- 14719 — PRATICA del PARALLELOGRAMMO da DESIGNARE del P. CHRISTOFORO SCHNEIDER, della Compagnia di Gesiù, di nuovo data, in Luce da GIULIO TROILI alias Prencipe Pittore da Spilimbertò; with 2 plates, sm. 4to. *sewn* (one l. slightly damaged), 8s
Bologna, Giac. Monti, 1653
- 14720 — ANOTHER COPY, figured boards (*nice copy*), 10s 6d
'Raro.'—Riccardi. It describes Schsiner's invention of the pantograph.
- 14721 **SCHINZ** (**Karl**) RESEARCHES ON THE ACTION OF THE BLAST-FURNACE; translated by W. H. MAW and M. MÜLLER, with APPENDIX (pp. 40), written by the Author expressly for the English Edition, with 7 plates, and numerous woodcuts, cr. 8vo. cl. (o. p.), 3s 6d (p. 8s 6d) 1870
'The work possesses a special value from the extensive collection of experimental data which it contains.'—*Translators' Preface*.
- 14722 **SCHMID** (**Ernst Erhard**; *Univ. Jena*) LEHRBUCH der METEOROLOGIE; with 96 woodcuts, 8vo. (pp. 1025), *sewn* (*Atlas wanting*), 4s (p. M. 39)
Leipzig, 1860
- 14723 **SCHMIDT** (**Carl**) Der ZITTERSTOFF (ELECTROGEN) und seine Wirkungen in der Natur; with vignette on title, 8vo. *old hf. calf* (rare), 12s 6d
Breslau, 1803
The author's was to be 'the greatest and most momentous discovery ever made for science' (*Preface*). This curious chemical paradox is dedicated 'an den Bürger Bonaparte, ersten Consul der französischen Republik, Präsident der italiänischen Republik,' and contains an interesting 8-page address to him.
- 14724 **SCHMIDT** (**Charles Frederik**, *konst-spaarlucht-werker*) PROEVE eener historische en ontledende VERHANDELING over de meest in Gebruik zijnde LAMP-SOORTEN; dienende ter nadere Kennisse en Aanbevelinge der SPAAR-LAMPEN enz., alsmede de chronologische Bereiding, Berekening en ZUVERING der meeste BRAND-OLIJEN; with 3 coloured folding plates, 8vo. (pp. 144), *sewn* (rare), 10s 6d
Amsterdam [1810]
This rare work illustrates a number of varieties of the Argand Burner, and is interesting as probably the last account of oil lamps written before the introduction of gas lighting.
- 14725 **SCHNABEL** (**Carl**) HANDBOOK of METALLURGY, translated [with Additions] by HENRY LOUIS, with 927 woodcuts, 2 thick vols. large 8vo. cl., 16s (p. £2. 2s nett) 1898
'The most recent and most exhaustive work on the subject in any language.'—*Translator*. It does not contain the metallurgy of iron and steel.
- 14726 **SCHNAUBERT** (**Ludwig**; *Univ. Kharkoff*) UNTERSUCHUNG der VERWANDSCHAFT [*sic*] der METALLOXYDE zu den SÄUREN, nach einer Prüfung der neuen Berthollet'schen Theorie; with folding table of affinities, cr. 8vo. boards, 5s
Erfurt, 1803
An attack on Berthollet's Doctrine of Affinity, as contained in his *Essai de Statique chimique*.
- 14727 **SCHÖNBEIN** (**Christian Friedrich**; *Univ. Basel*, inventor of gun cotton) Ueber die NATUR des EIGENTHÜMLICHEN GERUCHES, welcher sich sowohl am POSITIVEN POLE einer SÄULE während der Wasserelectrolyse, wie auch beim Ausströmen der gewöhnlichen Electricität aus Spitzen entwickelt, 4to. (pp. 17), *sewn* (rare), 12s 6d
[München, 1840]
Containing the author's discovery of ozone (first so named by him). The change of oxygen when passing through an electric discharge was first noticed by Martin van Marum in 1792. 'The beautiful investigations of Schönbein, Marignac, and de la Rive established the substantial identity of ozone and oxygen.'—*Prof. E. v. Meyer*.
- v. FARADAY, No. 7791, *ante*.
- 14728 **SCHUBERT** (**Hermann**) MATHEMATICAL ESSAYS and RECREATIONS, translated by THOMAS J. MCCORMACK, with 39 illustrations, roy. 8vo. cl., 2s 6d (p. 3s 6d nett) Chicago, 1898
- 14729 **SCHULTZ** (**Johann**; *Univ. Königsberg*) ANFANGSGRÜNDE der REINEN MATHESIS; with 7 folding plates, 8vo. boards, 2s 6d
Königsberg, 1790

- 14731 **SCHON** (H. A. E. C. v., M.A.S.C.E.) HYDRO-ELECTRIC PRACTICE: a Practical Manual of the Development of Water Power, its Conversion to Electric Energy, and its Distant Transmission, with 3 charts, and 232 other illustrations, 4to. cl., 14s (p. £1. 5s nett) Philadelphia, 1908
- 14732 **SCHONER** (Lazarus) De NUMERIS GEOMETRICIS. Of the NATURE and PROPERTIES of GEOMETRICALL NUMBERS, now Englished, enlarged and illustrated with diuers and sundry Tables and Obseruations concerning the Measuring of Plaines and Solids [by WILLIAM BEDWELL]: All teaching the fabricke, demonstration and vse of a singular Instrument, or Kular, long since inuented and perlifted by THOMAS BEDWELL, with folding table of 'Trigonum Architectonicum, or, the Carpenters Square', sm. 4to. sewn (title somewhat soiled and headlines cut into, otherwise a sound and clean copy); VERY RARE, £1. 10s Richard Field, 1614
- 14733 — ANOTHER COPY, *hf. calf* (A LARGE AND VERY SOUND COPY), £1. 18s 6d
 'Nominally an enlarged translation of Lazarus Schonorus's *De Numeris Geometricis*, but in reality altogether rewritten, with the practical object of explaining the use of the 'trigonum', or carpenter's square, and the ruler, or mechanical contrivance for carpenters' computations, which had been invented by his uncle. This 'ruler', or *mesolabium architectonicum*, had great value in Bedwell's eyes, and in the preface to his book in 1614 he expresses an intention to publish something further on it.—D. N. E.
 William Bedwell, the father of Arabic studies in England, was one of the Westminster Translators of the Bible. There is no copy of this work in the British Museum Catalogue of Early English Books.
- 14734 **SCHOOTEN** (Frans van; *Univ. Leyden*) EXERCITATIONUM MATHEMATICARUM Libri V: I. Propositionum Arithmeticarum et Geometricarum Centuria. II. Constructio Problematum Simplicium Geometricorum. III. Apollonii Pergæi Loca Plana restituta. IV. Organica Conicarum Sectionum in Plano Descriptio. V. Sectiones Miscellanæ XXX, quibus accedit CHRISTIANI HUGENII Tractatus, de RATIOCINIIS in ALIÆ LUDO; with numerous woodcuts and diagrams, sm. 4to. old white vellum, 14s Lugd. Bat., ex off. Joh. Elsevirii, 1657
- 14735 — ANOTHER COPY, *hf. calf* (sound copy), 12s 6d
 'His chief work in which he applies the analytical geometry to the solution of many interesting and difficult problems' (*Prof. Cajori*), and 'recommended the use of coordinates in space of three dimensions' (*W. W. R. Ball*). It is further valuable for the treatise by CHRISTIAAN HUYGENS, the first work printed on the theory of probabilities.
 The second book contains mainly a reprint of the *Geometria Peregriniana*, by an unknown Polish author, in which surveying problems are solved by the use of the cross staff and chain alone.
- 14736 — De ORGANICA CONICARUM SECTIONUM in PLANO DESCRIPTIONE, cui subnexa est Appendix de CUBICARUM ÆQUATIONUM RESOLUTIONE; with numerous woodcuts and diagrams, sm. 4to. *hf. bound, uncut*, 10s 6d *ibidem*, ex Off. Elzeviriorum, 1646
 Of great interest for the first chapter, 'De rectis lineis, quæ in plano ex motu implicato describuntur', in which the author devises a method of drawing a straight line by means of a link and a triangular ruler. This is especially of importance in connection with the alleged discovery of drawing straight lines by linkages by A. Peaucellier in 1864. See No. 10054 ante.
- 14737 **SCHORLEMMER** (Carl, F.R.S.; *Univ. Manchester*) On the NORMAL PARAFFINS, Parts I—III, 3 parts 4to. (pp. 28), sewn, with author's inscr., 3s 6d 1872-80
- 14738 — PART I ONLY, 4to. (pp. 13), sewn, WITH LONG 2-P. MANUSCRIPT BY THE AUTHOR ON THIS SUBJECT INSERTED, 3s 6d 1872
- 14739 — The RISE and DEVELOPMENT of ORGANIC CHEMISTRY; revised Edition, edited [with Biographical Note and Bibliography], by ARTHUR SMITHELLS, F.R.S., with portrait, large cr. 8vo. cl., uncut (scarce), 10s 6d 1894
- 14740 **SCHOTT** (Kaspar, s.j., *Univ. Würzburg*) MAGIA UNIVERSALIS NATURÆ et ARTIS, sive Recondita Naturalium et Artificialium Rerum Scientia, cuius Ope per varias Applicationem Activorum cum Passivis, admirandorum Effectuum Spectacula, additarumque Inventionum Miracula, ad varios Humanæ Vitæ Usus, eruuntur; continet Pars I. Optica. II. Acoustica. III. Mathematica. IV. Physica; editio princeps, with engraved titles and numerous plates, 4 vols. 4to. sound copy in contemporary calf gilt (FINE COPY); RARE, £2. 10s Heriboli, 1657-9
- 14741 — ANOTHER COPY, 4 v., vv. I—II in old calf, and v. III—IV in old vellum (v. III—IV browned), £1. 15s
- 14742 — VOL. II ONLY (ACOUSTICA), with engraved title and numerous plates; old vellum (browned), 5s *ibidem*, 1657
 'Cet ouvrage est le meilleur exposé des connaissances physiques au XVII^e siècle.'—*Biogr. Gén.*
 It is the author's most important work, containing his valuable optical experiments, a good explanation of optical anamorphoses, and especially of the *fata morgana*, as well as giving rules for cylindrical and conical anamorphoses.
 'Mechanische Regeln zur Bewerksstellung übersischer, auf den ersten Blick nicht erklärlicher, optischer Erscheinungen, mit vielen für die Geschichte der Optik wichtigen Bemerkungen machen den Hauptinhalt dieses bekannten Werkes aus.'—*Wilde's Geschichte der Optik*, where a full account of the work will be found on pp. 296-306. It was reprinted, without alterations, in 1677.
- 14743 — MECHANICA HYDRAULICO-PNEUMATICA, qua Aquei Elementi Natura, Proprietas, Vis Motrix, atque Occultus cum Aère Conflictus, à primis Fundamentis demonstratur . . . Experimenta Hydraulico-Pneumatica, Absoluta Machinarum Aquæ et Aère animandarum Ratio ac Methodus . . . accessit EXPERIMENTUM NOVUM MAGDEBURGICUM, quo VACUUM alii stabilire, alii evertere conantur, editio princeps; with engraved title, numerous folding plates on copper, and woodcuts, 4to. sound copy in *hf. brown calf gilt*, uncut (RARE), £1. 10s *ib.*, 1657
 This work is important as containing the first account of the air-pump invented by OTTO V. GUERICKE, the author's friend.
 'Reading in 1657, in Schott's *Mechanica Hydraulico-pneumatica*, of Guericke's invention of exhausting the air in a closed vessel, ROBERT BOYLE set Robert Hooke to contrive a method less clumsy, and the result was the so-called *machina Boyleana*, completed towards 1659, and presenting all the essential qualities of the modern air-pump.'—*Miss Agnes M. Clerke*.
- 14744 — PHYSICA CURIOSA, sive Mirabilia Naturæ et Artis, quibus pleraque, quæ de Angelis, Dæmonibus, Hominibus, Spectris, Energumenis, Monstris, Portentis, Animalibus, Meteoris, etc. rara, arcana, curiosaque circumferuntur, et ad Veritatis Trutinam expendantur, editio princeps; with engraved title, and about 60 plates (some folding), 2 thick vols. 4to. contemporary calf, newly rebaked (RARE), £1. 10s *ib.*, 1662
 The book 'Mirabilia Meteorum' (pp. 1387-1513) sums up contemporary knowledge on meteorology. One chapter naïvely suggests that 'Angeli non sunt ordinariæ causa efficiens ventorum.'

- 14746 **SCHOTT** (Kaspar, s.J., *Univ. Würzburg*) PANTOMETRUM KIRCHERIANUM, h. e., Instrumentum Geometricum Novum, ab ATHANASIO KIRCHERO inventum, nunc universam pænè Practicam Geometriam complectentibus explicatum, perspicuisque Demonstrationibus illustratum; with 32 copperplates, 4to. *old vellum (browned)*; RARE, 12s 6d *Herbipoli, 1660*
The 'instrument' was for surveying purposes, and consisted in the main of a square wooden frame and a ruler.
- 14747 ——— **TECHNICA CURIOSA**: varia Experimenta, Technasmata Pneumatica, Hydraulica, Hydro-technica, Mechanica, Graphica, Cyclometrica, Chronometrica, Automatica, Cabalistica, aliaque Artis Arcana ac Miracula, rara curiosa, ingeniosa, magnamque Partem nova et ANTEHAC INAUDITA, editio princeps; with engraved title, and 60 fine copperplates (many folding), thick 4to. *old calf gilt*, or, *old vellum* (RARE), £1. 10s
- 14748 ——— **ANOTHER COPY**, *hf. bound (a large and clean copy)*, £1. 7s 6d
- 14749 ——— **EDITIO NOVA**; with engraved title, and numerous plates, thick 4to. boards, £1. 5s *ib.*, 1687
Including full accounts of the aerostatic experiments of ROBERT BOYLE and OTTO V. GUERICKE. In this work the author supports the claim of VALERIANUS MAGNUS to be the original inventor of the Torricellian tube. There is also an account of the earliest use of the diving bell, which is stated to have taken place at Toledo before the Emperor Charles V. in 1533, and numerous rare examples of perpetual motion machines.
'Ses excellents ouvrages, qui ont beaucoup contribué aux progrès des sciences physiques, contiennent des faits curieux, des observations précieuses, des expériences dignes d'attention et pouvant mettre sur la voie de plusieurs découvertes.'—*Mercier de St.-Léger.*
- 14750 **SCHÖTTEL** (Joseph) ANATOMIA CIRCULI; with engraving of the 'arithmetical pyramid', and folding plates, Vienna [1756]; ARITHMETISCHE NEBEN-STUNDEN von drey Theilen; so seynd: I. Gnomon Arithmeticus Circuli. II. Fluxus naturalis Logarithmorum. III. Arithmetische Mercantil-Tabellen; with plates, Wienn, 1754—2 vols. 4to. in 1, original paper cover, 8s 6d 1756-4
Unknown to Professor de Morgan.
- 14751 **SCHRIFTEN** (Die) der RÖMISCHEN FELDMESSER, herausgegeben und erläutert von F. BLUME, K. LACHMANN und A. RUDORFF [Indices von E. BURSIA]; with 40 plates, 2 vols. 8vo. buckram, with bookplate of DR. EMIL REICH (scarce), 18s *Berlin, 1848-52*
- 14752 **SCHRÖDER** (Heinrich Georg Friedrich) Die MOLECULARVOLUME der CHEMISCHEN VERBINDUNGEN im festen und flüssigen Zustande, roy. 8vo. *sewn (scarce)*, 7s 6d *Mannheim, 1843*
'Among the numerous researches which have been made with the object of discovering a connexion between the volumes of solid compounds and their atomic composition, those of Schröder are especially worthy of note. He assumes volume units of chemically analogous elements, and believes that he has therewith found the key to the solution of the above problem.'—*Prof. E. v. Meyer.*
- 14753 ——— Die SIEDHITZE der CHEMISCHEN VERBINDUNGEN als das wesentlichste Kennzeichen zur Ermittlung ihrer Componenten; nebst vollständigen Beweisen für die Theorie der Molecularvolumen der Flüssigkeiten, I. Theil (*soweit erschienen*): die KOHLENWASSERSTOFFE und KOHLENWASSERSTOFFOXYDE, roy. 8vo. *sewn*, 6s *ibidem, 1844*
'Ich glaube in vorliegender Schrift den Beweis zu bringen, dass sich über die Molecularconstitution der flüchtigen organischen Verbindungen sehr bestimmte, und bis jetzt auf keinen anderen, als dem von mir eingeschlagenen Wege zu erlangende Begriffs entwickeln lassen.'—*Vorrede.*
- 14754 **SCHUERE MEENENAER** (Jacob vander) ARITHMETICA oft REKEN-KONST, en een kort Ondericht van't ITALIAENS BOECKHOUDE, bij den Auther oversien, verbeert en vermeerderd; black letter, with engraved title containing fine portrait aet. 67, and folding table, thick 16mo. *old vellum (partly water-stained, and engraved title and several corners slightly damaged)*; RARE, £1. 1s *Amsterdam, D. v. d. Schuere, 1643*
The above edition of this rare work was unknown to Mr. R. Brown in his 'History of Accounting', and he only mentions that of 1634. The Account of Book-keeping has a separate title-page and pagination.
- 14755 **SCHUMACHER** (Heinrich Christian) JAHRBUCH für 1843, mit Beiträgen von BESSEL, HANSTEEN, LEHMANN, MÄDLER und OLBERS; with frontispiece, fcap. 8vo. *hf. cl., uncut*, 6s 6d *Stuttgart, 1843*
Including:—Über den Magnetismus der Erde von F. W. Bessel; Über Berichtigung der Thermometer von Hansteen; Über den Gang der Temperatur in Laufe des Jahres von Mädler, u. s. w.
- 14756 **SCHUSTER** (Arthur, *Univ. Manchester*), and Charles Herbert LEES, F.F.R.S.: ADVANCED EXERCISES in PRACTICAL PHYSICS, with 130 illustrations, 8vo. *cl., with auto. of F. J. Jervis-Smith, pr., F.R.S.*, 4s (p. 8s) *Univ. Press, Cambridge, 1901*
- 14757 ——— SECOND [LATEST] EDITION, revised, with 128 illustrations, 8vo. *cl.*, 4s 6d (p. 8s) *apud eandem, ibidem, 1905*
- 14758 **SCHUYLER** (James Dix) RESERVOIRS for IRRIGATION, WATER-POWER, and DOMESTIC WATER-SUPPLY, with the various Types of Dams and the Methods and Plans of their Construction; with Discussion of the available Water-Supply for Irrigation in various Sections of Arid America. the Distribution. Application, and Use of Water, the Rainfall and Run-off, the Evaporation from Reservoirs, the Effect of Silt on Reservoirs, etc., with 208 illustrations (including many plates and folding plans), roy. 8vo. *cl.*, 10s (p. £1. 1s nett) *New York, 1905*
- 14759 **SCHWAMB** (Peter, *Mass. Inst. Technology*), and Allyne Litchfield MERRILL: ELEMENTS of MECHANISM, with 341 woodcuts, 8vo. *cl.*, 6s 6d (p. 12s 6d nett) *New York, 1904*
- 14760 **SCHWARZ** (Hermann) ELEMENTE der ZAHLEN-THEORIE, allgemein fasslich dargestellt, 8vo. *cl. cover, uncut*, with MS. note by Samuel Roberts, F.R.S., 4s *Halle, 1855*
- 14761 ——— VERSUCH einer PHILOSOPHIE der MATHEMATIK, mit einer KRITIK der Aufstellungen HEGEL'S über den Zweck und die Natur der höheren Analysis, 8vo. *sewn*, 3s *ibidem, 1853*
'Soweit Arithmetik, Geometrie und Trigonometrie sich nicht durch ihre Beziehungen zu der Analysis des Unendlichen als deren Bedingung oder Unterlage herausstellen, sind sie für das Gesetz der Wissenschaft wesentlich.'—*Vorrede.*
- 14762 **SCHWARZ** (Tjard), und Ernst v. HALLE: SCHIFFBAUINDUSTRIE in DEUTSCHLAND und im AUSLANDE, unter BENUTZUNG amtlichen Materials herausgegeben; with 17 folding plans of dockyards and 5 folding tables, 2 vols. sq. roy. 8vo. *cl.*, 12s 6d (p. M. 22.25 nett) *Berlin, 1902*
The above copy is an interesting memorial of German Naval murders, as it contains a printed presentation form to Dr. Francis Elgar, F.I. N.A., F.R.S., from Grand Admiral von Tirpitz.

- 14764 **SCHWEINS** (Franz Ferdinand, *Univ. Heidelberg*) THEORIE DER DIFFERENZEN und DIFFERENTIALE der gedoppelten Verbindungen, der Producte mit Versetzungen, der Reihen, der wiederholenden Functionen, der allgemeinsten Facultäten und der fortlaufenden Brüche, thick 4to. *tree-calf gilt*, 5s
Heidelberg, 1825
- 14765 **SCHWENTER** (Daniel) GEOMETRIÆ PRACTICÆ NOVÆ. Tractatus I. Darinnen auss rechtem Fundament gewisen wird; wie man in der Geometria auff dem Papier und Lande, mit denen darzu gehörigen Instrumenten, als Circkel, Richtscheid, Winckelhacken, etc. zur noht ohne dieselben verfahren unnd operiren solle. Tractatus II. Ohne einig Künstlich Geometrisch Instrument, allein mit der Messruhte vnd etlichen Stäben (welche ein Landmesser des absteckens halben nit wol entrahten kan) zur noht, vielerley weite, breite, länge, höhe und tieffe zu erkundigen, etc. etc. Tractatus III. Beschreibung des Nutzlichen GEOMETRISCHEN TISCHLEINS, von JOHANNE PRÆTORIO S[EE]LING erfunden, u. s. w.; with engraved titles, and numerous woodcuts and diagrams, 3 vols. sm. 4to. in 1, *old white vellum (some ll. slightly wormed, otherwise a SOUND AND CLEAN COPY)*; RARE, £1. 10s
Nürnberg, 16[16]-18

FIRST EDITION of this important work, which went through several editions, and contains the author's discovery, independently of Cataldi, of continued fractions.

'Schwenter's praktische Geometrie erfreute sich einer Beliebtheit welche ein Eingehen auf ihren Inhalt empfehlen müsste, selbst wenn wir nichts von Bedeutung ihr zu entnehmen hätten. . . . In Tractatus I lehrt er die verschiedenartigsten theils genaue, theils nur angenäherte Konstruktionen, wie sie bei Dürer, bei Clavius u. s. w. sich finden, auch einige neue Verfahrungs-methoden. . . . Im Tractatus III hat er dem Messtisch, welchen sein Lehrer erfunden, und zu dessen Gebrauch er während des Unterrichtes die nöthige Anweisung gegeben hatte, ohne eine ausführliche Beschreibung desselben zu veröffentlichen, nachträglich zur allgemeinen Kenntniss gebracht und dadurch dem allgemeinen Nutzen einen wesentlichen Dienst erwiesen.'—*Prof. Cantor.*

- 14766 **SCHWEREBESTIMMUNGEN** (Relative), durch PENDELBEOBSACHTUNGEN, ausgeführt durch die k. und k. KRIEGS-MARINE, 1892-4, herausgegeben vom K. und K. Reichs-Kriegs-Ministerium, Marine-Section; with 2 folding plates, and 3 coloured folding maps, roy. 8vo. (pp. 630), *sewn*, 9s (p. M. 18.40)
Wien, 1895
- 14767 **SCHYANOFF** (Alexandre, *Capitaine de l'Armée russe*) ESSAI sur la MÉTAPHYSIQUE des FORCES, inhérentes à l'Essence de la Matière, et Introduction à une nouvelle Théorie Atomodynamique, Mémoire I et II, 2^e Édition, considérablement augmentée; with numerous diagrams, impl. 8vo. (pp. 187), *sewn (scarce)*, 10s 6d
Kiew, 1868

'La thèse principale du présent mémoire consiste à prouver, qu'il existe dans la nature deux espèces de matière créée: la matière pondérable et l'éther. L'une et l'autre ont pour cause fondamentale la force répulsive, formulée par l'impené- trabilité. La force, relative à la matière pondérable, agit en raison inverse des cubes des distances; l'autre est réciproque aux cinquièmes puissances.'—*Préface.*

The author extensively uses the calculus in his speculations on the constitution of matter.

A COMPLETE SET OF BOTH SECTIONS TO 1910:

- 14768 **SCIENCE ABSTRACTS: PHYSICS and ELECTRICAL ENGINEERING**, issued by the Institution of Electrical Engineers, with the Co-operation of the Physical Society of London, the American Physical Society, the American Institute of Electrical Engineers, and the American Electro-Chemical Society, both sections complete from the Beginning in 1898 to 1910 (Vols. I—XIII), *illustrated*, with the INDEXES—21 vols. 8vo. in 273 parts, *sewn*, £10. 10s (p. £18. 16s nett) 1898-1910
- 14769 ——— ANOTHER SET, COMPLETE from the Beginning in 1898 to 1912 (Vols. I—XV) [v. VI—XV, Section A: Physics only], *illustrated*, 4 vols. 8vo. *cl.*, the rest in parts as issued, £8. 8s (£15. 2s nett) 1898-1912
- 14770 ——— ANOTHER SET, complete to 1909 (Vols. VI—XII Section A: Physics only), 12 vols. 8vo. *cl.* (v. XII *sewn*), £7. 15s (p. £14. 2s nett) 1898-1909
- 14771 ——— ANOTHER SET, complete to 1902, 5 vols. 8vo. *cl.*, £3. 10s (p. £7. 4s nett) 1898-1902
- SECTION A contains Light, including Photography; Heat; Sound; Electricity and Magnetism; Chemical Physics and Electro-Chemistry; General Physics; Meteorology and Terrestrial Physics; Physical Astronomy; and Section B Steam Plant, Gas and Oil Engines; Automobiles; Oil-engine driven Ships and Launches; Balloons and Airships; General Electrical Engineering, including Industrial Electro-Chemistry; Electric Generators; Motors and Transformers; Electrical Distribution, Traction and Lighting; Telegraphy and Telephony.

'We may point out that a vast amount of tedious research may frequently be saved by consulting its pages when investigating matters relating to questions of design, working and organisation. Special attention is also given by the editorial staff to the capital outlay and working costs of existing undertakings. . . . "Science Abstracts" is not, like many periodicals, of purely ephemeral interest; its value increases at an increasing rate as time goes on. Already its seven fat volumes form a substantial addition to the library, and constitute a complete record of progress during the corresponding years. We can, from personal experience, vouch for its worth, and cordially recommend it to our readers.'—*Electrical Review (London).*

DR. W. B. CARPENTER'S COPY:

- 14772 **SCIENTIFIC MEMOIRS**, selected from the TRANSACTIONS OF FOREIGN ACADEMIES OF SCIENCE, and Learned Societies, and from FOREIGN JOURNALS, edited by RICHARD TAYLOR, F.S.A., with 59 plates (mostly folding and some coloured), besides woodcuts, 5 thick vols. 8vo. *hf. calf gilt*, with DR. W. B. CARPENTER'S BOOKLABEL (*nice copy*): VERY SCARCE, £3. 10s 1837-52

A DESIRABLE SET of THIS IMPORTANT PUBLICATION, containing translations (in many cases the only ones) of a number of rare and important memoirs, some of which are now practically unprocureable in the originals. They include, among others, the following authors: Arago, E. Becquerel, J. J. Berzelius, F. W. Bessel, J. B. Biot, R. W. Bunsen, A. L. Cauchy, R. J. E. Clausius, H. W. Dove, J. F. Encke, A. J. Fresnel, K. F. Gauss, P. A. Hansen, H. L. F. v. Helmholtz, Joseph Henry, M. H. Jacobi, J. Lamont, M. Melloni, O. F. Mossotti, Johannes Müller, F. E. Neumann, J. A. F. Plateau, H. V. Regnault, A. Seebeck, and Wilhelm Weber.

- 14773 **SCOPOLI** (Giovanni Antonio; *Univ. Pavia*) ELEMENTI di CHIMICA e di FARMACIA, 8vo. *tree-calf gilt*, by Kalthoerber, 4s
Pavia, 1786

- 14774 **SCOTT** (Benjamin; *scientific instrument maker*) The DESCRIPTION and USE of an UNIVERSAL and PERPETUAL MATHEMATICAL INSTRUMENT; shewing the most expeditious and exact Method of solving all practical Questions in Arithmetick, Trigonometry, Navigation, Dyalling, Astronomy, etc., with diagrams and folding table on copper, 12mo. *old calf (joints weak)*, rare, 10s 6d 1733

Dedicated to John Boyle, 5th Earl of Cork and Orrery, F.R.S. The instrument is stated to consist of '20 circles, 12 segments of circles, and 3 tables.' The work is not noticed by Watt, Lowndes, or Allibone.

- 740 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14776 **SCOFFERN** (John, *Prof. Chem., Aldersgate Coll.*) CHEMISTRY of the INORGANIC BODIES: their Compounds and Equivalents, with numerous woodcuts, 8vo. cl., 3s 1856
- 14777 —: CHEMISTRY NO MYSTERY, or a Lecturer's Bequest, being a Course of Lectures, edited by DR. SCOFFERN; 2nd Edition, revised and corrected, with Cruikshankian vignette on title, and numerous woodcuts, 12mo. cl., 3s 6d [1848]
- 14778 — PROJECTILE WEAPONS of WAR and EXPLOSIVE COMPOUNDS; 3rd Edition, revised, with frontispiece and woodcuts: NEW RESOURCES of WARFARE, with especial Reference to RIFLED ORDNANCE, in their chief known Varieties, including authenticated Weight, Measurement, and Mode of Construction of ARMSTRONG'S WROUGHT IRON BREECH-LOADING GUNS, with their Shells and Fuses, with woodcuts—2 vols. post 8vo. in 1, hf. calf (scarce), 7s 6d 1858-9
- 14779 —, Sir William FAIRBAIRN, F.R.S., and others: THE USEFUL METALS and their ALLOYS, including Mining Ventilation, Mining Jurisprudence, and Metallurgical Chemistry, with plates, and numerous woodcuts, thick 8vo. cl., 3s 1857 or '66
- 14780 **SCOTT** (Michael, M.I.C.E.) OCCASIONAL PAPERS (Civil Engineering. Gunnery and Naval Architecture), with 13 large folding plates and plans (2 coloured), 2 vols. 8vo. cl., with author's inser. to Sir F. J. Bramwell, F.R.S., and the latter's auto., 8s 6d (p. £2. 2s) 1874
- 14781 — REPRINT, with 13 large folding plates and plans (2 coloured), 2 vols. 8vo. in 1, cl., 7s 6d 1881
- 14782 **SCOTT** (Robert Forsyth) TREATISE on the THEORY of DETERMINANTS and their APPLICATIONS in ANALYSIS and GEOMETRY, 8vo. cl., 4s (p. 9s nett) Univ. Press, Cambridge, 1880
 'The principal novelty of the treatise lies in the systematic use of Grassmann's alternate units, by means of which the study of determinants is, I believe, much simplified.'—Preface.
- 14783 **SCOTT** (William Berryman, Princeton Univ.) INTRODUCTION to GEOLOGY, with 12 plates and 169 other illustrations, chiefly from photographs, thick large cr. 8vo. cl., 6s (p. 11s nett) New York, 1897
- 14784 **SCOUTETTEN** (Robert Joseph Henri) L'OZONE: Recherches Chimiques, Météorologiques, Physiologiques et Médicales sur l'Oxygène Electrisé; with coloured plate, and folding tables, post 8vo. sewn (o. p.), 4s 1856
- 14785 **SCROPE** (George Julius Poulett, M.P., F.R.S.) CONSIDERATIONS on VOLCANOS, the probable Causes of their Phenomena, the Laws which determine their March, the Disposition of their Products, and their Connexion with the present State and past History of the Globe; leading to the Establishment of a NEW THEORY of the EARTH, with 2 folding plates, 33 woodcuts, and map, 8vo. boards (back torn off); scarce, with inser. 'From the Author', 10s 1825
 'Full of accurate information, careful inductions, and suggestive inferences; it enunciates emphatically the doctrine afterwards developed by Lyell and called 'Uniformitarian,' but as it was necessarily controversial, was much in advance of its age, and had ventured into a cosmological speculation, it did not meet with a generally favourable reception.'—*Prof. Bonney, jr., F.R.S.*
- 14786 — THE GEOLOGY and EXTINCT VOLCANOES of CENTRAL FRANCE; 2nd [last] Edition, enlarged, with folding panoramic views, woodcuts, and maps in pocket, 8vo. cl., uncut (SCARCE), 16s 6d 1858
 'The second edition is still carefully read by every geologist who visits Auvergne. Lyell, who reviewed the first edition in the *Quarterly Review*, justly called it the most able work which had appeared since Playfair's 'Illustration of the Huttonian Theory.'—*Prof. Bonney, F.R.S.*
- 14787 — VOLCANOES: their Phenomena, Share in the Structure and Composition of the Earth's Surface, and Relation to its Internal Forces, with CATALOGUE of all known VOLCANOES; 2nd [last] Edition, enlarged, with map, coloured frontispiece, and woodcuts, 8vo. cl. (scarce), 10s 1862
 A new edition of the 'Considerations', designed 'to dispel that signal delusion, as to the mode of action of subterranean forces, with which the elevation-crater theory had during the intervening period mystified the geological world.'—*Dedication.*
- 14788 **SEABROOK** (Arthur Hugh, M.I.E.E.) THE MANAGEMENT of PUBLIC ELECTRIC SUPPLY UNDERTAKINGS, with folding tables, roy. 8vo. cl., 4s 6d (p. 7s 6d net) 1913
- 14789 **SEARLE** (Arthur) THE ZODIACAL LIGHT, with plate, 8vo. (pp. 55), sewn, 1s 6d [n. p., 1883]
- 14790 **SEATON** (Albert Edward, M.I.C.E.) THE SCREW PROPELLER, and other competing Instruments for Marine Propulsion, with 7 plates, and 65 diagrams, large 8vo. cl., 8s (p. 12s 6d nett) 1909
- 14791 —, and Henry Morrison ROUNTHWAITE: POCKET BOOK of MARINE ENGINEERING RULES and TABLES, with 64 diagrams, 12mo. limp roan, g. e., 3s (p. 8s 6d) 1894
- 14792 **SEAWARD** (John) OBSERVATIONS on the RE-BUILDING of LONDON BRIDGE: demonstrating the Practicability of executing that Work in THREE FLAT ELLIPTICAL ARCHES of STONE, each 230 Feet Span, with Examination of the Arch of Equilibrium proposed by Dr. Hutton, and a New Method for forming such a Arch, with 7 folding plates, and 22 diagrams, 8vo. hf. calf, 6s 1824
 This venturesome scheme might perhaps have been just practicable, but we may be well content with Rennie's noble work.
- 14793 **SEAWARD** (Samuel, F.R.S.) MEMOIR on the PRACTICABILITY of SHORTENING the DURATION of VOYAGES, by the Adaptation of AUXILIARY STEAM POWER to SAILING VESSELS, with folding plate, and folding table on linen, 4to. cl., 6s 1841
 Giving an account of the speed trials of the S.S. *Vernon*, which 'accomplished the whole distance between Spithhead and the Calcutta [round the Cape], by the alternate agency of steam and wind, in the short period of 95 days, being one of and shortest passages on record.' The Navy went muddling on with a mixture of steam and sails for fifty years after this.
- 14794 **SECCHI** (Angelo, S.J., *Collegio Romano*; F.R.S.) DESCRIZIONE dell' OSSERVATORIO MAGNETICO del COLLEGIO ROMANO, e Sunto delle Osservazioni fatte nel 1859 e 1860; with 3 folding plates (2 of magnetical instruments), roy. 4to. (pp. 54), sewn, 3s Roma, 1860
- 14795 **SEEBECK** (Thomas Johann; discoverer of thermo-electricity) Über den in allen METALLEN durch VERTHEILUNG zu ERREGENDEN MAGNETISMUS, 4to. (pp. 24), sewn, with author's inser. as below, 7s 6d Berlin, 1828
 'Herru Eduard Solly [F.R.S.] vom Verfasser—Berlin d. 13^{ten} Januar 1828.'—*Inscr. on flyleaf.*
 The author investigates in the above paper the vibrations of the magnetic needle in the mariner's compass, and suggests replacing the iron bowl by a nickle-copper alloy to damp the vibrations by exciting currents of induced electricity.

- 14797 [SECONDAT (Jean Baptiste Baron de)] MEMOIRE sur l'ELECTRICITÉ; *with vignette on title*. 12mo. boards (rare), 10s 6d 1746
 'C'est une réfutation de la théorie que l'abbé Nollet venait de donner de cette découverte alors récente'.—*Quézard*.
 There is no copy of this work in the Ronalds Library.
- 14798 SEDGWICK (Adam, *pr.*, F.R.S., *Woodwardian Prof.*, *Cantab.*) DISCOURSE on the STUDIES of the UNIVERSITY of CAMBRIDGE; 5th [last] Edition, with Additions, and Preliminary Dissertation (pp. 442), thick post 8vo. *cl.*, 6s 1850
 Containing much of geological interest and on the philosophy of science.
- 14799 ——— On the PHYSICAL STRUCTURE of those FORMATIONS which are immediately associated with the PRIMITIVE RIDGE of DEVONSHIRE and CORNWALL, roy. 4to. (pp. 59), *sewn*, 6s [Cambridge, 1822]
 His earliest and one of his most important papers on the Devonian Strata, in which, with the later ones, 'the order of the rocks beneath the red sandstone was worked out, the stratigraphy of the Carboniferous deposits of the underlying Devonian system was gradually established, and some valuable contributions were made to the history of the various crystalline masses in Devon and Cornwall'.—*D. N. B.*
- 14800 ———, and Sir Roderick Impey MURCHISON, F.R.S.: On the STRUCTURE and RELATIONS of the DEPOSITS contained between the PRIMARY ROCKS, and the OOLITIC SERIES in the NORTH of SCOTLAND, with 4 plates (1 folding and coloured), and geological map, 4to. (pp. 37), *sewn*, 4s 1828
 'Thomas Allan, Esq. [F.R.S.] from the Authors'.—*Inscr. on first leaf*.
- 14801 ———: CLARK (John Willis, *Trinity Coll.*, *Cantab.*), and Thomas McKenny HUGHES; F.R.S., *Woodwardian Prof.*: THE LIFE and Letters of ADAM SEDGWICK [with Bibliography (pp. 14)], portraits, plates, woodcuts, and coloured maps, 2 thick vols. 8vo. *cl.* (o. p.), 12s (p. £1. 16s) Univ. Press, Cambridge, 1890
- 14802 SEDGWICK (Lt.-Col. W., R.E.) ARGON and NEWTON: a Realisation, with woodcuts, 8vo. *cl.*, 4s 1896
 Containing much speculation on the form of atoms and molecules, the constitution of matter, etc.
- 14803 ——— LIGHT the DOMINANT FORCE of the UNIVERSE, showing by Means of Experiments what Light is; what Electricity is; and what Life is; also how to reconcile Religion and Science, cr. 8vo. *cl.* (o. p.), 4s (p. 7s 6d) 1882
 The author attempts to explain the relation between matter and energy, the nature of electricity, the formation of crystals, and other matters still considered unknown by the orthodox scientist. Light, according to him, represents 'compulsive' and heat 'repulsive force.'
- 14804 SEGUIER (Armand Pierre Baron, *de l'Institut*) PERFECTIONNEMENTS dans la NAVIGATION à VAPEUR: Exposition d'un nouveau Mode de CONSTRUCTION NAVALE en FER et BOIS COMBINÉS; Description d'une MÂTURE MOBILE et d'une ROUE à PALETTES PIVOTANTES suivant le Royon, appropriées à la Navigation Mixte par le Vent et la Vapeur; Plan du Nouveau Système réalisé à Bord de la Goëlette à Vapeur la Persévérance, expérimentée en Présence de l'Académie des Sciences; with 9 folding plates, 4to. *hf. calf* (loose in cover), 6s 6d 1848
- 14805 [SEGUIN aîné (Charles, *Ingénieur des Ponts et Chaussées*)] MÉMOIRE sur le CHEMIN de FER de St.-ETIENNE à LYON, par Saint-Chamond, Rive-de-Gier, et Givors; with folding map, 4to. (pp. 28), *sewn* (rare), 10s 6d 1826
 This mineral line was one of the very earliest railways in France.
- 14806 ——— Des PONTS en FIL de FER, première édition; with 7 folding plates, 8vo. *sewn*, with *inscr.* to George Rennie, F.R.S., as below, 7s 6d 1824
 'Offert par l'auteur à Monsieur G^e Rennie. SEGUIN'.—*Inscr. on styleof*.
- 14807 ——— SECONDE [DERNIÈRE] ÉDITION; with 4 folding plates, 4to. *hf. calf gilt* (back rubbed), with author's *inscr.* to Sir John Rennie, F.R.S., 10s 6d 1826
 Containing numerous experiments on the resistance of iron wire. 'Les expériences de M. Seguin ont prouvé d'une manière incontestable que la cohérence du fil de fer est plus grande que celle du fer en barre. Son projet de substituer des câbles ou faisceaux de fil de fer à des chaînes ou à des barres de ce métal pour la suspension des ponts, est donc suffisamment motivé'.—*Rapport de l'Académie des Sciences*.
 Bound up with the above copy is: Du Mouvement des Ondes et des Travaux Hydrauliques Maritimes, par A. R. Emy, Colonel du Génie, 1831.
- 14808 SEGUIN aîné (Marc, *de l'Institut*) CONSIDÉRATIONS sur les LOIS qui président à l'Accomplissement des PHÉNOMÈNES NATURELS rapportés à l'Attraction Newtonienne, et basées sur la Synthèse des Actions Moléculaires exposée dans les Mémoires publiés jusqu'ici; with folding plate and 2 diagrams, roy. 8vo. *sewn*, 3s 1861
- 14809 ——— De l'INFLUENCE des CHEMINS de FER, et de l'Art de les tracer et de les construire; with 6 folding plates, 8vo. *hf. calf* (SCARCE), £1. 1s 1839
 'The celebrated Montgolfier entertained the idea of the equivalence of heat and mechanical work; and the idea has been developed by his nephew M. Seguin, in his work *De l'Influence des Chemins de Fer*, printed in 1839'.—*Prof. Tyndall*. Based thereon it was claimed that the author discovered the principle of the conservation of energy.
- 14810 ——— MÉMOIRE sur les CAUSES et sur les EFFETS de la CHALEUR, de la LUMIÈRE et de l'ÉLECTRICITÉ, roy. 8vo. *sewn*, 3s 1865
- 14811 SELDEN (Joseph) THE TRADES-MAN'S HELP: an INTRODUCTION to ARITHMETICK, both Vulgar, Decimal, and Instrumental, with the Use of a New Instrument, called the JOINTED SLIDING-RULE; and also a Perpetual Almanack, shewing the day of the Month, change of the Moon, etc., with Directions for making Bonds, Bills, Wills, and other Things of Note, 16mo. contemporary sheep, £1. 1s printed for the author, and sold by him at Tunbridge-Wells, 1694
 RARE, and unknown to Prof. de Morgan and Lowndes. 'As for the Sliding-Rule . . . none as yet have so composed it, as that it may be useful for the intention for which a Sliding-Rule is necessary. . . . Therefore I directed my Thoughts to the composing of it; so that it might be convenient both for taking the Dimensions, and also to work by'.—*Address to the Reader*.
- 14812 SELLE (Albert de) COURS de MINÉRALOGIE et de GÉOLOGIE, TOME I^{er}: Phénomènes actuels. MINÉRALOGIE; with Atlas, containing 960 figures on 147 plates, 2 vols. roy. 8vo. in 1, *hf. morocco gilt* (scarce), 10s 1878

14814 **SENDIVOGIUS** [*hic SANDIVOGIUS; recte SENSOPHAX*] (Michael) A NEW LIGHT OF ALCHYMIE: taken out of the Fountaine of Nature, and Manuall Experience; with a TREATISE OF SULPHUR; also Nine Books of the NATURE of THINGS, by Paracelsus, and a CHYMICALL DICTIONARY explaining hard Places and Words met withall in the Writings of PARACELSUS, and other obscure Authors; all faithfully translated by J[OHN] F[RENCH], M.D., sm. 4to. *old calf (binding damaged, and title slightly defective); rare, with numerous marginal notes in a contemporary hand, and bookplate of Dr. T. N. Brushfield, F.S.A., £2. 10s* Richard Cotes, 1650

*That celebrated treatise, the *New Light of Alchemy*. . . In insists on the existence of a sperm in everything, and that all Nature originated at the beginning from one only seed. It treats of the generation of metals and the manner of their differentiation, of the extraction of their seed, and of the manufacture of the stone or tincture.—A. E. Waite.

The Nine Books of Paracelsus and the Chemical Dictionary have a separate titlepage and pagination.

14815 [—] NOVUM LUMEN CHYMICUM, e Natura, Fonte, et manuali Experientia depromptum: cui accessit TRACTATUS de SULPHURE, Authoris Anagramma, Divi Leschi Genus Amo, 18mo. *cl. (rare), £1. 1s* Geneva, 1639

Bound up with the above is: JOANNIS AURELI AUGURELLI P. Ariminensis Chrysopoeia et Vellus Aureum, quorum illa emendatissima prodit: hoc vero nunc primum ex veteri MSO. sub typos venit' (pp. 34).

14816 [—] NOVUM LUMEN CHYMICUM, Novo Lumine auctum, sive ZWÖLF GEHEIME CHYMISCHE TAFELN und BEISCHRIFTEN über die XII. Tractate SENDIVOGI, nebenst beygehenden kurtzen COMMENTARIO und angefügter Schluss Rede ORTHELI; with woodcuts, 12mo. *old vellum (back damaged); RARE, £1. 1s* Frankfurt, 1682

According to Mr. A. E. Waite the *Novum Lumen Chymicum* was not the work of Sendivogius, although published as his own, but that of ALEXANDER SETHON, his teacher.

14817 **SENEBIER (Jean)** RECHERCHES sur l'INFLUENCE de la LUMIÈRE SOLAIRE pour MÉTAMORPHOSER l'AIR FIXE en AIR PUR par la Végétation, avec des Expériences et des Considérations propres à faire connoître la Nature des Substances Aëriiformes, 8vo. *hf. calf (SCARCE), 12s 6d* Genève, 1783

The author confirmed the discoveries of Ingenhousz (v. Nos. 9665-6), and discovered the fact that chlorophyll is bleached by the action of light in a few minutes. He also made important investigations on the action of light on resins and essential oils.

14818 **SENEFELDER (Alois)** COMPLETE COURSE OF LITHOGRAPHY: containing clear and explicit Instructions in all the different Branches and Manners of that Art: with a HISTORY of LITHOGRAPHY from its Origin to the present Time, and a Preface by FREDERIC V. SCHLICHTEGROLL, translated by A. S., with portrait, and 13 plates of lithographic specimens, 4to. *hf. calf (binding damaged); SCARCE, £2. 2s* R. Ackermann, 1819

Containing a full account of the author's discovery of lithography.

14819 **SENNERT (Daniell, Prof. Medicine, Univ. Wittenberg)** PHYSICA HYPOMNEMATA. I. De Rerum Naturalium Principiis. II. De Occultis Qualitatibus. III. De Atomis et Mistione. IV. De Generatione Viventium. V. De Spontaneo Viventium Ortu, cum Indicibus necessariis, 8vo. *old vellum (sound copy); RARE, £1. 1s* Lugduni, 1637

'C'est dans ce recueil que Sennert donna carrière à sa verve paradoxale. D'après lui, l'âme était dans la semence avant l'organisation, et c'est elle qui formait les corps; les métaux devaient leur création à des esprits intelligents, et l'âme des bêtes n'était point matérielle.—Biogr. Gén.

The work is nevertheless scientifically important for the contributions to the atomic theory which it contains. The author accepts physical, as distinct from mathematical, minima as the smallest no longer physically perceptible parts of a body, and attacks in this connexion the doctrines of Aristotle. His atomistic theory found many followers, among others Otto von Guericke and Johannes Sperling.

14820 **SERLE (George)** DIALLING UNIVERSAL, shewing by an easie and speedy Way, how to describe the Hour-lines upon all Sorts of Plains in any Latitude whatsoever: Performed by certain SCALES set upon a small portable RULER; 2nd Edition furnished with these Varieties. I. Reflex Dialling. II. To finde the necessary Requisites belonging to all Plains. III. Severall Tables ready calculated, with an Appendix: Shewing the USE of the SCALES in resolving of the most useful Questions appertaining to Astronomie, Navigation and Geographie, with numerous diagrams, sm. 4to. *fine and large copy (but slightly wormed) in contemporary English calf (RARE), £1. 5s* W. Leybourn, for Thomas Pierrepont, 1664

14821 **SERRET (Joseph Alfred, de la Sorbonne; de l'Institut)** COURS d'ALGÈBRE SUPÉRIEURE, 2^e Édition, augmentée; with folding plate, 8vo. (pp. 600), sewn, 2s 1854

14822 [—] TROISIÈME ÉDITION [refondue et augmentée]; with diagrams, 2 vols. 8vo. sewn, 4s 6d (p. F. 24 net) 1866

14823 [—] QUATRIÈME ÉDITION [augmentée]; with diagrams, 2 vols. 8vo. *hf. calf (binding worn and one joint cracked), 10s 6d (p. F. 25 net sewn)* 1877-9

One of the best text-books on the subject, 'embodying the chief discoveries of the author.'—W. W. R. Ball.

14824 [—] LEHRBUCH der DIFFERENTIAL- und INTEGRALRECHNUNG, nach AXEL HARNACKS Übersetzung, 3. Auflage, neu bearbeitet von GEORG SCHEFFERS; with 238 diagrams, 3 vols. 8vo. *cl., 18s 6d (p. M. 39 net)* Leipzig, 1906-9

14825 [—] TRAITÉ de TRIGONOMÉTRIE, 5^e Édition; with diagrams: Laurent (Hermann) TRAITÉ du CALCUL des PROBABILITÉS, 2 vols. 8vo. in 1, *hf. calf gilt, 12s* 1875-3

'Le présent traité peut être considéré comme une véritable introduction au traité de Laplace'.—Préface. Laurent's work is out of print and scarce, and includes a 'Liste des principaux Ouvrages ou Mémoires publiés sur le Calcul des Probabilités' (pp. 14).

14826 **SEXTON (Alexander Humbolt, F.I.C.)** PRODUCER GAS: a Sketch of the PROPERTIES, MANUFACTURE, and USES of GASEOUS FUEL, with 32 woodcuts, 8vo. *cl., 5s (p. 10s net)* Manchester [1903]

14827 **[SHEERES (Sir Henry)]** An ESSAY on the CERTAINTY and CAUSES of the EARTH'S MOTION on its Axis, etc., 4to. (pp. 30), sewn, 5s 1698

Chiefly interesting for the fact that it was still considered necessary at so late a date to write a defence of the Copernican System. The author was a friend of Samuel Pepys, and took part in the campaign against the Duke of Monmouth as an officer of artillery at the battle of Sedgemoor.

- 14829 **SETTELE** (Giuseppe, *Canonico; Univ. Rome*) BREVE ESPOSIZIONE della TEORIA del Sig. HAÛY sulla STRUTTURA dei CRISTALLI; with *folding plate*, 4to. (pp. 37), *sewn*, 3s 6d *Roma*, 1805
Unknown to Pogendorff.
- 14830 ——— ELEMENTI di OTTICA e di ASTRONOMIA; with 20 *folding plates*, 2 vols. 8vo. *hf. parchment gilt (scarce)*, 12s
ibidem, 1818-19
This work is of importance in connexion with the attitude of the Roman Catholic Church towards the Copernican System. It was the first orthodox work based on it, and therefore immediately objected to by the Papal Censor, who expected the author to treat the system as an hypothesis devoid of proof. The author refused and appealed to Pope Pius IX., who finally decreed that the Copernican system might thenceforward be taught without hindrance.
- 14831 ——— MEMORIA sopra la FORMA delle LINEE ORARIE, indicanti le Ore ineguali degli Antichi sopra gli OROLOGJ SOLARI; with *frontispiece, folding plate, and vignette*, 8vo. (pp. 44), *sewn*, 5s
ib., 1816
- 14832 **SEWALL** (Charles Henry) WIRELESS TELEGRAPHY: its Origin, Development, Inventions, and Apparatus, with 5 *plates*, and 77 *illustrations*, 8vo. *cl. (o. p.)*, 4s 6d (p. 10s 6d net) 1903
- 14833 **SFORTUNATI** (Giovanni, *da Siena*) NUOVO LUME. LIBRO di ARITMETICA. Intitolato: Nuovo Lume imp[er]oche molte p[ro]posizioni che per altri autori sono falsamēte cōcluse: in questo si emēdano: & castigano: con chiare: lucide: & aperte dimostrazioni: molto bene discusse, & ventilate. Cō vno breve TRATTATO di GEOMETRIA: per quātō a vno pratico Agrimensore si conuēgo, con TAUOLE da COMPORRE le CORDE: da misurare la tenuta da ciaschuna botte & etiam li staggiuoli da misurare gli scemi di quelle. Composto per lo acutissimo perscrutatore delle Archimediane & Euclidiane dottrine, *prima edizione*; with *title within woodcut border, woodcut-initial with portrait (? of the author), vignette at end, and woodcuts and diagrams on margins*, sm. 4to. *contemporary limp vellum (a very fine and unusual y tall copy)*; VERY RARE, £2. 10s
[*col. :*] *Vinegia per Nicolo di Aristotile detto Zoppino*, 1534
Consisting of 129 numbered ll., signatures a-p in fours, and q in 5, the last being blank. At end is a 4-page Italian Arithmetical MS.
All editions of this work are very rare, especially the first. Prof. de Morgan, who owned an imperfect copy of an edition which he was on this account unable to describe, states: 'I can find no mention of Sfortunati in catalogues.'
'Questa prima edizione è rarissima. . . Le Sfortunati, il cui nome figura nella famosa questione fra Cardano e Tartaglia, viene meritamente noverato tra i migliori autori aritmetici del principio del secolo XVI.'—Riccardi.
- 14834 **SHAFFNER** (Col. Taliaferro P., *Secretary, American Telegraph Confederation, New York*) TELEGRAPH COMPANION, devoted to the Science and Art of the MORSE AMERICAN TELEGRAPH, Vols. 1-2 (all pub.); January 1854—October 1855), with *steel portraits of Morse and the editor, and numerous woodcuts*, 2 vols. 8vo. in 1, *cl. gilt, g. e., with editor's inser.* (SCARCE), £1. 1s
New York, 1854-5
Very interesting for the account of patent litigation in the United States in the infancy of electric telegraphy. There is an interesting chapter (Vol. II pp. 6-96): The Electro-Magnetic Telegraph: a Defence against the Injurious Deductions drawn from the Deposition of Prof. Joseph Henry, with Critical Review, and Examination of Prof. Henry's Alleged Discoveries, bearing on the Electro-Magnetic Telegraph, by Samuel F. B. Morse; with Prof. Henry's Deposition (pp. 97-112).
- 14835 **S[HARP]** (A[braham], *philomath; assistant to Flamsteed*) GEOMETRY IMPROV'D: 1. By a Large and Accurate TABLE of SEGMENTS of CIRCLES, its Construction and various Uses in the Solution of several difficult Problems, with Compendious Tables for finding a True Proportional Part, and their Use in these or any other Tables, etc. etc. 2. A Concise TREATISE of Polyedra, or Solid Bodies of many Bases, both the Regular and others: To which are added Twelve New nes, with various Methods of forming them, etc. etc., with 4 *folding copperplates by the AUTHOR*, 4to. *hf. calf (rare)*, 15s
1717
'Remarkable for the great number of its calculations, among other things the [Briggian] logarithms of the numbers from 1 to 100 and of all the primes up to 1100, each calculated to 61 figures of decimals; and for the plates of solid figures cut by his own hand, which are very clear.'—D. N. B.
- 14836 ———, LIFE and CORRESPONDENCE of, with MEMORIALS of his FAMILY and associated Families, by WILLIAM CUDWORTH, with *portraits, plates, fss. of title-pages and handwriting, woodcuts, and pedigrees*, 4to. *hf. parchment, uncut, t. e. g.*, 7s 6d (p. £1. 6s) 1889
- 14837 **SHAW** (Peter, M.D.; F.R.S.; *editor of Francis Bacon and Robert Boyle*), and **Francis HAUKSBEЕ** [the Younger]: ESSAY for introducing a PORTABLE LABORATORY: By Means whereof all the Chemical Operations are commodiously performed, for the Purposes of Philosophy, Medicine, Metallurgy, and a Family, with 8 *folding copperplates*, 8vo. (pp. 83), *sewn (rare)*, 10s 6d 1731
Dedicated to Sir Hans Sloane, P.R.S., and interesting for giving full details of chemical apparatus and hints on manipulating. It includes Schemes for various Courses of Chemistry.
- 14838 **SHIPWRIGHT'S VADE-MECUM** (The): a Clear and Familiar Introduction to the PRINCIPLES and PRACTICE of SHIP-BUILDING: including the more complex Rules of Arithmetic made Use of in that Art; with so much of the Principles of Practical Geometry and Mensuration as are required in the Practice thereof; also a Description of the SLIDING RULE; Rules for the Admeasurement of Timber, etc., *first edition, with frontispiece and numerous woodcuts, large 8vo. boards (scarce)*, 12s 6d 1805
- 14839 ——— ANOTHER COPY, *sewn (wanting front, and pp. I-VIII)*, 5s
There is no copy of this work in the Library of the Institution of Naval Architects, while the Scott Library only contained the edition of 1822.
- 14840 **SHIRTCLIFFE** (Robert) The THEORY and PRACTICE of GAUGING, demonstrated in a short and easy Method, containing also the Method of Computing Decimally; extracting the Square Root, with the CONSTRUCTION and USE of the SLIDING RULE explained at large, the Elementary Properties of the Conic Sections, and the Manner of describing them in Plano, etc. etc., with 6 *folding plates*, 8vo. *old calf gilt (one plate missing)*, 5s 1740
- 14841 **SIX** (James; F.R.S.) EXPERIMENTS on LOCAL HEAT, 4to. (pp. 18), *sewn*, 3s 1788
The author was the inventor of the maximum and minimum thermometer known by his name, which is still in general use.

- 744 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 14843 SHEPARDSON (George Defrees, *Univ. Minnesota*) ELECTRICAL CATECHISM: an Introductory Treatise on Electricity and its Uses, with numerous illustrations, roy. 8vo. *cl.*, 4s (p. 10s) *New York, 1901*
- 14844 SIEMENS (Sir Charles William, F.R.S.) SCIENTIFIC WORKS: a Collection of Papers and Discussions, edited by E. F. BAMBER, C.E., with numerous plates, 3 v., 1889: LIFE, by WILLIAM POLE, F.R.S., with fine portrait by Stodart, and 7 plates, '88—4 vols. 8vo. *hf. calf gilt, presentation copy from North of England Inst. of Mining to Prof. A. S. Herschel, F.R.S., with letter signed by Alexander Siemens to Dr. John Percy, F.R.S., £1. 5s (p. £2. 12s in cl.)* 1888-9
- 14845 ——— VOL. I ONLY: HEAT and METALLURGY, with 47 plates, 8vo. *cl.*, 5s (p. 12s) 1889
- 14846 ——— ADDRESS read before SECTION G of the BRITISH ASSOCIATION, 19th August, 1869, 8vo. (pp. 16), *sewn*, 1s 6d [1869]
- 14847 ——— On the CONSERVATION of SOLAR ENERGY: a Collection of Papers and Discussions, with plate and woodcuts, 8vo. *cl. (scarce)*, 5s 1883
- ‘He conceived that gaseous matters might be dissociated by the radiant solar energy and driven out by centrifugal action at the sun’s equator, to be drawn in towards the poles and subjected to intense combustion. The theory, though well received at the time, has been neglected since.’—D. N. B.
- The author’s ‘regenerative theory’ was adversely criticised by Lord Kelvin.
- 14848 ——— On DETERMINING the DEPTH of the SEA without the Use of the Sounding-Line, and on an ATTRACTION-METER, with woodcut, 8vo. (pp. 8), *sewn*, 2s 6d 1876
- An account of the author’s ‘bathometer’, which ‘received the admiration of all qualified to appreciate its ingenuity.’—D. N. B.
- 14849 ——— On FUEL: a Lecture delivered to the Operative Classes at Bradford on Behalf of the British Association, 20th Sept., 1873, 8vo. (pp. 31), *sewn*, with author’s *inscr.*, 2s 1873
- 14850 ——— On the REGENERATIVE GAS FURNACE as applied to the MANUFACTURE of CAST STEEL, with woodcuts, 8vo. (pp. 32), unbound, with *inscr. to Allen Thomson, F.R.S.*, 3s 6d 1868
- An account of the well-known Siemens process for the manufacture of steel.
- 14851 ——— On UNIFORM ROTATION, with 2 plates (water-stained), and 2 woodcuts, 4to. (pp. 14), *sewn*, 3s 6d 1866
- 14852 ———, THE LIFE of, by WILLIAM POLE, F.R.S., with fine portrait by Stodart, and 7 plates, 8vo. *cl.*, 5s (p. 16s) 1888
- 14853 ——— ANOTHER COPY, crushed green morocco, tooled inside borders, *g. e. (fine copy)*, with presentation *inscr. to Sir Frederick Bramwell, F.R.S., from Lady Siemens, 8s*
- ‘The most interesting book of the kind that we have read since Nasmyth’s delightful autobiography.’—*Sat. Rev.*
- 14854 SIEMENS (Ernst Werner v.; brother of the above) SCIENTIFIC and TECHNICAL PAPERS, translated from the 2nd German Edition, with portrait and 244 illustrations, 2 vols. 8vo. *cl.*, 12s (p. £1. 8s) 1892-5
- 14855 ——— VOL. I ONLY (SCIENTIFIC PAPERS and ADDRESSES), with portrait, and 41 woodcuts, 8vo. *cl.*, 6s (p. 14s) 1892
- 14856 ———, PERSONAL RECOLLECTIONS of, translated by W. C. COUPLAND, with heliogravure portrait, 8vo. *cl.*, 5s (p. 15s) 1893
- The degraded Twentieth Century Germany of State lying, poison, and murder would be hard put to it to produce the equals of Karl Wilhelm and Werner von Siemens.
- 14857 SIGAUD de la FOND (Jean René) DICTIONNAIRE de PHYSIQUE, avec le Supplément; with folding plates on copper, 5 vols. 8vo. contemporary mottled calf gilt (nice copy), 12s 6d 1781-2
- 14858 ——— De l’ÉLECTRICITÉ MÉDICALE; with 4 folding plates on copper, thick 8vo. *sewn*, 6s 6d 1802
- 14859 ——— ÉLÉMENTS de PHYSIQUE théorique et expérimentale, pour servir de Suite à la Description et l’Usage d’un Cabinet de Physique expérimentale; 2^e Édition, revue et augmentée par M. [N.] ROULAND, with portrait after Naudin, and 25 folding plates, 4 vols. 8vo. contemporary mottled calf gilt, 17s 6d 1787
- 14860 ——— ESSAI sur DIFFÉRENTES ESPÈCES d’AIR, qu’on désigne sous le Nom d’AIR FIXE; with 5 folding plates on copper, 8vo. contemporary mottled calf gilt, 10s 1779
- ‘En 1776 il expérimentait avec Maquer. Occupés à étudier le gaz hydrogène, qu’on nommait alors *air inflammable*, ils reconquirent que sa combustion produisait de l’eau. Sans doute il y a loin de ce premier jet de lumière aux grands résultats produits par l’appareil que Lavoisier imagina en 1783; mais il n’en reste pas moins démontré que l’honneur de la découverte appartient à Sigaud-Lafond.’—*H. Boyer.*
- 14861 ——— PRÉCIS HISTORIQUE et EXPÉRIMENTAL des PHÉNOMÈNES ÉLECTRIQUES, depuis l’Origine de cette Découverte jusqu’à ce Jour, 2^e Édition, revue et augmentée; with 10 folding plates on copper, thick 8vo. *sewn, uncut*, 7s 6d 1785
- 14862 ——— ANOTHER COPY, old *hf. calf (back damaged)*, 8s 6d
- Including a copious account of atmospheric electricity and lightning conductors, with original investigations by the author himself. He claims in the above work to have been the first to use glass plates with electrical machines in 1756, and describes an improved Leyden Jar for measuring electricity constructed by him.
- 14863 SILBERSCHLAG (Johann Esaias, Pastor zu Magdeburg) THEORIE der am 23. Julii, 1762 erschienenen FEUER-KUGEL; with 3 folding plates, 4to. *sewn (rare)*, 7s 6d Magdeburg, 1764
- 14864 ——— THÉORIE des FLEUVES, avec l’Art de bâtir dans leurs Eaux, et de prévenir leurs Ravages. Ouvrage traduit par M. [C. F. J.] d’AU[XIRON]; with 13 folding plates: Bossut (Charles, s.j., de l’Institut), et Guillaume Viallet: RECHERCHES sur la CONSTRUCTION la plus avantageuse des DIGUES; with 7 folding plates—2 vols. roy. 4to. contemporary calf gilt, 12s 1769-4
- Bound up with the above is Treatise on Rivers by THEODORE AUGUSTUS MANN, F.R.S. (originally published in the Philosophical Transactions of 1779), a neatly written Manuscript on 72 pp.
- 14865 SIMIENOWICZ (Casimir, Lieut.-Général d’Artillerie, Pologne) GRAND ART d’ARTILLERIE, mise en François par PIERE [sic] NOIZET; with engraved title, and 22 fine copperplates (1 folding), folio, old calf, newly rebacked (slightly browned, otherwise a fine copy); RARE, with old armorial bookplate of SIR JOHN COPE, £1. 15s Amsterodami, Joa. Jansson, 1651

- 14867 **SIMIENOWICZ** (Casimir, *Lieut.-General of Artillery, Polish Army*) *THE GREAT ART OF ARTILLERY*, translated from the French by GEORGE SHELVOCKE, with engraved frontispiece and 22 fine copperplates (1 folding), folio, *hf. calf antique* (FINE COPY); RARE, £2. 2s
The Authority of Casimir Simienowicz has been formerly, and is still, as it were Sacred amongst Pyrobolists and Fire-Workers; as is particularly evident from His having been long ago translated into the most noted of the European languages; and from the joint Concurrence of the present Judicious in these Matters, by the common Suffrage of whom he is allowed to be the Father of Sound and Intelligent Pyrobolists.—*Translator's Preface.* 1729
- 14868 ——— **AUSSFÜHRLICHE BESCHREIBUNG der grossen FEUERWERCKS- oder ARTILLERIE-KUNST; izto mit dem ZWEITEN THEIL vermehret, von DANIEL ELRICH, Stückhauptman; with 2 engraved titles, and 48 other fine copperplates, 2 vols. folio in 1, old calf (first title and lower margin stained, and back of binding damaged); rare, £2. 2s**
Francfort am Mayn, J. D. Zunner, 1676
This German translation contains the second part by Daniel Elrich (not included in either the English or French edition), with 27 extra plates, which treats of artillery, the making of powder, purifying saltpetre, sulphur, etc., and contains many additional instructions for making fireworks. 1897
- 14869 **SIMMONS** (Arthur Thomas) *PHYSIOGRAPHY for ADVANCED STUDENTS, with 218 illustrations, post 8vo. cl., 2s 6d (p. 4s 6d)* 1897
- 14870 **SIMMONS** (Harold Harman, *Finsbury Technical College*) *OUTLINES of ELECTRICAL ENGINEERING, with 14 folding plates, and 923 other illustrations, sq. roy. 8vo. (pp. 920), cl., t. e. g., 12s (p. £1. 1s nett)* 1908
- 14871 **SIMPSON** (Thomas, F.R.S.) *THE DOCTRINE of ANNUITIES and REVERSIONS, deduced from general and evident Principles, with Tables, shewing the Values of Single and Joint Lives, etc. etc., with Method of investigating the Value of Annuities by Approximation, without the help of Tables, 2nd Edition, with diagrams, 8vo. hf. bound (rare), 5s* 1773
— v. MOIVRE, No. 11983, ante.
- 14872 ——— *THE DOCTRINE and APPLICATION of FLUXIONS, containing (besides what is common on the Subject) a Number of NEW IMPROVEMENTS in Theory, and the Solution of a Variety of very interesting Problems, first edition, with numerous diagrams, 2 vols. 8vo. old calf, rebounded, with auto. of Sam. Roberts, F.R.S., 7s 6d* 1750
- 14873 ——— *ELEMENTS of PLANE GEOMETRY, with ESSAY on the MAXIMA and MINIMA of Geometrical Quantities, and brief Treatise of Regular Solids, etc. etc., first edition, with diagrams, 8vo. sewn, 3s* 1747
- 14874 ——— *SECOND EDITION, revised and enlarged, with numerous diagrams, 8vo. sewn (title missing), 3s* 1760
This edition contains the author's answer to Dr. Robert Simson, who made reflexions on the accuracy of parts of the work, and his refutation of a charge made by JOHN MULLER, of having stolen the work from the latter's manuscript.
- 14875 ——— *NEW EDITION, with additional Notes and Appendix, containing the Analytical and Synthetical Modes of Reasoning made use of by Mathematicians, an Account of the Lost Writings of Euclid and Apollonius, and the Attempts to restore them [by M. FRYER], with diagrams, 8vo. boards, 3s* 1821
This edition is fully discussed in Prof. M. Cantor's Vorlesungen üb. Gesch. d. Mathematik, Vol. III pp. 512-13.
- 14876 ——— *ESSAYS on SEVERAL CURIOUS and USEFUL SUBJECTS, in SPECULATIVE and MIX'D MATHEMATICKS, illustrated by a Variety of Examples, with diagrams, 4to. sewn, uncut, 5s* 1740
- 14877 ——— *ANOTHER COPY, old hf. calf, 6s*
- 14878 ——— *ANOTHER COPY, old calf gilt (fine copy), 7s 6d*
- A MOST INTERESTING MANUSCRIPT COLLECTION:
- 14879 ———: *MANUSCRIPT COLLECTION, containing Hundreds of MATHEMATICAL and ASTRONOMICAL PROBLEMS and PROPOSITIONS by him, his COPY and CORRESPONDENCE in Connexion with the 'LADIES' DIARY', and his extensive and very interesting CORRESPONDENCE with MATHEMATICIANS of the Time, including DRAUGHTS or FAIR COPIES of his OWN LETTERS, 5 vols. folio, boards, £10. 10s* 1730-58
This very interesting Manuscript Collection is important from the number of original problems either suggested by the author himself or by his correspondents which it contains, together with their solutions. It should form no unimportant contribution towards the history of mathematics during the time it covers.
The following is a list of the more important autograph letters contained in it:—HENRY BEIGHTON, F.R.S., editor of the 'Ladies' Diary', 1713-44: SIR FRANCIS BLAKE, F.R.S., 1708-80 (21 long and interesting letters, with problems): ALEXANDER BULLER, of Philadelphia, 1741: MARTIN FOLKES, F.R.S., antiquary, 1690-1754 (3 letters): ROBERT HEATH, mathematician, editor of the 'Ladies' Diary', 1744-53 (3): JOHN LANDEN, F.R.S., 1719-90 (2 letters on his Theorem, one long and very interesting): JOHN MICHELL, Jr., F.R.S., Woodwardian Prof. Geology, astronomer, 1724-93: JOHN MULLER, Prof. Fortification and Mathematics, R. Academy, Woolwich, the author's rival, 1699-1784 (3 letters, one with a long reply which may have caused the enmity between the two): JOHN ROBERTSON, F.R.S., first master R. Naval Academy, Portsmouth, 1712-76: ANTHONY THACKER, editor of the 'Ladies' Diary' (4).
It also contains the manuscript of the following memoirs by Simpson: Some Account of M. Silvabelle's Tract on the Precession of the Equinox (pp. 3): Farther Attempt to facilitate the Resolution of Isoperimetrical Problems (pp. 4): Of the Fluents of Multinomials and Series affected by Radical Signs, which do not begin to converge till after the Second Term (p. 1). There is also Simpson's caustic reply (apparently never published, having numerous cancellations and corrections) to John Muller, who accused him of having pirated his worthless 'Elements of Mathematics', and the further correspondence on this quarrel.
- 14880 ——— *MATHEMATICAL DISSERTATIONS on a VARIETY of PHYSICAL and ANALYTICAL SUBJECTS, with diagrams, 4to. boards, uncut, 8s 6d* 1743
Containing: Demonstration of the True Figure the Earth must acquire from its Rotation about an Axis: Investigation of the Height of the Tides in the Ocean: New Theory of Astronomical Refractions: Improvements in the Inverse Method of Fluxions, etc. etc.
His memoir 'Of the Areas of Curves, etc. by Approximation' contains the author's rule on the summation of series.
- 14881 ——— *TREATISE of ALGEBRA, with the Construction of a great Number of GEOMETRICAL PROBLEMS, 2nd Edition, with large Additions, diagrams, 8vo. old calf (joints weak), 3s 6d* 1755
This edition first contains 'a new and general method for resolving all biquadratic equations, that are complete, or having all their terms.'—*Dr. Charles Hutton, F.R.S.*
- 14882 ——— *THIRD EDITION, revised, with diagrams, 8vo. old calf (binding damaged), with auto. and bookplate of Samuel Heywood (1753-1828), 3s* 1767

- 14884 **SIMPSON** (Thomas, F.R.S.) MISCELLANEOUS TRACTS on some Curious, and very Interesting Subjects in MECHANICS, PHYSICAL-ASTRONOMY, and SPECULATIVE MATHEMATICS, wherein the Precession of the Equinox, the Nutation of the Earth's Axis, and the Motion of the Moon in her Orbit, are determined, *with 3 plates, 4to. old calf, or, hf. calf (joints cracked); rare, 8s* 1757
- 14885 ——— ANOTHER COPY, *contemporary calf (fine copy), with armorial bookplate of James Hustler of Acklam, 1730, 12s*
- ‘Containing his best known investigations . . . the eighth memoir contains a discussion of the 3rd and 9th section of the *Principia*, and their application to the lunar orbit. He obtained therein a differential equation for the motion of the apse of the lunar orbit similar to that arrived at by Clairaut, but instead of solving it by successive approximations he deduced a general solution by indeterminate coefficients.’—*W. W. R. Ball.*
- It also contains: A very exact Method for finding the Place of a Planet in its Orbit: The Advantage of taking the Mean of a Number of Observations in Practical Astronomy: Resolution of certain Fluxionary Equations by Means of the Measures of Angles and Ratios: Investigation of a General Rule for the Resolution of Isoperimetrical Problems, etc. etc. etc.
- 14886 ——— SELECT EXERCISES for YOUNG PROFICIENTS in the MATHEMATICS, first edition, *with diagrams, 8vo. old calf (slightly damaged), 3s 6d* 1752
- ‘Containing the solutions of numerous problems and a theory of gunnery.’—*W. W. R. Ball.*
- 14887 ——— NEW EDITION, with Life by CHARLES HUTTON, F.R.S., *with diagrams, 8vo. old calf, or, hf. calf (backs damaged), 3s* 1792
- 14888 ——— ANOTHER EDITION, revised by J. H. HEARING, *with diagrams, 8vo. boards. uncut, 3s 1810*
- 14889 ——— TRIGONOMETRY, Plane and Spherical, with the CONSTRUCTION and Application of LOGARITHMS, 3rd Edition, *with diagrams, 8vo. sewn (rare), 4s* 1779
- 14890 ——— ANOTHER COPY, *8vo. old calf, 5s*
- ‘In this he introduced the current abbreviations for the trigonometrical functions.’—*W. W. R. Ball.*
- 14891 ——— THE SAME, first edition, with ELEMENTS of PLANE GEOMETRY, first edition—2 vols. 8vo. in 1, *old calf, 8s 6d* 1748-7
- 14892 **SIMPSON** [or SYMPSON] (William, M.D.) HYDROLOGICAL ESSAYS: or, a Vindication of Hydrologia Chymica: being a further Discovery of the SCARBROUGH SPAW, and of the right Use thereof, and of the SWEET SPAW and SULPHUR WELL at KNARSBROUGH, with brief Account of the ALLOW WORKS at WHITBY, together with a Return to some Queries propounded by the ingenious DR DAN. FOOT, concerning Mineral Waters. To which is annexed, an Answer to DR TUNSTAL'S Book, concerning the Scarbrough Spaw, with Appendix of the Anatomy of the GERMAN SPAW, and, lastly, Observations on the Dissection of a Woman who died of the Jaundice, all grounded upon Reason and Experiment, 12mo. *old calf (slightly wormed and binding damaged), 12s 6d* R. Chiswell, 1670
- ‘The author seems to have tried the effect of mixing sulphur and nitre, and to have convinced himself that mineral waters, hot springs, volcanoes, earthquakes. St. Elmo's fire, meteors, and even the occasional luminosity of the sea were all due to mixtures of these two bodies with water or vapour.’—*G. J. Symons, F.R.S.*
- 14893 **SINCLAIR** (George; *Prof. Philosophy, Glasgow*) ARS NOVA et MAGNA GRAVITATIS et LEVITATIS, sive Dialogorum Philosophicorum Libri VI de AERIS verâ ac reali GRAVITATE, etc., quibus accessere de Instrumentis Hydragogicis, de HYGROSCOPIO et Chronoscopio, seu Pendulo, nec non Palladis Gymnasium, cum Indicibus; *with fine folding arms of George 4th Earl of Winton, 2 plates, and woodcuts, sm. 4to. contemporary calf extra, with arms of the Duc de Montosier in gold on sides (binding rubbed and back very slightly damaged, otherwise a FINE COPY); rare, £2. 2s* Roterodami, 1669
- Containing an early account of an hygrometer and of the barometer; also a description of the diving bell used by the author in an attempt to raise the ship Florida, a relic of the Armada, which was wrecked off the Isle of Mull. The plate of arms, which is contained in the above copy, is often missing.
- 14894 **SINDALL** (Robert Walter) The MANUFACTURE of PAPER, *with 58 illustrations, 8vo. cl., 4s* 1908
(p. 6s nett)
- Including a valuable bibliography of works on cellulose and paper-making (pp. 253-72).
- 14895 **SINGER** (George John) ELEMENTS of ELECTRICITY and ELECTRO-CHEMISTRY, *with 4 plates, 8vo. boards, 10s* 1814
- 14896 ——— ANOTHER COPY, *hf. calf, 10s 6d*
- ‘A work of considerable importance. . . . He introduced several improvements, inventing, among other things, the gold-leaf electrometer [actually invented by Abraham Bennet, F.R.S. (v. No. 6125 ante)]. He gave courses of lectures on electricity and kindred subjects. Among his auditors were Faraday and Sir Francis Ronalds.’—*D. N. B.*
- 14897 **SITZUNGSBERICHTE** der MATHEMATISCH-PHYSIKALISCHEN KLASSE der königlichen BAYERISCHEN AKADEMIE der WISSENSCHAFTEN; from 1896 to 1910 (Bd. 26-40); *with plates and other illustrations, 15 vols. 8vo. sewn in parts, £1. 1s (p. M. 77.40)* München, 1896-1910
- 14898 **SKALKOVSKY** (C.) TABLEAUX STATISTIQUES de l'INDUSTRIE des MINES en RUSSIE en 1868-76, roy. 8vo. (pp. 43), *sewn, 2s* St.-Petersbourg [Petrograd], 1878
- 14899 **SMEATON** (John, F.R.S.; *builder of the third Eddystone Lighthouse*) ACCOUNT of some EXPERIMENTS upon a MACHINE for MEASURING the WAY of a SHIP at SEA, 4to. (pp. 16), *sewn, 4s [s. l.]*, 1754
- 14900 ——— ACCOUNT of an OBSERVATION of the RIGHT ASCENSION and DECLINATION of MERCURY out of the Meridian, near his greatest Elongation Sept. 1786, made with an EQUATORIAL MICRO-METER, of his own Invention and Workmanship; with Investigation of a Method of allowing for Refraction in such Observations, *with folding plate, 4to. (pp. 26), sewn, 5s* 1787
- Added is: An Account of an Experiment on Heat, by GEORGE FORDYCE, M.D., F.R.S. (pp. 8).
- 14901 ——— CONSIDERATIONS on the INTENDED NAVIGATION betwixt FORTH and CLYDE, occasione. by the Proceedings of the Proprietors at their last Meeting, and by the Reports of Messrs Brindley, Yeoman, and Golborn, together with the Reviews of Mr. Smeaton, 4to. (pp. 11), *unbound, 4s 6d* [c. 1769]
- 14902 ——— DESCRIPTION of a PYROMETER, with Table of Experiments made therewith, *with plate and folding table, 4to. (pp. 16), sewn, 5s* [1754]
- ‘The measures taken by this instrument are determined by the contact of a piece of metal with the point of a micro-meter screw.’—*P. 3.*

- 14905 **SMEATON** (John, F.R.S., *builder of the third Eddystone Lighthouse*) DESCRIPTION of an IMPROVEMENT in the APPLICATION of the QUADRANT of ALTITUDE to a CELESTIAL GLOBE, for the Resolution of Problems dependant on Azimuth and Altitude, with *folding plate on copper*, 4to. (pp. 6), *sewn*, 3s 6d 1788
- 14906 ——— EXPERIMENTAL ENQUIRY concerning the NATURAL POWERS of WATER and WIND to TURN MILLS, and other Machines, depending on a CIRCULAR MOTION, with 3 *folding plates on copper*, 4to. (pp. 77), *hf. bound* (RARE), with *Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816)*, 12s 6d 1760
- ORIGINAL EDITION of this important paper, for which he was awarded the Copley medal of the Royal Society, and which 'is justly regarded as the most masterly report that has ever been published on the subject.'—*S. Smiles*.
- 14907 ——— : and an EXPERIMENTAL EXAMINATION of the QUANTITY and PROPORTION of MECHANIC POWER necessary to be employed in giving different Degrees of VELOCITY to HEAVY BODIES from a State of Rest; also NEW FUNDAMENTAL EXPERIMENTS on the COLLISION of BODIES, with 5 *folding plates on copper*, and 2 *folding tables*, roy. 8vo. *sewn*, or, *boards, uncut*, 8s 6d 1794
- 14908 ——— ANOTHER COPY; with HISTORICAL REPORT on RAMSGATE HARBOUR, 2nd Edition, with *folding plan and map*—2 vols. roy. 8vo. in 1, *old hf. calf (fine copies)*, 18s 1794-1
- 14909 ——— SECOND EDITION, with 5 *folding plates on copper*, and 2 *folding tables*, roy. 8vo. *old tree-calf (fine copy)*, with *bookplate of Lord Willoughby de Broke*, 10s 1796
- 14910 ——— ANOTHER COPY; also, EXPERIMENTAL ENQUIRIES concerning the PRINCIPLE of the LATERAL COMMUNICATION of MOTION in FLUIDS; applied to the Explanation of various Hydraulic Phenomena, by J. B. Venturi, translated from the French [by WILLIAM NICHOLSON], with 2 *folding plates*—2 vols. roy. 8vo. in 1, *calf, newly rebounded (nice copies)*, 15s 1796-9
- 14911 ——— THIRD EDITION, with 5 *folding copperplates*, and 2 *tables*, roy. 8vo. *cl.*, *uncut*, 6s 1813
- 14912 ——— [FIRST and SECOND] REPORT concerning the PRACTICABILITY and EXPENCE of joining the RIVERS FORTH and CLYDE by a NAVIGABLE CANAL, and thereby to join the East Sea and the West, with 2 *folding maps*, 2 vols. 4to. (pp. 39 + 36), *sewn*, 6s *Edin.*, 1767
- 'Another great work which Smeaton carried out in Scotland was the Forth and Clyde Canal. This was begun in 1768, and was the most important engineering work of that kind which had been executed in Great Britain up to that date.'—*D. N. B.*
- 14913 ——— HISTORICAL REPORT on RAMSGATE HARBOUR, written by Order of the Trustees, first edition, with 2 *folding plans*, 8vo. *sewn (rare)*, 10s 6d 1791
- 14914 ——— SECOND EDITION, with 2 *folding plans*, roy. 8vo. *sewn*, 9s 1791
- 14915 ——— ANOTHER COPY, *sewn*, with *author's inscr. (as below)*, 12s
- 'From the Author to the right Reverend the [absentee] Bishop of Landaff [Richard Watson, F.R.S. (1737-1816)].'—*Inscr. on flyleaf*.
- 'In carrying out the elongated pier, Smeaton first employed the diving-bell in building the foundations, making use of a square iron chest weighing about half a ton.'—*Samuel Smiles*.
- 14916 ——— MISCELLANEOUS PAPERS, comprising his Communications to the Royal Society, printed in the Philosophical Transactions, forming a Fourth Volume of his Reports, with 12 *copperplates*, 4to. *hf. calf (name on title)*, 10s 6d 1814
- Containing his improvements of the air-pump, de Mours's improved Savery steam-engine, the mariner's compass, a machine for measuring the way of a ship at sea, on the natural powers of water and wind to turn mills, experiments on the collision of bodies, description of a new pyrometer, and of a new hygrometer, and many astronomical memoirs.
- 14917 ——— NARRATIVE of the BUILDING, and DESCRIPTION of the CONSTRUCTION of the EDYSTONE LIGHTHOUSE with STONE, with APPENDIX on the LIGHTHOUSE on the SPURN POINT, built upon a SAND; first edition, with *vignette on title*, 21 *copperplates of views, plans, and elevations, and details of Smeaton's Eddystone Lighthouse, and of the previous ones by Winstanley and Rudyard*, and 2 *maps*, impl. folio, *hf. russica (binding damaged)*; RARE, £1. 5s 1791
- 14918 ——— ANOTHER COPY, *russia extra (joints mended, but a FINE COPY)*, with *bookplate of Henry B. H. Beaufoy, F.R.S.*, £1. 18s
- 14919 ——— SECOND EDITION, with *vignette*, 21 *copperplates*, and 2 *maps*, impl. folio, *hf. calf (rubbed)*, £1. 5s 1793
- 14920 ——— ANOTHER COPY, roy. folio, with the *plates bound separately*; *hf. roan*, £1. 1s
- THE BEST EDITIONS. The work was reprinted in 1813.
- The building of the Eddystone Lighthouse has made Smeaton's name a household word among successive generations of Englishmen until to-day. It was built in 1759-9 of large shaped granite blocks, and was the greatest work of its kind hitherto undertaken, and remained in use until 1879, when it was rebuilt as a monument on Plymouth Hoe, as the rock which formed the foundation had become greatly weakened by the sea.
- 'Smeaton's story of the Eddystone lighthouse is told in a very effective manner. It possesses an interest almost dramatic, exhibiting a contest between a strong, skilled, and determined man, and the most tremendous forces of nature.'—*Samuel Smiles*.
- 14921 ——— : WESTON (Robert Harcourt) LETTERS and IMPORTANT DOCUMENTS relative to EDYSTONE LIGHTHOUSE, selected chiefly from the Correspondence of the late ROBERT WESTON, and from other MSS., with Report made to the Lords of the Treasury in 1809. by the TRINITY CORPORATION, with some Observations thereon, with 2 *copperplates of the Eddystone Lighthouse*, 4to. *hf. calf*, 8s 6d 1811
- Including the correspondence between Smeaton and Robert Weston (one of the proprietors) with reference to the Eddystone Lighthouse.
- 14922 ——— : LETTERS and MEMORIALS respecting the CLAIM on the TRINITY CORPORATION, for Recompense due to the Service of the late ROBERT WESTON, as a Proprietor of the EDYSTONE LIGHTHOUSE, with Notes and Observations. 4to. (pp. 82), *sewn*, 3s 1812
- 14923 ——— OBSERVATIONS on the GRADUATION of ASTRONOMICAL INSTRUMENTS; with the Method invented by the late Mr. HENRY HINDLEY, of York, Clock-maker, to divide Circles into any given Number of Parts, sm. 4to. (pp. 47), *sewn*, 6s 1785
- Together with: Observations on, and Discovery of, the Period of the Variation of the Star marked δ by Bayer, near the Head of Cepheus, by JOHN GOODRICKE, F.R.S. [containing the discovery of the variability of δ Cephei] (pp. 14): Magnetical Experiments and Observations, by TIBERIUS CAVALLO (pp. 19).

- 14925 **SMEATON** (John, F.R.S., *builder of the third Eddystone Lighthouse*) REPORT concerning the DRAINAGE of the NORTH LEVEL of the FENS, and the OUTFALL of the WISBEACH RIVER, with *large folding map*, 4to. (pp. 24), *sewn*, 15s
[c. 1769]
Together with the REPORTS of JOHN GOLBORNE, Engineer, with *folding map* (pp. 11); THOMAS YEOMAN, Engineer, with *folding map*, (pp. 12); and JAMES BRINDLEY, a *broadsheet*, 1770: Queries relating to the Reports of James Brindley and John Golborne (pp. 8), *Lynn*, 1770: Attempt to answer the Queries relating to the Reports of Messrs Golborne and Brindley (pp. 4), 1771.
- 14926 ——— REPORT on the HARBOUR of KING'S LYNN, in Norfolk, 4to. (pp. 14), *sewn*, 3s 6d 1767
- 14927 ——— REPORT on the NEW-MAKING and COMPLETING the NAVIGATION of the RIVER LEE [LEA], from the River THAMES, through Stanstead and Ware, to the Town of HERTFORD, with *2 large folding maps* (pp. 12), 1767; *further*: An ACT for IMPROVING the NAVIGATION of the RIVER LEE from the Town of Hertford to the River Thames; and for Extending the said Navigation to the Flood-gates belonging to the Town Mill in Hertford (pp. 54), '67: PROSPECTUS d'un PONT de FER d'une SUELE [sic] ARCHE, a Manuscript on 17 pp., with *auto. of Sir John Rennie, F.R.S.*, '83: **TATHAM** (William) SPECIFICATION of sundry IMPROVEMENTS on the INCLINED PLANE SYSTEM of INLAND NAVIGATION, and in MECHANICS, with *2 large folding plates finely handcoloured*, the original Manuscript on 9 pp., signed by the Author, with *Sworn Information signed by him and Sir John William Anderson, Lord Mayor of London, and certified by Rufus King, Minister Plenipotentiary of the United States of America at the Court of Great Britain, with SEAL of the U.S. Legation*, '98: MÉMOIRE sur les ROUES à AUGETS et sur les Moyens de les perfectionner; with *3 finely handcoloured folding plates*, a Manuscript (? original) on 12 pp., n.d.—in 1 vol. folio, *hf. calf*, £5. 5s 1767-98
- 14928 ——— REPORTS made on VARIOUS OCCASIONS, in the COURSE of his EMPLOYMENT as a CIVIL ENGINEER [with LIFE], with *70 copperplates, and maps by W. Lowry*, 3 vols. 4to. boards (*portrait wanting*), 15s 1812
- 14929 ——— ANOTHER COPY, with *fine portrait by W. Bromley after W. Brown*, 3 v.; also MISCELLANEOUS PAPERS forming Vol. IV), with *84 copperplates and maps*, 4 vols. 4to. *hf. russia (joints cracked)*, £1. 5s 1812-14
- 14930 ——— THE SAME, *wanting vol. II*, 3 vols. 4to. in 2, *hf. calf (binding rubbed)*, 14s
Published by the Society of Engineers, and containing all the author's important works, including his improvement of Savery's steam-engine, accounts of his noble bridges at Perth, Banff, Coldstream, Hexham, and the North Bridge, Edinburgh (the last two now destroyed), his canal and harbour works, etc. etc. etc.
- 14931 ——— REVIEW of several MATTERS relative to the FORTH and CLYDE NAVIGATION, as now settled by the Act of Parliament, with some Observations on the Reports of MESS. BRINDLEY, YEOMAN, and GOLBORNE [sic], 4to. (pp. 34), *sewn, with auto. of John Rennie, C.E., F.R.S.*, 5s 1768
- 14932 **SMEE** (Alfred, F.R.S., *Surgeon to the Bank of England; author of 'My Garden'*) ELEMENTS of ELECTRO-METALLURGY, or the Art of Working in Metals by the Galvanic Fluid, first edition, with *plate*, large post 8vo. *cl.*, *g. e.*, 5s 1841
Containing at end: Palmer's New Catalogue, with 300 Engravings of Apparatus, illustrative of Chemistry, Pneumatics, Electricity, Optics, etc., with *prices* (pp. 65), 1840.
- 14933 ——— SECOND EDITION, considerably enlarged, with *5 specimens of electrotype, and 37 woodcuts*, 8vo. *cl.* (*scarce*), 8s 6d 1843
'An important work, dealing with the laws regulating the reduction of metals in different states, as well as a description of the processes for platinating and palladiating, so that reliefs and intaglios in gold can be readily obtained. Smees was also the first to discover the means by which perfect reverses in plaster could be made by rendering the plaster non-absorbent.'—D. N. E.
- 14934 ——— On the GALVANIC PROPERTIES of the principal ELEMENTARY BODIES, with Description of a NEW CHEMICO-MECHANICAL BATTERY, 8vo. (pp. 11), *sewn, with inser. to Gen. Sir C. W. Pasley, F.R.S.* (*scarce*), 4s 1840
Containing the account of the author's invention of the galvanic battery known by his name (zinc and silver in sulphuric acid), for which he received the Isis medal of the Society of Arts.
- 14935 ——— LECTURE on ELECTRO-METALLURGY, 15 *woodcuts*, 8vo. (pp. 24), *sewn, with inser. to Edward Solly, F.R.S.*, 2s 1851
- 14936 ——— The PROCESS of THOUGHT adapted to Words and Language, with Description of the RELATIONAL and DIFFERENTIAL MACHINES, with *frontispiece*, 8vo. *cl.*, 5s 1851
This work is not noticed by and was apparently unknown to Smees's biographer in D. N. E.
- 14937 ———, MEMOIR of, by his DAUGHTER [ELIZABETH MARY ODLING], with Selection from his MISCELLANEOUS WRITINGS, *steel portrait by Jeens*, 3 *plates*, and *numerous woodcuts*, 8vo. *cl.* (*o. p.*), 6s 6d 1878
The Miscellaneous Writings include many of his scientific papers.
- 14938 **SMITH** (Albert William, *Cornell Univ.*), and Guido Hugo MARX, *Stanford Univ.*: MACHINE DESIGN, with *278 woodcuts*, 8vo. *cl.*, 6s (p. 12s 6d nett) New York, 1905
- 14939 **SMITH** (Alexander, *Univ. Chicago*) INTRODUCTION to GENERAL INORGANIC CHEMISTRY, with *106 woodcuts and diagrams*, cr. 8vo. *cl.*, 4s 6d (p. 7s 6d nett) New York, 1906
- 14940 **SMITH** (C. A. M., *Univ. Hong Kong*), and A. G. WARREN: The NEW STEAM TABLES, with their DERIVATION and APPLICATION, with Introduction by SIR JAMES ALFRED EWING, F.R.S., with *folding chart in pocket*, 8vo. *cl.*, 3s (p. 4s nett) 1913
- 14941 **SMITH** (David Eugene, *Columbia Univ.*), and Yoshio MIKAMI: HISTORY of JAPANESE MATHEMATICS, with *numerous illustrations*, 8vo. *cl.*, 8s 6d (p. 12s nett) Chicago, 1914
The first account in English of Japanese mathematics, which are of interest for having developed quite independently of European influence a form of infinitesimal calculus, known as 'circle principle', and for having anticipated the discovery of determinants.
- 14942 **SMITH** (George) DISSERTATION on the GENERAL PROPERTIES of ECLIPSES, and particularly on the ensuing Eclipse of 1748, considered through all its Periods, with *folding map of the Eclipse of 1748, and table of 12 Solar Eclipses at London to happen in 800 years*, 8vo. (pp. 19), *sewn*, 3s 6d 1748

- 14944 **SMITH (J. Walker)** DUSTLESS ROADS : TAR MACADAM : a Practical Treatise for Engineers, Surveyors and others, with 23 illustrations (including folding plates), and 10 folding tables, sq. 8vo. cl., 7s (p. 10s 6d nett) 1909
- 14945 **SMITH (John)** The ART of PAINTING in OYL, wherein is included each particular Circumstance relating to the Best and most Approved Rules for Preparing, Mixing, and Working of Oyl Colours . . . with all the several Circumstances required in PAINTING of SUN-DIALS, Printed Pictures, Sash-Windows, etc. in Oyl-Colours; 5th Impression, with many Matters added, and the WHOLE ART and MYSTERY of COLOURING MAPS, and other PRINTS, with WATER-COLOURS, 12mo. sprinkled calf, newly rebacked (rare), 10s 6d 1723
The Art of Painting 'fitted to the meanest capacity.'
- 14946 **SMITH (Robert Angus, F.R.S.)** On the COMPOSITION and DERIVATION of ROSOLIC ACID, 8vo. (pp. 7), sewn, with inser. to Sir Edward Frankland, F.R.S., 1s 6d [Manchester, 1867]
- 14947 ——— DISINFECTANTS and DISINFECTION, 8vo. cl. (scarce), 7s 6d Edin., 1869
'Containing a summary of other work, together with experiments of his own performed for the Cattle Plague Commission. In it he recognised the fact that Pasteur's work on germs would revolutionise the subject. . . Smith's work led to the manufacture on a large scale by his friend Mr. Alexander McDougall of a useful disinfectant powder, consisting of a mixture of calcium sulphite and calcium phenate.'—D. N. B.
- 14948 ——— On the ESTIMATION of the ORGANIC MATTER of the AIR, 8vo. (pp. 6), sewn, 1s 6d 1859
- 14949 ——— OBSERVATIONS in REFUTATION of certain CHARGES preferred against the ALUM WORKS of MESSRS. SPENCE & DIXON, at PENDLETON: with Examination of Dr. Smith and Prof. Calvert's Report on the same, 8vo. (pp. 20), sewn, 1s 6d Manchester, 1855
- 14950 ——— REPORT on the AIR and WATER of TOWNS: Action of Porous Strata, Water and Organic Matter, 8vo. (pp. 12), sewn, 1s 6d 1852
- 14951 ——— REPORT on MR. HOLMES' METHOD of CONSUMING SMOKE; with References to the Smoke and Air of Salford and Manchester, with 2 plates, 8vo. (pp. 12), sewn, 1s 6d [Manchester, 1857]
- 14952 ——— On some ANCIENT and MODERN IDEAS of SANITARY ECONOMY, 8vo. (pp. 51), sewn, 1s 6d ibidem, 1854
- 14953 **SMITH (Robert Henry)** CUTTING TOOLS worked by Hand and Machine, with 14 plates, and 51 woodcuts, 12mo. cl., 2s 1882
- 14954 **SMITH (Seth)**, DESCRIPTION of the PATENT METALLIC LINING and DAMPER for the CHIMNEYS of Dwelling and other Houses and Buildings, invented by, with 3 copperplates (2 folding), impl. 8vo. (pp. 16), sewn, 5s 6d [1854]
- 14955 ——— ANOTHER COPY, cl., 6s 6d
'Besides forming a complete fire-proof lining to chimneys, the metallic lining has the additional advantage of suppressing the odious, painful, and sometimes fatal, practice of climbing boys.'—P. 10.
- 14956 **SMITH (William, engineer and mineralogist; F.R.S., 'the Father of British Geology')** OBSERVATIONS on the UTILITY, FORM and MANAGEMENT of WATER MEADOWS, and the Draining and Irrigating of Peat Bogs, with Account of PRISLEY BOG, and other Extraordinary Improvements, with 2 folding plates: [Boswell (George)] TREATISE on WATERING MEADOWS: wherein are shewn some of its many Advantages, particularly on Coarse, Boggy, or Barren Lands; and the Method of performing the Work; also Remarks on a late Pamphlet on that Subject, 4th Edition, with many Additions, with 5 folding copperplates—2 vols. 8vo. in 1, calf (rare), 12s 6d 1806-1
'He received a medal from the Society of Arts for his success in draining Prisley Bog. By this time [1806] he had almost a monopoly of work for drainage and irrigation, and was constantly engaged in travelling, sometimes covering 10,000 miles in a year, and this before the days of railways.'—D. N. B.
- 14957 **SMITH (William, M.D.)**. The STUDENT'S VADE MECUM: Knowledge and its General Division; History, Philosophy . . . the different Systems of Philosophy, and Mathematics, with Directions how to proceed in their Study, and the proper Books to be read on each Subject, 8vo. sewn, 3s 1770
- 14958 **SNELL (SNELLIUS) van Roijen (Willebrord; Univ. Leyden)** APOLLONII BATAVUS, seu, exsuscitata Apollonii Pergæi περί Διορισμένης Τομής [de Sectione Determinata] Geometria; with numerous diagrams, sm. 4to. (pp. 37), sewn (rare), 12s 6d Lugodini, Joh. a Dorp, 1608
The author's first scientific publication, written at the age of seventeen.
- 14959 ——— CYCLOMETRICUS, de CIRCULI DIMENSIONE secundum LOGISTARUM ABACOS, et ad Mechanicam accuratissima; atque omnium parabilissima; eiusdemque Usus in quarumlibet adscriptarum Inventione longe elegantissimus, et quidem ex Ratione Diametri ad suam Peripheriam data; with diagrams, sm. 4to. sound copy in old limp vellum (RARE), with auto. of ALFONSO BORELLI, astronomer (1608-79), £1. 5s ibidem, ex offic. Elzeviriana, 1621
'Cet ouvrage contient ses recherches sur la mesure approchée du cercle . . . et diverses autres choses remarquables sur la dimension du cercle, entr' autres des tables, au moyen desquelles, un prétendu rapport du diamètre à la circonférence étant donné, on peut déterminer quel est le couple des polygones semblables inscrit et circonscrit, hors des limites duquel se trouve ce rapport.'—Montucla.
'Snellius inquit un procédé plus rapide que celui d'Archimède, suivi par van Ceulen, pour arriver à la même approximation que son compatriote, dans l'évaluation du rapport de la circonférence au diamètre.'—M. Marie.
- 14960 ——— DESCRIPTIO COMETÆ qui ANNO 1618 Mense Novembri primùm effulsit, huc accessit CHRISTOPHORI RHOTMANNI Descriptio accurata Cometæ Anni 1585, nunc primum à Will. Sn. R. F. in Lucem edita; with diagrams, sm. 4to. fine copy in old vellum, 15s ib., ex eadem, 1619
- 14961 ——— ERATOSTHENES BATAVUS: de Terræ Ambitus Vera Quantitate; with diagrams, sm. 4to. old vellum (browned, otherwise a sound and large copy); very rare, £3. 10s Lugodini, Jod. à Colster, 1617

A work of great importance in geodesy, in which the author first laid down the principles now generally accepted for determining the length of the arc of a meridian from the measurement of any base line. This discovery was again claimed by Pothénot in 1730 as an original one.

The work contains also a valuable account of older works on geodesy.

Snellius is also the discoverer of the law of refraction (given afterwards in its present form by Descartes), and the originator of the term loxodromic curve.

- 14963 **SMYTH** (William Augustus) **THE PUBLICAN'S GUIDE**: or Key to the Distill-House: containing an Account of Rum, Brandy, and other Spirituous Liquors. etc. etc., the **Discovery of Adulteration**, in what is called Genuine Rum, etc. etc., the Use of the Hydrometer, Tables shewing the Price of Liquors, etc. etc., with Anecdotes and Remarks necessary to be known by all Dealers in Spirits, and highly interesting to the Public in general. 8vo. (pp. 86), *sewn*, 6s 6d 1779
Interesting as an exposure of the abominable adulteration of spirits, especially of rum, in vogue at the time, which with almost universal dramdrinking made England in the later Eighteenth and early Nineteenth Centuries a scandal to the world.
- 14964 **SNELLEN** (Cornelis Tobias) **DISSERTATIO PHILOSOPHICÁ de THEORIA PULVERIS PYRII**; with *copperplate* (pp. 36): **DISSERTATIO MEDICA de VARIA VITÆ ENERGIA** (pp. 17)—2 vols. 4to. in 1, *old calf gilt* (*nice copies*), 8s 6d
Lugd. Bat., 1747-50
- 14965 **SNOW** (Walter Bradlee) **STEAM BOILER PRACTICE**: its Relation to Fuels and their Combustion, and the Economic Results obtained with various Methods and Devices, with 24 *illustrations*, 8vo. *cl.*, 5s (p. 12s 6d nett)
New York, 1899
- 14966 ———, and Walter S. **LELAND**: **THE STEAM ENGINE**: a Practical Guide to the Construction, Operation, and Care of Steam Engines, Steam Turbines, and their Accessories, with 15 *plates*, and numerous other *illustrations*, roy. 8vo. *cl.*, 2s 6d (p. 4s 6d nett)
Chicago, 1908
- 14967 **SNYDER** (Carl) **NEW CONCEPTIONS in SCIENCE**, with Foreword on the Relations of Science and Progress, with 10 *portraits*, besides *woodcuts*, large post 8vo. *cl.*, with *inscr.* to HERBERT SPENCER, as below, and the latter's bookstamp, 7s 6d
1903
'To Herbert Spencer: as an expression of profound respect, for his life and his work. CARL SNYDER. London, July 5, 1903.'—*Inscr.* on *flyleaf*.
- 14968 **SNYDER** (Harry, *Univ. Minnesota*) **THE CHEMISTRY of PLANT and ANIMAL LIFE**, with 102 *illustrations*. cr. 8vo. *cl.*, 3s (p. 6s nett)
New York, 1903
- 14969 **SOCIETY of ARTS** (ROYAL): **TRANSACTIONS of the SOCIETY** instituted at London for the ENCOURAGEMENT of ARTS, MANUFACTURES, and COMMERCE, with the Premiums offered; complete from the Beginning in 1783 to 1837 (Vols. I—LI), with *portraits*, numerous *plates* (*many folding*), and *woodcuts*, 51 vols. 8vo. in 52, *old calf gilt*, *rebacked* (*backs rubbed*), with *bookplate of the Earl of Mansfield* (SOUND SET), £8. 8s
1783-1837
- 14970 ——— ANOTHER SET, complete from the Beginning in 1783 to 1828 (Vols. I—XLVI) (v. I, 2nd Ed.), with over 500 *fine copperplates* (*many folding*), including *portraits*, besides *woodcuts*, 46 vols. 8vo. *hf. calf gilt* (FINE LIBRARY SET), £6. 15s
1789-1828
A very important publication, especially in connexion with applied science, containing valuable original contributions by some of the foremost scientists of the time, e.g., CLEGG (S.) Gas Meters, 1808; GURNEY (Goldsworthy) Oxy-Hydrogen Blow-Pipe, '23; MARSH (James) Electro-Magnetic Apparatus, '23; NICHOLSON (P.) Hand Itails, '14; STURGEON (W.) Improved Electro-Magnetic Apparatus. The descriptions of Inventions which were awarded prizes by the Society are of special importance, though for an amusing *faux pas* see note to PRICE on LOCKS and KEYS, no. 18047 *ante*.
- 14971 ———, **JOURNAL of the, and the INSTITUTIONS in UNION**; from Nov., 1881 to 1909 (Vols. 30-57), with numerous *illustrations*, 28 vols. roy. 8vo., *vv.* 30-56 in *cl.*, and v. 57 in *parts*, *sewn*, £4.
1882-1909
- 14972 **SODDY** (Frederick, F.R.S.; *Univ. Aberdeen*) **MULTIPLE ATOMIC DISINTEGRATION**: a Suggestion in Radioactive Theory, 8vo. (pp. 6), *sewn*, 1s 6d
1909
- 14973 ——— **RADIO-ACTIVITY**: an Elementary Treatise, from the Standpoint of the Disintegration Theory, with 20 *diagrams*, and 18 *woodcuts*, 8vo. *cl.*, 4s (p. 6s 6d nett)
1904
- 14974 ———, and Arthur John **BERRY**: **CONDUCTION of HEAT through RAREFIED GASES**, with 3 *diagrams*, 2 parts roy. 8vo. (pp. 21), *sewn*, 2s
1910-11
- 14975 ———, and Thomas D. **MACKENZIE**: **THE ELECTRIC DISCHARGE in MONATOMIC GASES**, with 2 *diagrams*, roy. 8vo. (pp. 18), *sewn*, 1s 6d
1908
The author, with Sir William Ramsay, made the important discovery that helium was originated by the disintegrating atoms of radium.
- 14976 **SOLOMON** (Henry George) **ELECTRICITY METERS**: a Treatise on the General Principles, Construction, and Testing of Continuous Current and Alternating Current Meters, with 307 *illustrations*. large 8vo. *cl.*, 10s (p. 16s nett)
1906
- 14977 **SOMERMEIER** (E. E., *Ohio State Univ.*) **COAL**: its Composition, Analysis, Utilization, and Valuation, with 8 *illustrations*, roy. 8vo. *cl.*, 5s (p. 8s 6d nett)
New York, 1912
- 14978 **SOMERSCALES** (A. N.) **MECHANICAL and MARINE ENGINEERING SCIENCE** (Essays, Problems, Demonstrations); specially written as a Handbook to the Board of Trade Examinations, for Extra-First-Class Engineers, with 153 *woodcuts*, 8vo. *cl.*, 7s 6d (p. 12s 6d nett)
Glasgow, 1909
- 14979 **SONNET** (Hyppolyte) **DICIONNAIRE des MATHÉMATIQUES APPLIQUÉES**, comprenant les principales Applications des Mathématiques, et l'Explication d'un grand Nombre de Termes Techniques usités dans les Applications; 2^e Édition; with 1900 *woodcuts and diagrams*, thick roy. 8vo. (pp. 1475), *hf. calf gilt*, 10s 6d (p. F. 30 nett *sewn*)
1874
- 14980 **SOPWITH** (Thomas, C.E., F.R.S.) **TREATISE on ISOMETRICAL DRAWING**, as applicable to GEOLOGICAL and MINING PLANS. Picturesque Delineations of Ornamental Grounds, Perspective Views and Working Plans of Buildings and Machinery, and to general Purposes of Civil Engineering; with Details of improved Methods of Preserving Plans and Records of Subterranean Operations in Mining Districts, first edition, with *engraved frontispiece, vignette on title*, and 32 *copperplates*, 8vo. *cl.*, 10s 6d
1834
'The book met with a marked success, and it is somewhat a matter of surprise that it has not to this day retained its place as an educational work.'—*Sir B. W. Richardson*.
- 14981 ———: **RICHARDSON** (Sir Benjamin Ward, M.D., F.R.S.) **THOMAS SOPWITH, C.E., F.R.S.**, with EXCERPTS from his DIARY of Fifty-Seven Years, with *portrait*, cr. 8vo. *cl.* (o. p.), 4s
1891
- 14982 **SORLEY** (William Ritchie) **MINING ROYALTIES**, and their EFFECT on COAL and IRON TRADES, 8vo. *boards* (o. p.), 1s 6d
1889

- 14984 **SOUCHON** (Abel) TRAITÉ d'ASTRONOMIE PRATIQUE, comprenant l'Exposition du CALCUL des EPHÉMÉRIDES ASTRONOMIQUES et NAUTIQUES, d'après les Méthodes en Usage dans la Composition de la Connaissance des Temps et du Nautical Almanac, avec Introduction Historique et de nombreuses Notes; *with 39 diagrams*, roy. 8vo. *hf. calf gilt*, 9s (p. F. 15 nett sewn) 1883
- 14985 **SOUTHALL** (James Cooke) THE RECENT ORIGIN of MAN, as illustrated by Geology and the Modern Science of Pre-Historic Archaeology, *with numerous woodcuts*, thick large 8vo. *cl.*, 8s 6d (£1. 10s) Philadelphia, 1875
'The chief merit of his work is that he has collected a vast amount of information not otherwise readily accessible.'—*Academy*.
- 14986 **SPAN** (Sebastian) SECHSHUNDERT BERG-ÜRTHEL, SCHIED, und WEISUNG, bey vorgefallenen Bergwercks Differentien unterschiedener Orten, so wol informatoriè als ad Acta gesprochen, neben Bergmännchen Bericht bey jedwedern Titel und Materi, nebst CHURFÜRSTLICHER SÄCHSISCHER BERG-ORDNUNG, *printed in gothic letter*, folio (pp. 196 + 40), *sewn (very rare)*, £1. 10s *Wolfenbüttel*, 1673
- 14987 **SPANGLER** (Henry Wilson, *Univ. Penna.*), Arthur N. GREENE, Jr., and S. M. MARSHALL: ELEMENTS of STEAM ENGINEERING, *with 273 woodcuts (including several folding plates)*, 8vo. *cl.*, 5s (p. 12s 6d nett) New York, 1903
- 14988 **SPEHR** (Friedrich Wilhelm) VOLLSTÄNDIGER LEHRBEGRIFF der REINEN COMBINATIONS-LEHRE, mit Anwendungen derselben auf Analysis und Wahrscheinlichkeitsrechnung, 2. Ausgabe, 4to. *hf. cl.*, 3s 6d Braunschweig, 1840
- 14989 **SPEIDELL** (John, *practitioner in the Mathematics, and professor thereof in London*) A REPEATED TREATISE of SPHERICALL TRIANGLES, wherein is handled the sixteen Cases of a RIGHT ANGLED TRIANGLE, being all extracted out of one Diagram, and reduced into Theorems, with the total fine in the first place, so that by Addition only, they may be effected; as also the Twelve Cases of an OBLIQUE SPHERICALL TRIANGLE, being likewise reduced into Theorems, whereby with one or two Additions at the most, any of them may be resolved by Helpe of this Canon following made with Secants, and that only by such Numbers as are therein to be founde, without first making any Substraction, or using any mentall Operation. Whereunto is annexed a GEOMETRICALL EXTRACTION formerly published by the Author, containing diuers delightful and necessarie Geometrical Problems, *with plate and diagrams*, sm. 4to. (pp. 49), *sewn (partly water-stained, but sound copy)*, *with auto. of Dr. Charles Hutton, F.R.S. (rare)*, £1. 1s E. Alde, 1627
This rare work was quite unknown to Lowndes, Allibone, and Watt, nor is there a copy in Brit. Mus. Cat. of Early English Books.
- 14990 — A GEOMETRICALL EXTRACTION, or a Compendious Collection of the Chiefe and choise Problemes, collected of the best, and latest Writers. Whereunto is added, about 30. Problemes of the Authors Inuention, being for the most Part, PERFORMED by a BETTER and BRIEFER WAY, then by any former Writer, *with numerous diagrams*, sm. 4to. *cl. (title soiled and one corner defective)*; RARE, £1. 10s *apud eundem*, 1616
- 14991 — ANOTHER ISSUE, *with numerous diagrams*, sm. 4to. *sewn (a few ll. damaged on blank margin, and pp. 27-30 and 33-40 wanting)*, 10s *a. e.*, 1617
There is no copy of this issue in the British Museum. The author was the father of Euclid Speidell. His biography is unaccountably omitted from D. N. B.
'Not only these Problems . . . but much more . . . may be performed by a Mathematical Scale, now newly (this present year) by me inuented.'—*Fragae*.
- 14992 — NEW LOGARITHMES. The First Inuention whereof, was, by the Honourable LO: JOHN NEPAIR BARON of MARCHISTON, and Printed at Edinburg in Scotland, Anno: 1614. In whole Use was and is required the Knowledge of Albraicall Addition and Substraction, according to + and —. These being Extracted from and out of them (they being first ouer seene, corrected, and amended) require not at all any Skill in Algebra, or Cossike Numbers, but may be used by euery one that can only Adde and Subtract, in whole Numbers, according to the Common or vulgar Arithmeticke, without any Consideration or Respect of + or —, the 10. Impression, sm. 4to. (pp. 128), *sewn (rare)*, £2. 2s *apud auctorem, at his dwelling house in the Fields, on the back side of Drury Lane, between Princes streete and the new Play-house*, 1628
Speidell's was an improved form of Napier's logarithms to the base *e* of the numbers from 1 to 1000. It also contains the logarithms of the sines, tangents, and secants of angles in the first quadrant. The first impression was published in 1619. There is no copy of any issue in the British Museum Catalogue of Early English Books.
- 14993 **SPENCE** (William) ESSAY on the THEORY of the various Orders of LOGARITHMIC TRANSCENDENTS, with Inquiry into their Applications to the Integral Calculus and the Summation of Series, 4to. *boards*, 8s 6d 1809
- 14994 **SPENCER** (Thomas) INSTRUCTIONS for the MULTIPLICATION of WORKS of ART in METAL, by VOLTAIC ELECTRICITY, with Chapter on Electro-Chemical Decompositions by Feeble Currents, *with 27 woodcuts*, 8vo. *sewn (scarce)*, 5s Glasgow, 1840
One of the earliest treatises on galvanoplastics, published only 4 years after its invention by M. H. Jacobi.
- 14995 **SPIELMANN** (Jacob Reinbold; *Univ. Strasbourg*) INSTITUTIONES CHEMIE, Praellectionibus Academicis adcommodatæ; *with folding table on copper of Affinities*, 8vo. *old French mottled calf gilt (nice copy)*, 7s 6d Argentorati, 1763
- 14996 — EDITIO ALTERA, revisa, aucta, polita; *with folding table on copper*, 8vo. *fine copy in contemporary calf extra*, 7s 6d *ibidem*, 1766
'Sehr geschätzt waren zur Zeit ihrer Veröffentlichung seine *Institutiones Chemiæ*.'—*H. Kopp*. The author was a disciple of Marggraf, and one of the last adherents of note of the Becher-Stahl doctrine.
- 14997 **SPINOLA** (Francesco, *da Milano*) De INTERCALANDI RATIONE CORRIGENDA, et de TABELLIS QUADRATORUM NUMERORUM, à Pythagoreis dispositorum, *ἑκατόμμιας*; *printed in italics*, 16mo. *fine copy in old limp vellum (RARE)*, £1. 1s *Venetis, Bologninus Zalterius*, 1562
'Raro opuscolo.'—*Riccardi*. It was unknown to Prof. de Morgan, Poggendorff, Brunet, Graesse, and other bibliographers.

- 14999 **SPOTTISWOODE (William; P.R.S., Queen's Printer)** ELEMENTARY THEOREMS relating to DETERMINANTS, 4to. (pp. 71), *sewn (scarce)*, 7s 6d 1851
 'He was the author in 1851 [act. 26] of the first elementary treatise on determinants, and to this treatise much of the rapid development of that subject is attributable.—D. N. B.
- 15000 ——— On the FORTY-EIGHT COORDINATES of a CUBIC CURVE in SPACE, 4to. (pp. 12), *sewn*, 2s 1881
- 15001 ——— MANUSCRIPT COLLECTION, consisting of 397 leaves or pages of Manuscript, chiefly in his own AUTOGRAPH, of PAPERS, LECTURE NOTES, PROBLEMS, etc., illustrated with diagrams, 4 vols. folio, 3 vv. *hf. roan*, and 1 v. *hf. bound (damaged)*, all with the author's book-plate, also interesting 8 pp. AUTO. LETTER to J. G. Shaw Lefevre (4 pp. copied) inserted, £3.3s v. d.
 Comprising: Theory of Light, especially Polarisation (pp. 89): Analytical Problems (pp. 141): Integral Calculus. Examples (pp. 34): Irrational Functions (pp. 24): On Sir W. R. Hamilton's Theory of Quaternions (pp. 7): On the Transformation of Couples and Moments (pp. 15): On Motion of Rotation (pp. 7): On the Difference between Pure and Empirical Composition (pp. 12): Of Time; Matter; Motion; and Force (pp. 48), and some other Physical Problems.
- 15002 ——— POLARISATION of LIGHT, first edition, with 2 coloured plates and 29 woodcuts, cr. 8vo. *cl.* (scarce), 3s 6d 1874
- 15003 ——— SECOND EDITION [unchanged], with 2 coloured plates and 29 woodcuts, cr. 8vo. *cl.*, 3s 6d 1876
- 15004 ——— THIRD EDITION [enlarged], with 2 coloured plates and 31 woodcuts, cr. 8vo. *cl.*, with auto. of F. J. Jervis-Smith, pr., F.R.S., 5s 1879
- 15005 **SPRETSON (N. E.)** PRACTICAL TREATISE on CASTING and FOUNDRY: including Descriptions of the Modern Machinery employed in the Art; 6th Edition, with 82 plates (many folding), thick 8vo. *cl.* (o. p.), 7s 6d (p. 18s) 1892
- 15006 **SPURR (Josiah Edward)** The IRON-BEARING ROCKS of the MESABI RANGE in MINNESOTA, with 12 plates (3 coloured), besides woodcuts, roy. 8vo. *cl.*, 5s Minneapolis, 1894
- 15007 **STAHL (Conrad Diedrich Martin; Univ. Munich)** GRUNDRISS der COMBINATIONSLEHRE, nebst Anwendung derselben auf die Analysis; with 2 folding tables, 8vo. boards, 3s Jena, 1800
- 15008 **STAHL (Georg Ernst; Univ. Halle, originator of the phlogiston theory)** EXPERIMENTA, OBSERVATIONES, ANIMADVERSIONES, CCC NUMERO, CHYMICÆ et PHYSICÆ, qualem alibi vel nulla, vel rara, nusquam autem Fatis ampla, ad debitos Nexus, ad veros Usus, deducta Mentio, Commemoratio, aut Explicatio, invenitur; qualem partim, in aliis Autoris scriptis, varia Mentio facta habetur; partim autem nova Commemoratio hoc Tractatu exhibetur: utrimque vero, universa Res uberius explicatur atque confirmatur, large 12mo. *sewn*, 7s 6d *Berolini*, 1731
- 15009 ——— FUNDAMENTA CHYMIÆ DOGMATICÆ et EXPERIMENTALIS, et quidem tum communioris Physicæ Mechanicæ Pharmaceuticæ ac Medicæ, tum sublimioris sic Dictæ Hermeticæ atque Alchymicæ, olim in privatos Auditorum Usus posita, jam vero Indultu Autoris publicæ Luci exposita; annexus est Tractatus ISAACI HOLLANDI de SALIBUS et OLEIS METALLORUM; editio princeps, sm. 4to. *old calf gilt (fine copy)*, 15s *Norimbergæ*, 1723
 'Il y établit l'existence de son phlogistique comme principe.'—*Biogr. Gén.* See BECHER (No. 308), ante.
- 15010 ——— TRAITÉ des SELS, dans lequel on démontre qu'ils sont composés d'une Terre Subtile, intimement combinée avec de l'Eau, traduit de l'Allemand, 12mo. *nice copy in old English calf, with Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816)*, 7s 6d 1771
- 15011 **STANHOPE (Charles 3rd Earl, F.R.S., when Viscount Mahon)** PRINCIPLES of ELECTRICITY, containing divers NEW THEOREMS and EXPERIMENTS, with an Analysis of the superior Advantages of high and pointed [LIGHTNING] CONDUCTORS; also an EXPLANATION of an ELECTRICAL RETURNING STROKE, by which FATAL EFFECTS may be produced, even at a vast Distance from the Place where the Lightning falls, with 6 copperplates, 4to. *old calf (slightly soiled and binding damaged)*; RARE, £1. 5s 1779
- 15012 ——— PRINCIPES d'ELECTRICITÉ, contenant plusieurs Théorèmes appuyés par des Expériences nouvelles, avec une Analyse des Avantages supérieurs des CONDUCTEURS ÉLEVÉS et POINTUS. On explique de plus le CHOC ÉLECTRIQUE en RETOUR, par lequel des Effets funestes peuvent être produits à une très-grande Distance de l'Endroit où le Tonnerre tombe. Ouvrage traduit par l'ABBÉ [JEAN ANTOINE] N[OLLET], F.R.S., avec certaines Notes intéressantes et propres à confirmer les Principes nouveaux de l'illustre Auteur; with 6 folding plates and table, 8vo. *contemporary calf extra*, 10s 6d 1781
 Earl Stanhope was the first to make known the principle of the return stroke of lightning. 'He contended that when a large cloud is charged with electricity it drives out a considerable portion of the electricity in its neighbourhood, which often returns to its original position with such violence and in such quantity as to destroy life.'—W. P. Courtney.
- 15013 ——— PRINCIPLES of the SCIENCE of TUNING INSTRUMENTS with FIXED TONES, Stereotype Edition, 8vo. (pp. 24), *sewn, with inscrr.* 'From the author' and 'Richard Watson, F.R.S., [absentee] Bp. of Landaff on title (rare)', 12s 6d A. Wilson, 1806
 'This copy was worked off at the iron printing press of the second construction invented by Earl Stanhope.'—*Inscr. on flyleaf.*
 'The invention [supra] formed the subject of numerous articles by John Farey and Stanhope in the 'Philosophical Magazine' [where the work had been reprinted], and Dr. Calcott's 'Plain Statement of Earl Stanhope's Temperament.' He perfected a process of stereotyping which was acquired by the delegates of the Clarendon Press at Oxford in 1805 on the condition that they paid £4,000. to the foreman and manager of his press, Andrew Wilson, and stereotyping on this system became part of the general business of the press.'—D. N. B.
- 15014 ——— REMARKS on MR. BRYDONE'S ACCOUNT of a REMARKABLE THUNDER-STORM in SCOTLAND, with folding copperplate by Basire, 4to. (pp. 23), *sewn*, 5s 6d 1787
 A further illustration of the principle of the return stroke of lightning.
- 15015 ———: HARLEY (Robert, pr., F.R.S.) The STANHOPE DEMONSTRATOR: an Instrument for performing LOGICAL Operations, with 4 illustrations, 8vo. (pp. 21), *sewn, with inscrr. to Samuel Roberts, F.R.S., 2s 6d* 1879
 'In none of the accounts which have appeared of his scientific labours can we find any allusion to his researches on this subject or to the curious contrivance which he called the 'Demonstrator'.'—P. 1.

- 15017 **STADE** [*Latine STADIUS*] (**Jan**) EPHEMERIDES, secundum ANTWERPIÆ LONGITUDINEM, ab Anno 1554 usque ad Annum 1606, jam recens ab Auctore auctæ: adiecto quoque CANONE SINUUM, vel Semissium Rectarum, in Circulo subtensarum, eodem Auctore; *with diagrams*, thick 4to. *old limp vellum* (partly water-stained), 12s *Colonie Agrippinæ, A. Birckmann, 1581*
- 15018 ——— EPHEMERIDES, secundum ANTWERPIÆ LONGITUDINEM ex TABULIS PRUTENICIS supputatæ ab Anno 1583 usque ad Annum 1606, et ad S. D. N. Gregorii XIII. Anni Reformationem accuratissimè accommodate, quibus Schemata, et PRÆDICTIONES ANNORUM Mundi et ECLIPSIIUM Luminarium accesserunt, auctore FRANCISCO JUNCTINO [GIUNTINI], Florentino, s.T.D.; *with diagrams*, thick 4to. *old limp vellum*, £1. 1s *Lugduni, P. Tinghi, 1585*
- 15019 **STARK** (**Johannes**, *Univ. Göttingen*) Die ELEKTRIZITÄT in GASEN; *with 144 diagrams and woodcuts*, 8vo. cl., 6s 6d (p. M. 13) *Leipzig, 1902*
Together with Sir J. J. Thomson's classic work, this is the standard authority on the electricity of gases.
- 15020 **STAS** (**Jean Servais**, *de l'Institut*; F.R.S.) CEUVRES COMPLÈTES, avec NOTICE BIOGRAPHIQUE par W. SPRING; publiées sous la Direction de W. SPRING et J. B. DEPAIRE; *with 3 fine heliogravure portraits, plates and woodcuts*, 3 thick vols. 4to. *sewn*, £1. 10s *Bruxelles, 1894*
Containing the author's classical researches on the atomic weights of oxygen, chlorine, bromine, iodine, nitrogen, sulphur, silver, etc. In Stas's case the extreme limit of accuracy was reached which was possible with the means at command.—*Prof. E. v. Mejer.*
- 15021 ——— RECHERCHES sur les RAPPORTS RÉCIPROQUES des POIDS ATOMIQUES, 8vo. (pp. 134), *sewn* (scarce), 8s 6d *ibidem, 1860*
'A Monsieur le Dr. (Sir Edward) Frankland. Hommage de l'auteur . . J. S. STAS.'—Inscr. on half-title.
The author in the above work finally rejects as untenable Prout's hypothesis, to which he had once inclined.
- 15022 ———, MANIFESTATION en l'HONNEUR de, à l'Occasion du 50^e ANNIVERSAIRE de sa Nomination comme Membre Titulaire de la Classe des Sciences, 1841-1891, roy. 8vo. (pp. 92), *sewn*, 3s *ib.*, 1891
- 15023 ———, NOTICE sur la VIE et les TRAVAUX de, par W. SPRING; *with fine etched portrait*, post 8vo. (pp. 178), *sewn*, 3s 6d *ib.*, 1892
'A Monsieur le Professeur [Henry Edward] Armstrong, F.R.S., hommage respectueux de l'auteur W. SPRING.'—Inscr. on half-title.
- 15024 ———: HENRY (Louis, *Univ. Louvain*) STAS et les LOIS des POIDS; *with etched portrait of Stas by A. Danse on India paper*, roy. 8vo. (pp. 43), *sewn*, 3s *ib.*, 1899
Every book by a Professor at Louvain will serve as a memorial of the irruption of the savages in 1914.
- 15025 **STAUDE** (**Otto**, *Univ. Rostock*) ANALYTISCHE GEOMETRIE des PUNKTES der GERADEN LIEGIE und der EBENE: ein Handbuch zu den Vorlesungen und Übungen über analytische Geometrie; *with 387 diagrams*, 8vo. cl., 9s (p. M. 14s) *Leipzig, 1905*
- 15026 **STEBBING** (**Frank Cole**, *Chaplain and Naval Instructor, R.N.*) NAVIGATION and NAUTICAL ASTRONOMY, *with 140 diagrams*, 8vo. cl., 4s 6d (p. 8s 6d nett) 1896
- 15027 **STEINHEIL** (**Adolph v.**, *Inhaber der Fa. C. A. Steinheil Söhne*), und **Ernst VOIT**: HANDBUCH der ANGEWANDTEN OPTIK, Bd. I [soweit erschienen]: Voraussetzung für die Berechnung optischer Systeme und Anwendung auf einfache und achromatische Linsen; *with 7 folding plates and 51 diagrams*, roy. 8vo. *sewn*, 7s 6d (p. M. 12) *Leipzig, 1891*
- 15028 ——— ANOTHER COPY, *hf. maroon morocco gilt*, 9s 6d
Valuable for the exhaustive mathematical treatment of lens-systems which the work contains.
- 15029 **STEINHEIL** (**Carl August**) BESCHREIBUNG und VERGLEICHUNG der GALVANISCHEN TELEGRAPHEN DEUTSCHLANDS nach Besichtigung im April 1849: Feststellung der vortheilhaftesten Systeme; Angabe einer Verbesserung des Morse'schen Apparates; *with woodcuts*, 4to. (pp. 62), *sewn*, 4s *[München, 1850]*
- 15030 **STEINHEIL** (**Hugo Adolph v.**) TAFELN zur ENTNEHMUNG der RADIIEN von FERNROHROBJECTIVEN deren innere Flächen ineinanderpassen: Inaugural-Abhandlung; *with 2 folding plates*, 8vo. (pp. 9), *sewn* (scarce), 4s *München, 1858*
The author was the inventor of the aplatic photographic objective.
- 15031 **STEINMETZ** (**Charles Proteus**), and **Ernst Julius BERG**: THEORY and CALCULATION of ALTERNATING CURRENT PHENOMENA, *with 184 diagrams*, large 8vo. cl., 3s (p. 10s 6d) *New York, 1897*
- 15032 **STENGEL** (**Johann Peterson**) GNOMONICA UNIVERSALIS, sive Praxis amplissima geometricè describendi Horologia Solaria, Stabilia quidem juxta omnes Species, in quacunq̄ue Superficie planâ intra Sphaeram Rectam et Obliquam, tum Reflexa, et Partantia, nunc Latinitate donata ab alio quodam Philo-Gnomonico; *with engraved frontispiece and 105 plates*, 12mo. *old vellum* (some ll. and plates waterstained); RARE, £1. 5s *Ulmæ, 1680*
The work is divided into four parts: Horologia Scithérica Regularia et Declinantia; ——— Inclinantia; ——— sub Sphaera Recta; ——— Portabilia.
Bought at Sir John Leslie's Sale. 15th Feby. 1833.—*Inscr. on flyleaf.* The author is not noticed by Poggeudorff.
- 15033 [**STENSEN**, *Latine*] **STENO** (**Nicolas**) THE PRODOMUS to a DISSERTATION concerning SOLIDS naturally contained within SOLIDS, laying a Foundation for the Rendering of a Rational Account both of the Frame and the several Changes of the MASSE of the EARTH, as also of the various Productions in the same, Englished [with Preface (pp. 6)] by H[ENRY] O[LDENBURG], first Secretary to the Royal Society, *with folding copperplate*, 16mo. *fine copy in hf. calf* (RARE), £1. 10s *J. Winter, 1871*
The English translation of this important work, which laid the foundation of crystallography and stratigraphy, and contains a theory of the earth which makes him the first of 'Neptunists', was published only two years after the appearance of the Latin original printed in Florence. The translator was unknown both to Halkett and Laing and Watt.
His genius is most apparent in his geological works; in those few smaller treatises, for example, in which his casual observations of the soil of Tuscany, the quality of the earth's strata, their relative position and the fossils they contain lead him to nothing less than the foundation of the modern science of Geology. Steno was the first to demonstrate that non-fossiliferous layers were the most ancient, that the layers consisting of marine sediment were originally circumscribed by even, horizontal planes etc. etc., and finally he was the first to describe in detail the forms and manner of formation of crystals, showing that opposite sides were parallel, and many other matters of a like nature.

15035 **STEEN (Aksel Saverin)** Die INTERNATIONALE POLARFORSCHUNG 1882-3: Beobachtungs-Ergebnisse der Norwegischen Polarstation Bossekop in Alten, I. THEIL: Historische Einleitung. Astronomie. Meteorologie; with 4 charts and 3 woodcuts, impl. 4to. sewn, 4s (p. 10s 6d)

Christiania, 1887

15036 [**STEPHENSON (George, C.E., perfecter of the locomotive engine)**]: DESCRIPTION of the SAFETY LAMP, invented by **George Stephenson**, and now in Use in KILLINGWORTH COLLIERY, with Account of the LAMP CONSTRUCTED by **SIR HUMPHREY [sic] DAVY**, with 4 copperplates, 8vo. (pp. 16), sewn (VERY SCARCE), £1. 1s 1817

He made numerous experiments on the combustion of the escaping inflammable gases at Killingworth colliery, and eventually designed a safety lamp, by controlling the entry of the air to support combustion, and the escape of the products of combustion by the use of small tubes for the gases to pass through. On 21 Oct. 1815 the first lamp was actually tried, on 4 Nov. a second improved form, and on 30 Nov. a third still better were tested. On this last occasion he entered with his lamp with perfect safety into parts of the workings which were full of gas. Sir Humphry Davy had, unknown to Stephenson, been working on the same subject, and practically at the same time that Stephenson's long experiments bore fruit in his lamp, Davy brought out his well-known [zauze] safety lamp (v. Nos. 977 and 7303, ante). A fierce controversy raged for several years on the question to whom was due the credit of this solution of a problem fraught with life and death to so many thousands of miners. A national testimonial to Davy produced a testimonial to Stephenson, and he was presented with £1000, and an address. There can be little doubt that the two inventions were quite independent of each other, and that both men practically reached the same solution by different methods at the same time.—Prof. T. Hudson Beare. Sir Humphry's lamp soon became known as the 'Davy', and Stephenson's as the 'Geordie'.

15037 —, and **George Parker BIDDER**: LONDON and BLACKWALL COMMERCIAL RAILWAY: Report, 8vo. (pp. 22), sewn, 4s 1838

G. P. Bidder began life—almst as a baby in arms—as a Calculating Boy, and unlike most of the species grew up into a powerful mathematician and successful practical engineer.

15038 —: **SMILES (Samuel, LL.D.)** The LIFE of **GEORGE STEPHENSON**, Railway Engineer, LIBRARY EDITION, with steel portrait by **W. Holl**, thick 8vo. cl. (read copy), 4s (p. 16s) 1857 or '58
'The standard authority.—D. N. B. It includes a résumé of the Railway System and its Results, by **ROBERT STEPHENSON**.

15039 — NEW EDITION, including a Memoir of his Son, **ROBERT STEPHENSON**, by **SAMUEL SMILES, LL.D.**, with 2 portraits, and numerous woodcuts, cr. 8vo. cl., 2s (p. 6s) 1864

15040 **STEPHENSON (George)** The PRICING of QUANTITIES, showing a Practical System of preparing an Estimate from Bills of Quantities, 8vo. cl., 5s (p. 8s nett) 1910

15041 **STEPHENSON (Robert, M.P., F.R.S., son of George Stephenson)** REPORT on the ATMOSPHERIC RAILWAY SYSTEM, with 27 plates and folding table of pressure diagrams, the author's own copy, interleaved with writing paper, 4to. (pp. 44), hf. calf (SCARCE), with AUTO. of **ROBERT STEPHENSON** on title, £1. 5s 1844

GEORGE RENNIE'S COPY:

15042 — ANOTHER COPY; also: **Mallet (Robert; F.R.S., M.I.C.E.)** THREE REPORTS on IMPROVED METHODS of CONSTRUCTING and WORKING ATMOSPHERIC RAILWAYS (pp. 73), with 10 plates (mostly folding)—2 vols. 4to. in 1, hf. calf (joints weak), £1. 15s 1844[-5]

'Presented to G. Rennie by the Author. Sept. 1845.—Intro. on title.

The report was undertaken for the Chester and Holyhead Railway Co. (then promoting their bill in Parliament), and saved them from the disaster of adopting the atmospheric system.

'He appears to have been the first independent investigator of the atmospheric system, in its application on a practical scale.—W. Pole.

'The Third Report [of the second work] enunciates my invention of the method of obtaining vacuum for atmospheric railways by the direct condensation of steam in close vessels and reservoirs, capable of being brought into communication with the main.—Intro.

15043 —: **JEAFFRESON (John Cordy)** The LIFE of **ROBERT STEPHENSON, F.R.S.**, with Chapters on some of his most important PROFESSIONAL WORKS by **WILLIAM POLE, F.R.S.**, with 2 fine portraits and 5 plates by **Adlard**, besides woodcuts, 2 vols. 8vo. cl., 7s 6d (p. £1. 12s) 1864

Including a full and very fair account by Mr. Pole of the Atmospheric delusion.

15044 **STEPHENSON (Samuel Martin, M.D.)** On the LINEN and HEMPEN MANUFACTURES in the PROVINCE of ULSTER, 4to. (pp. 82), sewn (title wanting), 3s 6d [Belfast, 1808]

Pp. 42-80 contain chapters on bleaching.

15045 **STERNHEIM (Hermann)** POPULÄRE GNOMONIK, oder CONSTRUCTION der gebräuchlichsten Arten von SONNENUHREN, mit Thierkreislinien und Beleuchtungsscalen; with 10 folding plates, and 2 folding tables, post 8vo. boards (nice copy), 8s 6d Weimar und Umenau, 1835

15046 **STEVENSON [hic STEPHENSON] (William; father of Mrs. Gaskell)** The SYSTEM of LAND SURVEYING at present adopted by Surveyors and Commissioners in old and new INCLOSURES, conducted as an Actual Survey, on a Plan consisting of Open Fields, Ings, and Common and Old Inclosure; with Rules shewing how Lines may be Measured where there are Impediments, or not, to obstruct the Sight, etc. etc.; 2nd Edition, with 6 plates (3 folding), folding map, and Field Book. 4to. boards, 5s 1810

15047 **STEVENSON (William Ford, F.R.S., F.S.A.)** The COMPOSITION of HYDROGEN and the NON-DECOMPOSITION of WATER Incontrovertibly ESTABLISHED, in Answer to the Award of a Medal by the ROYAL SOCIETY, whereby the Contrary Doctrines are Absolutely Affirmed; also the ABSURDITY of the EXISTING SYSTEMS of ELECTRICITY and MAGNETISM Demonstrated and the True ones given; 2nd Edition, revised with important Additions, 8vo. cl. (scarce), 12s 1849

The author tries to prove that water is an element, and not a chemical compound as first proved by Lavoisier in 1783. According to him water is non-decomposable, while hydrogen is a chemical compound of electricity and water.

15048 [—] MOST IMPORTANT ERRORS in CHEMISTRY, ELECTRICITY, and MAGNETISM, pointed out and refuted; and the Phenomena of Electricity, and the Polarity of the Magnetic Needle accounted for and explained, by a FELLOW of the ROYAL SOCIETY, 8vo. (pp. 47), sewn (scarce), 10s 6d 1846

A scientific paradox by a Fellow of the Royal Society! and perhaps most remarkable for the ignorance displayed by the author.

- 15050 **STEVENSON (Alan, M.I.C.E., F.R.S.E.; uncle of R. L. S.)** ACCOUNT OF THE SKERRYVORE LIGHTHOUSE, with Notes on the ILLUMINATION OF LIGHTHOUSES, with 33 steel plates, 117 woodcuts and diagrams, and folding map, impl. 4to. cl., with author's inscr., 12s (p. £3. 3s) *Edin.*, 1848
The third of the great triplet of early lighthouses which fascinated our youthful imagination—the Eddystone, the Bell Rock, and the Skerryvore, and in the wildest situation of them all.
‘It still remains a standard book . . . He designed and carried out ten lighthouses, including Skerryvore lighthouse tower, the finest example for mass, combined with elegance of outline, of any extant rock tower. This tower, which is exposed to the full fetch of the Atlantic, is built on a rock 14 miles from the nearest land, the island of Tyree. The work was begun in 1838, but a storm swept away the temporary barrack, and another had to be erected in its place. The foundations of the tower involved the excavation of 2000 tons of material. . . . The tower rises to a height of 138 ft., is 42 ft. in diameter at the base, gradually decreasing to 16 ft. at the top.’—*D. N. B.*
- 15051 ——— EXTRACTS from REPORTS on the NEW DIOPTRIC LIGHT OF INCHKEITH, to a Committee of the Commissioners of Northern Lights, appointed to consider the Subject of Illumination by means of Lenses, 4to. (pp. 7), *unbound, with MS. note by George Rennie, F.R.S., 2s 6d ibidem*, 1835
- 15052 ——— LETTERS to the Author of an Article on the ‘BRITISH LIGHT-HOUSE SYSTEM’, in Number CXV of the *Edinburgh Review*, with 2 diagrams, 8vo. (pp. 32), *sewn, 3s ib.*, 1833
- 15053 ——— ANOTHER COPY, together with: MEMORIAL and STATEMENT relative to the Light-Houses erected on the Northern Parts of Gt. Britain; and relative to a Proposal for Erecting a Light-House on the Bell or [Inch] Cape Rock (pp. 38), *ib.*, 1803: BROWN (Capt. Sir Samuel, R.N.) Description of a Bronze Columnal Light House, with References to a Model of one-fourth the full Size, designed for the Wolf Rock, situate between the Island of Scilly and the Land’s-End, or the Skerry Vore, on the West Coast of Scotland, which may be adapted for various other Insulated Rocks, etc. etc., with Observations on the Principle and Construction of the present Marine Light Houses (pp. 15). with author's inscr. to George Rennie, F.R.S., Brighton, 1835: ——— REVISED EDITION, with 3 plates (pp. 25), *Edin.*, 1835—in 1 vol. 8vo. *hf. calf, with inscr. ‘From the Author’ on first work, 10s 6d* 1803-35
- 15054 ——— REPORT to the COMMITTEE of COMMISSIONERS of NORTHERN LIGHTS, appointed to take into Consideration the Subject of ILLUMINATING the LIGHTHOUSES by Means of LENSES, with 6 plates (4 folding), 4to. *hf. roan, 7s 6d privately printed, Edin.*, 1835
- 15055 ——— ANOTHER COPY, with EXTRACTS from REPORTS on the NEW DIOPTRIC LIGHT OF INCHKEITH, to the Commissioners of Northern Lights (pp. 7)—2 vols. 4to. in 1, *hf. roan (back damaged), with author's inscr., 10s 6d*
A description of the optical apparatus afterwards adopted for the Skerryvore Lighthouse. It was ‘dioptric revolving, the most complete apparatus which had hitherto been constructed. . . . Instead of Fresnel silvered mirrors below the lenses Stevenson designed prismatic rings, which were introduced for the first time in this apparatus. . . . He introduced prismatic rings above and below the central belts, thus securing equal distribution of light all round, and extending dioptric action throughout the whole height of the apparatus. He also suggested the spherical mirrors placed on the landward arcs of dioptric apparatus.’—*D. N. B.*
- 15056 ——— RUDIMENTARY TREATISE on the HISTORY, CONSTRUCTION, and ILLUMINATION of LIGHTHOUSES, with 13 plates, and 104 woodcuts: Wiggins (John) THE PRACTICE of EMBANKING LANDS from the SEA, treated as a Means of Profitable Employment of Capital, with diagrams—2 vols. *feap. 8vo. in 1, hf. morocco (o. p.), 5s* 1850-2
- 15057 **STEVENSON (David, M.I.C.E., F.R.S.E.; uncle of R. L. S.)** CANAL and RIVER ENGINEERING, being the Article ‘Inland Navigation’ from the eighth Edition of the *Encyclopædia Britannica*, with 2 folding plans and 24 woodcuts, large post 8vo. cl., with author's inscr., 3s 6d *Edin.*, 1858
- 15058 ——— THE PRINCIPLES and PRACTICE of CANAL and RIVER ENGINEERING, second Edition [greatly enlarged], with 16 plates (4 folding), and 66 woodcuts, roy. 8vo. cl. (cover slightly damaged), 7s 6d *ibidem*, 1872
An enlargement of the author's ‘Remarks on the Improvement of Tidal Rivers’ (q. v. *infra*). The first edition was published as ‘Canal and River Engineering’ (q. v. *supra*).
- 15059 ——— ON THE RECLAMATION and PROTECTION of AGRICULTURAL LAND, with 12 woodcuts, large cr. 8vo. cl., with author's inscr., 2s 6d *ib.*, 1874
- 15060 ——— REMARKS on the IMPROVEMENT of TIDAL RIVERS, with 2 plates (1 folding), roy. 8vo. boards (scarce), 6s 6d 1845
- 15061 ——— ANOTHER COPY, cl., with author's inscr., 7s 6d
‘Describing the works specially necessary for the improvement of the three parts, sea proper, tidal, and river proper, into which he showed that rivers must be divided.’—*D. N. B.*
- 15062 ——— SKETCH of the CIVIL ENGINEERING of NORTH AMERICA; comprising Remarks on the Harbours, River and Lake Navigation, Lighthouses, Steam-Navigation, Water-Works, Canals, Roads, Railways, Bridges, and other Works in that Country, with 14 steel plates (5 folding), folding map, and 32 woodcuts, 8vo. cl. (cover slightly damaged), 4s 6d 1838
‘A highly instructive and valuable volume.’—*McCulloch's Literature of Political Economy.*
- 15063 ——— TREATISE on the Application of MARINE SURVEYING and HYDROMETRY to the Practice of CIVIL ENGINEERING, with 13 plates (1 folding), coloured folding map, and 16 woodcuts and diagrams, roy. 8vo. cl. (back slightly damaged), 7s 6d *Edin.*, 1842
‘While a pupil [with a firm of millwrights] he conducted extensive land and marine surveys, in the almost entire absence of trustworthy charts and maps, and made tidal and other hydrometric observations for lighthouses, piers, harbours, docks, and for river and estuarial improvements. His results he published in ‘The Application of Marine Surveying,’ etc. (1842), the first book of its kind.’—*D. N. B.*
- 15064 ——— (—— and Thomas) REPLY to SIR DAVID BREWSTER'S MEMORIAL to the Lords Commissioners of Her Majesty's Treasury, on the NEW SYSTEM of DIOPTRIC LIGHTS, 8vo. (pp. 23), *sewn, 3s 6d ib.*, 1859
- 15065 ——— ANOTHER COPY, with the Appendix (pp. 12). 2 vols. 8vo. *sewn, 5s ib.*, 1859-60

An answer to ‘gross misrepresentations made by Sir David Brewster, and to his alleged claim of being the inventor of the polygonal lens, and its application to lighthouses.’

- 15067 **STEVENSON (Robert, F.R.S.E.; father of Alan, David, and Thomas Stevenson, and grandfather of R. L. S.)** ACCOUNT OF THE BELL ROCK LIGHT-HOUSE, including the Details of the Erection and Peculiar Structure of that Edifice; with a [*sic*] Historical View of the Institution and Progress of the Northern Light-Houses, with fine frontispiece after TURNER (on India paper), and 21 copperplates, roy. 4to. *hf. roan, uncut, with visiting card of George Rennie, F.R.S., and presentation inser. to him from the Commissioners of the Northern Light-Houses* (SCARCE), £1. 5s (p. £5. 5s)

'The most important of his light-houses was the famous Bell Rock tower, erected on a dangerous cliff submerged by every tide to the depth of twelve feet. . . . Previous attempts [after the Abbot of Aberbrothock's bell had been sunk by Ralph the Rover] made by Capt. Brodie to erect beacons upon it had failed. . . . The tower rises to a height of 100 ft.; the diameter of the base is 42 ft., diminishing to 15 ft. at the top. . . . The cubic contents of the tower are more than double those of the Eddystone, from which it differs in many respects owing to its far more difficult and dangerous site. . . . The optical apparatus consisted of parabolic reflectors of silvered copper, combined with argand burners, arranged on a four-sided frame, the best and most complete apparatus then known; and, as a means of further distinguishing the light, it showed red and white alternately, hence Sir Walter Scott's 'ruddy gem of changeful light'.'—D. N. B.

- 15068 ——— OBSERVATIONS ON THE ALVEUS or General Bed of the GERMAN OCEAN and BRITISH CHANNEL, 4to. (pp. 7), *unbound, with author's inser., and addressed, to George Rennie, F.R.S., 4s* [1816]

'His 'Alveus of the German Ocean' is frequently quoted by geologists.'—D. N. B.

- 15069 ——— REPORT relative to a Line of CANAL on ONE LEVEL between the Cities of EDINBURGH and GLASGOW, to form a Junction with the Forth and Clyde Canal at Lock No. 20, and also with the Port of Leith, and the Broomielaw at Glasgow, with *folding map, 4to. (pp. 36), sewn, 4s*

Edin., 1817

- 15070 ——— ROADS and HIGHWAYS: communicated to the Editor of the Edinburgh Encyclopædia, with plate, 4to. (pp. 12), *sewn, 3s 6d*

'He proposed to use stone tracks as a 'smooth and durable city road'.'—D. Stevenson.

- 15071 ———: STEVENSON (David, F.R.S.E.) LIFE OF ROBERT STEVENSON, with bust portrait, 12 plates, and 20 woodcuts, 4to. *cl., 6s (p. £1. 1s)*

ib., 1878

- 15072 ———: MEMORIAL of the COMMISSIONERS appointed by Act of Parliament for ERECTING LIGHTHOUSES in the NORTHERN PARTS of GT. BRITAIN, relative to the Erection of a Lighthouse on the [INCH] CAPE or BELL ROCK, 8vo. (pp. 57), *sewn, 3s 6d*

ib., 1806

- 15073 **STEVENSON (Thomas, M.I.C.E., F.R.S.E.; father of Robert Louis Stevenson)** THE DESIGN and CONSTRUCTION of HARBOURS, with 10 plates and 32 woodcuts, 8vo. *cl., with author's inser., 4s*

Edin., 1864

- 15074 ——— ANOTHER COPY; with: CALVER (Edward Killwick, R.N.) THE CONSERVATION and IMPROVEMENT of TIDAL RIVERS, considered principally with Reference to their Tidal and Fluvial Powers, with 28 woodcuts and coloured folding plan—2 vols. 8vo. in 1, *hf. calf (rubbed), 7s 6d*

ibidem, 1864—London, 1853

A reprint, with many additions, of the article 'Harbours' in the eighth edition of the Encyclopædia Britannica.

- 15075 ——— LIGHTHOUSE ILLUMINATION: a Description of the HOLOPHOTAL SYSTEM, and of Azimuthal-Condensing, and Apparent Lights, with other Improvements, with 4 plates, and 53 woodcuts, 8vo. boards, with author's inser., 7s 6d

1859

'His crowning invention was his 'azimuthal condensing system of lighthouse illumination.' No attempt had previously been made to allocate the auxiliary light in proportion to the varying lengths of the different ranges and the amplitudes of the arcs to be illuminated, or, where a light had to show all round the horizon, to weaken its intensity in one arc, and with the rays so abstracted to strengthen some other arc, which from its range being longer required to be of greater power.'—D. N. B.

A possible hindrance to German success in world-domination may exist in a certain limitation in the national mentality, which while allowing to the Statebound scientist much success in poisoning and other arts of destruction, has not tended to the development in one family of such brilliant gifts in the arts of peace and the realm of the imagination as those with which mankind was endowed in eighty years from Robert to Robert Louis Stevenson.

- 15076 **STEVINUS (Simon, de Bruges)** ŒUVRES MATHÉMATIQUES, où sont insérées les MÉMOIRES MATHÉMATIQUES; le tout revu, corrigé, et augmenté par ALBERT GIRARD; with numerous woodcuts and diagrams, large folio, contemporary white vellum (RARE), £2. 10s

Leyde, B. et A. Elsevier, 1634

The most complete edition of the author's works, containing: Arithmétique; Algèbre de Diophante d'Alexandrie; Pratique d'Arithmétique, contenant les Tables d'Interest, la Disme, et un Traicté des Incommensurables Grands; Cosmographie (Doctrine des Triangles, Géographie, Astronomie); Pratique de Géométrie; Art Pondérable ou Statique; Optique; Castramétation; Fortification par Escuses; Fortification.

'Il a employé dans ces recherches des artifices mathématiques qu'on peut considérer comme un premier achèvement vers le calcul infinitésimal, et donné un des meilleurs traités de navigation, qui a servi de texte dans toutes les écoles chez les nations maritimes.'—Van de Weyer.

- 15077 ——— HYPOMNEMATA MATHEMATICA, à Belgico in Latinum à WIL[LEBRORDO] SN[ELLI]O conversa; with woodcuts and numerous diagrams, 3 vols. folio in 1, old limp white vellum (SOUND COPY); RARE, £2. 2s

ib., J. Patius, 1608

The first collected edition of the author's works, including: Doctrinae Triangulorum de Sinuum Canonibus Fabricandis; de Triangulis Planis; de Sphaericis Triangulis; Libri VI Geographiae (Canones Loxodromici, de Histiodromia, de Theoria Maritimum Aestuum, etc.); de Cæli Motu.

- 15078 ——— PROBLEMATUM GEOMETRICORUM Libri V, editio princeps, with vignette on title and numerous diagrams, 4to. old half binding (somewhat waterstained); extremely rare, £2. 10s

Antverpæ, Joa. Bellerus [1583]

This work, which had never been reprinted, was unknown to Poggendorff, Brunet, and other bibliographers.

Prof. M. Cantor (*Vorlesungen üb. Gesch. d. Math.*, Bd. II p. 528), who mentions 'die bei der unauflösbaren Grenzenden Seltenheit' of the original editions, was also unable to see the above work. A description of it is given by M. Steichen (*v. No. 15083 infra*), who complains that 'il est déplorable de voir l'histoire des sciences rester muette encore une fois sur ce beau travail.'

- 15079 ———: STEICHEN (Michel) MÉMOIRE sur la VIE et les TRAVAUX de SIMON STÉVIN; with 5 folding plates, 8vo. boards (back damaged), 3s

Brucelles, 1846

- 15081 **STEVINUS** (*Simon, de Bruges*) ARITHMETIQUE, reveü corrigee et augmentee de plusieurs Traictez et Annotations par ALBERT GIRARD; with fine engraved title and diagrams, thick 8vo. contemporary white vellum (somewhat browned, but a FINE COPY); very rare, £2. 15s

Leide, de l'Imprimerie des Elzeviers, 1625

This edition contains the author's Arithmétique théorique, first published in 1585, his 'Arithmétique pratique', and 'Les Six Premiers Livres d'Algebre de Diophante d'Alexandrie, dont les quatre premiers sont traduits et expliqués par Simon Stevin, et les deux derniers par Albert Girard.'

In it appeared first 'La Pratique d'Arithmétique' (pp. 695-822), La Disme, enseignant facilement expedier par nombres entiers sans rompuz, tous comptes se rencontrent aux affaires des Hommes' (pp. 823-49), and 'Traicté des Incommensurables Grands, avec Appendice de l'explication du 10^e livre d'Euclide' (pp. 850-85).

'La Disme' contains, according to Prof. de Morgan, 'the first announcement of the use of decimal fractions.'

He introduced in his Arithmetic exponents to mark the power to which quantities were raised . . . He further suggested the use of fractional (but not negative) exponents, and a decimal system of weights and measures. His geometry is ingenious . . . Some theorems on perspective are enumerated.—*W. W. R. Ball.*

- 15082 ——— **De BEGHINSELEN der WEEGHCONST: De WEEGHDAET: De BEGHINSELEN des WATERWICHTS; all first editions, with vignette on titles, and numerous woodcuts and diagrams, 3 vols. sm. 4to. in 1, old white vellum (first title slightly soiled, and a few slight water-stains, otherwise FINE COPIES); excessively rare, £7. 15s**

ibidem, CHRISTOFFEL PLANTIJN, 1586

- 15083 ——— **THE SAME, 3 vols. in 1, hf. citron calf, as good as new (neat library stamp on third title, otherwise remarkably fine and exceptionally tall copies), £9. 9s**

'It is however on his *Statics* and *Hydrostatics*, published (in Flemish) at Leyden in 1586, that his fame rests. In these works he enunciates the triangle of forces—a theorem whose some think was first propounded by Leonardo da Vinci. Stevinus regards this as the fundamental proposition of the subject. Previous to the publication of his work the science of statics had rested on the theory of the lever, but subsequently it became usual to commence by proving the possibility of representing forces by straight lines, and thus reducing many theorems to geometrical propositions, and in particular to obtaining in this way a proof of the parallelogram (which is equivalent to the triangle) of forces . . . Stevinus also found the force which must be exerted along the line of greatest slope to support a given weight on an inclined plane—a problem the solution of which had been long in dispute. He further distinguishes between stable and unstable equilibrium. In hydrostatics he discusses the question of the pressure which a fluid can exercise, and explains the so-called hydrostatic paradox.—*W. W. R. Ball.*

A full account of this classic of statics will be found in Prof. E. Mach's 'Science of Mechanics.' The above original editions are excessively rare, the work being generally quoted by historians of mathematics from the Latin translation in the reprint in *Hypomnemata Mathematica*.

- 15084 **STIFEL** (*Michael*) ARITHMETICA INTEGRÆ, cum Præfatione PHILIPPI MELANCHTHONIS, editio princeps; with numerous diagrams, thick sm. 4to. old calf (back of binding damaged, title mounted, and a few wormholes in blank margin, nevertheless a SOUND COPY); very rare, £5. 5s

Norimberge, apud Johan. Petreum, 1544

'The first two books deal with surds and incommensurables, and are Euclidean in form. The third is on algebra, and is noticeable for having called general attention to the German practice of using the signs + and - to denote addition and subtraction . . . It used to be said that Stifel was the real inventor of logarithms, but it is now certain that this opinion was due to a misapprehension of a passage in which he compares geometrical and arithmetical progressions. Stifel is said to have indicated a formula for writing down the coefficients of the various terms in the expansion of $(1+x)^n$ if those in the expansion of $(1+x)^{n-1}$ were known.—*W. W. R. Ball.*

- 15085 **STILLMANN** (*Thomas Bliss*) ENGINEERING CHEMISTRY: a Manual of QUANTITATIVE CHEMICAL ANALYSIS for the Use of Students, Chemists, and Engineers, 3rd Edition [enlarged], with 139 illustrations, 8vo. cl., 9s (p. 19s nett)

Easton, Pa., 1905

- 15086 **STIRLING** (*James, F.R.S.*) LINEÆ TERTII ORDINIS NEUTONIANÆ, sive Illustratio Tractatus D. NEUTONI de Enumeratione Linearum Tertii Ordinis, cui subjungitur, Solutio trium Problematum; with numerous diagrams, and view of Sheldonian Theatre on title, 8vo. old calf (joints cracked), with auto. of Michael Fryer (VERY RARE), £1. 5s

Oxonæ, 1717

'It supplied four additional varieties to Newton's seventy-two forms of the cubic curve.—*D. N. B.* The work forms a necessary supplement to Newton's *Enumeratio Linearum III. Ordinis* (v. Nos. 12572-3 ante). It contains a long list of subscribers, including Sir Isaac Newton. A note by Michael Fryer (1806) on the flyleaf states: 'Extremely rare—cost me £1. 1s. M. F.'

- 15087 ——— **METHOD DIFFERENTIALIS: sive Tractatus de SUMMATIONE et INTERPOLATIONE SERIERUM INFINITARUM, editio princeps; with diagrams, 4to. large and sound copy in contemporary calf gilt (name cut off title); very rare, £2.**

Londini, 1730

- 15088 ——— **ANOTHER COPY, contemporary calf, with bookplate of, and MS. notes by, Philip 2nd Earl Stanhope, F.R.S. (fine copy), £2. 2s**

- 15089 ——— **EDITIO SECUNDA; with diagrams, 4to. hf. calf (joints cracked), with bookplates of [SIR] GEORGE PREYMAN [TOMLINE], Bp. of Winchester, William Pitt's tutor and biographer, and Prof. Lloyd Tanner, F.R.S. (RARE), £1. 10s**

ibidem, 1764

- 15090 ——— **THE DIFFERENTIAL METHOD: or a Treatise concerning Summation and Interpolation of Infinite Series, translated, with the Author's Approbation, by FRANCIS HOLLIDAY, with diagrams, 1749: The TWO BOOKS of APOLLONIUS PERGEÛS, concerning TANGENCIES, as they have been restored by Franciscus Vieta and Marinus Ghetaldus, with a Supplement by JOHN LAWSON, pr., with 6 plates, Cambridge, '64—2 vols. 4to. in 1, hf. bound (first title mounted), with autos. of Michael Fryer and Samuel Roberts, F.R.S., and MS. notes by the former (VERY RARE), £1. 15s**

1749-64

This work is of importance in the history of the differential calculus, as having been the first to give the proof of what is known as 'Maclaurin's theorem' (v. Nos. 2761-3, ante); but, save for Montucla, who gives a full account in his *Histoire des mathématiques*, v. III, pp. 223-7, and Cantor (*Vorlesungen üb. Gesch. d. Mathematik*, Bd. III pp. 625-80), the work is curiously enough almost unnoticed in modern histories of mathematics.

'La première partie de cet ouvrage a pour objet la sommation des suites dans lesquelles chaque terme est formé du précédent, multiplié par une fonction rationnelle de son rang. Un grand nombre des résultats sont fort intéressants . . . Ses recherches présentent quelque utilité dans certaines questions spéciales dépendant du calcul des probabilités.—*M. Marie.*

- 15091 **RECHTEER** (*Edwin William; Jeweller*) GOLD: Legal Regulations for the Standard of Gold and Silver Wares in different Countries of the World, translated and abridged from the Work of A. v. STUDNITZ by MRS. BREWER, with Notes and Additions; 6th Edition, enlarged, with 2 coloured plates, and map, post 8vo. cl. (scarce), 8s

1878

15093 **STOCKMAN** (Bernardus, *certyts Fransoysche Schoolmr. tot Dordrecht*) ARITHMETICA, met Tafelken om te rebatteren, door ABEL W. WASSENAER, van nieuws oversien, gecorrigeert en verbeteret; *engraved title with portrait*, 12mo. *old vellum (rare)*, 12s 6d Amsterdam, 1648

This work was unknown to Prof. de Morgan, Poggendorff, and other bibliographers. It contains much on commercial arithmetic.

15094 **STÖFFLER** (Johann; *Univ. Tübingen*) CALENDARIUM ROMANUM MAGNUM [in fine: ABACUS REGIONUM, Principatuum, Ducatum, Satrapiarum, Marchiarum Comitatum, Prouinciarum, Insularum, Peninsularum, et Oppidorum nobiliorum, aut cognobiliorum per totam feram Europam; *title surrounded by woodcut border of arms, and numerous fine woodcut initials; the second part printed in red and black, with beautiful woodcut vignettes representing the seasons, fortified towns, etc.* [col.:] *Oppenheim per Jacobum Köbel*, 1518: RUDIMENTA MATHEMATICA, hæc in duos digeruntur Libros, quorum prior GEOMETRIÆ tradit Principia seu Prima Elementa, unam cum Rerum et uariarum Figurarum Dimensionibus. Posterior uero omnigenum HOROLOGIORUM docet DELINEATIONES, autore Sebastiani Munstero; *with folding plate, and numerous large and fine woodcuts and diagrams* [col.:] *Basilee in officina Henrichi Petri*, 1551—2 vols. folio in 1, *old calf gilt, with arms on sides (binding rubbed and back damaged, but SOUND AND TALL COPIES)*; very rare, 1518-51

The above edition of the first work is according to Houzeau and Lancaster (*Bibliographie de l'Astronomie*) 'fort rare. Ouvrage remarquable comme exécution typographique, imprimé en rouge et noir, orné dans toute son étendue de superbes initiales et d'enjolivements. Les colonnes de la table des lieux se terminent par de charmantes vues de villes: il y en a 24. La seconde partie, contenant le calendrier proprement dit, offre à côté de chaque mois le signe du zodiaque, et au bas les attributs propres aux différentes époques de l'année; il y en a également 24, gravés sur bois par un maître de l'école de Francfort. Vient ensuite le tableau des éclipses de Soleil et de Lune, depuis 1518 jusqu'en 1575, un nombre de 63, avec diagrammes pour toutes. A la fin, une table de la Lune, le quadrant, le cadran solaire et l'instrument pour déterminer les heures temporaires, fort bien exécutés, dans toute la grandeur de la page.'

The second work is valuable for its treatise on dialling (pp. 74-243), one of the earliest works on the subject.

15095 ——— ÉLUCIDATIO FABRICÆ USUSQUE ASTROLABII, cui multa et diligens accessit Recognitio, unam cum Schematum Negotio accommodatorum, exactissima Expressione, et Indice Rerum et Verborum copiosissimo; *printed in italics, with numerous fine woodcuts, and folding tables*, 12mo. *hf. calf gilt (nice copy)*; RARE, £1. 5s Lutetie, Gul. Cauellat, 1553

Ouvrage qui résume les procédés employés alors pour la construction des astrolabes; une analyse a été donnée dans l'Histoire de l'Astronomie de Delambre. — *Biogr. Gén.*

15096 ——— In PROCLI DIADOCHI, Authoris grauissimi SPHERAM MUNDI, omnibus Numeris longè absolutissimum COMMENTARIUS, ante hac nunquam Typis excusus; *with numerous diagrams*, folio, *sewn* (RARE), £1. 5s (col.:) *Tubingæ, ex offic. Hulderrichi Morhart*, 1534

15097 **STONE** (Edmund, F.R.S.) ANALISE des INFINIMENT PETITS, comprenant le CALCUL INTEGRAL dans toute son Étendue; avec son Application aux Quadratures, Rectifications, Cubatures, Centres de Gravité, de Percussion, et de toutes Sortes de Courbes, traduit par M. RONDET; *with 4 folding plates: ANALISE des INFINIMENT PETITS, pour l'Intelligence des Lignes Courbes*, par le Marquis de l'Hospital, 2^e Édition; *with 11 folding plates—2 vols. 4to. in 1, old hf. calf (back damaged), with long presentation inscription by James Lockhart (well-known amateur mathematician)*, 8s 1735-16

L'Hospital's work was the first published in French on the differential calculus. Stone's was originally published with his English translation of the first work, and was later translated into French as the first work published in that language on the integral calculus.

15098 [——] The DESCRIPTION, NATURE and GENERAL USE, of the SECTOR and PLAIN-SCALE, briefly and plainly laid down; as also, a Short Account of the USES of the LINES of NUMBERS, ARTIFICIAL SINES and TANGENTS; 2nd Edition, *with 3 folding plates*, post 8vo. (pp. 44), *sewn* (rare), 7s 6d 1728

The authorship of this brochure is not noticed in *D. N. B.*, Allibone, or Poggendorff, and was unknown to Halkett and Laing, but may be inferred from the preface being signed E. S. Stone also revised the new edition of Cunn's Treatise of the Sector in 1729.

15099 ——— NEW MATHEMATICAL DICTIONARY, wherein is contain'd, not only the Explanation of the bare Terms, but likewise an HISTORY of, with the Rise, Progress, State, Properties, etc. of Things in PURE MATHEMATICKS and NATURAL PHILOSOPHY, first edition, *with numerous woodcuts and diagrams*, 8vo. *contemporary calf gilt (rare)*, 6s 1726

15100 ——— SECOND [LAST] EDITION, with [Preface and] large Additions, *with numerous woodcuts and diagrams*, 8vo. *old calf, roughly rebacked (title and some ll. soiled)*, 5s 1743

15101 ——— Some REFLECTIONS on the UNCERTAINTY of many ASTRONOMICAL and GEOGRAPHICAL POSITIONS, with Regard to the Figure and Magnitude of the EARTH, the finding the LONGITUDE at SEA by WATCHES, and other Assertions of the most eminent Astronomers; with some Hints towards their Reformation and Emendation, post 8vo. (pp. 135), *sewn*, 6s 1766

'Consisting of a series of propositions attacking the accuracy of the conclusions of astronomers concerning the shape of the earth and other matters of a similar kind.'—*D. N. B.*

'Exposing the weakness and insufficiency of the arguments and proofs of those who will have the figure of the earth spheroidal or spheroidal, with some hints tending to shew the uncertainty of the truth of the Newtonian physical part of astronomy.'—*p. 17.*

15102 **STONE** (Edward, *pr.*, *Wadham Coll.*) The WHOLE DOCTRINE of PARALLAXES explained and illustrated by an Arithmetical and Geometrical Construction of the TRANSIT of VENUS over the Sun, June 6th, 1761; with a new and general Method of determining the Places where any Transit of this Planet, and especially that which will be June 3d, 1769, may be best observed for the Investigation of its Parallax, *with numerous diagrams*, post 8vo. (pp. 108), *sewn*, 4s Oxford, 1758

15103 **STORER** (Frank Humphreys; *Mass. Inst. Technology*) FIRST OUTLINES of a DICTIONARY of SOLUBILITIES of CHEMICAL SUBSTANCES, thick roy. 8vo. *cl.*, *with auto. of Alex. Scott, F.R.S.* (VERY SCARCE), £2. 10s Cambridge [Mass.], 1864

The only dictionary of chemical solubilities ever attempted, and at the same time the first English alphabetical catalogue of chemical substances.

PLATE 1.

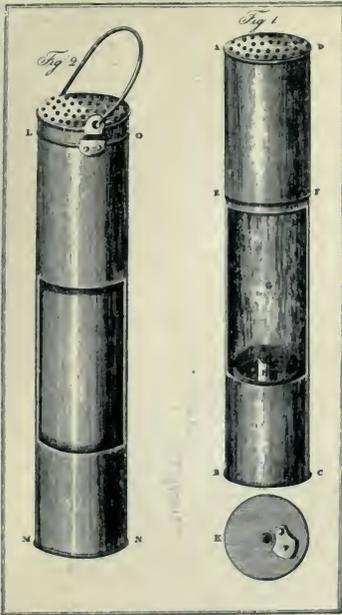


PLATE 2.

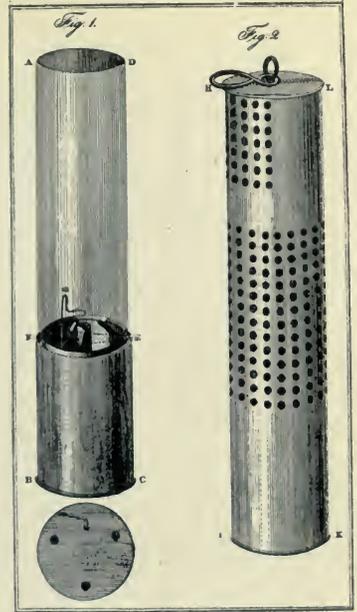


PLATE 3.

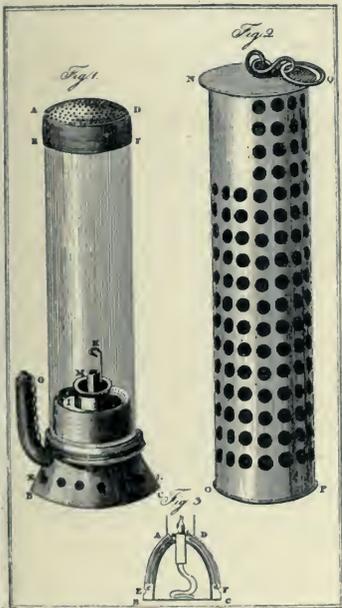
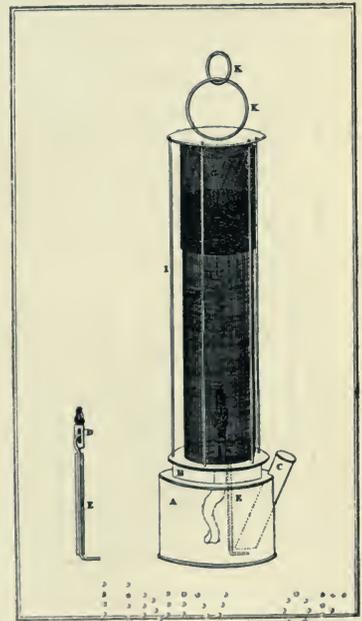


PLATE 4.



No. 15036 (page 754).

George Stephenson's Safety Lamp.

KL Aprilis.		Solis motus		Lunc motus		Lunc Cen		Lunc ar	
		ies	ies	medius	trum	gumtū	medium		
		¶ A	G m	S G m	S G m	S G m	S G m		
1g			05 21 22	3 29 3	1 28 43	3 18 55			
2A	4 Non		4 22 20	4 12 14	2 23 6	4 1 59			
3b	3 Non		23 19	4 25 24	3 17 29	4 15 3			
4c	2 Non	Ambrosij episcopi.	12 24 17	5 8 35	4 11 52	4 28 7			
5d	None.		1 25 15	5 21 45	5 6 15	5 11 10			
6e	8 Idus		26 14	6 4 56	6 0 37	5 24 14			
7f	7 Idus		9 27 12	6 18 7	6 25 0	6 7 18			
8g	6 Idus	Marię Egyptiaccę	28 10	7 1 17	7 19 23	6 20 22			
9A	5 Idus		17 29 8	7 14 28	8 13 46	7 3 26			
10b	4 Idus	¶ Taurus	6 0 6	7 27 38	9 8 9	7 16 30			
11c	3 Idus		1 5	8 10 49	10 2 32	7 29 34			
12d	2 Idus		14 2 3	8 24 0	10 26 55	8 12 38			
13e	Idus		3 3 1	9 7 10	11 21 18	8 25 42			
14f	18 Kal	Maę Tiburtij & valeriani	3 59	9 20 21	0 15 41	9 8 46			
15g	17 Kal	¶ Claus rogationū	11 4 57	10 3 32	1 10 3	9 21 49			
16A	16 Kal		5 54	10 16 42	2 4 26	10 4 53			
17b	15 Kal		19 6 52	10 29 52	2 28 49	10 17 57			
18c	14 Kal		8 7 50	11 13 3	3 23 12	11 1 1			
19d	13 Kal		8 48	11 26 14	4 17 35	11 14 5			
20e	12 Kal		9 46	0 9 24	5 11 58	11 27 9			
21f	11 Kal		10 43	0 22 35	6 6 21	0 10 13			
22g	10 Kal		11 41	1 5 45	7 0 44	0 23 17			
23A	9 Kal	Georgij martiris.	12 39	1 18 56	7 25 7	1 6 21			
24b	8 Kal		13 36	2 2 7	8 19 29	1 29 24			
25c	7 Kal	Marci euangeliste	14 34	2 15 17	9 13 52	2 2 28			
26d	6 Kal		15 32	2 28 28	10 8 15	2 15 32			
27e	5 Kal		6 29	3 11 38	11 2 38	2 28 36			
28f	4 Kal	Vitalis martiris	17 27	3 24 49	11 27 1	3 11 40			
29g	3 Kal	Claus Penthecostes	18 24	4 7 59	0 21 24	3 24 44			
30A	2 Kal		19 22	4 21 10	1 15 47	4 7 48			



¶

Aprilis patulę nucis sub vmbra
Post conuiuia/dormio libenter

Dies 16. Anni



B v

- 15105 **STOKES** (Sir George Gabriel, P.R.S., *Lucasian Prof. Mathematics, Cantab.*) MATHEMATICAL and PHYSICAL PAPERS, reprinted from the original Journals and Transactions, with Additional Notes by the Author [and (vv. IV--V) SIR JOSEPH LARMOR, F.R.S., M.P.], with numerous illustrations, 5 vols. 8vo. cl., £2. 5s (p. £3. 15s) *Univ. Press, Cambridge, 1880-1905*
- 15106 ——— VOLUMES I AND II ONLY, with illustrations, 2 vols. 8vo. cl., 15s (p. £1. 10s) *apud eandem, ibidem, 1880-3*
- 15107 **STOLZ** (Otto, *Univ. Innsbruck*) VORLESUNGEN über ALLGEMEINE ARITHMETIK, nach den neueren Ansichten (I. Allgemeines und Arithmetik der reellen Zahlen. II. Arithmetik der complexen Zahlen); with 23 diagrams, 2 vols. 8vo. in 1, hf. calf gilt, uncut, t. e. g., with Prof. Lloyd Tanner's bookplate (o. p.), 15s *Leipzig, 1885-6*
- 15108 ———, und Josef Anton GMEINER, *Univ. Prague*: THEORETISCHE ARITHMETIK, 2. [neueste] umgearbeitete Auflage; with 25 diagrams, 2 vols. 8vo. cl., 6s 6d (p. M. 10.60) *ibidem, 1900-2*
- 15109 **STONEJ** (George Johnstone, T.C.D., F.R.S.) OF ATMOSPHERES ON PLANETS and SATELLITES, 4to. (pp. 24), sewn, 3s 6d *Dublin, 1897*
 'In this very valuable contribution Stoney explained from inductive reasoning the absence of hydrogen and helium from the atmosphere of the earth, and the absence of an atmosphere from the moon and from the satellites and minor planets of the solar system. His paper gave rise to controversy, but Stoney's position was unshaken. His investigations as to helium are of great importance in view of recent enquiries into the length of geological epochs, and into the past history of radio-activity of the materials of the earth's crust.'—D. N. B.
- 15110 ——— ON THE CAUSE OF DOUBLE LINES and of EQUIDISTANT SATELLITES in the SPECTRA of GASES, with diagrams, 4to. (pp. 46), sewn, 3s *ibidem, 1891*
 'Stoney worked with admirable results on the periodic motion of the atom and its connexion with the spectrum.'—D. N. B.
- 15111 ——— ON THE CAUSE OF IRIDESCENCE in CLOUDS, 4to. (pp. 6), sewn, 1s 6d *ib., 1887*
- 15112 ——— DENUDATION and DEPOSITION, 2 parts 8vo. (pp. 13), sewn, 2s 1899
 Added is, The Quantity of Oxygen in the Atmosphere, compared with that in the Earth's Crust (pp. 2), by GERALD STONEY.
- 15113 ——— DISCUSSION of a NEW THEOREM of WAVE PROPAGATION: ON a SUPPOSED PROOF of a THEOREM in WAVE-MOTION, 8vo. (pp. 14), unbound, 2s 1897
- 15114 ——— THE EFFECT of METEORIC DEPOSITS on the LENGTH of the TERRESTRIAL DAY, 4to. (pp. 3), sewn, with author's inser., 1s 6d [*Washington,*] 1902
- 15115 ——— ON the 'ELECTRON', or ATOM of ELECTRICITY, 8vo. (pp. 3), unbound, 1s 6d 1894
 In this paper the author vindicated his claim (against one advanced in favour of Helmholtz) that he was the first to identify the ion in electrolysis as the electrical atom.
 'To Stoney was due the introduction of the word *electron* into the scientific vocabulary.'—D. N. B.
- 15116 ——— ON EQUAL TEMPERAMENT, and on the Cause of the Effect upon PIANO MUSIC produced by the Key in which it is set, 8vo. (pp. 10), sewn, with author's inser., 1s 6d [*Dublin, 1883*]
- 15117 ——— ON HOW THOUGHT PRESENTS ITSELF among the PHENOMENA of NATURE, 8vo. (pp. 11), sewn, 1s 6d *ib., 1885*
- 15118 ——— ON the INTERFERENCE of LIGHT from INDEPENDENT SOURCES, 8vo. (pp. 6), sewn, with author's inser., 1s 6d [*1901*]
- 15119 ——— ON the LAW of ATOMIC WEIGHTS, with folding plate, 8vo. (pp. 6), sewn, 1s 6d [*1902*]
- 15120 ——— ON the MECHANICAL THEORY of CROOKES'S, or POLARIZATION STRESS in GASES, 4to. (pp. 18), sewn, 2s 6d *Dublin, 1878*
- 15121 ——— MONOGRAPH on MICROSCOPIC VISION, with 27 illustrations, 8vo. (pp. 70), sewn (scarce), 5s [*1896*]
 'Analysing and proving the fundamental proposition—first enunciated by Sir George Stokes in 1845—that 'the light which emanates from the objective field may be resolved into undulations, each of which consists of uniform plane waves,' suffering no change in their advance.'—D. N. B.
- 15122 ——— ON the MOUNTING of SPECULA of REFLECTING TELESCOPES, designed to remove the Impediment to their being used for Celestial Photography and Spectroscopy, with 3 illustrations, 8vo. (pp. 6), unbound, 1s 1894
- 15123 ——— NOTE on the RESOLUTION of DOUBLE-STARS with a 28-inch Object-Glass, with 5 diagrams, 8vo. (pp. 6), sewn, 1s 6d [*1900*]
- 15124 ——— ON the PENETRATION of HEAT ACROSS LAYERS of GAS, with diagrams, 4to. (pp. 16), sewn, 2s 6d *Dublin, 1877*
- 15125 ——— ON the PROPAGATION of [LIGHT] WAVES, 4to. (pp. 8), sewn (scarce), 5s *ibidem, 1861*
 'One of his first papers explaining by geometrical reasoning the conditions of the propagation of undulations of plane waves in media.'—D. N. B.
- 15126 ——— THE STORY of the NOVEMBER METEORS, with folding plate, 8vo. (pp. 11), unbound, with author's inser. to Dr. Downing. F.R.S., 1s 6d 1879
- 15127 ——— STUDIES in ONTOLOGY: the First Step, with 3 diagrams, 8vo. (pp. 9), sewn, 1s [*1889*]
- 15128 ——— SURVEY of that Part of the RANGE of NATURE'S OPERATIONS which Man is COMPETENT to STUDY, with folding table, 8vo. (pp. 18), sewn, 1s 6d [*1899*]
- 15129 ——— TELESCOPIC VISION, with folding plate, and 9 diagrams, 8vo. (pp. 80), sewn, 3s 6d [*1908*]
 Continuing the subject first enunciated in his *Monograph on Microscopic Vision*, and 'discussing among other matters the possibility of seeing very small markings on the planet Mars.'—D. N. B.
- 15130 ——— ON TEXTURE in MEDIA, and on the NON-EXISTENCE of DENSITY in the ELEMENTAL ETHER, 8vo. (pp. 13), sewn, 1s 6d [*Dublin, 1890*]
- 15131 ———, and Arthur Matthew Weld DOWNING, F.R.S: EPHEMERIDES of TWO SITUATIONS in the LEONID STREAM. 8vo. (pp. 3), unbound, 1s [*1900*]
- 15132 ——— PERTURBATIONS of the LEONIDS, 8vo. (pp. 7), unbound, 1s [*1899*]
- 15133 **STRAUS** (Ralph) CARRIAGES and COACHES: their History and their Evolution, with 30 plates from old prints, contemporary drawings, and photographs, thick roy. 8vo. cl. gilt, t. e. g., 7s 6d (p. 18s nett) 1912

- 15135 **STÖVESANDT (J. C.)** DEUTLICHE ANWEISUNG ZUR FEUERWERKEREY, worinnen alle gebräuchliche Arten der Lust- und Entsfueher, nebst derselben Verfertigung und denen dazu nötigen Werkzeugen ordentlich und genau beschrieben; *with vignette on title, and 13 folding copperplates, 4to. hf. cl. (fine copy), with bookplate of J. Eliot Hodgkin, F.S.A. (RARE), 15s Leipzig, 1757*
Especially valuable for giving a full account of how to make fireworks, with a description of all the necessary tools.
- 15136 **STREETE (Thomas)** ASTRONOMIA CAROLINA: a NEW THEORIE of the CÆLESTIAL MOTIONS, composed according to the best Observations and most Rational Grounds of Art, yet far more Easie, Expedite and Perspicuous than any before Extant, with Exact and most Easie Tables thereunto, and Precepts for the Calculation of Eclipses, etc., *first edition, with diagrams, sm. 4to. old calf (title guarded and last l. slightly defective on blank margin, otherwise a sound copy); rare, 15s Lodowick Lloyd, 1663*
Containing at end a 'Canon Triangularum Logarithmicum,' and on the last 10 pp. a 'Tabula Logarithmorum Logisticoarum'.
- 15137 ——— SECOND EDITION, corrected, to which are added some Lunar and PLANETARY OBSERVATIONS, with a Proposal of their USES in NAVIGATION, *with diagrams, 4to. contemporary calf, newly rebacked (some slight water-stains, otherwise a sound and large copy), 12s R. Smith and S. Briscoe, 1710*
'The appendix, 'Observationes Syderum, et imprimis Lunæ in Suburbio Londinensi apud Islington, 1682-4' is by EDMUND HALEY, F.R.S. The work was attacked by VINCENT WING (v. No. 5447 ante).
- 15138 ——— MEMORIAL VERSES on the ECCLESIASTICAL and CIVIL CALENDAR: with an EPITOME of the HEAVENLY MOTIONS, sm. 4to. (pp. 23), *hf. calf neat (RARE), 12s John Darby, 1667*
Containing the following verses, signed J. P., on reverse of title:
'Burlesque is stale and Travesty,
And all that Drolling Poetry
For Numbers now in Numbers flow,
And Time and Tide together go.
Here little Boyes that love to Play
May know when 't will be Holyday,
And Men that are not Rosie-Crucians
May learn the Planets Revolutions
In sober sadness, what d'you lack?
Here's your Perpetual Almanack.'
- None of the above works is noticed by Lowndes or Watt.
- 15139 **STRETCH (R. H.)** PROSPECTING, LOCATING and VALUING MINES, with Account of the principal Minerals and Country Rocks, Ore Deposits, Locations and Patents, the early Development of Mines, Earthy Mineral Products, Coal, Gold Gravels and Gravel Mining, Measurement of Water, and Artesian Wells, *with 15 plates, thick cr. 8vo. cl., 5s (p. 10s nett) New York, 1900*
- 15140 **STROMEYER (Johann Philip Edmond Charles, M.I.C.E.)** UNITY and NATURE: an Analogy between MUSIC and LIFE, 8vo. cl., *t. e. g., 7s (p. 12s 6d nett) 1911*
Including chapters on Flatland, Matter, Energy, Geological Records, the Fourth Dimension, etc. etc.
- 15141 **STRONG (Thomas Banks, Dean of Christ Church),** LECTURES on the METHOD of SCIENCE, edited by, *with 16 diagrams, 8vo. buckram, 4s (p. 7s 6d nett) Clarendon Press, Oxford, 1906*
Containing contributions by Prof. Thomas Case, Francis Gotch, C. S. Sherrington, and W. M. Flinders Petrie, W. McDougall, A. H. Fison, Sir Richard C. Temple, and the Editor.
- STRÜBI (Heinrich)** ARITHMETICA: ein neu künstlich Rechenbuch mit der Zippher, Zürich, 1599—v. LAUREMBERG, No. 10569, ante.
- 15142 **STRUKEL (M., Technical High School Helsingfors)** DER BRÜCKENBAU, nach Vorträgen gehalten am finnländischen Polytechnischen Institute in Helsingfors; **Atlas, II. TEIL:** Bewegliche und steinerne Brücken; *with 41 plates, 4to. sewn, 5s (p. M. 10) Helsingfors, 1906*
- 15143 ——— DER GRUNDBAU, nach den Vorträgen gehalten am finnländischen Polytechnischen Institute in Helsingfors, mit **Atlas, 2. vermehrte Auflage;** *with 36 plates and 118 other illustrations, 2 vols. 4to. sewn, 10s 6d (p. M. 18) ibidem, 1906*
- 15144 ——— DER WASSERBAU, nach den Vorträgen am finnländischen Polytechnischen Institute in Helsingfors, I. TEIL: Ursprung, Vorkommen und Eigenschaften des Wassers; Stauwerke; Fischwerke, 2. vermehrte Auflage; *with 15 plates and 103 other illustrations, 4to. sewn, 7s 6d (p. M. 14s) ib., 1904*
- 15145 ——— IV. (LETZTER) TEIL: Flussbau, Deiche, Häfen und Schifffahrtszeichen; *with 37 plates and 52 other illustrations, 4to. sewn, 9s (p. M. 18) ib., 1904*
- 15146 **STRUTT (Hon. Robert John, F.R.S.; Prof. Physics, Imperial College of Science)** THE BECQUEREL RAYS and the PROPERTIES of RADIUM, *with 3 plates, and 27 diagrams, 8vo. cl., 4s 6d (p. 8s 6d nett) 1904*
- 15147 ——— ON THE LEAST POTENTIAL DIFFERENCE required to produce DISCHARGE through various GASES, *with woodcuts, roy. 4to. (pp. 18), sewn, 1s 6d 1900*
- 15148 **STRUVE (Otto Wilhelm v., Pulkova Observatory)** BEOBACHTUNG DER TOTALEN SONNENFINSTERNISSE vom 18. (6.) JULI 1860 in POBES, nach den Berichten der einzelnen Theilnehmer zusammengestellt; *with 3 plates and folding map, 4to. hf. roan, 8s 6d St. Petersburg [Petrograd], 1861*
Bound up with the above is: ON THE TOTAL SOLAR ECLIPSE of July 18th, 1860, observed at RIVABELOSA, near Miranda de Ebro, in Spain (Bakerian Lecture), by WARREN DE LA RUE, F.R.S., *with 14 plates of Solar Prominences, besides woodcuts, 62.*
- 'De La Rue's observations proved conclusively that the 'red flames' or 'prominences' observed during eclipses, belong to the sun and not to the moon.—D. N. B. 'To De La Rue belongs the full credit of having solved this important question.'—Sir Norman Lockyer.
- 15149 ——— BEOBACHTUNGEN DES BIELASCHEN COMETEN in 1852, angestellt am grossen Refractor der Pulkowa Sternwarte; *with 2 plates, 4to. (pp. 26), sewn, 2s [ibidem, 1853]*
- 15150 ——— BESTIMMUNG DER CONSTANCE DE PRAECESSION, mit Berücksichtigung der eigenen Bewegung des Sonnensystems, 4to. (pp. 108), *sewn, 5s ib., 1842*
- 15151 ——— DÉTERMINATION DE LA PARALLAXE de l'ÉTOILE GROOMBRIDGE 1830, folio (pp. 28), *sewn, 2s 6d [ib., 1850]*

- 15153 **STRUVE** (Otto Wilhelm v., *Pulkova Observatory*) NOUVELLE DÉTERMINATION de la PARALLAXE ANNUELLE des ÉTOILES a *Lyrae* et 61 *Cygni*, roy. 4to. (pp. 51), *sewn*, 2s
St. Pétersbourg [Petrograd], 1859
- 15154 ——— SAMMLUNG der BEOBACHTUNGEN von STERNBEDECKUNGEN während der TOTALEN MONDFINSTERNISSE 1884 Oct. 4. und 1888 Jan. 28., 2 vols. 4to. *sewn*, 3s 6d *ib.*, 1885-9
- 15155 **STUKELEY** (William, M.D., F.R.S., *Rector of St. George the Martyr's, Queen Square*) The PHILOSOPHY of EARTHQUAKES, Natural and Religious; or an Inquiry into their Cause and Purpose, first edition, 8vo. (pp. 48), *sewn*, 4s 1750
- 15156 **STURGEON** (William, *Addiscombe*) SCIENTIFIC RESEARCHES, Experimental and Theoretical, in ELECTRICITY, MAGNETISM, GALVANISM, ELECTRO-MAGNETISM, and ELECTRO-CHEMISTRY, with 19 *copperplates*, roy. 4to. cl. (scarce), £1. 1s published by subscription, *Bury [Lancs.]*, 1850
- 15157 ——— A THICK PAPER COPY, thick 4to. *contemporary russia gilt, g. e., back damaged*, 18s
'This volume is presented to Joseph Brotherton, Esq., M.P. [for Salford; Reformer] under a deep sense of gratitude, and with the highest sentiments of respect, by the Author.'—*Inscr. in gold on binding.*
A reprint of the complete works of the INVENTOR of the DYNAMO-ELECTRIC and the MAGNETO-ELECTRICAL MACHINES, as contributed to various scientific journals, and completed only a few weeks before his death. They include a description of 'Sturgeon's disk', the ignition of gunpowder by electrical discharge, his important discovery of the electro-magnet, kite experiments, the action of magnets on non-feruginous metals, on Marine Lightning Conductors, and his 'Experimental Researches', describing the process of amalgamating the zinc plate of an electric battery with a film of mercury.
- 15158 ———: The ANNALS of ELECTRICITY, MAGNETISM, and CHEMISTRY; and Guardian of Experimental Science, conducted by WILLIAM STURGEON, and assisted by Gentlemen eminent in these Departments of Philosophy, VOLS. I—III and VI—VII (Oct. 1836—April '39 and Jan.—Dec. '41), with plates (many folding), and numerous woodcuts, 5 vols. 8vo. new boards (v. VI wanting title and index, and plates stamped), with editor's *inscr.* on title of v. I (SCARCE), £1. 10s 1837-41
- 15159 ——— VOLS. I—III ONLY (Oct. 1836—April, '39), with 43 plates, and woodcuts, 3 vols. 8vo. hf. calf (backs rubbed, and v. III wanting title and index), £1. 1s
'The first journal exclusively devoted to electrical subjects in this country. He supported this with immense industry and great ability, and with some aid from Joule, down to 1843, when lack of support compelled its discontinuance, though its volumes still remain valuable as a work of reference.'—*D. N. B.* It contains many valuable contributions by the editor, including his translation of M. H. v. Jacobi's work on electroplating (v. Nos. 9709-10 *ante*), and 'Elementary Lectures on Electricity'.
- 15160 ——— On the DISTRIBUTION (and Retention) of MAGNETIC POLARITY in METALLIC BODIES, with 2 plates, 2 pamphlets 8vo. (pp. 26), *sewn*, 4s 1832
- 15161 **STURM** (Johann Christoph, *Univ. Altdorff*) COLLEGIUM EXPERIMENTALE, sive CURIOSUM, in quo Primaria hujus Seculi Inventa et Experimenta Physico-Mathematica, speciatim Campanæ Urinatorie, Cameræ Obscuræ, Tubi Torricelliani, seu Baroscopii, Antliæ Pneumaticæ, Thermometrorum, Hygroscoptorum, Telescopiorum, Microscopiorum etc. Phænomena et Effecta, partim ab aliis jam pridem exhibita, partim noviter istis superaddita: TENTAMINUM COLLEGIJ CURIOSI, quadam Appendices, sive Auctaria, editio princeps; with 4 folding plates, and numerous smaller engravings on copper, 2 vols. 4to. in 1, old hf. vellum (RARE), £1. 1s *Norimbergæ*, 1676
- 15162 ——— LIBER IDEM; cum Parte Secunda, in qua porro Præsentis Aevi Experimenta et Inventa Physico-Mathematica compluria, speciatim Hygrostathicorum quorundam Instrumentorum, Siphonis Reflexi grandioris, Lachrymarum Vitrearum, Clepsydrarum et Clepsæcorum, Tubarum Stentorophonicarum sive Acusticarum, Hemispheriorum Magdeburgicorum, Novæ Potentiæ Mechanicæ, Hydrarum Helmontianarum, Sclopeti Pneumatici Guerickiani, novarumque Campanæ Urinatorie, Antliæ Pneumaticæ, Laternæ Megalographicæ Accessionum etc. Phænomena et Effecta: Ad HENRICUM MORUM Cantabrigiensem EPISTOLA, qua de ipsius Principio Hylarchico seu Spiritu Naturæ et Familiari modernis Hydrostaticis Aëris Gravitatione et Elatere; with numerous additional engravings on copper—4 vols. 4to. in 2, old white vellum (somewhat browned, otherwise a fine copy); VERY RARE, £2. 5s *ibidem*, 1676-85
- 15163 ——— ANOTHER COPY, 4 vols. in 1, old white vellum (sound and clean copy), with contemporary MS. notes, £2. 2s
This important work contains not only a description of the chief discoveries of the time, but also an account of the author's own inventions, e.g., the differential thermometer, which was wrongly claimed by Sir John Leslie, F.R.S.E., and of the double-acting air-pump, erroneously ascribed to Francis Hanksbee, F.R.S. He was also the first who replaced the stop-cock of the old air pump by a valve.
There is also an interesting account of the aerostatic projects of FRANCESCO LANA (q. v. *ante*), which he followed up by similar experiments.
- 15164 ——— MATHESIS ENUCLEATA: or, the ELEMENTS of the MATHEMATICKS, made English by J[? SESEPH] R[? APHSON], A.M. and R.S.S., with plates, 8vo. old panelled calf (joints cracked), 6s 6d 1700
Containing Analytical Geometry (pp. 96): 'the New Geometry according to the Method of Des Cartes, but much facilitated by later Inventions, etc., by J. C. Sturmius', with separate pagination.
'Arithmetic and Algebra are here very nearly separated.'—*Prof. de Morgan.*
- 15165 ——— MATHESIS JUVENILIS, accessit Consilium de Mathesi in Scholarum Trivialium et Gymnasiorum Classes omnes, etc. etc. Editio II., auctor et corrector; thick sm. 8vo. old English calf (joints cracked), 5s *Norimbergæ*, 1702
'The best collection of useful and entertaining things I have ever seen.'—*John Harris, F.R.S.*
- 15166 **STYFFE** (Knut) The ELASTICITY, EXTENSIBILITY, and TENSILE STRENGTH of IRON and STEEL, translated, with Original Appendix, by C. P. SANDBERG, with Preface by JOHN PERCY, M.D., F.R.S., with 9 folding plates, 8vo., cl., uncut (scarce), 6s 6d 1869
'Containing a copious store of facts, established by careful and trustworthy experiments.'—*Dr. Percy, F.R.S.*
- 15167 **SULLIVAN** [*hic SULIVAN*] (Sir Richard Joseph, F.R.S., F.S.A.) VIEW of NATURE, in LETTERS to a TRAVELLER among the ALPS; with Reflections on Atheistical Philosophy, now exemplified in France, 6 vols. 8vo. contemporary hf. calf (fine copy), with *Calgarth Park booklabel of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816)*, 10s 6d 1794
'A work of labour and general utility, digested from original writers with judgement and an upright virtuous heart, in a pleasing and instructive manner.'—*Pursuits of Literature.*

- 15169 **SUCKOW** (Georg Adolph; *Univ. Heidelberg*) ANFANGSGRÜNDE der ÖKONOMISCHEN und TECHNISCHEN CHEMIE; with copper vignette on title, and 2 folding tables, thick 8vo. sewn, 4s
Leipzig, 1784
- 15170 **SUTCLIFFE** (John, C.E.) REPORT on the LINE of NAVIGATION from HEXHAM to HAYDON-BRIDGE, proposed as a Continuation of the Stella and Hexham Canal, and a Report on the Line from Newcastle to Haydon Bridge, 8vo. (pp. 74), sewn, 5s
Newcastle [1797]
- 15171 ——— TREATISE on CANALS and RESERVOIRS, and the best Mode of designing and executing them; with Observations on the Rochdale, Leeds and Liverpool, Huddersfield, Bridgewater, Lancaster, and the Kennett and Avon Canals; and Observations on the best Mode of CARDING, ROVING, DRAWING, and SPINNING all kinds of Cotton Twist, also Instructions for designing and building a CORN MILL, etc. etc., *Rochdale*, 1816: TREATISE of UNIVERSAL INLAND NAVIGATIONS, and the USE of all Sorts of MINES, with the Construction, Explanation, and Use of a New Invented Mechanical and Hydraulic Machine, and Supplement, plainly demonstrating the Possibility and Means whereby a Ship of any Size may be launched at any Time, etc. etc., by Edmund Leach, 2nd Edition, with 5 plates, and 15 tables, 1791—2 vols. 8vo. in 1, *hf. calf*, 10s 6d
1816-1791
- 15172 **SUTHERLAND** (William) BRITAIN'S GLORY: or SHIP-BUILDING unvail'd; being a General Director for Building and Compleating the said Machines, first edition, with 6 copperplates, and numerous woodcuts, folio, old panelled calf, newly rebacked (very rare), £4. 10s
1717
- 15173 ——— SECOND EDITION, with the RARE PORTRAIT of GEORGE I., surrounded by the 257 ships of the Royal Navy, 6 copperplates, and numerous woodcuts, folio, contemporary mottled calf (joints cracked, but a FINE COPY), with bookplate of the Rt. Hon. George Rose, M.P., £5. 10s
1729
Both editions contain a second part, with a separate title-page: THE PRICES of the LABOUR in SHIP-BUILDING Adjusted: or the Mystery of Ship-Building Unveiled, being a brief Explanation of the Labouring Part in Ship-Building; from a Ship of the biggest Magnitude to a small Boat, first shewing the Working of the whole Ship, according to the Length, Breadth, Depth and Girt, and then by Sub-divisions shews the Value of every particular Part' (pp. 286).
- 15174 **SWAN** (William, F.R.S.E.; *Univ. St. Andrews*) On Certain PHÆNOMENA of CAPILLARY ATTRACTION, exhibited by CHLOROFORM, the FIXED OILS, and other Liquids, with Enquiry into some of the Causes which modify the Form of the Mutual Surface of Two Immiscible Liquids in Contact with the Walls of the Vessel in which they are contained, 8vo. (pp. 11), unbound, with author's inser., 1s 6d
1848
- 15175 ——— On the CONSTITUTION of FLAME, 4to. (pp. 12), sewn, 2s 6d
[Edin., 1859]
- 15176 ——— On NEW FORMS of LIGHTHOUSE APPARATUS, with 16 woodcuts, 8vo. (pp. 67), sewn, with inser. to Allen Thomson, F.R.S., 4s
ibidem, 1868
These papers contain a very full and almost exhaustive analysis of the formation of prisms for lighthouse purposes, and bring out several new and important ideas on the subject.—R. *Scottish Soc. of Arts' Committee's Report*.
- 15177 ——— On NEW METHODS of DETERMINING the INDEX of REFRACTION, with plate, 8vo. (pp. 14), unbound, with inser. to A. Thomson, F.R.S., 2s
ib., 1844
- 15178 ——— On the PRISMATIC SPECTRA of the FLAMES of COMPOUNDS of CARBON and HYDROGEN, with plate, 4to. (pp. 19), sewn, with inser. to Prof. A. S. Herschel, F.R.S., 3s
ib., 1856
- 15179 **SWINDEN** (Johan Hendrik van; *Univ. Francker*) DISSERTATION sur la COMPARAISON des THERMOMÈTRES; with copperplate, and large folding table, 8vo. sewn, uncut (rare), 10s 6d
Amsterdam, 1778
Valuable for containing accounts of 27 thermometric scales, most of which are now forgotten, and can only be traced from the above and a few other contemporary works.
- 15180 ——— RECUEIL de MÉMOIRES sur l'ANALOGIE de l'ÉLECTRICITÉ et du MAGNÉTISME, couronnés et publiés par l'Académie de Bavière; traduits du Latin et de l'Allemand, augmentés de Notes, et de quelques Dissertations nouvelles; with 8 folding copperplates, and table, 3 vols. 8vo. sewn, 12s
La Haye, 1784
- 15181 ——— ANOTHER COPY, 3 vols. 8vo. in 2, sound copy in old *hf. calf gilt*, 15s
Vol. II contains 'Réponse à la Question sur l'Analogie de l'Electricité et du Magnétisme, par CÉLESTIN STEIGLEHNER [O.S.B.]', 'Mémoire sur l'Analogie de l'Electricité et du Magnétisme, par L. HUEBER, S.J.', and 'Dissertation sur un Phénomène Magnétique Paradoxe', and v. III 'Dissertation sur les Mouvements Irréguliers de l'Aiguille Aimantée.'
- 15182 ——— POSITIONES PHYSICAE, quas, Anno Laboris, in Scholis Privatissimis explicat, Experimentis illustrat, et Auditorum suorum Meditationibus proponit; with 7 folding copperplates, and table, 2 vols. 8vo. in 1, sound copy in old *hf. calf gilt*, with auto. of C. G. C. Reinwardt (Prof. *Natural History, Leyden*), 7s 6d
Harderovici Gebrorum, 1786
- 15183 **SYMONS** (George James, F.R.S.) BRITISH RAINFALL: on the Distribution of Rain over the British Islands [continued by HUGH ROBERT MILL], during 1863. 1865-1911, and 1913 (Vols. 4. 6-51. 53), with numerous plates, woodcuts, maps and charts, 48 vols. 8vo. cl. (2 vv. sewn), £6. (p. £20. 5s)
1863-1913
- 15184 ——— ANOTHER SET, 1865. '67. '69-72. '74-1910 (Vols. 6. 8. 10-13. 15-50), with numerous plates, woodcuts, maps, etc., 42 vols. 8vo. cl., £4. 10s (p. £18. 5s)
1865-1910
- 15185 ——— ANOTHER SET, 1865. '69. '75. '78. '80-1909 (Vols. 6. 10. 16. 19. 21-49), with numerous plates, woodcuts, maps, etc., 33 vols. 8vo. cl., £3. 3s (p. £15. 15s)
1865-1909
In 1898 the number of stations had grown [from 168 in 1860] to 3,404, and they were manned by an army of over 3,000 volunteer observers. This unique organisation was kept by Symons under close personal supervision, and the upshot was the accumulation of a mass of data of standard value, unmatched in any other country. The sanitary importance of water-supply was a determining motive for its collection.—D. N. B.
- 15186 ——— MONTHLY METEOROLOGICAL MAGAZINE [edited after 1900 by HUGH ROBERT MILL], complete from 1870 to 1910 (Vols. V-XLIV), with portraits, plates, woodcuts, maps, and tables, 40 vols. 8vo. cl. (vv. 31-40 in parts), £3. 10s (p. £10.)
1870-1910
- 15187 ——— ANOTHER SET, from 1870 to 1896 (Vols. V—XXX), with numerous plates, woodcuts, etc., 26 vols. 8vo. cl. (12 vv. in parts), £1. 10s
1870-96

- 15189 **SYKES** (Col. William Henry, F.R.S.; M.P.) On the GEOLOGY of a Portion of DUKHUN, EAST INDIES, with *map* and 2 *folding plates*, 4to. (pp. 24), *sewn*, 2s 1836
- 15190 **SYMES** (Richard, Rector of St. Werburgh's, Bristol) FIRE ANALYSED; or the several Parts of which it is compounded clearly demonstrated by Experiments, the TEUTONIC PHILOSOPHY PROVED TRUE by the same Experiments; and the Manner and Method of making Electricity Medicinal, and Healing confirmed by a Variety of Cures, 8vo. (pp. 94), *sewn* (rare), 8s 6d

Bristol, 1771

A pseudo-scientific tract, avowedly suggested by another paradoxer RICHARD LOVETT (v. No. 11048), in which the author elaborates Jacob Behmen's mystic fire fluid in an attempt to explain physical phenomena, e.g. electricity, light, etc.

- 15191 **SYMONDS** (William Samuel, jr., F.G.S.) RECORDS of the ROCKS; or Notes on the Geology, Natural History, and Antiquities of North and South Wales, Devon, and Cornwall, with 8 *plates*, and numerous *woodcuts*, cr. 8vo. cl. (o. p.), 5s (p. 12s) 1872

'A mirror of the author; good geological work is blended with local natural history and archaeology, and the tale is told in an easy pleasant style which gives the book an exceptional charm.'—Prof. Bonney, jr., F.R.S.

- 15192 **TACHEN** [*Latine TACHENIUS*] (Otto) ANTIQUISSIMÆ HIPPOCRATIE MEDICINÆ CLAVIS, Manuali Experimentia in Naturæ Fontibus elaborata, qua per Ignem et Aquam inaudita Methodo, Occulta Naturæ et Artis, compendiosa operandi Ratione manifesta fiunt, et dilucidè aperiuntur, editio princeps, 16mo. *old calf* (back damaged, and partly water-stained); rare, 12s 6d

Venetiis, 1669

- 15193 ——— HIPPOCRATES CHIMICUS, qui Novissimi Viperini Salis antiquissima Fundamenta ostendit, Editio III., cæteris Magis emendata, ac Indice locupletè donata; with *engraved title showing alchemical laboratory*, *Lugd. Bat.*, 1671; **Schuyf** (Fl.) Pro VETERI MEDICINA; with *folding copperplate of vivisected dog*, *ib.*, 1670—2 vols. 18mo. *old white vellum* (fine copies), 15s 1671-70

'Tachenius proved himself an independent investigator, to whom chemistry is indebted both for extremely valuable observations and for speculations deduced from these . . . Among his other valuable observations, he contributed materially to elucidating that problem which Boyle considered the most important of all, viz. a knowledge of the composition of bodies. It was with him that the first serviceable definition of the term 'salt,' as a compound of an acid and an alkali, originated. His statements on the composition of various compounds show great acuteness, which is also seen in the value which he laid on certain reactions as tests for different substances. Tachenius thus laid the foundations of qualitative chemistry in a more systematic manner than his predecessors.'—Prof. E. v. Meyer.

- 15194 **TACQUET** (André, S.J.) ARITHMETICÆ THEORIA et PRAXIS, Editio II. correctior; with *plate*, 12mo. *old mottled calf gilt* (nice copy), 6s

Antverpiæ, 1665

- 15195 ——— THE ELEMENTS of ARITHMETICK, in Three Books, the SEVENTH, EIGHTH, and NINTH of EUCLID, with the PRACTICAL ARITHMETICK, now translated by an Eminent Hand, for Common Use; with Table of Contents, with *plate*, 12mo. *contemporary sheep*, 10s 6d

W. and J. Marshal [c. 1680]

'Dr. Peacock [Dean of Ely] mentions Tacquet as a late instance of the old method of division. Both methods are given in this translation, 'whereof the first,' meaning the Italian method, 'is least used but is the best; the other—most used, but the difficultest'.'—Prof. de Morgan.

- 15196 **TAFFE** (A.) APPLICATION des PRINCIPES de MÉCANIQUE aux MACHINES les plus en Usage, mues par l'Eau, la Vapeur, le Vent et les Animaux, et à diverses Constructions, première édition; with 8 *folding plates*, 8vo. *hf. calf*, 2s 6d

Marseille, 1835

- 15197 ——— SECONDE ÉDITION, revue et augmentée; with 8 *folding plates*, 8vo. *hf. calf* (binding damaged), with *auto.* of George Rennie, F.R.S., on title, 2s 6d

1839

- 15198 **TAISNIER** (Jean) OPUSCULUM Perpetua Memoria Dignissimum, de NATURA MAGNETIS, et ejus EFFECTIBUS, item, de Motu Continuo. Demonstratio Proportionū Motuum Iocalium, contra Aristotelem et alios Philosophos. De Motu alio celerimo, hactenus incognito; printed in italics, with *vignette on title*, *fine portrait on rev. of title* and *last l.*, and numerous other *woodcuts* and *diagrams*, sm. 4to. *finely bound in crushed green levant morocco gilt*, g. e., by W. PRATT (VERY FINE COPY), very rare, £8. 8s

Colonie, Jo. Birckmannus, 1562

THE SECOND WORK PUBLISHED ON THE MAGNET, and of EXTREME RARITY. It is mainly based on the 'Opusculum de Natura Magnetis' of Petrus Peregrinus, with whom Taisnier shared the opinion (also held by Cardan) that the magnet could cause a perpetual motion. There is also at end a treatise 'de Fluxu et Refluxu Maris' (pp. 87).

- 15199 **TALBOT** (Frederick A.) LIGHTSHIPS and LIGHTHOUSES, with 89 *plates*, and other illustrations, 8vo. cl., 4s (p. 6s nett) 1913

- 15200 ——— The STEAMSHIP CONQUEST of the WORLD, with 93 *plates*, and 3 *diagrams*, 8vo. cl., 4s (p. 6s nett) 1912

- 15201 **TALBOT** (William Henry Fox, M.P., F.R.S.; discoverer of photography) Some ACCOUNT of the ART of PHOTOGENIC DRAWING, or the Process by which Natural Objects may be made to delineate themselves without the Aid of the Artist's Pencil, 4to. (pp. 13), *sewn* (RARE), 10s 6d 1839

'On 25 Jan. following Faraday briefly described Talbot's independent invention of 'photogenic drawing' at the Royal Institution, and on 31 Jan. Talbot communicated an account of his researches (*supra*). His process consisted in producing the photographic image on writing-paper highly sensitised by chemical treatment. White images of the objects were formed after a long exposure upon a dark ground, these being the 'negatives', from which 'positives' could be obtained by printing in the manner still employed.'—D. N. B.

v. No. 10729 ante.

- 15202 **TANNERY** (Jules) LEÇONS d'ARITHMÉTIQUE, théorique et pratique; with *diagrams*, roy. 8vo. *sewn*, 2s 6d 1894

- 15203 **TEMPLEMAN** (Peter, M.D.) CURIOUS REMARKS and OBSERVATIONS in PHYSICS, ANATOMY, CHIRURGERY, CHEMISTRY, BOTANY, and MEDICINE, extracted from the History and Memoirs of the ROYAL ACADEMY of SCIENCES at PARIS, containing such useful Discoveries as have not been collected by other Writers on the same Subject, with 17 *copperplates* (mostly *folding*), 2 vols. 8vo. *sound copy in old calf*, with *Calgarth Park booklabel* and some MS. notes of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816), 10s 6d 1753-4

Containing much of meteorological interest.

- 15205 **TATHAM (William)** NATIONAL IRRIGATION, or the various Methods of Watering Meadows . . . by an Agricultural, Commercial, and General Economy in the Use of Water, with copper-plates, and 2 woodcuts, with author's inscr.: **Anderson (James)** PRACTICAL TREATISE ON DRAINING BOGS and SWAMPY GROUNDS; with Remarks on the Originality of MR. ELKINGTON'S Mode of Draining, also Directions for making a New Kind of Strong, Cheap, and Durable Fence, for Rich Lands, at Little Expence, etc. etc., with 3 plates—2 vols. 8vo. in 1. *hf. calf*, 10s 6d 1801-1797
- 15206 ——— PLAN for IMPROVING the CITY of LONDON, by Means of NAVIGABLE CANALS and COMMERCIAL BASONS, with folding plan of London, 4to. (pp. 163), *sewn*, 7s 6d [1799]
- 15207 ——— REPORT on a VIEW and EXAMINATION of certain IMPEDIMENTS and OBSTRUCTIONS in the NAVIGATION of the RIVER THAMES, made pursuant to a Resolution of the Navigation Committee, dated December 7th, 1802, from a Survey made in Co-operation with SAMUEL MILLER, 8vo. *hf. russia (binding damaged)*, with old armorial bookplate of John Towneley, 6s 1803
- SPECIFICATIONS of sundry IMPROVEMENTS on the INCLINED PLANE SYSTEM of INLAND NAVIGATION and in MECHANICS, an original Manuscript (1798)—v. SMEATON, No. 14927, ante.
- The author, a Cumbrian, went to America at the age of seventeen, served during the Revolutionary War under General Charles Scott, fought at Yorktown, and afterwards settled in Virginia. He came back to England in 1796, and obtained the post of Superintendent of the London Docks at Wapping. In 1805 he went to America again, and became military storekeeper at Richmond Arsenal. He committed suicide in 1819 by stepping in front of a cannon as it was going off.
- 15208 **TAYLOR (Brook, F.R.S.)** CONTEMPLATIO PHILOSOPHICA: a Posthumous Work, with LIFE, by his Grandson SIR WILLIAM YOUNG, F.R.S., and Appendix of sundry ORIGINAL PAPERS, LETTERS from the Count Raymond de Montmort, Lord Bolingbroke, Marceilly de Villette, Bernouilli [*sic*], and others, finely printed by Bulmer, 8vo. *sewn (portrait wanting)*; ONLY 100 COPIES PRIVATELY PRINTED, £1. 5s 1793
- *The *Contemplatio Philosophica* was printed at London in 1793 for private circulation and is now extremely rare.—*W. W. R. Ball*. The life prefixed is the chief authority on the author. The letters also include Taylor's replies, containing a long unpublished one, a sarcastic answer to Jean Bernoulli, referring to the Newton-Leibniz controversy, a letter on the same controversy from the Abbé Conti, and one from Bossuet.
- 15209 ——— LINEAR PERSPECTIVE: or a New Method of representing justly all Manner of Objects as they appear to the Eye in all Situations, first edition, with vignette, and 18 plates, 8vo. *sound copy in contemporary pannelled calf, with old armorial bookplate of Oliver Acton (rare)*, 12s 6d 1715
- 15210 ——— NEW PRINCIPLES of LINEAR PERSPECTIVE: or the Art of Designing on a Plane the Representations of all sorts of Objects in a more General and Simple Method that has been hitherto done; 3rd Edition, revised and corrected by JOHN COLSON, F.R.S., with 13 folding plates, 8vo. *rough calf (damaged), with auto. of Sir John William Lubbock, F.R.S. (rare)*, 12s 6d 1749
- *Containing the earliest general enunciation of the principle of vanishing points.—*W. W. R. Ball*. These were the first English works treating the subject of perspective scientifically.
- 15211 **TAYLOR (Frederick William), and Sanford Eleazer THOMPSON:** TREATISE on CONCRETE PLAIN and REINFORCED: Materials, Construction, and Design of Concrete and Reinforced Concrete, with Chapters by R. FERET, WILLIAM B. FULLER, FRANK P. MCKIBBEN, and SPENCER B. NEWBERRY; 2nd [latest] Edition [greatly enlarged], with frontispiece, 249 illustrations, and numerous folding charts, 8vo. *cl.*, 12s (p. £1. 1s nett) New York, 1909
- 15212 **TAYLOR (Joseph)** THE COMPLETE WEATHER GUIDE: a Collection of Practical Observations for Prognosticating the Weather, including the SHEPHERD of BANBURY'S RULES, explained on Philosophical Principles, with Miscellaneous Observations on Meteorology, and a curious Botanical Clock, folding frontispiece, fcap. 8vo. boards, *uncut*, 5s 1814, or '20
- TAYLOR (Richard, F.S.A.)** SCIENTIFIC MEMOIRS (1837-53)—v. Nos. 11744-5 and 14772 ante.
- 15213 **TAYLOR (Thomas; 'Platonist')** THEORETIC ARITHMETIC, containing the Substance of all written on this Subject by THEO of SMYRNA, NICOMACHUS, IAMBlichus and BOETIUS, with some remarkable Particulars respecting PERFECT, AMICABLE, and other NUMBERS not to be found in the Writings of any Ancient or Modern Mathematicians, likewise, a Specimen of the Manner in which the PYTHAGOREANS philosophized about NUMBERS, and a Development of their Mystical and Theological Arithmetic, 8vo. *cl.*, *uncut* (SCARCE), £1. 5s printed for the Author, 1816
- 15214 **TAYLOR (Thomas Glanville, F.R.S., Astronomer to H.E.I. Co.)** GENERAL CATALOGUE of the PRINCIPAL FIXED STARS, from Observations made at the Hon. East India Co.'s Observatory at MADRAS, 1830-43, with vignette of Madras Observatory on title, 4to. *cl.* (VERY SCARCE), with auto. and MS. corrections by Dr. A. M. W. Downing, F.R.S., £1. 10s Madras, 1844
- Containing 11,015 stars reduced to 1835.0.
- *The greatest catalogue of modern times. In the number of observations, and in the number and distribution of the stars, and in the circumstance that the observations were made, reduced, combined, and printed at the same place, and under the same superintendance, it bears the palm from all others.—*Sir George Airy, F.R.S.*
- 15215 **TECHNICAL DICTIONARIES, The DEINHARDT-SCHLOMANN SERIES** of, in SIX LANGUAGES: German, English, French, Russian, Italian, and Spanish: VOL. I: The MACHINE-ELEMENTS and TOOLS for WORKING in METAL and WOOD, with Appendix edited by P. STÜLP-NAGEL; with 823 illustrations, large 12mo. *cl.*, 3s (p. 5s nett) 1906
- 15216 ——— VOL. V: RAILWAY CONSTRUCTION and OPERATION, compiled by AUGUST BOSCHART; with about 1900 illustrations, large 12mo. (pp. 883), *cl.*, 7s 6d (p. 12s nett) 1909
- 15217 ——— VOL. VI: RAILWAY ROLLING STOCK, compiled by AUGUST BOSCHART; with about 2100 illustrations, large 12mo. (pp. 809), *cl.*, 6s (p. 10s 6d nett) 1909
- 15218 ——— VOL. X: MOTOR VEHICLES (Motor Cars, Motor Boats, Motor Airships, and Flying Machines), edited by RUDOLF URTEL, with very numerous illustrations, large 12mo. (pp. 1010), *cl.*, 8s 6d (p. 12s nett) 1910
- 15219 **TECHNOLOGICAL DICTIONARY: ENGLISH, GERMAN, and FRENCH**, edited by EGBERT v. HOYER and FRANZ KREUTER, 5th [latest and greatly enlarged] Edition, large roy. 8vo. *hf. German morocco (fine copy)*, 9s (p. M. 14) Wiesbaden, 1903

- 15221 **TELFORD** (Thomas, C.E.), LIFE of, written by himself, containing a Descriptive Narrative of his Professional Labours, edited by JOHN RICKMAN, one of his Executors, with Preface, Supplement, Annotations, and Index, *with vignettes on steel and plate of medals*, thick 4to., also **Atlas**, containing 83 plates, roy. folio—2 vols. *hf. cl.*, £1. 5s (p. £8. 8s) 1838
 'In this volume Telford's accounts of his various engineering enterprises, great and small, are ample and luminous. Rickman added biographical traits and anecdotes of him. The supplement contains many elucidations of his professional career and a few of his personal character, among the former being his reports to Parliament, etc., and those of Parliamentary Commissioners under whose supervision some of the most important of his enterprises were executed. In one of the appendixes his poem on 'Eskdale' is reprinted. There is also a copy of his will.'—*D. N. B.*
- 15222 **TERZI** (Luigi) GNOMONICA GRAFICA, ossia Metodo facile per disegnare ogni Sorta d' OROLOGI SOLARI SENZA l'Uso della BUSSOLA, e preceduto dalle Nozioni della Sfera Celeste; *with 17 plates* (9 folding), 8vo. *sewn*, 5s
Torino, 1823
- 15223 **THALÉN** (Tobias Robert; *Univ. Upsala*) MÉMOIRE sur la DÉTERMINATION des LONGUEURS d' ONDE des RAIES MÉTALLIQUES; *with large folding plate*, 4to. (pp. 38), *sewn* (scarce), 5s 6d
Upsal, 1868
 The author here advocates wave-length as the standard of measure in spectroscopy, against the untrustworthy refraction spectrum used by Kirchhoff. This method was adopted in the same year in the great map of the 'normal solar spectrum, published by Angström and the author.
- 15224 ——— Sur le SPECTRE du FER obtenu à l'Aide de l'Arc Électrique, 4to. (pp. 49), *sewn*, 3s
ibidem, 1885
- 15225 ——— Om SPEKTRA, tillhörande YTTRIUM, ERBIUM, DIDYM och LANTHAN; *with folding plate*, roy. 4to. (pp. 24), *sewn*, 3s 6d
Stockholm, 1874
- 15226 **THÉNARD** (Louis Jacques Baron; *de l'Institut, F.R.S.*) TRAITÉ de CHIMIE, Élémentaire, Théorique et Pratique, 2^e Édition, revue et corrigée; *with plates*, 4 vols. 8vo. *boards*, *uncut* (nice copy), *with fine bookplate of Dr. Priestley*, 5s
 1817-18
- 15227 ——— SIXIÈME [DERNIÈRE] ÉDITION [augmentée], avec un Essai sur la Philosophie Chimique et un Précis sur l'Analyse, 5 vols.; *with Atlas*, containing 21 folding plates—6 vols. 8vo. *hf. calf gilt*, 12s
 1834-5
 'Thénard's *Traité de Chimie*, a text-book which was most widely used, thanks to the happy synoptical arrangement of its contents, was of great merit.'—*Prof. E. v. Meyer*. 'Malgré les récentes découvertes, cet ouvrage jouit encore aujourd'hui d'une grande autorité.'—*Biogr. Gén.*
- 15228 ——— TREATISE on the GENERAL PRINCIPLES of CHEMICAL ANALYSIS, translated by ARNOLD MERRICK, *with 3 plates and folding table*, 8vo. *hf. calf* (scarce), 10s 6d
 1818
 The author discovered hydrogen peroxide, and in 1811, jointly with Gay-Lussac, the elementary analysis in chemistry. See Nos. 8314-15, ante.
- v. MÉMOIRES de PHYSIQUE et de CHIMIE de la SOCIÉTÉ d'ARCUEIL, No. 11743 ante.
- 15229 **THEODOSII** Tripolitæ SPHÆRICORUM ELEMENTORUM Libri III, ex Traditione [FRANCISCI] MAUROLYCI, Messanensis Mathematici. Menelai SPHÆRICORUM Libri III, ex Traditione eiusdem. Maurolyci SPHÆRICORUM Libri II. Autolyçi de SPILERA que movetur Liber. Theodosii de HABITATIONIBUS. Euclidis PHÆNOMENA brevissime demonstrata. Demonstratio et Praxis trium TABELLARUM sc. Sinus recti, Pœcundæ et Beneficæ ad Sphæralia Triangula pertinentium. COMPENDIUM MATHematicæ mira Brevitate ex clarissimis Authoribus. Maurolyçi de SPHERA Sermo; *with vignette of armillary sphere on title, and numerous diagrams on margin*, folio, *unbound* (badly water-stained, and title slightly defective); *excessively rare*, £3. 3s
 (col.) *Messane, Petrus Spira*, 1558
 'L'édition, ayant été complètement perdue dans un naufrage, ne fut réimprimée que longtemps après la mort de Maurolico, à l'aide d'un exemplaire retrouvé en 1681.'—*Biogr. Gén.*
 'Ce volume est si rare en Allemagne, que, malgré le témoignage de Nic. Heinsius, l'existence en a paru douteuse à Ebert.'—*Brunet*. The Libri copy fetched 130 francs in 1857.
 'Il Sig. Libri che pure nella sua storia ci dà una breve ma esatta notizia sulla vita e le opere del Maurolico, non fa menzione di questo libro rarissimo. Anzi mi sembra che questa opera sia appunto quella raccolta d'autori greci di cui il Maurolico nella sua cosmografia annunziava la traduzione, e della quale il medesimo Sig. Libri deplora la perdita.'—*Riccardi*.
- 15230 ——— SPHÆRICORUM Libri III, a CHRISTOPHORO CLAVIO, s.j., perspicuis Demonstrationibus ac Scholiis illustrati: item eiusdem Christophori Clavii Sinus, Lineæ Tangentes et Secantes, Triangula Rectilinea atque Sphærica; *with numerous diagrams*, 4to. *old white vellum* (some ll. browned, otherwise a FINE COPY), 15s
Romæ, Dom. Basa, 1586
- 15231 **THETI** [o TETI] (Carlo) DISCORSI delle FORTIFICAZIONI, Espugnazioni, e Difese delle Città, e d'altri Luoghi, ove diffusamente si dimostra, quali debbano essere i Siti delle Fortezze, le Forme, i Recinti, Fossi, Baloardi, Castelli, ed altre Cose à loro appartenenti, con le Figure di esse; hora di nuovo ricorretti ed ampliati; *with full-page plans, and numerous woodcuts*, large folio, *old vellum extra, with Jesuit arms on sides* (back damaged, otherwise a very sound and clean copy), £1. 1s
Venetia, Franc. de Franceschi Senese, 1589
 'Scarce; unknown to Cicognara.'—*Libri Catalogue*. The above edition is the best; it was reprinted in 1617. The work is interesting for containing illustrations and descriptions of contemporary surveying instruments. The above copy contains the cancelled title, dated 1583.
- 15232 **THEVENARD** (Vice-Amiral Antoine Jean Marie Comte) MÉMOIRES relatifs à la MARINE; *with 33 folding copperplates, 3 maps, and 21 folding tables*, 4 vols. 8vo. *old calf gilt* (SCARCE), £1. 1s
An VIII [1800]
 'C'est Thevenard qui donna le plan des deux premières canonnières faites en France.'—*Biogr. Gén.*
 The work deals mainly with naval architecture. Vol. I contains an interesting memoir on the origin of the mariner's compass, and v. II one on the Language and Antiquities of Brittany.
 There was no copy of the work in the Scott Library, nor is there one in that of the Institution of Naval Architects.
- 15233 **THIBAUT** (P., *Chymist to the French King*) THE ART of CHYMISTRY, as it is now practised, now translated by a FELLOW of the ROYAL SOCIETY, 12mo. *sewn* (rare), 15s
J. Starkey, 1668
 Unknown to Watt, Brunet, Græsse, Poggendorff, and others, and containing much pharmaceutical matter; also at end, 'A Little Treatise of Chymistry: or, an Abridgement of the precedent Treatise' (pp. 31).

- 766 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 15235 **THIESS** (J. Bernhard), and **Guy A. JOY**: TOLL TELEPHONE PRACTICE, with Introductory Chapter by FRANK F. FOWLE, with 273 illustrations (many full-page), roy. 8vo. cl., 9s (p. 14s nett) 1912
- 15236 **THOMAS** (Carl Clapp, Cornell Univ.) STEAM TURBINES; with 4 folding plates, linen chart, and over 100 other illustrations, 8vo. cl., 6s (p. 15s nett) New York, 1906
- 15237 **THOMAS** (David Alfred, M.P.) THE GROWTH and DIRECTION of our FOREIGN TRADE in COAL during the LAST HALF CENTURY, with table and map, 8vo. roan, 3s privately printed, 1903
Mr. D. A. Thomas was one of the few lives saved from the massacre of the *Lusitania*.
- 15238 **THOMAS** (John William, F.C.S.) TREATISE on COAL, MINE-GASES, and VENTILATION, with Copies of Researches 'on the Gases enclosed in Coal,' etc., cr. 8vo. cl. (o. p.), 4s (p. 10s 6d) 1878
- 15239 **THOMPSON** (Edward P.) ROENTGEN RAYS, and Phenomena of the Anode and Cathode; Principles, Applications, and Theories, with Concluding Chapter (Theoretical Considerations, Arguments, and kindred Relations) by WILLIAM A. ANTHONY, with 105 illustrations (many full-page), large 8vo. cl., 3s 6d (p. 7s 6d nett) New York [1896]
- 15240 **THOMPSON** (Silvanus Phillips, F.R.S.) DYNAMO-ELECTRIC MACHINERY, with 230 woodcuts, thick 8vo. cl., 3s 1884
- 15241 ——— ANOTHER COPY, with auto. of F. J. Jervis-Smith, pr., F.R.S., and interesting auto. letter from the author to him, and photograph of the first self-exciting Dynamo, invented by S. A. Varley, with inser. by the latter, 5s
- 15242 ——— SECOND EDITION, enlarged and revised, with 324 woodcuts, thick 8vo. cl., 3s 6d (p. 12s 6d) 1886
- 15243 ——— THIRD EDITION, enlarged and revised, with 378 illustrations, thick 8vo. cl., 4s 6d (p. 16s) 1888
- 15244 ——— FIFTH EDITION, revised, with 19 plates, and 520 woodcuts, thick 8vo. cl. (cover damaged), 7s (p. £1. 4s) 1896
- 15245 ——— SEVENTH [LATEST] EDITION [greatly enlarged and rewritten], with 54 folding plates, and 1119 other illustrations. 2 very thick vols. 8vo. cl., £2. (p. £3. nett) 1904-5
This edition incorporates the author's 'Design of Dynamos', previously published as a separate work.
- 15246 ——— ELEMENTARY LESSONS in ELECTRICITY and MAGNETISM, new [final] Edition [rewritten], with 2 charts, and 291 woodcuts, 12mo. cl., 2s (p. 4s 6d) 1895
- 15247 ——— LIGHT VISIBLE and INVISIBLE: Lectures at the Royal Institution, Christmas, 1896, with 158 illustrations (including portraits and sciagraphs), large post 8vo. cl., 3s 6d (p. 6s nett) 1897
One of the most delightful books ever written on this interesting subject, and remarkable for the lucidity and simplicity of its exposition of apparently intricate problems.
- 15248 ——— THE PHYSICAL FOUNDATION OF MUSIC: an Exposition of the Acoustical Researches of DR. RUDOLPH KOENIG, of Paris, with 13 illustrations, 8vo. (pp. 31), sewn, 2s 1890
- 15249 ——— POLYPHASE ELECTRIC CURRENTS, and ALTERNATE-CURRENT MOTORS, with 2 folding plates, and 171 woodcuts, 8vo. cl., 6s 1895
This edition contains a BIBLIOGRAPHY (pp. 17), which was left out in the second edition.
- 15250 ——— SECOND [LATEST] EDITION, enlarged, with 8 folding plates and 358 woodcuts, large 8vo. cl. (scarce), with auto. of F. J. Jervis-Smith, pr., F.R.S., 15s 1900
With Appendix containing a schedule of British patents on polyphase and alternating current motors, 1878-99.
- 15251 **THOMSON** (David) LUNAR and HORARY TABLES, for new and concise Methods of performing the Calculations necessary for ascertaining the LONGITUDE by LUNAR OBSERVATIONS or CHRONOMETERS, with Directions for acquiring a Knowledge of the principal Fixed Stars, and finding the Latitude by them, 60th Edition, roy. 8vo. cl., 4s (p. 10s) 1867
- 15252 **THOMSON** (David Purdie, M.D.) INTRODUCTION to METEOROLOGY, with woodcuts, 8vo. cl. (scarce), 8s Edin., 1849
'A work replete with exact, learned, and curious information of every sort in the different departments of the science.'
—Alex. Buchan, F.R.S.
'A work in which the reader will find assembled a most extraordinary collection of the recorded marvels of meteorology.'
—Sir John Herschel.
- 15253 **THOMSON** (Capt. J. H.), and Sir Boverton REDWOOD: HANDBOOK on PETROLEUM, with Suggestions on the Construction and Use of Mineral Oil Lamps, with 2 plates, and 14 woodcuts, sq. 8vo. cl., 4s 6d (p. 8s 6d nett) 1901
- 15254 **THOMSON** (Sir Joseph John, F.R.S.; Cavendish Prof. Experimental Physics, Cantab., Nobel Laureate) APPLICATIONS of DYNAMICS to PHYSICS and CHEMISTRY, cr. 8vo. cl., 3s 6d (p. 7s 6d) 1888
- 15255 ——— CONDUCTION of ELECTRICITY through GASES, 2nd [latest] Edition [enlarged and rewritten], with 205 illustrations, 8vo. cl., 9s (p. 16s) Univ. Press, Cambridge, 1906
Containing the important investigations for which the author was awarded the Nobel Prize for Physics in 1906, and 'developing the view that the conduction of electricity through gases is due to the presence in the gas of small particles called ions, which under the influence of electric forces move from one part of the gas to another.'—Preface.
- 15256 ——— THE DISCHARGE of ELECTRICITY through GASES, with 41 diagrams, post 8vo. cl. (cover stained), 2s 6d (p. 4s 6d nett) 1898
- 15257 ——— ELECTRICITY and MATTER, with 18 illustrations, large post 8vo. cl., 3s (p. 5s nett) 1904
Including: I. Atomic Structure of Electricity: Constitution of the Atom: Radio-Activity and Radio-active Substances.
- 15258 ——— NOTES on RECENT RESEARCHES in ELECTRICITY and MAGNETISM, intended as a Sequel to PROF. CLERK-MAXWELL'S TREATISE on Electricity and Magnetism, with 144 illustrations, 8vo. cl. (VERY SCARCE), £2. 10s Clarendon Press, Oxford, 1893
Containing I. Electric Displacement and Faraday Tubes of Force (pp. 1-52). II. Passage of Electricity through Gases (pp. 53-207). III. Conjugate Functions (pp. 208-50). IV. Electric Waves and Oscillations (pp. 251-387). V. Electro-magnetic Waves [including Hertz's Experiments] (pp. 388-503). VI. Distribution of Rapidly Alternating Currents (pp. 510-33). VII. Electromotive Intensity in Moving Bodies (pp. 534-58). VIII. Electrolysis of Steam (pp. 559-70).
- 15259 ——— RAYS of POSITIVE ELECTRICITY, and their Application to Chemical Analyses, with 50 illustrations (including 5 plates), 8vo. cl., 3s 6d (p. 5s nett) 1913

- 15261 **THOMSON** (Sir Joseph John, F.R.S.; *Cavendish Prof. Experimental Physics, Cantab.*; *Nobel Laureate*) ELEMENTS of the MATHEMATICAL THEORY of ELECTRICITY and MAGNETISM, with 133 diagrams, post 8vo. cl., 3s 6d (p. 10s) *Univ. Press, Cambridge, 1895*
- 15262 ——— SECOND EDITION [corrected], with 133 diagrams, post 8vo. cl. 4s (p. 10s) *a. e., ib., 1897*
- 15263 ——— TREATISE on the MOTION of VORTEX RINGS, with 8 diagrams, 8vo. cl. (VERY SCARCE), £1. 1s 1883
 'In this essay, in addition to the set subject: 'a general investigation of the action on each other of two closed vortices in a perfect incompressible fluid', I have discussed some points which are intimately connected with it, and I have endeavoured to apply some of the results to the vortex atom theory of matter.'—*Preface*. It was awarded the Adams Prize of Cambridge University.
- 15264 **THOMSON** (Thomas, M.D., F.R.S., *Prof. Chemistry, Univ. Glasgow*) ANALYSIS of a NEW SPECIES of COPPER ORE, 4to. (pp. 8), *unbound, with auto. of Thomas Allan, F.R.S.*, 2s 1814
- 15265 ——— ANNALS of PHILOSOPHY; or Magazine of Chemistry, Mineralogy, Natural History, Agriculture, and the Arts, complete from its Beginning in 1813 to its Conclusion in 1826 (*viz.* FIRST SERIES, 16 v., and SECOND SERIES, 12 v.), with numerous plates and woodcuts, 28 vols. 8vo. *hf. cl., uncut*, £3. 1813-26
- 15266 ——— ANOTHER COMPLETE SET, 28 vols., *hf. calf*, £3. 3s
- 15267 ——— FIRST SERIES ONLY, from 1813 to 1818, with plates and woodcuts, 12 vols. 8vo. *hf. russica (bindings damaged), with bookplate of Henry B. H. Beaufoy, F.R.S.*, £1. 15s 1813-18
 The journal was afterwards edited by Richard Phillips, F.R.S., and in 1827 merged in the 'Philosophical Magazine.' The editor contributed to it, in 1813-14, a long and important series of papers, 'in which the atomic theory was applied to elucidate the composition of a very large number of compounds. These contributed largely to making the theory known, especially on the Continent of Europe.'—*D. N. B.*
 It also contains two anonymous papers, written in 1815, on the relation between the atomic weights of elements and the specific gravity of their vapours. These were written by DR. WILLIAM PROUT, who afterwards developed from them his erroneous hypothesis that hydrogen is a primary matter from which the other elements are formed by various condensations.
- 15268 ——— On ASBESTUS, CHLORITE, and TALC, roy. 4to. (pp. 37), *sewn, with inscr. to R. Phillips, F.R.S.*, 2s 6d *Edin.*, 1831
- 15269 ——— ATTEMPT to establish the FIRST PRINCIPLES of CHEMISTRY by EXPERIMENT. 2 vols. 8vo. boards, *uncut (scarce)*, 10s 6d 1825
 'In 1819 Thomson commenced a series of experimental researches with the view of testing, or rather of confirming, the theory of William Prout, that the atomic weights of all the elements are exact multiples of that of hydrogen. The results of the many thousands of experiments which he conducted with this object were extremely favourable to the theory, and were published in 1825 under the title *Attempt to establish the First Principles of Chemistry by Experiment*.'—*Dr. A. Harden, F.R.S.*
- 15270 ——— BREWING and DISTILLATION, with Practical Instructions for Brewing by Porter and Ales according to the English and Scottish Methods, by WILLIAM STEWART, with 6 plates, large post 8vo. cl., 4s *Edin.*, 1849
 'He made investigations on behalf of the Scottish Excise Board on the subjects of brewing and distillation, and invented the instrument known as Allan's saccharometer.'—*Dr. A. Harden, F.R.S.* Scotch ale is very strong.
- 15271 ——— CHEMISTRY of ORGANIC BODIES: VEGETABLES, 8vo. (pp. 1092), cl., 6s 1838
 Interesting for including many compounds produced synthetically as a result of Liebig's researches, e.g., chloroform, iodoform, chloral hydrate, and many others.
- 15272 ——— On the COMPOSITION of BLENDE, 4to. (pp. 13), *sewn, with inscr. to R. Phillips, F.R.S.*, 2s 6d *Edin.*, 1831
- 15273 ——— DESCRIPTION and ANALYSIS of some MINERALS, 4to. (pp. 37), *sewn, with inscr. to R. Phillips*, 2s 6d *idem*, 1831
- 15274 ——— The HISTORY of CHEMISTRY, first edition, with portrait of Dr. Joseph Black, 2 vols. 12mo. cl. (*scarce*), 7s 6d 1830-1
- 15275 ——— ANOTHER COPY, 2 vols. *hf. morocco gilt*, 9s 6d
- 15276 ——— HISTORY of the ROYAL SOCIETY, from its Institution to the End of the Eighteenth Century, roy. 4to., LARGE PAPER; boards, 8s 1812
 'Containing an account of the most important papers in each branch of science which had appeared in the *Philosophical Transactions*.'—*D. N. B.*
- 15277 ——— OUTLINE of the SCIENCES of HEAT and ELECTRICITY, with frontispiece and woodcuts, 8vo. boards, *uncut*, 4s 1830
 Written as an introduction to the study of chemistry.
- 15278 ——— OUTLINES of MINERALOGY, GEOLOGY, and MINERAL ANALYSIS, with numerous woodcuts, 2 thick vols. 8vo. *hf. cl.*, 5s 1836
 Containing descriptions of about 50 new species, and a large number of original analyses.
- 15279 ——— SYSTEM of CHEMISTRY, third Edition, with plates, 5 vols. 8vo. *calf (backs rubbed)*; *SCARCE*, 15s *Edin.*, 1807
 'He visited Dalton in Manchester on 26 Aug. 1804, and received from him an account of the new [atomic] theory which he introduced into the third edition of his 'System' published in 1807. This was the first detailed public announcement of the theory, for Dalton did not publish his 'New System of Chemical Philosophy' (*q. v. ante*) until 1808 . . . The later editions contain many of his own discoveries besides those of contemporaries. The work helped to improve the system of classification adopted in chemical science.'—*D. N. B.*
- 15280 **THORPE** (Sir Thomas Edward, F.R.S.) L'ANALYSE des ÉCHANTILLONS de LAIT adressés aux Laboratoires d'État, en Exécution des Lois sur la Vente des Produits Alimentaires et des Médicaments: Traduction de HENRI FABRE, roy. 8vo. (pp. 19), *sewn, with translator's inscr.*, 1s 6d 1909
- 15281 ——— Das ATOMGEWICHT des RADIUMS; with 2 illustrations, roy. 8vo. (pp. 14), *sewn*, 1s. *Hamburg*, 1908
- 15282 ——— Über die BEZIEHUNG zwischen der INNEREN REIBUNG der FLÜSSIGKEITEN und ihrer CHEMISCHEN NATUR, roy. 8vo. (pp. 13), *sewn*, 1s *Leipzig*, 1894
- 15283 ——— The FAT of the EGG of the COMMON FOWL, 8vo. (pp. 7), *sewn*, 1s *Haarlem, n. d.*

- 768 HENRY SOTHERAN & CO., 140, STRAND, W.C., AND 43, PICCADILLY, W.
- 15285 **THORPE** (Sir Thomas Edward, F.R.S.) ESSAYS in HISTORICAL CHEMISTRY, 8vo. *cl.*, 6s (p. 12s nett) 1902
 Including Robert Boyle, Dr. Priestley, Scheele, Cavendish, James Watt, Lavoisier, Faraday, Thomas Graham, Wöhler, Dumas, Kopp, Victor Meyer, Mendeleeff, Cannizzaro, the Rise and Development of Synthetical Chemistry, the Progress of Chemistry in Gt. Britain and Ireland during the XIX. Century; & etc.
- 15286 ——— Ein VORLESUNGSVERSUCH zur VERANSCHAULICHUNG des Phänomens der KOHLENSTAUB-EXPLOSIONEN, roy. 8vo. (pp. 7), *sewn*, 1s *Hamburg*, 1892
- 15287 ———, and Arthur Gordon **FRANCIS**: On the ATOMIC WEIGHT of STRONTIUM, roy. 8vo. (pp. 13), *sewn*, 1s 6d 1910
- 15288 ———, and **W. KIRWAN**: FLUORSULFONSÄURE, roy. 8vo. (pp. 4), *sewn*, 1s *Hamburg*, 1892
- 15289 ———, and Alfred Edward Howard **TUTTON**; F.R.S.: PHOSPHOROUS OXIDE, Part I, with 5 woodcuts, 8vo. (pp. 29), *sewn*, 1s 6d 1890
- 15290 ——— Über PHOSPHOROXYSULFID, roy. 8vo. (pp. 5), *sewn*, 1s *Hamburg*, 1892
- 15291 ———, and John **YOUNG**: Ueber die VEREINIGTE WIRKUNG von HITZE und DRUCK auf die PARAFFINE; with 2 woodcuts, 8vo. (pp. 28), *sewn*, 2s 6d [*Leipzig*, 1872]
- 15292 **THURSTON** (Robert Henry, *Cornell Univ.*) HEAT as a FORM of ENERGY, with 8 plates, cr. 8vo. *cl.*, 2s 6d (p. 5s) 1890
- 15293 ——— HISTORY of the GROWTH of the STEAM-ENGINE, 2nd Edition, with frontispiece, 147 woodcuts, and 15 portraits, cr. 8vo. *cl.*, 3s (p. 6s 6d) 1879
- 15294 ——— THIRD ÉDITION [enlarged], with frontispiece, 147 woodcuts, and 15 portraits, cr. 8vo. *cl.*, 3s 6d (p. 6s 6d) 1883
- 15295 ——— MANUAL of STEAM-BOILERS: their Design, Construction, and Operation, with 183 woodcuts, 8vo. *cl.*, 5s (p. £1. 10s) *New York*, 1888
- 15296 ——— TREATISE on FRICTION and LOST WORK in MACHINERY and MILLWORK, 6th Edition, with frontispiece and 63 other illustrations, 8vo. *cl.*, 6s (p. 12s 6d nett) *ibidem*, 1898
- 15297 **TIGHT** (William George) DRAINAGE MODIFICATIONS in S.-E. OHIO and Adjacent Parts of WEST VIRGINIA and KENTUCKY, with 10 plates, woodcut, and 7 coloured maps, 4to. *sewn*, 4s *U. S. Geol. Survey, Washington*, 1903
- 15298 **TISSERAND** (Félix; *de l'Institut*) RECUEIL COMPLÉMENTAIRE d'EXERCICES sur le CALCUL INFINITÉSIMAL; with 63 diagrams, 8vo. *hf. calf neat*, with *auto. of Prof. O. Henrici, F.R.S.*, 3s 6d (p. F. 7.50 nett *sewn*) 1877
- 15299 **TOALDO** (Abate Giuseppe; *prof. Astronomy and Meteorology, Univ. Padua*) COMPLETA RACCOLTA di Opuscoli, Osservazioni, e Notizie diverse contenute nei GIORNALI ASTRO-METEOROLOGICI, 1773-98, coll' Aggiunta di alcune altre sue Produzioni Meteorologiche e Pubblicate ed Inedite; with plate, 3 vols. 8vo. *hf. parchment, uncut*, 16s *Venezia*, 1802
- 15300 ——— Dei CONDUTTORI per PRESERVARE gli EDIFIZI da' FULMINI: Memorie; nuova Edizione, con Appendice su i Fatti più recenti, per Dichiarazione e Conferma del Sistema dell' Autore sulla Disposizione dei Conduttori medesimi; with vignette and 2 copperplates: Barbier de Tinan: NUOVE CONSIDERAZIONI sopra i CONDUTTORI, *Venezia* [1780]—2 vols. 4to. in 1, boards, *uncut* (*fresh copies*), 7s 6d *Venezia*, 1778[-80]
- 15301 ——— Lo STESSO, con [Saussure (Horace Bénédicte de)] Della MANIERA di PRESERVARE gli EDIFIZI dal FULMINE; with vignette on title, *Venezia*, 1772—2 vols. 4to. in 1, contemporary *hf. calf*, 8s 6d *ibidem*, 1778-2
 Containing many new suggestions regarding lightning rods, also some by — Barbier, translated from the French. The author was the first in Italy who dared to attach lightning conductors to churches in opposition to popular prejudice.
- 15302 ——— Della VERA INFLUENZA degli ASTRI, delle Stagioni, e Mutazioni di Tempo, SAGGIO METEOROLOGICO, fondato sopra lunghe Osservazioni, ed applicato agli Usi dell' Agricoltura, Medicina, Nautica, ec. . . . Si aggiungono i PRONOSTICI di ARATO, tradotti da ANTONIO LUIGI BRICCI, e la Descrizione d'un nuovo PENDOLO a CORREZIONE del Ch. P. BOSCOVICH, prima edizione; with plate and 5 folding tables, 4to. contemporary vellum (*rare*), 17s 6d *Padova*, 1770
 'Bella edizione. E veramente la prima opera di meteorologia che spogliando questa scienza dai pregiudizii volgari abbia tentato di ridurre a leggi scientifiche le empiriche dottrine conosciute dagli antichi.'—Riccardi.
 The paper by R. G. Boscovich is contained only in the above edition.
- 15303 ——— SECONDA EDIZIONE, di molto accresciuta e migliorata; with 4 folding tables, 4to. *sewn*, *uncut*, 8s 6d *ibidem*, 1781
- 15304 ——— ANOTHER COPY, original paper wrapper, *uncut* (*rare*), with INSCR. AS BELOW, 10s 6d
 'To Rev. Nevil Maskelyne [p.d., F.R.S., Astronomer Royal] the AUTHOR'. 'E Libris Nevil Maskelyne a present from the author.'—*Inscr. on flyleaf.*
- 15305 ——— TERZA EDIZIONE, di molto accresciuta, e migliorata; with folding tables, 4to. boards, *uncut*, 7s 6d *ib.*, 1797
- 15306 ——— ANOTHER COPY, with portrait by S. Martire (*inserted*), old *hf. calf gilt*, 8s 6d
- 15307 ——— ESSAI MÉTÉOROLOGIQUE sur la VÉRITABLE INFLUENCE des ASTRES, des Saisons et Changemens de Temps; nouvelle Édition, rendue meilleure et beaucoup augmentée; traduit par JOSEPH DAQUIN, avec les PRONOSTICS d'ARATUS: with 4 folding tables, 4to. contemporary *calf gilt*, 10s *Chambery*, 1784
- 15308 ——— ANOTHER COPY; with: Saussure (Horace Bénédicte de) ESSAIS sur l'HYGROMÉTRIE; with 2 copperplates, Neuchâtel, 1783: DÉFENCE de l'HYGROMÉTRIE à CHEVEU; with plate, Genève, 1788—3 vols. 4to. in 1, contemporary *French calf extra*, with old bookplate 'de Lamothe, médecin de Bordeaux', £1. 10s 1783-8
 'Ses découvertes sur l'influence des astres et de la lune en particulier, sur les saisons, lui assurèrent un rang distingué parmi les physiciens. Ayant remarqué qu'au bout de 18 ans les phénomènes météorologiques se reproduisaient dans le même ordre, il dressa trois de ces périodes et leur donna le nom de *Saros*. Les astronomes les appelèrent depuis *cycles toaldins*.'—*Biogr. Gén.*
- 15309 **TOMLINSON** (Charles, F.R.S.) USEFUL ARTS and MANUFACTURES of GT. BRITAIN, 2nd Series: METALS, Chemical Manufactures, etc., with numerous woodcuts, post 8vo. *cl.*, 2s 6d [1859]

- 15311 **TISSANDIER (Gaston)** LE GRAND BALLON CAPTIF à VAPEUR de M. HENRY GIFFARD : Cour des Tuileries—Paris, 1878, nouvelle Édition; with 43 full-page and other woodcuts by A. Tissandier, 8vo. *hf. bound (scarce)*, 8s
A description of the first partly-successful controllable balloon, the forerunner of the colossal and oligoetous fatalities of Count Zeppelin.
- 15312 **TOMASSI (Gaetano Marchetti Conte)** NUOVO TRATTATO sulla VERA RETTIFICAZIONE del CIRCOLO misurato esattamente con il Diametro, utile alla Trigonometria, alla Misura delle Curve, e degli Spazj Curvilinei, con una Dissertazione sul MODO di navigare sott' Acqua, inventato dallo stesso Autore l'Anno 1799, Edizione II^a; with 6 folding plates, sm. 4to. *sewn, uncut (rare)*, 10s 6d
Fuligno, 1817
This early anticipation of submarine navigation should be included in the Service Museum of the Murder Division of the Imperial German Navy.
- 15313 **TOMPKINS (Eng.-Capt. A. E., R.N., Roy. Naval Coll., Greenwich)** TEXT-BOOK of MARINE ENGINEERING, 2nd Edition, wholly rewritten, rearranged, and enlarged, with numerous plates and over 250 illustrations, thick roy. 8vo. *cl.*, 6s (p. 15s)
Portsmouth, 1904
- 15314 ——— FOURTH EDITION, revised and partly rewritten, with about 430 illustrations, thick 8vo. *cl.*, 10s 6d (p. 15s nett)
1914
- 15315 **TOPLEY (William, F.R.S.)** The GEOLOGY of the WEALD (Parts of the Counties of Kent, Surrey, Sussex, and Hants.), in Part from the Notes and MSS. of H. W. BRISTOWE, F.R.S., W. T. AVELINE, F. DREW, C. GOULD, and C. LE NEVE FOSTER, F.F.G.S.; List of Fossils revised by R. ETHERIDGE, F.R.S., with 5 plates, 59 woodcuts, and 2 folding maps (1 coloured), roy. 8vo. *cl., uncut (very rare)*, £2. 10s
Geological Survey, 1875
Its value as a work of reference was at once recognised. Its clear statement of facts and lucid reasoning closed a long controversy, and proved the physical structure of the Weald to be the result of subærial denudation—in other words, due to the action of rain and rivers.—*Prof. Donney, jr., F.R.S.*
- 15316 ———, MEMOIR of [by H. B. WOODWARD, F.R.S., with Bibliography], portrait, roy. 8vo. (pp. 15), *sewn, 1s*
Hertford, 1894
- 15317 **TORONTO MAGNETICAL OBSERVATORY, RESULTS of METEOROLOGICAL OBSERVATIONS at the, 1854-62, 2 vols. 4to. hf. bound (back of 1 v. damaged), 6s
*Toronto, 1864***
- 15318 **TORRACA (Gaetano)** DISSERTAZIONE sopra il QUESITO quali DIFETTI, ed ECCESSI debbano EVITARSI nello STUDIO della STORIA NATURALE, 4to. (pp. 40), *sewn, 4s*
Mantova, 1784
This work, which was unknown to Poggendorff, was awarded the prize by the Royal Academy of Mantua.
- 15319 **TORRE (Giovanni Maria della, C. R. Somasco)** NUOVE OSSERVAZIONI MICROSCOPICHE; with 14 plates, 4to. *sewn (rare)*, 10s 6d
Napoli, 1776
"Il parvint comme Torricelli à former des microscopes d'une grande puissance, qu'il exécutait lui-même au moyen de petits globes de verre. À l'aide de ses microscopes il se proposa d'étudier le mouvement insensible des parties constituantes des corps organisés, le chyle, le fiel, les fibres, les muscles, le cerveau, et surtout le sang, dont les éléments selon lui consistent en une multitude de petits anneaux roulant les uns sur les autres."—*Biogr. Gén.*
The first two plates illustrate the microscope and accessory parts. Among the microscopic objects illustrated are podura scales and the blood.
- 15320 **TORRICELLI (Evangelista)** LEZIONI ACCADEMICHE (Della Forza della Percossa; della Leggerezza; del Vento; della Fama; in Lode delle Matematiche; dell' Architettura Militare; Encomio del Secol d'Oro), prima edizione, with beautiful etched portrait by Anichinio, and woodcuts, 4to. contemporary boards, uncut (fine copy); RARE, £1. 1s
Firenze, 1715
- 15321 ——— ANOTHER COPY, without the portrait, old *hf. vellum, uncut*, 18s 6d
With preface (pp. 45) by the editor, TOMMASO BONAVENTURA, giving an interesting account of Torricelli's experiments and discoveries, and including a reprint of Torricelli's two famous letters to Ricci on his experiments on the pressure of the air, and the invention of the barometer.
The portrait is not mentioned in the collation of the work given by Riccardi, and appears to have been published only with a limited number of copies.
- 15322 ——— OPERA GEOMETRICA : de Sphæra et Solidis Sphæralibus; de Motu Gravium naturaliter descendentium; de Motu Projectorum; de Dimensione Parabolæ; de Solido Hyperbolico; cum Appendicibus de Cycloide, et Cochlea; with engraving on copper, and numerous diagrams, sm. 4to. sound copy in old vellum (VERY RARE), £1. 15s
ibidem, 1644
- 15323 ——— ANOTHER COPY, *hf. cl. (somewhat browned, otherwise a clean and UNUSUALLY LARGE COPY)*, £2. 2s
Containing : De Sphæra et Solidis Sphæralibus (pp. 1-94), de Motu Gravium naturaliter descendentium (pp. 95-153), de Motu Projectorum (pp. 154-243), de Dimensione Parabolæ Solidique Hyperbolici (App. pp. 1-92), de Solido Acuto Hyperbolico (App. 93-151).
His *de Motu Gravium* contains important observations on liquids discharged through orifices in the bottom of vessels, which made him "the founder of the theory of hydrodynamics" (*E. Mach*). The first treatise gives the author's quadrature of the logarithmic spiral, while his *de Motu Projectorum* contains important ballistic investigations.
- 15324 ——— LETTERE fin qui INEDITE, precedute dalla VITA di lui da GIOVANNI GHINASSI, con Note e Documenti; with photographic frontispiece of the Torricelli Statue in Faenza, and diagrams, impl. 8vo. *sewn, 5s*
Faenza, 1864
- 15325 ——— : JERVIS-SMITH (Frederick John, *pr.*, F.R.S.) EVANGELISTA TORRICELLI, written on the Occasion of the Tercentenary Commemoration of the Italian Philosopher, at Faenza, Oct. 15-16, 1908, with fs. portrait and plate, and 5 fs. pp. from 'Opera Geometrica,' *er. 4to. sewn, 2s*
(privately printed), Univ. Press, Oxford, 1908
Containing an Italian translation by C. F. COSCIA on opposite pp., and a reprint of MAGALOTTI'S 'Saggi Naturali di Esperienze fatte nell' Accademia del Cimento, Firenze, 1666.'
His great discovery was the interpretation of the previously known fact that water will rise in a suction pump only to the height of about 32 feet—the idea that the column of fluid is sustained by the pressure of the atmosphere on the open surface of fluid. The vacuum in the barometer is the Torricellian vacuum, and the barometer is sometimes called the Torricellian tube. Torricelli also effected the quadrature of the cycloid—in this he was anticipated by Roberval—and made other mathematical discoveries. To him is due the fundamental principle of Hydromechanics; and he made and greatly improved both telescopes and microscopes.
- 15326 **TOWSON (John Thomas)** PRACTICAL INFORMATION on the DEVIATION of the COMPASS, with 2 plates and woodcuts, 8vo. boards, 2s
1899

15328 **TOURASSE** (—), et **F. N. MELLET**: ESSAI sur les BATEAUX à VAPEUR appliqués à la NAVIGATION INTÉRIEURE et Maritime de l'Europe, sur les BATEAUX AQUA-MOTEURS, et particulièrement sur le TOUAGE par le VAPEUR, ou Remorque à Points Fixes, accompagné de Considérations sur les Transports par Terre et par Eaux et sur les CHEMINS de FER; with 8 plates (7 folding), 4to. *hf. morocco (scarce)*, 10s 6d
1828-9

Advocating a system of steam towing against steam navigation on rivers. The work is also interesting for giving an account of *aqua-moteurs*, tow-boats worked by the current of a river; and for its remarks on early French railwaying.

15329 **TOWER** (Olin Freeman, *Western Reserve Univ.*) THE CONDUCTIVITY of LIQUIDS: Methods, Results, Applications, and Theoretical Considerations, with 20 illustrations, large 8vo. *cl.*, 4s (p. 7s 6d nett)
Easton, Pa., 1905

15330 **TOYNBEE** (Capt. Henry, F.R.A.S.) DISCUSSION of the METEOROLOGY of the Part of the ATLANTIC lying NORTH of 30° N. for 11 Days ending Feb. 8, 1870, by Means of Synoptic Charts, Diagrams, and Extracts from Logs, with Remarks and Conclusions, with charts, 4to. *sewn*, 3s 1872

15331 [—] REMARKS explanatory of the CHARTS of METEOROLOGICAL DATA for the OCEAN DISTRICT adjacent to the CAPE of GOOD HOPE, with diagrams, roy. 4to. *cl.*, 3s
1882

15332 ——— REPORT on the GALES experienced in the OCEAN DISTRICT adjacent to the CAPE of GOOD HOPE, with 20 plates, roy. 8vo. *cl.*, 3s
1882

15333 **TRATMAN** (Edward Ernest Russell) RAILWAY TRACK and TRACK WORK; 2nd Edition, with Supplementary Chapters on 'Signals and Interlocking' and 'Street Railway Track', with 226 illustrations and 3 folding tables, 8vo. *cl.*, 6s (p. 14s nett)
New York [1901]

15334 **TREVITHICK** (Richard; inventor of the Locomotive Engine), LIFE of, with Account of his INVENTIONS, by FRANCIS TREVITHICK, C.E., with portrait by W. Holl, 10 plates (chiefly folding), and numerous pretty woodcuts by W. J. Welch, 2 vols. large 8vo. in 1, *cl.* (o.p.), 15s (p. £1. 16s) 1872

Containing a very interesting account of the author's numerous inventions, e.g. the first steam carriage to carry passengers, at Redruth (1801), the first locomotive tried on a railway ('04), his 'Catch-me-who-can' locomotive engine, tried on the London Railway, on Torrington Square, then a waste piece ('08), the first Cornish Engine ('12), improvements in the propulsion of steam boats, etc. etc.

Trevithick's achievements, somewhat obscured by the eulogists of Watt and Stephenson, were first brought into a just prominence in the Life by Francis Trevithick.—D. N. B.

THE FIRST STEAM ENGINE IN SWEDEN:

15335 **TRIEWALD** (Mårten; F.R.S.) KORT BESKRIFNING, om ELD- och LUFT-MACHIN wid DANNEMORA GRUFWOR; with fine and very large copperplate of a Giant Newcomen Engine, sm. 4to. *old hf. calf (VERY RARE)*, £2. 10s
Stockholm, 1734

This work appears to be very rare. It was unknown to Poggenдорff, who mentions however the author's other works, nor is it mentioned by other bibliographers.

According to R. Stuart (*Historical and Descriptive Anecdotes of Steam Engines, Vol. II., p. 61s*), the author, who is not included in the *Biographie Générale*, 'came to England in 1716 to obtain information regarding the mode of mining followed at Newcastle. He remained in the neighbourhood for some years, and was employed as an engineer at a coal-mine; he was a pupil of Desaguliers, and some of his improvements on the diving bell are described in the Doctor's *Experimental Philosophy*. He returned to Sweden in 1726, and erected an atmospheric engine [*supra*], the parts of which he got fabricated in England. He was captain of mechanics, and military architect to the King of Sweden; and was in correspondence with some of his friends in the Royal Society until his death. He invented a mode of warming conservatories by hot water.' According to the *Record of the Royal Society*, he was elected a Fellow in 1731.

15336 **TROILI** (Giulio, da Spinlamberto) PARADOSSI per praticare la PROSPETTIVA SENZA SAPERLA, Fiori, per facilitare l'Intelligenza, Frutti, per non operare alla Cieca [nuova Edizione, coll' Aggiunta della III^a. PARTE]; with numerous woodcuts and diagrams, folio, boards (RARE), 15s
Bologna, Gios. Lonahi, 1683

'Raro.'—Riccardi. The third part consists of 'Prattica del Parallelogrammo da Designare del P. Christoforo Scheiner, s. J.' (v. also Nos. 14719-20 ante).

15337 **TROMMSDORFF** (Johann Bartholomäus, *Univ. Erfurt*) GESCHICHTE des GALVANISMUS, oder der galvanischen Elektrizität, vorzüglich in chemischer Hinsicht, 2. Auflage, 8vo. boards, 3s 6d
Erfurt, 1808

15338 **TROPFFKE** (Johannes) GESCHICHTE der ELEMENTAR-MATHEMATIK in systematischer Darstellung; with 35 illustrations, 2 vols. large 8vo. *cl.*, with Dr. Emil Reich's bookplate, 14s (p. M. 22)
Leipzig, 1902-3

15339 **TROTTA** (Giovanni Battista, s. J.) NUOVO HOROLOGIO NOTTURNO per Mezzo delle STELLE, tanto nell' Hore Astronomiche, quanto nell' Hore Italiane e Babiloniche, con Aggiunta anco dell' HOROLOGIO POLARE corretto, ed accresciuto; e dell' HOROLOGIO della LUNA, sm. 4to. *sewn (rare)*, 15s
Napoli, 1651

15340 ——— PRAXIS HOROLOGIORUM EXPEDITISSIMA, per quam varia Horologiorum Genera, presertim Verticalia, per novas Tabulas facillimè describuntur; with diagrams, 4to. *contemporary vellum (binding wormed)*; RARE, £1. 5s
ibidem, 1631

Valuable for containing over 400 pages of Tables.

15341 **TRUSSED CONCRETE STEEL CO.**, KAHN SYSTEM STANDARDS: a Hand Book of Practical Calculation and Application of REINFORCED CONCRETE, compiled and published by, 2nd Edition, enlarged, with numerous illustrations (many full-page), large post 8vo. *flexible roan, g. e. (name cut off title)*, 4s 6d (p. 7s 6d nett)
Detroit, 1908

'Presenting to the designer tables and information in such form as to be immediately available for use in actual designs, and at the same time to have these tables founded on scientific formulæ approved by our best engineering practice.'—Preface.

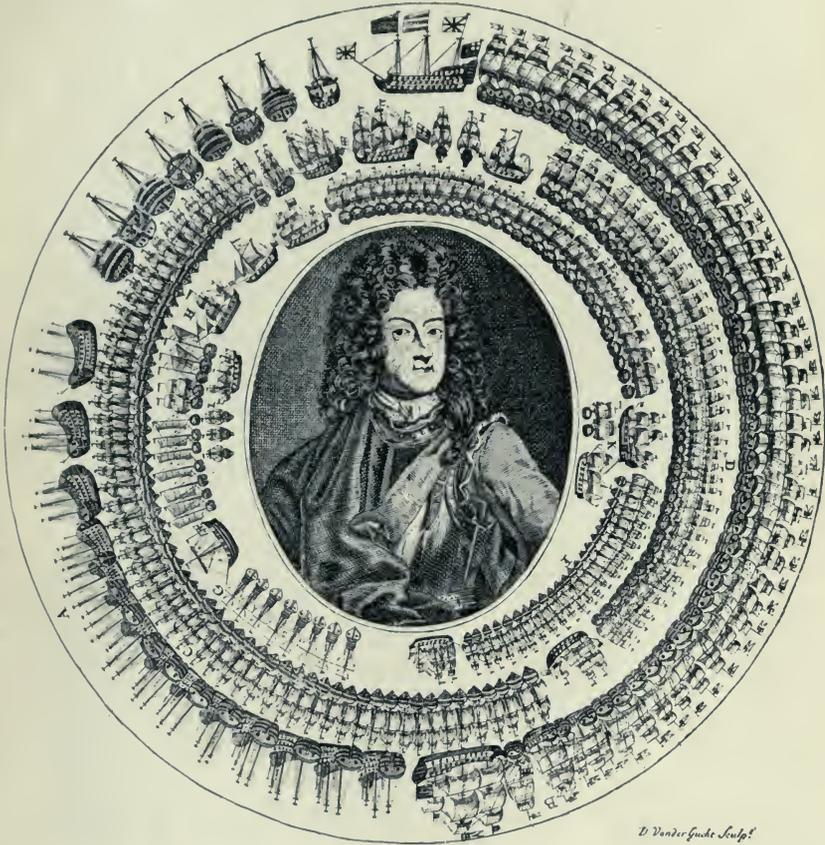
15342 **TURNBULL** (William) DREDGE'S SUSPENSION BRIDGE explained on the PRINCIPLE of the LEVER, with Specification of the Quantities of Material used in the Suspension Bridge at Balloch Ferry, Dunbartonshire, and an Isometrical Projection, by JAMES DREDGE, of Bath, with folding frontispiece and diagrams, 8vo. *hf. calf neat*, 5s 6d
1841

James Dredge was the first to employ the tapering chain and the oblique suspending rods in suspension bridges.

15343 ——— TREATISE on the STRENGTH, FLEXURE, and STIFFNESS of CAST IRON BEAMS and COLUMNS, with Tables of Constants, 8vo. *hf. cl.*, 3s
1832

GEORGIUS,

Dei Gratia, *MAGNÆ BRITANIÆ, FRANCIÆ & HIBERNIÆ*
 Rex, Fidei Defensor: *BRUNSWICK & LUNENBURGH*
 Dux, SRI Arch-Thesaurarius & Elector & Inauguratus,
 20. *Octobris*, 1714.



His MAJESTY'S Royal Navy.

- | | |
|---|---|
| <p>A. A. Is the Seven First Rates, and Fourteen Second Rates Unrigg'd, and Lying in a Harbour.</p> <p>B. Is Five and Forty Third Rates Fore-shortned, with the Heads toward, Under-sail.</p> <p>C. Is Three and Sixty Fourth Rates Fore-shortned, and with the Sterns toward.</p> | <p>D. Is Forty Fifth Rates, Under-sail.</p> <p>E. Is Thirty Fire Ships, Under-sail.</p> <p>F. Is Four and Twenty Sixth Rates.</p> <p>G. Is Nine Bomb Vessels.</p> <p>H. Is Fifteen Yatches, or Pleasure Boats.</p> <p>I. Is Ten Advice Boats.</p> |
|---|---|

No. 15173 (page 762).

Portrait of George I., surrounded by the 257 ships of the Royal Navy.

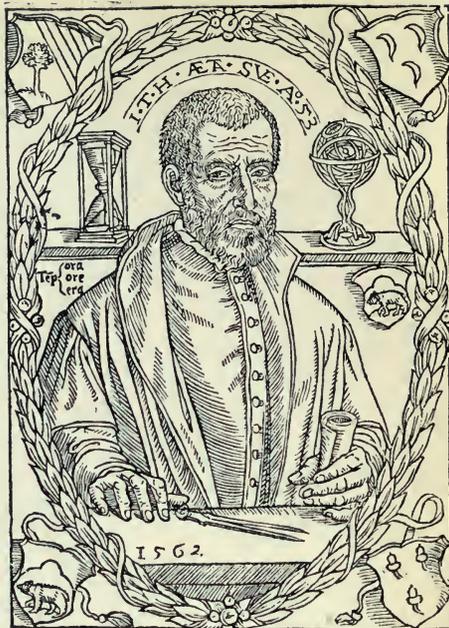
OPVSCVLVM
PERPETVA ME-
MORIA DIGNISSIMVM, DE
NATVRA MAGNETIS, ET EIVS
 EFFECTIBVS.

De motu continuo.
 Item } Demonstratio proportionū motuum localium, cons-
 tra Aristotelem & alios Philosophos.
 De motu alio celerrimo, hactenus incognito.

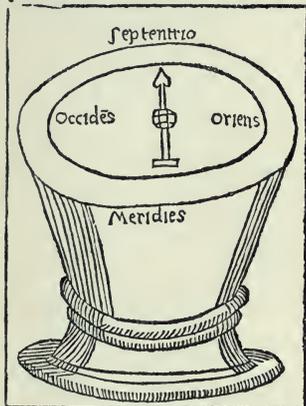
Authore Ioanne Taisnierio Hannonio, vtriusque
 Iuris Doctore, Poëta Laureato, Musico & Re-
 ctore Sacelli Musices Reuerend. Colo-
 niensis Archiepiscopi, &c.



COLONIAE,
 Apud Ioannem Birckmannum,
 Anno M. D. LXII.

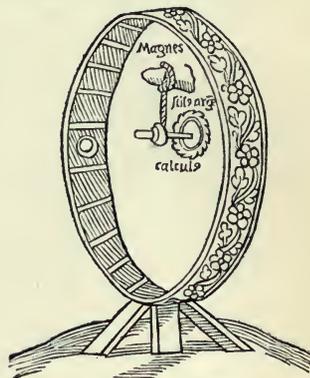


12 **DE MOTV CONTINVO,**
 res aequalis ponderis, dein axem affiges per medium, sus-
 per quē voluetur rotula, axe omnino immobili manente,



cui iterum axi stylus adducatur argētens affixus eidem,
 interque duas casulas collocatus, in cuius summitate Ma-
 gnes collocetur. In hunc modum preparatus, reducatur
 primū ad formam rotundam: dein (vt dictum est) Poli ipsi
 inueniantur: postea in aëlis Poli, duo latera opposita, in-
 terque Polos media elimentur, & quasi ad formam oui,
 lapis

IOANNES TAINSIER HANNO. 14



rot.æ in imam partem sit p̄perpetuus, & casus calculi in op-
 positam, inter quoslibet duos denticulos receptus, etiam
 perpetuus erit, qui quidē suo p̄dere appetet Centrum ter-
 ræ, in unūque locum. Quare cum permittet denticulos cir-
 ca Magnetem quiescere, fiet tandem, vt inilituto satisfac-
 etum fuerit. Sint autem loca intermedia denticulorum,
 tali arte excavata, vt aptē cadentem calculum recipiant,
 vt præfens ostendit figura. Et hæc hactenus pauca com-
 pendiosè narrata de motu continuo.

C 2 AD

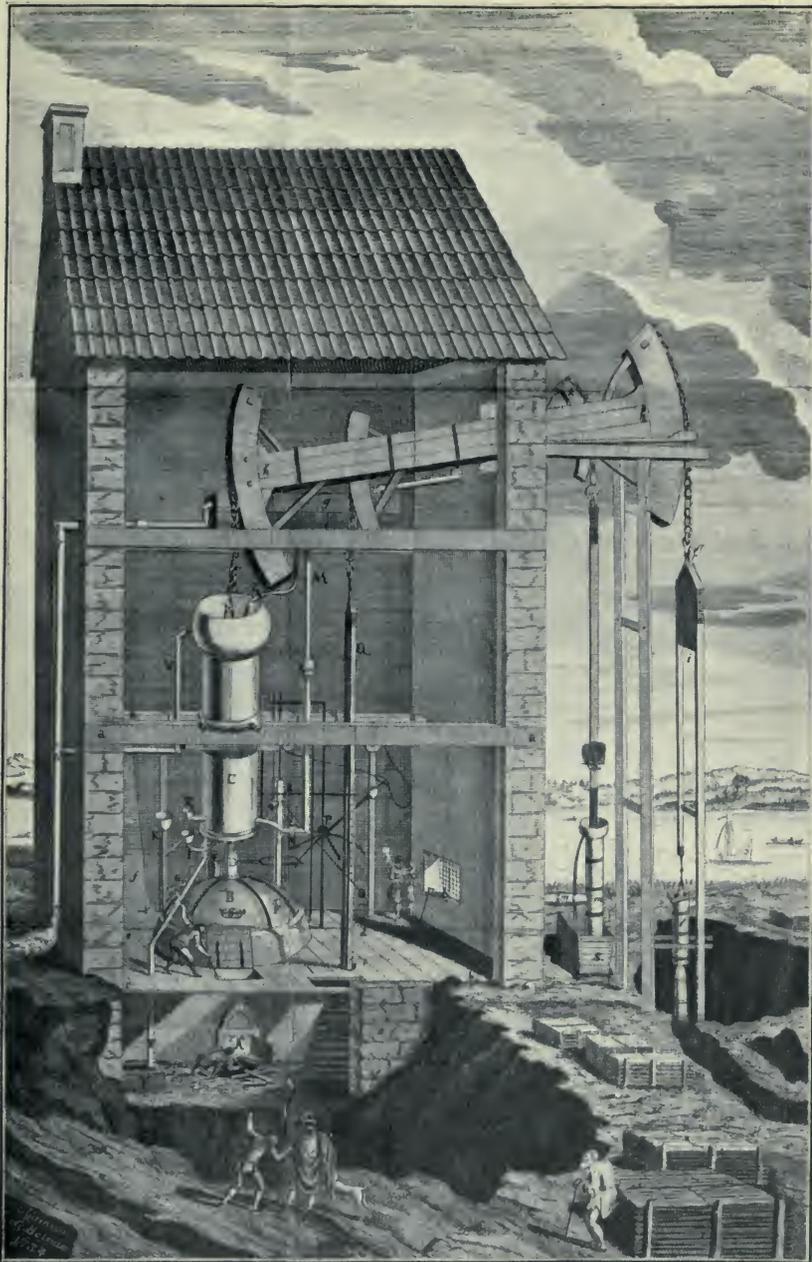
- 15344 **TUPINIER** (—, *Director of Naval Constructions*) OBSERVATIONS on the DIMENSIONS of the SHIPS of the LINE and FRIGATES in the FRENCH NAVY, translated by a British Officer [CAPT. WILLIAM JONES, R.N.], 8vo. boards (scarce), with bookplate of Rear-Adml. Lord Adolphus Fitzclarence (younger son of William IV. by Mrs. Jordan), 8s 6d *privately printed*, 1830
The original work contained the program adopted by the French Government for greatly increasing the French Navy with ships vastly superior in build and armament to any then in existence. The translator strikes a warning note in the preface as to the threat implied by it to British naval supremacy.
Only a few copies of the translation were privately printed. There is no copy of either original or translation in the Library of the Institution of Naval Architects.
- 15345 **TURNBULL** (Laurence, M.D., *Franklin Inst.*) The ELECTRO-MAGNETIC TELEGRAPH, with an Historical Account of its Rise, Progress, and present Condition, and several practical Suggestions in regard to INSULATION, and PROTECTION from LIGHTNING, with Appendix, containing several important Telegraphic Decisions and Laws; 2nd Edition, improved, with 2 plates and 69 woodcuts, large 8vo. cl. (scarce), 12s *Philadelphia*, 1853
One of the best early histories of the electric telegraph, containing a good description of the numerous systems then in use, or recently invented. It includes a list of the American and English telegraphic lines then existing, and a chapter 'on the Importance of the Telegraph on Railroads.'
- 15346 **TURNER** (G. C.) GRAPHICS applied to Arithmetic, Mensuration and Statics, with 316 diagrams, cr. 8vo. cl., 3s (p. 6s) 1908
- 15347 **TURNER** (Herbert Hall, F.R.S., *Savilian Prof. Astronomy, Oxon.*) ASTRONOMICAL DISCOVERY, with 15 portraits and plates, 8vo. cl., 7s (p. 10s 6s nett) 1904
Containing chapters on Uranus and Eros; Discovery of Neptune; Bradley's Discoveries; Accidental Discoveries; Schwabe and the Sun-Spot Period; the Variation of Latitude.
- 15348 ——— The GREAT STAR MAP: a brief General Account of the International Project known as the Astrographic Chart, with frontispiece of Cluster M. 3. *Canis Venatici* by G. W. Ritchie, cr. 8vo. cl., 2s 1912
- 15349 ———, MISCELLANEOUS PAPERS of the UNIVERSITY OBSERVATORY, OXFORD, edited by, 1894-1914, with illustrations, 4 vols. 8vo. cl., with author's inscr. to the Rt. Hon. Sir William R. Anson, M.P. (as below), £1. 5s *Oxford*, 1902-14
'The Warden of All Souls' with the Compts. of the Savilian Professor of Astronomy.'—*Inscr. on flyleaf of vols. I-III.*
A collection of 100 papers by the EDITOR, PROF. H. C. PLUMMER, F. A. BELLAMY, and a few others.
- 15350 ——— VOLS. I AND II ONLY, 2 vols. 8vo. cl., with inscr. to F. J. Jervis-Smith, pr., F.R.S., 10s *ibidem*, 1902-5
- 15351 ——— MODERN ASTRONOMY: some Account of the Revolution of the Last Quarter of a Century, with 30 plates and other illustrations, cr. 8vo. cl., 3s (p. 6s nett) 1901
- 15352 **TURNER** (John) MATHEMATICAL EXERCISES: containing the Principles of the Orthographic and Stereographic Projection of the Sphere, the Investigation of the Sums of Series, the Principles of DIALLING, Problems and Answers, etc., with numerous diagrams, 6 Nos., 1750-2. *Wrexham, n.d.*: Robins (Benjamin, F.R.S.) DISCOURSE concerning the NATURE and CERTAINTY of SIR ISAAC NEWTON'S METHOD of FLUXIONS, and of Prime and Ultimate Ratios, with diagrams, '35: A NEW METHOD of FLUXIONS, diagrams (pp. 1-58; no title and imperfect at end)—in 1 vol. 8vo. old hf. calf, 12s 6d 1735-52
John Turner's work was unknown to Watt, Allibone, or Lowndes. Robins's was a successful refutation of Bp. Berkeley who attacked in his Analyst (v. Nos. 6144-5 ante) Newton's principle of ultimate ratios.
- 15353 **TURNOR** (Christopher Hatton, *Rifle Brigade*) ASTRA CASTRA: EXPERIMENTS and ADVENTURES in the ATMOSPHERE, with 5 plates containing 22 portraits of celebrated balloonists, 34 fine photozincographs of historical ascents or balloons from rare contemporary prints, and numerous woodcuts, impl. 4to. original cl., uncut, t. e. g. (SCARCE), £1. 10s 1865
The best and fullest account of ballooning, containing extracts from noted works, a bibliography, and a chronological list of ascents, 1783-1848, and incidentally giving an account of the meteorological observations during the ascents.
- 15354 **TURNOR** (Edmund, F.R.S., M.P.) NARRATIVE of the EARTHQUAKE felt in LINCOLNSHIRE, and the Neighbouring Counties, on the 25th of February, 1792, 4to. (pp. 6), sewn, 2s 1792
- 15355 **TURPAIN** (Albert, *Univ. Poitiers*) Les APPLICATIONS PRATIQUES des ONDES ÉLECTRIQUES: Télégraphie sans Fil, Télégraphie avec Conducteur, Éclairage, Commande à Distance; with 271 illustrations, 8vo. cl., 5s 6d (p. F. 12 nett) 1902
- 15356 **TYCHSEN** (Nicolai) KURZES CHEMISCHES HANDBUCH; with vignette of a chemical laboratory. 8vo. sewn, 3s 6d *Kopenhagen*, 1787
- UBALDO** (Guido)—v. MONTE, Nos. 12033-6, ante.
- 15357 **UNGER** (Ephraim Salomon) ÜBUNGEN aus der ANGEWANDTEN MATHEMATIK (I. Stereometrie. II. Statik und Mechanik der festen Körper); with 11 plates, 2 vols. 8vo. boards (nice copy), 6s 6d *Berlin*, 1830-4
- 15358 **UNWIN** (William Cawthorne, F.R.S.) On the DEVELOPMENT and TRANSMISSION of POWER from CENTRAL STATIONS (Howard Lectures, 1893), with 81 woodcuts, 8vo. cl. (o.p.), 6s (p. 10s nett) 1894
- 15359 ——— The ELEMENTS of MACHINE DESIGN, with 219 woodcuts, 12mo. cl., 1s 6d 1877
- 15360 ——— FOURTEENTH EDITION [greatly enlarged], with 478 illustrations, 2 vols. large 12mo. cl., 5s (p. 10s 6d) 1894-3
- 15361 ——— NEW [LATEST] EDITION, revised and enlarged, PART I: General Principles, Strength of Materials, Rivets, Bolts, and other Fastenings, Journals and Shafting, Couplings, Pedestals, Transmission of Power by Gearing, Belting, Ropes and Chains, with 387 illustrations, 8vo. cl., 5s (p. 7s 6d nett) 1909
- 15362 ——— The TESTING of MATERIALS of CONSTRUCTION: a Text-Book for the Engineering Laboratory and a Collection of the Results of Experiment, with 5 plates and 141 other illustrations, thick 8vo. cl., with auto. of F. J. Jervis-Smith, pr., F.R.S., 7s (p. £1. 1s) 1888

- 772 HENRY SOTHERAN & CO., 140, STRAND, W.C., and 43, PICCADILLY, W.
- 15364 UNITED STATES GEOLOGICAL SURVEY: MINERAL RESOURCES OF THE UNITED STATES, edited by ALBERT WILLIAMS JR. and DAVID T. DAY, 1882-4, '86-8, '91, and '93, 7 vols. 8vo. *cl.*, 10s Washington, 1883-94
- 15365 ——— GEOLOGICAL and GEOGRAPHICAL SURVEY of the TERRITORIES, edited by F. V. HAYDEN, I.—XI. ANNUAL REPORT, and PRELIMINARY FIELD REPORT, with numerous folding plates and maps, and woodcuts, 10 vols. 8vo. *cl.* (partly *o.p.*), £1. 5s ib., 1869-79
- 15366 URQUHART (John W., C.E.) ELECTRO-PLATING, including the Practice of Electro-Typing, with frontispiece and 12 woodcuts, cr. 8vo. *cl.*, 2s 1880
- 15367 URRIOIA (Ciro L.) Sur les VARIATIONS de la TEMPÉRATURE d'ÉBULLITION de l'EAU à PANAMA, roy. 8vo. *sewn.*, 1s 6d Panama, 1908
- 15368 UZIELLI (Gustavo) Di alcune PROPRIETÀ delle ROCCE e delle TERRE in Relazione alla Ricerca di Acque Potabili ed alla Perforazione delle Gallerie; with folding plate, 8vo. (pp. 50), *sewn.*, 1s 6d Firenze, 1899
- 15369 VAIL (Alfred) The AMERICAN ELECTRO-MAGNETIC TELEGRAPH, with the Reports of Congress, and a Description of all Telegraphs known, employing Electricity or Galvanism, first edition, with 81 woodcuts, 8vo. *hf. roan* (VERY SCARCE), £1. 5s Philadelphia, 1845
 Pp. 115-208 contain an account of all the magneto-electric telegraphic systems known at the time, from Lomond's, invented in 1787, to Wheatstone's rotating disc telegraph, invented in 1841, and also include the author's own, the first electro-magnetic printing telegraph invented (in 1837).
 There was no copy of the above edition in the Ronalds Library. The work was translated into French, German, and Italian.
- 15370 VALLA (Giorgio) CÖMENTATIONES in PTOLOMEI QUADRIPARTITUM inque CICERONIS Partitiones et Tusculanas Questioēs ac PLINII Naturalis Historie Librum II.; with diagrams, folio, old English calf (6 ll. somewhat defective, title soiled and holed, and corners of 2 ll. torn off, otherwise a tall and clean copy), £1. 1s (col.): Venetis, in officina Simonis Biuilaque, 1502
 The fourth part is entitled: 'Johannis Petri Vallae in Plinii Praefationis I. Libri Naturalis Historiæ Obscuriores Locos Interpretatio,' and treats of astronomical subjects.
- 15371 VALLA [o VALLO] (Lorenzo) LIBRETTO di ABBACO, con il quale ogn' uno potrà imparare con Facilità Grande le sue Operationi, necessarie per fare qualsivoglia Conto: cioè, Numerare, Sommare, Sottrarre, Moltiplicare, e Partire: con la Prova Reale, e del Sette, ed altri belli Avvertimenti, e Regole Curiose; with Austrian arms on title, 12mo. (pp. 24), boards (a few corners defective, but a sound copy); rare, £1. 10s Messina, Pietro Brea, 1611
 A very rare work of which Riccardi, who mentions the work in *Biblioteca Matematica Italiana*, Supp. V, was only able to quote the above copy. It is not mentioned by other bibliographers, e.g. Prof. de Morgan and Poggendorff, nor was there a copy in the Libri Library.
- 15372 VALLIER (Emmanuel, chef d'escadron d'artillerie) L'ARTILLERIE: Matériel, Organisation: France, Allemagne, Angleterre, Autriche-Hongrie, Italie, Espagne, Russie, Turquie, Etats-Unis, Japon, etc.; with 45 illustrations, 8vo. *cl.*, 2s (p. F. 5 nett) 1899
- 15373 VALTURIO (Roberto): OPERA de FACTI e PRECEPTI MILITARI di lo eccellente Misier ROBERTO VALTURIO Ariminese già inscripta in Latin a lo illustre Signor SIGISMON DO PANDOLPHO MALATESTA Principe di Arimino et hora traducta in Vulgar [per PAULO RAMUSIO] a Nome et Gloria del magnanimo Capitanno e sempre felice in le Bataglie Signor Roberto di Aragonia di San Severino General Loco Tenente del serenissimo et iustissimo Senato Venetiano; with 96 fine woodcuts after designs by MATTEO PASTI, and the first initial finely painted, thick folio, old vellum (top corners water-stained and a few slightly worn away, otherwise a sound copy); very rare; cheap, £30.
Impressa cū industria di Bonin di Boninis da Ragusi z . . Verona correndo l'anno del Mille e quatrocento. LXXXIII. adi XVII. de februario [1483]
 The first Italian edition, and one of the earliest works published in the vulgar tongue.
 'Edition recherchée à cause des figures et parce qu'elle est la première de cette traduction italienne.'—*Brunet*.
 A copy of the above edition fetched £88. at auction last year. The above has a 4-p. MS. index added at end.
- 15374 ——— De RE MILITARI Libri XII multò emaculatus, ac Picturis, quæ plurimæ in eo sunt, elegantioribus expressum, quàm cum Verone inter Initia Artis Chalceographicæ Anno M.CCCCLXXXIII inuulgaretur; with 96 large and fine woodcuts after MATTEO PASTI (re-engraved), folio, old *hf. Italian vellum* (a few corners slightly waterstained, otherwise a FINE AND UNCUT COPY): rare, £6. 6s Parisiis, Christianus Wechelus, 1532
 The third edition of this celebrated work, and the first one printed in Paris. It was reprinted in 1534 and 1555.
 'Cet ouvrage témoigne de la connaissance approfondie que Valturio avait des auteurs de l'antiquité; il décrit avec une grande clarté leurs machines de guerre, et en donne en même temps le dessin.'—*Biogr. Gén.*
 The woodcuts of this celebrated work are very remarkable in themselves, and as illustrating every variety of mechanical military engines, as well as of cannon.
- 15375 VAN HISE (Charles Richard; Pres. Univ. Wisconsin) TREATISE on METAMORPHISM, with 13 plates (one coloured), and numerous other illustrations, thick 4to. (pp. 1286), *cl.*, 12s 6d U.S. Geol. Survey, Washington, 1904
 'Attempting to reduce the phenomena of metamorphism to order under the principles of physics and chemistry, or, more simply, under the laws of energy.'
- 15376 VAREN [latine VARENUS] (Bernhard, M.D.) GEOGRAPHIA GENERALIS, in qua Affectiones Generales Telluris explicantur, Editio nova, summâ Curâ quam plurimis in Locis emendata, et XXXIII Schematibus Novis, etc. etc. aucta et illustrata ab ISAACO NEWTON; Ed. II. auctior et emendatior; with plates, sm. 8vo. *fine copy in contemporary calf*, 8s 6d Cantabrigiæ, 1681
 'Ouvrage fort savant qui opéra une révolution complète dans la science de la géographie.'—*Biogr. Gén.*
 'Ouvrage célèbre et considérable, où l'astronomie occupe une large place.'—*Houzeau et Lancaster*.
- 15377 VATTIER (Charles) L'AVENIR de la MÉTALLURGIE du FER au CHILI, avec le 1^{ER} SUPPLÉMENT; with plate, and 3 folding maps, 2 vols. impl 8vo. *sewn.*, 3s 1890

- 15378 **VAUQUELIN** (Louis Nicholas, *de l'Institut*; F.R.S.) **MANUEL** de l'ESSAYEUR, 8vo. (pp. 96), *sewn (rare), with MS. corrections (see below)*, 9s
 'L'exemplaire du laboratoire des essais a été payé 40 francs à la vente D'Arcet. Toutes les corrections sont celles indiquées par d'Arcet sur son exemplaire.'—*Inscr. on styles.*
- 15379 **VEGETIUS** **Renatus** (Flavius) **De RE MILITARI** Libri IV, post omnes omnium Editiones Ope veterum Librorum correcti a GOD. STEWECHEIO; accesserunt **Sexti Julii Frontini STRATEGEMATA**, in eadem F. MODII Notæ et G. STEWECHEII Conjectanea. **Aeliani** de INSTRUENDIS ACIEBUS. **Modesti** de VOCABULIS REI MILITARIS, accessit GOD. STEWECHEII Commentarius; with fine portrait of *Stewechius* et. 32 by *Holtzius*, and numerous good woodcuts of military engines, 2 vols. sm. 4to. in 1, *fine copy in old limp vellum, with bookplate of John Lord Sheffield (friend of Gibbon)*, £1. 5s
Antverpiæ, Christ. Plantinus, 1585
- 15380 ——— **ANOTHER COPY, calf antique, red edges (FINE COPY)**, £1. 5s
 First edition with the celebrated commentary by *Stewechius*, which has often been republished. The above edition is moreover very interesting for the numerous good woodcuts of war-engines, ancient warfare, etc., which it contains.
- 15381 **VENEMA** (Pieter) **KORTE** en **KLAARE ONDERWYZING** in de **BEGINSELEN** van de **ALGEBRA** of **STEL-KONST**, 6^{de} Druk, 12mo. *hf. bound*, 3s 6d
Amsterdam, 1794
- 15382 **VENN** (John, F.R.S.) **THE LOGIC OF CHANCE: an Essay on the Foundations and Province of the THEORY OF PROBABILITY**, with the especial Reference to its Logical Bearings and its Application to Moral and Social Science; 2nd Edition, re-written and greatly enlarged, large cr. 8vo. *cl.*, 4s 6d (p. 10s 6d)
 1876
- 15383 ——— **SYMBOLIC LOGIC**; 2nd [latest] Edition, revised and re-written, with diagrams, large cr. 8vo. *cl.*, with *Dr. Emil Reich's bookplate*, 5s 6d (p. 10s 6d)
 1894
- 15384 **VENTUROLI** (Giuseppe, *Univ. Bologna*) **ELEMENTI** di **MECCANICA** e d'**IDRAULICA**, 3^a Edizione, ampliata dall' Autore; with 14 plates, 2 vols. 8vo. *hf. morocco gilt (nice copy)*, 6s 6d
Milano, 1817-18
Napoli, 1833
- 15385 ——— **QUINTA EDIZIONE**; with 14 plates, 2 vols. 8vo. *sewn*, 4s
Napoli, 1833
- 15386 ——— **ELEMENTS** of the **THEORY** of **MECHANICS**, with 3 folding plates: **ELEMENTS** of **PRACTICAL MECHANICS**, with Treatise on the **PRINCIPLE** of **VIRTUAL VELOCITIES**, and its Uses in **Mechanics**, translated by **DANIEL CRESSWELL**, D.D., F.R.S., 4 plates—2 vols. 8vo. in 1, *cl.*, 4s 6d
Cambridge, 1822-3
- 15387 **VERANZIO** [vere **WRANCZY**] (**Fausto**, *da Sebenico*; *Vescovo di Canadio*) **MACHINÆ NOVÆ**, cum Declaratione Latina, Italica, Hispanica, Gallica, et Germanica; with engraved title and 49 fine double plates, folio, old English calf, newly mended (title slightly soiled, otherwise a VERY SOUND COPY), with auto. of *George Rennie, F.R.S.*, on title (excessively rare), £10. 10s
Venetii [c. 1595]
- An extremely rare and interesting work of which three varieties are known: two having the descriptions only in Latin and Italian, one issue of which has only 40 plates, and the third as above with the descriptions also in Spanish, French, German, and 49 plates. This issue is the rarest of all. Some of the plates are of great importance, e.g. plate 38 'Homo volans', giving a perfect representation of a parachute, plates 34-36 suspension bridges, of which no. 34 is the earliest description of one wholly of iron, 49 a diving belt, 41 a digging machine, 43 a rope-making machine, 40 a boat with paddle wheels going up a river, and a great variety of wind, water, and mechanically-driven mills, oil presses, etc. Plate 4 represents 'Ecclesia Sibenici'.
- The author, a native of *Sebenico*, *Dalmatia*, was Bishop of *Partibus* of *Canadium*, in *Hungary*, and in his later years appears to have lived in *Venice*. There is a full description of the work in *M. Libri's Histoire des Sciences Mathématiques*, where it is termed 'un ouvrage très rare qui ne se trouve guère indiqué par les bibliographes.'
- At the end of the descriptions is a List of *Machines* of the author's own invention, 'fra le quali veramente alcune sono interessantissime' (*Riccardi*).
- No copy of this work can be traced as having been sold at auction within the last 30 years.
- 15388 **VERNEUIL** (Philippe Édouard Poulletier de; *de l'Institut*; F.R.S.), et Édouard **COLLOMB**: **CARTE GÉOLOGIQUE** de l'**ESPAGNE** et du **PORTUGAL**, 2^e Édition (26 × 35 inches), finely coloured; mounted on linen and folded, in cl. case, 4s
[c. 1865]
- 15389 **VIERI** [detto il **VERINO** II] (Francesco di *Giovambattista de'*, *da Firenze*) **TRATTATO** nel quale si contengono i Tre Primi Libri delle **METHEORE**, nuovamente ristampati, e da Lui ricorretti con l'Aggiunta del Quarto Libro, 12mo. *fine copy in old vellum (rare)*, 15s
Firenza, G. Marescotti, 1582
- Second and last edition of this early treatise on meteorology, and the only one containing the fourth book. Besides meteorological subjects, it treats of comets, the tides, and the rainbow. Book IV (pp. 187-424) treats of Aristotelian meteorology and physics.
- The author is not noticed by *Poggendorf*.
- 15390 **VIÈTE** [latine **VIETA**] (François) **OPERA** **MATHEMATICA**, Opera atque Studio **FRANCISCI** **À SCHOOTEN**; with numerous diagrams (a few with moveable slips), folio, boards, uncut (RARE).
 £1. 17s 6d
Lugd. Batav., B. et A. ELZEVIR, 1646
- 'Belle édition'.—*Brunet*.
- In his most important work, *In Artem*, 'the earliest work on symbolic algebra, explaining how algebra could be applied to the solution of geometrical problems', he 'introduced the use of letters for both known and unknown (positive) quantities, a notation for the powers of quantities, and enforced the advantage of working with homogeneous equations . . . One of his improvements was that he denoted the known quantities by the consonants B, C, D, etc., and the unknown quantities by the vowels A, E, I, etc., the other was to introduce new symbols to represent the square, cube, etc. of quantities which had already occurred in the equations . . . These two improvements were almost essential in any further progress in algebra. . . Vieta's works on geometry are good. He applied algebra and trigonometry to help him in investigating the properties of figures', etc. etc.—*W. R. Ball*.
- 'The greatest mathematician of the Sixteenth Century'.—*Thomas Fowler, pr., President of Corpus*.
- 15391 ———: **PRINCIPES** de **COSMOGRAPHIE**: tirez d'un Manuscrit de *Viette*, et traduits en François; with astronomical diagram, 18mo. old vellum (rare), 10s 6d
A. Courbé, 1637
- 15392 ——— **ZETETICORUM** Libri V; with diagrams, folio, limp vellum wrapper (RARE), 15s
s. l. a. aut t. n.

This work, which treats of the solution of equations, was originally published as an appendix to *Vieta's In Artem Analyticam Isagoge*. The above edition, which is quite different from that of 1593, has no title, and is numbered from 1 to 24, with the signatures A—M in twos, and appears to be unknown to bibliographers.

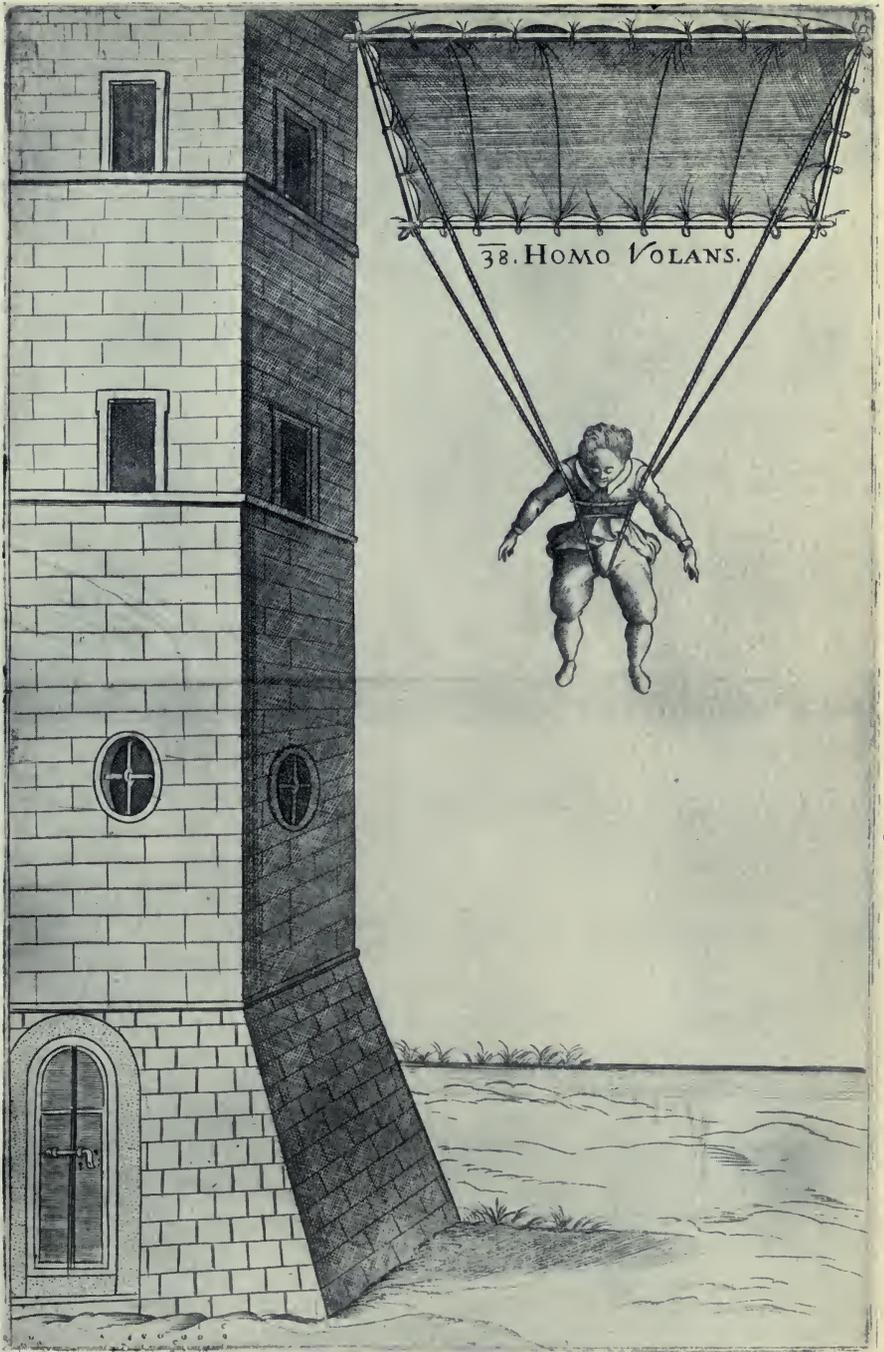
- 15394 **VIÈTE** [*latine VIETA*] (François) OPUS RESTITUTÆ MATHÈMATICÆ ANALYSEOS, seu ALGEBRA NOVA [in Artem Analyticam Isagoge. Zeteticorum Libri V. Effectuum Geometricarum Canonis Rencensio. Supplementum Geometricæ (*imperfect at end*)]; with diagrams: VARIORUM de REBUS MATHEMATICIS RESPONSORUM Liber VIII., cuius præcipua Capita sunt, de Duplicatione Cubi; et Quadratione Circuli; quæ claudit Πρόλογον, seu Ad Usam Mathematici Canonis Methodica; with woodcut vignette on title, and numerous diagrams—2 vols. folio in 1, old limp vellum (VERY RARE), £2. 10s
Turonis, I. Mettayer, 1591-3
All the above are original editions and of great rarity, having been privately printed for distribution among the author's friends only. They include his most important work, *In Artem Analyticam Isagoge*.
- 15395 **VIGENÈRE** (Blaise de, Bourbonnois) TRACTÉ des CHIFFRES, ou Secretes Manieres d'Ecrire; with plates and other illustrations, 4to. fine copy in old calf (RARE), £1. 1s 1586
'Il y a beaucoup d'érudition cabalistique.'—*Biogr. Gén.*
- 15396 ——— TRACTÉ du FEU et du SEL. Excellent et rare Opusculé, trouvé parmy ses Papiers apres son Deceds, dernière [2^e] Edition, reveuë et corrigée; with engraved vignette on title, 4to. large copy in old limp vellum (slightly water-stained); RARE, 17s 6d Rouen, 1642
This work contains the first description of crystallised benzoic acid. 'On y trouve une recette pour faire de l'or.'—*Biogr. Gén.* It was translated into English in 1649, and into Latin in 1613 (for *Theatrum Chemicum*).
- 15397 **VILLE** (Georges) ON ARTIFICIAL MANURES, their Chemical Selection and Scientific Application to Agriculture, translated and edited by SIR WILLIAM CROOKES, P.R.S., with 5 folding plates (one coloured), and woodcuts, 8vo. cl., 4s (p. £1. 1s) 1879
- 15398 ——— NEW EDITION, revised by SIR WILLIAM CROOKES, P.R.S., and JOHN PERCIVAL, with 5 folding plates (one coloured), and woodcuts, 8vo. cl., 7s (p. 10s 6d nett) 1909
The author first demonstrated that wheat would grow in calcined sand to which salts of ammonia only were added.
- 15399 **VIMERCATO** (Giovanni Battista, Monaco di Certosa) DIALOGO [della Descriptione Teorica et Pratica] de gli HOROLOGI SOLARI: nel quale con Ragioni speculative, et pratiche facilmente s'insegna il MODO di FABRICAR tutte le Sorti di HOROLOGI, nuovamente ristampato, con Postille in Margine, ed un Aggiunta di un Horologio da servir sene al Lume della LUNA, ò à i Raggi di essa per saper qual Hora s'ii della Notte; with 3 folding plates, and numerous large woodcuts, sm. 4to. contemporary vellum (sound copy); RARE, £1. 10s Padova, 1672
Last edition of this popular work on dialling. All editions of this work, which was unknown to Lalande, Poggendorf, and Brunet, are now VERY RARE. 'Buon trattatello di gnomonica.'—*Riccardi*.
- 15400 **VINTÉJOUX** (F.) NOUVELLES TABLES d'INTÉRÊTS COMPOSÉS et d'ANNUITÉS, et Précis de la Théorie et de la Pratique des Opérations Financières à Long Terme, particulièrement des Emprunts, 8vo. hf. French morocco neat, 6s (p. F. 12 nett) 1905
- 15401 **VIOLLE** (Louis Jules Gabriel; de l'Institut) COURS de PHYSIQUE, TOME I: PHYSIQUE MOLÉCULAIRE; with 566 woodcuts, large 8vo. (pp. 1021), hf. morocco gilt (nice copy), 15s (p. F. 28 nett sewn) 1884
- 15402 ——— ANOTHER COPY, 2 vols. hf. calf neat, 14s 1833-4
- 15403 ——— TOME II 1^{RE} PARTIE: ACOUSTIQUE; with 163 woodcuts, large 8vo. hf. calf neat, 5s (p. F. 9 nett sewn) [1886]
- 15404 **VISPRÉ** (François Xavier) DISSERTATION of the GROWTH of WINE in ENGLAND, to serve as an Introduction to a Treatise on the Method of Cultivating Vineyards, in a Country from which they seem at present entirely eradicated, and making from them GOOD SUBSTANTIAL WINE, 8vo. (pp. 69), sewn, 6s 6d Bath, 1786
The vineyards got entirely eradicated because post-Reformation stomachs were weaker than their Medieval forebears. But that wine can be grown in England was shown by the late Marquess of Bute in Glamorganshire, where the vineyard is still kept up. Whether Lord Bute's guests at Castell Coch liked the brand any more than they did William Barges's grand oaken settles is not recorded.
- 15405 **VITELLIONIS** Mathematici Doctissimi ΠΕΡΙ 'ΟΠΤΙΚΗΣ, id est de NATURA, RATIONE, et PROTECTIONE RADIORUM VISUS, Luminis, Colorum atque Formarum, quam vulgo PERFECTIVAM uocant, Libri [cum Prefatione PETRI APIANI], editio princeps; with pretty woodcut on title, large arms, and very numerous diagrams, Norinbergæ, Jo. Petreius, 1535: Euclidis ELEMENTORUM GEOMETRICORUM Libri XV, cum Expositione THEONIS in priores XIII à BARTHOLOMÆO ZAMBERTO Veneto Latinitate donata, CAMPANI in omnes, et HYPsicLIS Alexandrini in duos postremos: adiecta sunt PHENOMENA. CATOPTRICA et OPTICA, deinde Protheoria MARINI et DATA, postremum, OPUSCULUM de LEVI et PONDEROSO, hactenus non visum; with numerous woodcut initials and diagrams, Basileæ, Joh. Hervagius, 1537—2 vols. folio in 1, old oaken boards, covered with stamped pigskin, with metal clasps (very fine and large copies): rare, £3. 15s 1535-7
Vitello's work contains not only a summary of all that was known on optics to the ancients and to Alhazen, but also a number of original investigations.
'A work on optics less diffuse and more systematic than that of Al Hazen, on which it was based. Witelo explained the twinkling of stars as due to the motion of the air, and showed that the effect was intensified if the star was viewed through water in motion. He pointed out that the rainbow was not formed by reflexion alone, as was taught by Aristotle, but was due to both reflexion and refraction.'—*Prof. Cajori*.
The existence of a separate edition of his works was unknown to Poggendorf and Heller, who only quote the edition published with Alhazen's works in 1572.
The second piece is the first complete edition of Euclid's works. The above copy contains the three preliminary ll., with an address by Philip Melancthon, which were abstracted in nearly all cases by the clerical censor—an interesting instance of the rigidity of Ecclesiastical censure at the period of the Reformation.
- 15406 **VLACQ** (Adriaan): EPHEMERIDES MOTUUM CÆLESTIUM ad Annos vulgaris Aeræ 1633-6, summa Diligentia in Luminarium Motibus et Zzygiis, ex Tabulis Lansbergianis ab A.V.; in reliquis Planetis ex Tabulis Rudolphinis a JOANNE KEPLERO supputatæ, cum Instructione super earum Usu; with vignette on title, and 2 other woodcuts, sm. 4to. boards (sound and clean copy), 14s Gouda, P. Rammasenius, 1632
- 15407 ——— ANOTHER COPY, old vellum (title slightly defective), 10s 6d



Dannebora Eld och Luft Måchin.
Kongl. Maj:ts och Rikssens Höglofliga Bergs Collegio
Underdån-ödmjukast Dedicerad af Märten Triewald.

No. 15335 (page 770).

The first steam engine in Sweden.



No. 15387 (page 773).

The first illustration of a parachute.

- 15409 **VITRUVIUS** Pollio (Marcus) [De ARCHITECTURA Libri X] per JOCONDUM SOLITO castigato facti, cum Figuris et Tabula ut jam legi et intelligi possit; *title within woodcut border, and numerous good woodcuts, folio, hf. white vellum (wanting ff. 1, 9, 13, 19, 22, 35-8, 40-1, 64-5, 83-90, 95-7, 104, and first l. of table); rare, 10s 6d (col.) Venetis, Joa. de Tridino alias Tacuino, 1511*
The first illustrated edition of Vitruvius. The above copy contains the table which is often missing.
- 15410 — De ARCHITECTURA Libri X, cum Commentariis DANIELIS BARBARI, electi Patriarchae Aquileiensis: Multis AEDIFICIORUM, HOROLOGIORUM, et MACHINARUM DESCRIPTIONIBUS, et FIGURIS, unâ cum Indiciis copiosis, aucti et illustrati; *with very numerous large and fine woodcuts, and diagrams, folio, hf. morocco (name torn off title); RARE, £2. 2s*
ibidem, Franc. Franciscus Senensis et Joa. Crugher, 1567
A beautiful edition, esteemed for the woodcuts it contains. 'Texte de l'édition Lyonnaise de 1552 corrigé sur de conjectures et muni d'un commentaire explicatif. Une partie des figures ont été gravées par Gio. Crugher.'—Grasse.
The Sunderland copy (in calf) fetched £4. 15s.
- 15411 — De ARCHITECTURA Libri X, cum Notis, Castigationibus et Observationibus GUILIELMI PHILANDRI integris; DANIELIS BARBARI excerptis, et CLAUDII SALMASII passim insertis, præmittuntur ELEMENTA ARCHITECTURÆ, collecta ab HENRICO WOTTONO Equite Anglo; accedunt Lexicon Vitruvianum BERNARDINI BALDI Urbinatis, et ejusdem Scamilli Impares Vitruviani, de Pictura Libri III Leonis Baptistæ de Albertis, de Sculptura Excerpta ex Dialogo Pomponii Gaurici . . . cum Indiciis copiosissimis, omnia collecta, digesta, et illustrata a JOANNE DE LAET; *with finely engraved title, and numerous well-executed woodcuts, thick sm. folio, hf. calf gilt (joints cracked, but a sound and clean copy); rare, £3. 3s*
Amstelodami, apud Lud. Elzevirium, 1649
'Magnifique édition.'—A. Willems. 'Belle édition. Elle est encore recherchée, et les exemplaires en sont assez rares.'—Brunet. It is interesting to find Sir Henry Wotton's treatise among the works included.
'Ce qui donne à cet ouvrage une valeur particulière, c'est qu'il est le seul de ce genre qui soit parvenu jusqu'à nous, c'est qu'il renferme des notions importantes pour l'histoire de l'art, c'est qu'il a été écrit à une époque où l'architecture à Rome atteignit à sa plus grande perfection.'—Biog. Gén.
Book 3 deals with WATER-SUPPLY and AQUEDUCTS; the 9th with DIALLING, and the 10th with MECHANICS.
- 15412 **VOGEL (Rudolf Augustin, Univ. Göttingen)** INSTITUTIONES CHEMIE ad Lectiones Academicas accomodate, Editio altera locupletata, Svo. *old calf (nice copy), 5s Lugd. Bat., 1757*
The author was a distinguished adherent of the Phlogiston Theory. He denied the metallic character of mercury.
- 15413 — LEHRSÄTZE der CHEMIE, übersetzt und mit Anmerkungen versehen von JOHANN CHRISTIAN WIEGLEB, Svo. *old hf. calf, 4s 6d* Weimar, 1775
- 15414 **VOIGT (Woldemar, Univ. Göttingen)** ELEMENTARE MECHANIK als Einleitung in das Studium der theoretischen Physik; *with 55 illustrations, 8vo. cl., with Dr. Emil Reich's bookplate, 4s 6d* Leipzig, 1889
(p. M. 12 sewn) *ibidem, 1901*
- 15415 — ZWEITE UMGEBARBEITETE [NEUESTE] AUFLAGE; *with 56 illustrations, 8vo. hf. German morocco neat, 10s (p. M. 16)*
- 15416 — KOMPENDIUM der THEORETISCHEN PHYSIK, 2 vols. 8vo. *hf. German morocco, with Dr. Emil Reich's bookplate, £1. 1s (p. M. 36)* *ib., 1895-6*
- 15417 — LEHRBUCH der KRISTALLPHYSIK (mit Ausschluss der Kristalloptik); *with 213 illustrations and folding table, thick 8vo. sewn, 18s (p. M. 30)* *ib., 1910*
- VOLTAIRE (François Marie Arout de)** THE ELEMENTS OF SIR ISAAC NEWTON'S PHILOSOPHY (1738)—v. NEWTONIANA, No. 12625, ante.
- 15418 **VOSSIUS (Isaac; Canon of Windsor)** VARIARUM OBSERVATIONUM Liber; *with woodcuts, 4to. old white vellum, or, old calf, 12s 6d* Londini, Robertus Scott, 1685
Including: de Artibus et Scientiis Sinarum; de Origine et Progressu Pulveris Bellici apud Europæos; de Trirremium et Liburnicarum Constructione; de Emendatione Longitudinum; de apparentibus in Luna Circulis; de Causa Gravitatis, etc.; also his well-known 'de Sibiyllinis aliisque Christi Natalem præcedentibus Oraculis.'
The dissertation on the construction of triremes was inserted by Grævius in his *Thesaurus Antiquitatum Romanorum*, and is referred to with commendation in Smith of Jordanhill's 'Dissertation on the Navigation of the Ancients.'
- 15419 **VREDEMAN (Jan)** PERSPECTIVA THEORETICA et PRATICA, hoc est, Opus Opticum absolutissimum, continens Aëdificiorum, Templorum, Pergularum aliarumque Structurarum perfectissima Fundamenta, Icones atque Delineamenta, juxta veterum ac recentiorum Autorum Doctrina accurate exaratum, multis verò Notis illustratum per SAMUELEM MAROLOIS; *with 65 plates, folio, old vellum (binding damaged and some plates torn); RARE, with fine etched bookplate by Boutet, £1. 1s* Amsterdam, Joa. Jansson, 1633
- 15420 **VULLIAMY (Benjamin Lewis, F.R.A.S.)** Some CONSIDERATIONS on the Subject of PUBLIC CLOCKS, particularly CHURCH CLOCKS: with Hints for their Improvement, with the Supplement, 2 vols. 4to. in 1, (pp. 15 + 31), *hf. russia (binding damaged), with author's inscr., 5s* privately printed, 1828-30
Upsala, 1866
- 15421 **WACKERBARTH (A. D.)** PROVISIONAL THEORY OF LEDA, 4to. (pp. 24), *sewn, with author's inscr., 2s 6d*
- 15422 — ANOTHER COPY, cl., 3s
The planetoid Leda was discovered by Chacornac in 1856.
- 15423 **WAEYWEL (Daniel)** DEMONSTRATIE wegens de QUADRATURA CIRCULI ontdeekt en uytgevonden; *with folding plate, sm. 4to. (pp. 28), boards (headlines cut into); rare, 15s* Amsterdam, 1712
The author finds $3/142$ as value for π . Holland was the great country of circle-squarers during the XVIII. Century, probably owing to the fact that a money prize was offered there for a 'correct' solution.
- 15424 **WAGNER (Joseph Friedrich)** NOTIZEN über die MINERALIEN-SAMMLUNG von ALEXANDER V. CRICHTON; *with fine portrait of Gotthelf Fischer, and 18 plates, 4to. (pp. 147), sewn, 4s 6d* Moskwa, 1818
'Thomas Allan Esquire [F.R.S.] with best compliments from his friend [Sir] A[lexander] Cr[ic]hton, F.R.S.'—Inscr. on title.

- 15426 **WADDELL** (John Alexander Low, C.E., *Univ. Tokio*) THE DESIGNING OF ORDINARY IRON HIGHWAY BRIDGES, with diagrams and 42 folding tables, large 8vo. cl. (o. p.), 6s 6d (p. £1. 1s) *New York, 1884*
- 15427 **WALKER** (Charles Vincent; F.R.S.) ELECTRIC TELEGRAPH MANIPULATION: the Theory, and Plain Instructions in Transmitting Signals to Distant Places, as practised in England, through Electricity and Magnetism, with woodcuts, 16mo. pictorial wrapper (scarce), 5s 1850
Written when the author was telegraph superintendent to the South Eastern Railway, one of the first lines to use the electric telegraph extensively in England. At this date (1850) the writer says the Brighton Railway had no telegraphs! The book includes a chapter on the Submarine Telegraph. The author also, in conjunction with James Glaisher and Sir G. B. Airy, introduced the system of electric time-signals from Greenwich Observatory.
- 15428 ——— ELECTROTYPE MANIPULATION: being the Theory, and plain Instructions in the Art of Working in Metals by precipitating them from their Solutions through the Galvanic or Voltaic Electricity, with woodcuts, 16mo. sewn (scarce), 4s 1841
This is probably the earliest English work on electrotyping, as M. H. v. Jacobi did not publish his invention until 1840 (v. no. 9709-10 ante).
- 15429 **WALKER** (Frederick, C.E.) AERIAL NAVIGATION: a Practical Handbook on the Construction of Dirigible Balloons, Aërostats, Aëroplanes, and Aëromotors, with frontispiece and 104 illustrations, post 8vo. cl. 2s 6d (p. 7s 6d nett) 1902
- 15430 ——— SECOND EDITION, revised and enlarged, with 123 illustrations, post 8vo. cl., 3s 6d 1910
- 15431 **WALKER** (James, *Univ. Edin.*, F.R.S.) INTRODUCTION TO PHYSICAL CHEMISTRY, third Edition [enlarged], with 50 illustrations, 8vo. cl. 5s (p. 10s nett) 1903
- 15432 ——— THE THEORY AND USE of a PHYSICAL BALANCE, with 3 folding plates, 8vo. sewn, 2s
Clarendon Press, Oxford, 1887
- 15433 [**WALKER** (Obadiah)] PROPOSITIONS concerning OPTIC GLASSES, with their natural Reasons, drawn from Experiments, with vignette of the Sheldonian Theatre on title, and 38 diagrams, sm. 4to. (pp. 46), hf. brown calf, uncut (fine copy); RARE, 17s 6d
Oxford, at the Theater, 1679
An elementary work which seems to have sufficed for the needs of a university education in the latter end of the Seventeenth Century.
The author was Master of University College, Oxford, and went over to Rome on James II.'s accession, who charged him with the uphill task of Romanising the University. Walker only succeeded however in getting 'the curses of all both great and small' (*Anthony à Wood*), a sentiment also expressed in some contemporary doggerel, which was sung by the undergraduates:
 'Oh, old Obadiah
 Sing Ave Maria
 But so will not I a
 for why a
 I had rather be a fool than a knave a.'
- 15434 **WALKER** (Ralph) TREATISE on MAGNETISM, with Description and Explanation of a Meridional and Azimuth Compass, for ascertaining the Quantity of Variation, without any Calculation whatever, at any Time of the Day, also Improvements on Compasses in General, with TABLES of VARIATION, for all Latitudes and Longitudes, with 7 folding plates, 8vo. calf gilt (one joint cracked, and title mounted), 7s 6d 1794
- 15435 ——— ANOTHER COPY, hf. calf, with auto. of John Lee, of Hartwell, Q.C., F.R.S., 9s
Chiefly valuable for the full tables of variation (pp. 139), compiled from observations between 1760 and 1780.
- 15436 **WALKER** (Comm. William, R.N.) THE MAGNETISM of SHIPS, and the MARINER'S COMPASS: a Rudimentary Exposition of the Induced Magnetism in Sea-going Vessels, and its Action on the Compass, etc., with woodcuts by L. F. W. JEWITT, F.S.A., 12mo. cl. (scarce), 5s 1853
Pp. 1-20 contain an interesting history of the mariner's compass. There is also an account of the author's own compensated compass; with an appendix of official reports.
- 15437 **WALLACE** (William, F.R.S.E., *Univ. Edin.*) INVESTIGATION of FORMULÆ, for FINDING the LOGARITHMS of TRIGONOMETRICAL QUANTITIES from one another, and a proposed Improvement in the Solution of a Case in Plane Trigonometry, 4to. (pp. 23), sewn, 2s 6d *Edin.*, 1823
- 15438 ——— NEW SERIES for the QUADRATURE of the CONIC SECTIONS, and the COMPUTATION of LOGARITHMS, with plate, roy. 4to. (pp. 78), sewn, with inser. to Nevil Maskelyne, pr., F.R.S., 4s 6d *ibidem*, 1808
- 15439 **WALLACE** (William) THE LAWS which regulate the DEPOSITION of LEAD ORE in VEINS; illustrated by an Examination of the Geological Structure of the Mining Districts of ALSTON MOOR, with 21 lithographic views and plans (some coloured or folding), 8vo. cl. (map wanting); SCARCE, 7s 6d 1861
- 15440 **WALLACH** (Otto; *Univ. Göttingen*) TERPENE und CAMPHER: Zusammenfassung eigener Untersuchungen auf dem Gebiet der alicyclischen Kohlenstoffverbindungen, large 8vo. sewn, with inser. to Prof. W. H. Perkin, F.R.S., 12s (p. M. 18) *Leipzig*, 1909
A systematic account of the author's important researches on essential oils, made between 1885 and 1908, and containing a new classification of terpenes.
- 15441 **WALSH** (Francis) THE ANTEDILUVIAN WORLD: or a NEW THEORY of the EARTH: containing a clear Account of the Form and Constitution of the Terrestrial Globe before the Universal Deluge; proving it to be quite different from what it is at present; with the Origin and Causes of the said Deluge, Subterraneous Cavities, Seas, Islands, Mountains, etc., with woodcuts, 8vo. old calf (rare), 8s 6d *Dublin*, 1743
This grand defence of the Deluge and curious geological paradox was unknown to Watt, Lowndes, Allibone, and other bibliographers.
- 15442 **WALTER** (Thomas) NEW MATHEMATICAL DICTIONARY: the Explication of all the Terms in Pure and Mixed Mathematics, the Explications, Uses, etc. of the most considerable Instruments, Engines, and Machines, with the Elements of Geometry, with 3 plates and diagrams, 8vo. cl., 5s [1762]

- 15444 **WALLETIN (Ignaz) EINLEITUNG** in die THEORETISCHE ELEKTRIZITÄTSLEHRE; with 81 diagrams, 8vo. cl., 7s 6d (p. M. 12) Leipzig, 1904
- 15445 **WALLERIUS (Johan Gottskalk, Univ. Upsala) ELEMENTS d'AGRICULTURE Physique** et Chimique, traduits du Latin, 12mo. *fine copy in contemporary calf extra, with auto. of Richard Watson, F.R.S., absentee Bp. of Llandaff (1737-1816), and his Calyarth Park book-label, 7s 6d* Yverdon, 1766

An important work in which the author bases the principles of agriculture on a comparative study of the chemical constitution of plants and the soil.

Bishop Watson bought this book to improve his estate in Westmorland, where he lived while Bishop of Llandaff, and took to planting, and what Wordsworth called a vegetable manufactory, while his sons 'merrily pursued cockfighting', and the natural result ensued 98 years *post mortem* in the disendowment of the Church in Wales.

- 15446 — **PHYSISCHE CHEMIE : Natur und Beschaffenheit der Chemie überhaupt, ihre Geschichte** u. s. w.; von den Salzen, dem Schwefel, dem schwefelichten und erdharzigen Körpern; von den 7 halben und 7 ganzen Metallen, und den Produkten derselben, übersetzt mit Anmerkungen von C. A. MANGOLD und C. E. WEIGEL (Bd. I 2. Auflage, mit Anmerkungen von C. E. Weigel); 2 vols. 8vo. in 3, sewn, 5s Leipzig, 1780-76

The author was Bergman's predecessor as professor of chemistry at Upsala. He promoted the study of mineralogy by giving a more systematic arrangement of minerals.

- 15447 **WALLIS (John, D.D., F.R.S., Savilian Prof.) DISCOURSE** of GRAVITY and GRAVITATION, grounded on Experimental Observations presented to the Royal Society, November 12, 1674, with *folding plate*, sm. 4to. (pp. 36), *hf. brown calf (RARE)*, £1. 1s J. Martyn, 1675

Interesting as a discourse on the subject on the eve of the discovery of the law of gravitation by Sir Isaac Newton. The work contains many experiments in illustration.

- 15448 — **INSTITUTIO LOGICÆ**, ad communes Usus accommodata, Editio VI., auctior et emendatior, large 12mo. *old sheep, rebounded, with auto. of Sam. Roberts, F.R.S., 5s* Ozonii, 1763

- 15449 — **MECHANICA: sive, de MOTU, TRACTATUS GEOMETRICUS**, Pars I. in qua, de Motu Generalia; de Graviium Descensu, et Motuum Declivitate; de Libra. Pars II. in qua, de Centro Gravitatis, ejusque Calculo. Pars III. in qua, de Vecte, de Axe in Paritrochio, de Trochleâ, de Cochleâ, de Motibus Compositis, de Percussione, de Cuneo, de Elatere, et Resilitione seu Reflexione, de Hydrostaticis, et Aeris Æquipondio, variisque Questionibus Mathematicis, editio princeps; with *finely engraved portrait* by W. FAITHORNE, and 17 *folding plates*, 3 vols. 4to. in 1, *sound and large copy in contemporary calf (VERY RARE)*, £2. 10s Londini, Gul. Godbid, 1670-1

One of the classics of mechanics, containing the first exhaustive treatment of the theory of the collision of bodies considered as imperfectly elastic bodies—being the solution of a problem propounded by the Royal Society—while Sir Christopher Wren and Huygens treated the subject simultaneously, but confined their theory to perfectly elastic bodies. On these investigations, according to Prof. Mach, Sir Isaac Newton based his researches contained in the *Principia*.

'Wallis geht von dem Grundsätze aus, dass das Moment, das Produkt aus der Masse (Pondus) und der Geschwindigkeit (Celeritas), bei dem Stosse massgebend sei. Durch dieses Moment wird die Kraft des Stosses bestimmt. Stossen zwei (unelastische) Körper mit gleichen Momenten aufeinander, so besteht nach dem Stoss Ruhe. Bei ungleichen Momenten ergibt die Differenz der Momente das Moment nach dem Stosse.'—Prof. Mach.

The third volume is especially rare, and often wanting.

- 15450 — **PARS I. (de Motu Generalia, de Graviium Descensu, et Motuum Declivitate, de Libra); with 2 folding plates, 4to. old calf (roughly rebounded), 15s** *ibidem, apud evundem*, 1670

- 15451 — **OPERUM MATHEMATICORUM PARS ALTERA: qua continentur de Angulo Contactus et Semicirculi Disquisitio Geometrica; de Sectionibus Conicis Tractatus; Arithmetica Infinitorum, sive de Curvilinearum Quadraturâ, etc.; Eclipseos Solaris Observatio: with folding copperplate, and numerous diagrams, sm. 4to. contemporary English calf (joints cracked), with auto. of Sam. Roberts, F.R.S., £1. 5s** Ozonii, L. Lichfield, 1656

The above volume contains the treatises mentioned on title, each having a separate title and pagination, and includes the first appearance of the celebrated *Arithmetica Infinitorum*, 'the most stimulating mathematical work so far published in England. Newton read it with delight when an undergraduate, and derived immediately from it his binomial theorem. It contained the germs of the differential calculus, and gave, in everything but form, advanced specimens of the integral calculus' (D. N. B.); and in *de Sectionibus Conicis* the first clear exposition of Descartes's invention of analytical geometry.

This collected edition was unknown to Lowndes, Allibone, Watt, and Poggenдорff, and is VERY RARE; while most of the treatises it contains appear here for the first time.

- 15452 — **THOMÆ HOBBS QUADRATURA CIRCULI; CUBATIO SPHERÆ, DUPLICATIO CUBI; CONFUTATA; with 2 folding plates, sm. 4to. sprinkled calf neat, uncut (rare), 10s 6d** *ibidem, typis Lichfieldianis*, 1669

'In a long-drawn controversy he exposed the geometrical imbecility of Thomas Hobbes (the philosopher). It excited much public interest; but after the death of his adversary, Wallis declined to reprint the scathing pamphlets he had directed against him while alive.'—D. N. B. See Nos. 1947-51 and 9342 *ante*.

- 15453 — **TREATISE OF ALGEBRA**, both Historical and Practical, with some Additional Treatises, I. Of the Cono-Cuneus. II. Of Angular Sections. III. Of the Angle of Contact. IV. Of Combinations, Alternations, and Aliquot Parts, first edition, with *fine portrait* by D. Loggan (*splendid impression*), *folding plates*, and numerous diagrams, folio, *old calf (RARE)*, £1. 1s J. Playford, 1655

The above copy contains at end 'A Brief (but full) Account of the Doctrine of Trigonometry, both Plain and Spherical', by JOHN CASWELL (pp. 17), 1655, and has the portrait, which is often missing.

'In 1655 Wallis published an *Algebra*, preceded by an historical account of the development of the subject, which contains a great deal of valuable information. This algebra is noteworthy as containing the first systematic use of formulae. A given magnitude is here represented by the numerical ratio which it bears to the unit of the same kind of magnitude', etc. etc.—W. W. R. Ball.

- 15454 **WARREN (Erasmus, Rector of Worlington, Suffolk) GEOLOGIA: or a Discourse concerning the Earth BEFORE THE DELUGE**, wherein the Form and Properties ascribed to it, in a Book intitled *The Theory of the Earth*, are excepted against: and it is made appear, that the Dissolution of that Earth was not the Cause of the Universal Flood; also a New Explication of that Flood is attempted, with 4 engravings on copper, sm. 4to. *hf. calf (fine copy)*, 7s 6d R. Chiswell, 1690

- 15456 **WARD** (John, *Chief Surveyor and Gauger-General in the Excise*) COMPENDIUM OF ALGEBRA, containing Plain and Easie Rules . . . exemplified by various Problems, with the Solution of their Equations in Numbers by a new and general Method of resolving all kind of Equations, with great Ease and Expedition, very different from all others yet extant, applied to **Squaring the Circle**, Making of Sines, Tangents and Logarithms with great Facility, also Appendix concerning Compound Interest and Annuities; 2nd Edition, corrected, *with diagrams*, 16mo. *old panelled calf (back damaged)*, 6s
J. Taylor, 1698
- 15457 ——— POSTHUMOUS WORKS. I. NEW METHOD OF NAVIGATION by Parallel Parts, by which all Questions in Sailing may be answered with great Expedition and Truth, in a different Manner from Plain, Mercator, and Great Circle Sailing, by the Solution of a plain Triangle only; also Compendiums of Practical and Speculative Geometry, and of Plain Trigonometry, with their Application to . . . Sailing, etc. II. DOCTRINE of the SPHERE, and SPHERICAL TRIGONOMETRY, in which the Construction of the Figures are New, and drawn to represent Solids, by which the Demonstrations are made easy to the meanest Capacity; 2nd Edition, by GEORGE GORDON, *with plate of figures with movable slips, and numerous diagrams*, 8vo. *old calf*, 7s 6d
1742
This work was unknown to Watt, Allibone, and Lowndes.
- 15458 ——— The YOUNG MATHEMATICIAN'S GUIDE: a Plain and Easie Introduction to the Mathematics, Arithmetick, Algebra, the Elements of Geometry, Conick-Sections, and the Arithmetick of Infinites, with Appendix of PRACTICAL GAUGING; 2nd Edition, corrected, *with diagrams*, 8vo. *old calf (binding damaged)*, 4s
1713
- 15459 ——— SIXTH EDITION, with New Tables of Compound Interest at Five per Cent., *with portrait et. 58 by Mynde, and diagrams*, 8vo. *old calf*, 4s
1734
'This useful course is recommended by Raphson and Ditton.'—*Prof. de Morgan*. 'A book still in great request, and which has been ever since the ordinary introduction of the greatest part of the mathematicians of this country.'—*Dr. Charles Hutton, F.R.S.*
- 15460 **WARING Jr.** (George Edwin, M.I.C.E.) SEWERAGE and LAND-DRAINAGE, 3rd Edition, *with 29 plates and 75 other illustrations*, roy. 4to. *cl.*, 12s (p. £1. 10s)
New York, 1891
- 15461 **WASHINGTON ASTRONOMICAL and METEOROLOGICAL OBSERVATIONS**, made at the U.S. NAVAL OBSERVATORY, ADMLS. C. H. DEAVIS, and S. C. ROWAN, Superintendents, with the **Appendixes**, from 1875 to 1882 (Vols. XXII—XXIX), *with plates*, 8 vols. roy. 4to. in 9, *cl.*, £1. 10s
Washington, 1878-85
- 15462 **WATKINS** (Francis, *optician to the Prince and Princess of Wales*) PARTICULAR ACCOUNT of the ELECTRICAL EXPERIMENTS hitherto made publick, with Variety of new ones, and full Instructions for performing them; with the DESCRIPTION of a compleat ELECTRICAL MACHINE, and its Apparatus, with the Way of using it, *with 3 plates*, 8vo. (pp. 78), *sewn (rare)*, 7s 6d
1747
- 15463 **WATSON** (Ralph), BRIEF EXPLANATORY STATEMENT of the PRINCIPLE and APPLICATION of a PLAN for preventing Ships foundering at Sea, invented by, 8vo. (pp. 15), *sewn, with inscr.*
1827
'From the Author' (*rare*), 6s 6d
The 'invention' was to have 'Safety Tubes' of copper of a cylindrical shape, filled with air and hermetically sealed, fixed in the ship.
There is no copy of this pamphlet in the Library of the Institution of the Naval Architects nor was there one in the Scott Collection.
- 15464 **WATSON** (Richard; *Prof. Chemistry, Cantab., afterwards absentee Bp. of Llandaff; F.R.S.*) CHEMICAL ESSAYS, 2 vols. 8vo. *old tree-calf*, 10s
Dublin, 1791
A piratical reprint of the first edition.
- 15465 ——— NEW EDITION (Vols. I—III 5th Ed., IV 4th Ed., V 1st Ed.), 5 vols. 12mo. *old calf (some joints cracked)*, 12s 6d
1789-91-89
- 15466 ——— SEVENTH [LAST] EDITION; 5 vols. 12mo. *hf. calf*, 10s 6d
1800
'The most notable essays are (1) 'On the Degrees of Heat at which Water boils', describing an experiment on the boiling of water, in a closed flask nearly free from air, which has become classical; (2) 'On Pit-coal' (1781), suggesting the condensing of the volatile products from coke-ovens, an operation which has recently become of great industrial importance; (3) 'On the Smelting of Lead Ore' (1781), suggesting the condensation of lead fume, and of the sulphurous acid produced in the roasting of sulphide ores; (4) 'On Zinc' (1786).—*D. N. B.*
The 'Chemical Essays' also include the author's contributions to the 'Philosophical Transactions', and the Transactions of the Manchester Literary and Philosophical Society, comprising his discovery of the black-bulb thermometer, and his ingenious 'Experiments and Observations on various Phenomena attending the Solutions of Salts', which procured him election to the Royal Society.
- 15467 ——— ESSAY on the SUBJECTS of CHEMISTRY, and their GENERAL DIVISION, 8vo. (pp. 43), *sewn*, 5s
Cambridge, 1771
- 15468 ——— PLAN of a COURSE of CHEMICAL LECTURES, *with tables*, 8vo. (pp. 91), *sewn*, 5s
ibidem, 1771
- 15469 ——— A LARGE PAPER COPY, roy. 8vo. *sewn*, 6s 6d
Bishop Watson's success in chemistry was at first a remarkable *tour de force*, as on his appointment to the chair his acquaintance with the science was absolutely *nil*, and he muzzed it up (*ut aiunt Westmonasterienses*) for fourteen months straight away, with the help of experiments with an operator from Paris. He then quickly became a skilled original investigator, as shown above. This hard mental application was unnecessary on his appointment to his next chair, that of the Regius Professor of Divinity, in which, after a manner which should endear him to the editor of the *Spectator*, he neglected systematic and historical theology, and lectured out of his inner consciousness.
- 15470 **WATSON** (Sir William, M.D., F.R.S.) ACCOUNT of the EXPERIMENTS made by some Gentlemen of the Royal Society, in Order to discover whether ELECTRICAL POWER would be SENSIBLE AT GREAT DISTANCES, with experimental Enquiry concerning the respective VELOCITIES of ELECTRICITY and SOUND, and some further Inquiries into the NATURE and PROPERTIES of ELECTRICITY, 8vo. (pp. 90), *sewn (rare)*, 8s 6d
1748
'Elaborating his theory of electricity and defining it more closely, quoting at the same time from Franklin's famous letter to Peter Collinson. During 1747 and 1748 Watson, in conjunction with others, carried out a long series of experiments on 'the velocity of electric matter' across the Thames at Westminster Bridge, at Highbury, and at Shooter's Hill, Watson planning and directing all the operations . . . They conceived that the velocity of electricity was 'instantaneous'.—*D. N. B.*

- 15472 **WATSON** (Sir William, M.D., F.R.S.) EXPERIMENTS and OBSERVATIONS tending to illustrate the NATURE and PROPERTIES of ELECTRICITY, first edition, 8vo. (pp. 67), *sewn*, 7s 6d 1746
 'He notices therein that although ice, as well as water, is an 'electric' or non-conductor, moist air conducts, and he explains thereby the failure of electrical experiments in wet weather.'—D. N. B.
- 15473 — ANOTHER COPY; with the **Sequel**, wherein is presumed, by a Series of Experiments expressly [*sic*] for that Purpose, that the SOURCE of the ELECTRICAL POWER, and its Manner of acting are demonstrated, with *folding copperplate of the author's electrical machine, consisting of four glass balls* (pp. 80)—2 vols. 8vo. *sewn* (RARE), 17s 6d 1746
- 15474 — SECOND EDITION, with the **Sequel**, with *folding copperplate*, 2 vols. 8vo. *sewn*, 15s 1746
 'He shows in his *Sequel* by his own experiments and those of his friend John Bevis that the 'stroke' of the recently discovered Leyden jar was, ceteris paribus, proportional not to its size, but to the conducting surfaces of its coatings. He notices that the 'electric force always describes a circuit', and propounds the theory that in an electrical machine the glass globes, etc. have not the electrical power in themselves, but only serve as 'the first movers and determiners of that power'. He agrees with the Abbé Nollet in regarding electricity as existing normally everywhere in a state of equilibrium, and regards the electrical machine as comparable to a pump which accumulates electricity on the bodies we term 'electrified.' Watson's theory, though less clearly formulated, is hardly distinguishable from that of Benjamin Franklin.'—D. N. B.
- 15475 — THIRD EDITION, 8vo. *sewn*, 6s 6d 1746
 'Watson's electrical experiments became famous outside scientific circles. George III. (then Prince of Wales), the Duke of Cumberland ['the Butcher'], and other fashionable people went to see them at his house in Aldersgate Street.'—D. N. B.
- 15476 **WATTS** (William Marshall, D.Sc., F.I.C.) On the ATOMIC WEIGHT of RADIUM, and on Relationships between the Atomic Weights of the Elements and their Spectra, 8vo. (pp. 6), *sewn*, 1s 6d 1904
- 15477 — On the EXISTENCE of a RELATIONSHIP between the SPECTRA of some ELEMENTS and the SQUARES of their ATOMIC WEIGHTS, 8vo. (pp. 5), *sewn*, 1s 6d 1903
- 15478 — INDEX of SPECTRA, with Preface by SIR HENRY ENFIELD ROSCOE, F.R.S., with 9 plates (1 coloured), 8vo. *cl.* (scarce), 7s 6d 1872
- 15479 — REVISED EDITION, greatly enlarged, with Introduction on the METHODS of MEASURING and MAPPING SPECTRA, with *folding plate*, 8vo. *cl.* (SCARCE), £1. 1s Manchester, 1889
 'The object of this book is to facilitate spectroscopic research by collecting all existing measurements of the spectra of the elements, and presenting them on a uniform scale of wave-lengths.'—Preface.
 The above edition contains the British Association Wave-Length Tables of the Spectra of the Elements and their Compounds (1884-8), with important additions, and incorporates the results of Thalen's researches in 'Sur le Spectre du Fer,' and Fievez's 'Sur le Spectre du Carbone.'
- 15480 — INTRODUCTION to the STUDY of SPECTRUM ANALYSIS, with coloured plate and 35 other illustrations, 8vo. *cl.*, 6s 6d (p. 10s 6d nett) 1904
 Including a 'Catalogue of Spectra' (pp. 185-310), and an Appendix by SIR WILLIAM and LADY HUGGINS.
- 15481 — On the SPECTRUM of the BESSEMER FLAME, with 2 plates, 8vo. (pp. 10), *sewn*, with *inscr.* to Sir Edward Thorpe, F.R.S., 2s 1873
- 15482 —, and H. M. WILKINSON: On the SWAN SPECTRUM, 8vo. (pp. 5), *sewn*, 1s 6d 1906
- 15483 **WEBBER** (William Hosgood Young, C.E.) TOWN GAS and its Uses for the Production of Light, Heat, and Motive Power, with 71 illustrations, 8vo. *cl.*, 3s 6d (p. 6s nett) 1907
- 15484 **WEBER** (Heinrich; *Univ. Strasbourg*), Josef WELLSTEIN, und Rudolf H. WEBER: ANGEWANDTE ELEMENTAR-MATHEMATIK; with 358 illustrations, 8vo. *cl.*, with Dr. Emil Reich's bookplate, 7s 6d (p. M. 14) 1907
Leipzig
- 15485 **WEBER** (Jakob Andreas) ANMERKUNGEN über die SAMMLUNGEN von der Nachrichten und Beobachtungen über die ZEUGUNG des SALPETERS, nebst Sendschreiben über dessen theoretische und praktische Abhandlung von dem Salpeterzeugen, von Z. WINZLER, post 8vo. *sewn*, 3s 1780
Tübingen
- 15486 — PHYSIKALISCH-CHEMISCHES MAGAZIN für Aerzte, Chemisten und Künstler, I. THEIL, post 8vo. *sewn*, 3s 1780
Berlin
- 15487 — VOLLSTÄNDIGE theoretische und praktische ABHANDLUNG von dem SALPETER, und der Zeugung desselben, nebst ABHANDLUNG von der GÄHRUNG, durch physische und chemische Grundsätze und Erfahrungen bestätigt, post 8vo. *sewn*, 5s 1779
Tübingen
- 15488 **WEBER** (Joseph; *Generalvicar v. Augsburg*) Der GALVANISMUS und Theorie desselben, post 8vo. (pp. 64), *sewn*, 2s 6d 1815
München
- 15489 **WEBER** (Robert, *Univ. Neuchâtel*) GRADUATED COLLECTION of PROBLEMS in ELECTRICITY, comprising all Branches of Electrical Science, translated by EDWARD A. O'KEEFE, M.I.E.E., with diagrams, cr. 8vo. *cl.*, 4s 6d (p. 7s 6d nett) 1902
- 15490 **WEBSTER** (William, *Writing-Master*) ARITHMETICK in EPITOME: or a Compendium of all its Rules, both Vulgar and Decimal, with clear and plain Demonstrations deduced from the Principles of Arithmetic itself; without either Reference to Euclid, or Use of Algebra; 6th Edition, carefully corrected, with 7 tables on copper, 12mo. *contemporary calf* (joints cracked), 6s 1740
 Dedicated to Sir Robert Walpole.
- 15491 — The DESCRIPTION and USE of a COMPLETE SETT or CASE of POCKET-INSTRUMENTS: containing the Construction of the several Lines laid down on the Plain-Scale, and Sector; with their Application, 2nd Edition, corrected, with 4 *folding copperplates*, 8vo. (pp. 61), *sewn*, 5s 1739
- 15492 — THIRD EDITION, corrected, with 4 *folding plates*, 8vo. *sewn*, 4s n. d.
- 15493 — FOURTH EDITION, corrected, with 4 *folding plates*, 8vo. *sewn*, uncut, 4s 1768
- 15494 — ESSAY on BOOK-KEEPING, according to the TRUE ITALIAN METHOD of Debtor and Creditor, by DOUBLE ENTRY, wherein its Theory is clearly laid down in a few plain Rules; and the Practice made evident and easy, by Variety of intelligible Examples; 11th Edition, by ELLIS WEBSTER, sm. 8vo. *old calf* (binding damaged) 7s 6d 1752

- 15496 **WECKER** (Johann Jakob, M.D., *Basel*) De SECRETIS Libri XVII, ex variis Authoribus collecti, methodicèq̄ue digesti, et aucti; accessit Index locupletissimus; with woodcuts, 12mo. *old vellum* (rare), 10s 6d
Basilee, 1662
 The 'Secrets' which are collected from about 150 different authors, include secrets of metals, glass, jewels, and how to counterfeit them, hail, rain, snow, thunder, lightning, hurricanes, etc., natural magic, mathematics, music, and astrology, etc. etc. etc.
 'A very curious work, much sought after on account of the singular doctrines and secrets of every science contained therein'.—*Libri Catalogue*.
- 15497 **WEDEL** (Georg Wolfgang; M.D., *Univ. Jena*) INTRODUCTIO in ALCHIMIAM, sm. 4to. (pp. 60), *hf. calf* (large copy); rare, 12s 6d
Jenæ, 1706
 The author is not noticed by Mr. A. E. Waite. He was thought to have discovered the mystic metal as κα-σι-τε-ρος [*sic*].
- 15498 **WEDGWOOD** (Thomas, son of Josiah Wedgwood; *protophotographer*) EXPERIMENTS and OBSERVATIONS on the PRODUCTION of LIGHT from different Bodies, by Heat and by Attrition; with the Continuation, with plate, 2 papers 4to. (pp. 20 + 13), *sewn*, 3s 6d
 1791-2
 'Wedgwood's only writings, in which we find the earliest suggestion of the general law, since established, that all bodies become red hot at the same temperature. They are remarkable as indicating a considerable power of research when he was only 20 years of age.'—*D. N. B.*
- 15499 **WEIDLER** (Johann Friedrich, *Univ. Wittenberg, F.R.S.*) INSTITUTIONES MATHESIOS, selectis Observationibus illustratæ, Editio nova; with 52 plates, thick 12mo. *old vellum*, with auto. of John Lee, of Hartwell, Q.C., F.R.S., also of 'J. Fiott [*his original name*] Stockholm', 6s 6d
Vitæbergæ, 1736
 Including also Physics, Astronomy, Dialling, and Civil and Military Architecture.
- 15500 **WEISBACH** (Julius) ABRISSE der MARKSCHEIDEKUNST, nach Vorträgen herausg. von OSCAR CHOULANT; with 9 folding plates, 8vo. cl., 3s (p. M. 8)
Freiburg, 1873
- 15501 ——— MANUAL of the MECHANICS of ENGINEERING, and of the Construction of Machines, VOL. II: HYDRAULICS and HYDRAULIC MOTORS, translated from the 4th German Edition by A. JAY DU BOIS, with 380 woodcuts, large 8vo. cl., with auto. of F. J. Jervis-Smith, pr., F.R.S., 7s 6d (p. £1. 5s)
New York, 1882
- 15502 ———, and Gustav HERMANN: The MECHANICS of HOISTING MACHINERY, including Accumulators, Excavators, and Pile-Drivers: Authorised Translation from the 2nd German Edition, by KARL P. DAHLSTROM, with 177 illustrations, 8vo. cl., 7s (p. 12s 6d nett)
 1893
- 15503 ——— The MECHANICS of PUMPING MACHINERY: Authorised Translation from the 2nd German Edition, by KARL P. DAHLSTROM, with 197 illustrations, 8vo. cl., 7s (p. 12s 6d nett)
 1897
- 15504 **WELLS** (Edward, *Rector of Cotesbach, Leicestershire*) The YOUNG GENTLEMAN'S COURSE of MATHEMATICKS (Arithmetick and Geometry; Trigonometry, Mechanicks, and Opticks; Astronomy, Chronology, and Dialling), with numerous folding plates, 3 vols. 8vo. *old calf*, 12s 6d
 1723-31-25
 A very genteel work.
- WELLS** (Herbert George, *novelist*) The DISCOVERY of the FUTURE—v. RAYLEIGH, No. 13948 *ante*.
- 15505 **WENZEL** (Carl Friedrich) CHYMISCHE UNTERSUCHUNGEN des FLUSSSPATHS, 12mo. *sewn*, 3s 6d
Dresden, 1783
- 15506 ——— LEHRE von der VERWANDSCHAFT der Körper, thick sm. 8vo. *sewn* (rare), 10s 6d *ib.*, 1782
 'Das Werk enthält die Grundzüge der stöchiometrischen Lehren, so weit sie bis zum Anfange unseres Jahrhunderts erforscht wurden. Wenzel hatte den Weg gebahnt, die Zusammensetzung aller Neutralsalze aus der Analyse weniger vorausbestimmen.'—*Hermann Kopp*.
- 15507 **WERNEBURG** (Johann Friedrich Christian; *Univ. Jena*) Die RICHTIGE KATOPTRIK [mit Gegenbemerkungen von L. D. v. MÜNCHOW]; with 2 folding plates, 4to. (pp. 64), *sewn*, 3s 6d
o. O., 1825
 Attempting a new theory of sight.
- 15508 **WERNER** (Abraham Gottlob, *Bergakademie Freiberg*) NOUVELLE THÉORIE de la FORMATION des FILONS: Application de cette Théorie à l'Exploitation des Mines, particulièrement de celles de Freiberg, traduite [par J. F. DAUBUISSON] et augmentée d'un grand Nombre de Notes, dont plusieurs ont été fournies par l'Auteur même; with fine portrait, post 8vo. *sewn*, uncut (VERY RARE), £1. 10s
Freiberg, 1802
 One of the author's most important geological works. 'To him belongs the great merit of having brought into prominence a definite principle in the construction of the earth's crust, and a precise method of geological investigation. . . . With the publication of Werner's views on this subject a great controversy began, which was carried on with acrimony that is now hard to realise. Those who upheld the igneous origin of such rocks as basalt were styled Vulcanists, while those who followed Werner became known as Neptunists.'—*Prof. James Geikie, F.R.S.*
 A very copious account of the work will be found in Hunt's 'British Mining,' pp. 331-4.
- 15509 ———: [FREISLEBEN (Johann Carl)] ABRAHAM GOTTLÖB WERNER'S LETZTES MINERAL-SYSTEM, aus dessen Nachlasse auf oberbergamtliche Anordnung herausgegeben und mit Erläuterungen versehen, 8vo. *sewn* (rare), 10s 6d
ibidem and *Wien*, 1817
- 15510 ———: WERNERIAN NATURAL HISTORY SOCIETY'S MEMOIRS, Vols. I—IV and VI, with numerous plates and maps (mostly coloured), 5 vols. 8vo. *new hf. calf gilt* (title of v. I stamped); VERY SCARCE, £1. 10s
Edin., 1811-32
 This publication was founded by Robert Jameson, F.R.S., to expound the views of Neptunists, and contains numerous contributions by him, besides others by Sir David Brewster, Robert Brown, Sir Alexander Mackenzie, William Scoresby, Jr., F.R.S., Robert Stevenson, C.E., Thomas Thomson, M.D., F.R.S., etc. etc.
 It is important in connexion with the history of the Werner-Hutton controversy.
- 15511 **WEST** (John, *Rector of St. Thomas in the East, Jamaica*) MATHEMATICAL TREATISES: I. THEORY of ANALYTICAL FUNCTIONS. II. SPHERICAL TRIGONOMETRY, with Practical and Nautical Astronomy; edited from the Author's MSS. by SIR JOHN LESLIE, with MEMOIR by EDWARD SANG, F.R.S.E., printed on ribbed paper, with 2 plates, and diagrams, thick 8vo. cl. (scarce), 10s 6d
Edin., 1838

- 15513 **WEST** (William, *pr.*, of *Exeter*) MATHEMATICS, revised by JOHN ROWE, with 11 *folding plates*, 8vo. *old calf (rare)*, 8s 6d 1762
The first part of the work treats of the theory of maxima and minima. It is mentioned in Cantor's Vorlesungen üb. Gesch. d. Mathematik, Vol. IV, pp. 675 and 770-1.
- 15514 **WESTRUMB** (Johann Friedrich) KLEINE PHYSIKALISCH-CHEMISCHE ABHANDLUNGEN. HEFT 1—3, 2 vols. post 8vo. *sewn*, 5s *Leipzig*, 1785-7
Including: Chemische Versuche mit der Salzsäure; die Entstehung der Zuckersäure und die Bestandtheile des Weingelstes; die Theorien vom Feuer, der Luft- u. Wasserezeugung, etc. etc.
- 15515 **WETHERALD** (R.) THE PERPETUAL CALCULATOR: or Time's Universal Standard: I. Introduction to Chronology. II. Account of the Solar System. III. Pneumatics and Hydrostatics, with Appendix, 8vo. *hf. calf gilt*, 4s 6d *Newcastle-on-Tyne*, 1760
- 15516 **WHEATSTONE** (Sir Charles, F.R.S.; *Prof. Experimental Philosophy, King's Coll., Lond.*) SCIENTIFIC PAPERS, published by the Physical Society of London, with 21 *plates, besides woodcuts*. 8vo. *cl.* 8s 6d (p. 15s nett) 1879
Containing the whole of the author's scientific papers, some hitherto unpublished, including his invaluable contributions to telegraphy, the invention of the (reflecting) Stereoscope, and the explanation of its principle, an account of 'Wheatstone's Bridge', and his inventions of the concertina, a speaking machine, the electric clock, and the rotating mirror determining the time of an electric impulse.
- 15517 ——— ACCOUNT OF several NEW INSTRUMENTS and PROCESSES for determining the CONSTANTS of a VOLTAIC CIRCUIT, with 2 *plates*, roy. 4to. (pp. 25), *sewn (scarce)*, 7s 6d 1843
Containing the invention of Wheatstone's Bridge for measuring electro-motive force and resistance. He was also in the above paper the first to make known Ohm's Law in this country.
- 15518 [——] A REPLY to MR. COOKE'S PAMPHLET, 'The Electric Telegraph; was it invented by Professor Wheatstone?', 8vo. (pp. 74), *sewn (scarce)*, 6s 6d 1855
'He was not the "inventor" of the electric telegraph. Indeed no one can lay claim to that title. . . . But to Wheatstone, with his coadjutor SIR WILLIAM FOTHERGILL COOKE, is due the merit of having been the first to render it available for the public transmission of messages.'—*Prof. Silvanus Thompson, F.R.S.*
See Nos. 7010-1 ante for Sir W. F. Cooke's pamphlet provoking the above reply.
- 15519 **WHEWELL** (William, D.D., F.R.S., *Master of Trinity*) ON the CLASSIFICATION OF CRYSTALLINE COMBINATIONS, and the Canons by which their Laws of Derivation may be investigated, with 4 *plates*: REASONS for the SELECTION of a NOTATION to designate the PLANES of CRYSTALS, with *folding plate*—2 vols. 4to. (pp. 35 + 13), *sewn*, 3s *Cambridge*, 1827
- 15520 ——— ON the POSITION of the APSIDES of ORBITS of GREAT EXCENTRICITY, 4to. (pp. 13), *ibidem*, 1820
unbound, 2s
- 15521 ——— RESEARCHES on the TIDES, XIII. SERIES: On the Tides of the Pacific, and on the Diurnal Inequality, with *diagrams and chart*, 4to. (pp. 29), *sewn*, 2s 6d 1848
'Sir J. W. Herschel, Bart. with R. Adml. Sir F. Beaufort's Compts.'—*Inscr. on cover.*
- 15522 ——— ON the RESULTS of OBSERVATIONS made with a NEW ANEMOMETER, 4to. (pp. 15), *sewn*, 1s 6d *Cambridge*, 1837
- 15523 ——— ON the ROTARY MOTION of BODIES, 4to. (pp. 10), *unbound*, 1s 6d *ibidem*, 1823
- 15524 **WHIPPLE** (George Chandler; *Harvard Univ.*) THE MICROSCOPY OF DRINKING WATER [with Bibliography] (pp. 30), with 19 *plates*, and 21 *other illustrations*, 8vo. *cl.*, 7s 6d (p. 15s nett) *New York*, 1899
- 15525 **WHISTON** (William, *pr.*; *Lucasian Prof. Mathematics, Cantab.*; *translator of Josephus*) ASTRONOMICAL LECTURES, with the Astronomical Tables of Flamsteed, Halley, Cassini, and Street, 2nd Edition, corrected, with *engraved frontispiece, and diagrams*, 8vo. *old calf*, 4s 6d 1728
- 15526 ——— ASTRONOMICAL PRINCIPLES of RELIGION, Natural and Reveal'd, with Preface of the 'Temper of Mind necessary for the Discovery of Divine Truth; and of the Degree of Evidence that ought to be expected in Divine Matters, first edition, with *copperplates*, 8vo. *old calf gilt*. 4s 6d 1717
Dedicated to Sir Isaac Newton, who balked the author's election as a fellow of the Royal Society.
- 15527 ——— A NEW THEORY of the EARTH, wherein the Creation of the World in Six Days, the Universal Deluge, and the General Conflagration are shewn to be perfectly agreeable to Reason and Philosophy; with large Introductory Discourse concerning the Mosaic History of Creation, first edition, with *plates and smaller engravings on copper*, 8vo. *old calf (rare)*, 12s 1696
With Latin dedication to Sir Isaac Newton.
- 15528 ——— ANOTHER COPY; also: Woodward (John, M.D. F.R.S.) ESSAY towards a NATURAL HISTORY of the EARTH: and Terrestrial Bodies, especially Minerals: as also of the Sea, Rivers, and Springs, with Account of the Universal Deluge: and of the Effects that it had upon the Earth, first edition—2 vols. 8vo. in 1, *sound copies in old calf*. £1. 5s 1696-5
'The MS. was shown to Newton and Wren. It was praised by Locke. . . . Whiston's speculation was meant to supersede the previous theory of Thomas Burnet. He confirmed the narrative in Genesis on Newtonian grounds, explaining the Deluge by collision with a comet.'—*Sir Leslie Stephen.*
'Whiston was one of the first who ventured to propose that the text of Genesis should be interpreted differently from its ordinary acceptation, so that the doctrine of the earth having existed long previous to the creation might no longer be regarded as unorthodox. . . . Locke pronounced a panegyric on his theory, commending it for having explained so many wonderful and before inexplicable things.'—*Sir Charles Lyell.* The work was attacked by JOHN KELL (*v. No. 10021 ante*).
It is a touching fact in Eighteenth Century Arrianism that whatever doubts it may have had as to the cardinal fact of Christianity, it was as unwaveringly faithful to the Deluge as his wife was to Mr. Micawber.
- 15529 ——— PRÆLECTIONES PHYSICO-MATHEMATICÆ Cantabrigiæ, quibus accedunt Tabulæ Astronomicæ Flamstedianæ correctæ, Halleianæ, Cassiniane, et Streetianæ, editio princeps, with *diagrams*, 8vo. *old panelled calf*, 5s *Cantabrigiæ*, 1707
- 15530 ——— SIR ISAAC NEWTON'S MATHEMATICK PHILOSOPHY more easily DEMONSTRATED: with DR. HALLEY'S ACCOUNT of COMETS Illustrated. In this English Edition the Whole is corrected and improved by the Author, with 9 *plates*, 8vo. *old panelled calf (nice copy)*, 7s 6d 1716
Whiston was one of the first to popularise the Newtonian theories, and, according to Professor de Morgan, one of the first to give lectures with experiments in London. He is thought to have suggested Dr. Primrose.

- 15532 **WHETHAM** (William Cecil Dampier, F.R.S.; *eugenist*) 'IONIC VELOCITIES' (Abstract), with 2 illustrations, 8vo. (pp. 8), *sewn*, 1s 1892
- 15533 ——— The IONIZATION of DILUTE SOLUTIONS at the FREEZING POINT, with woodcuts and charts, 4to. (pp. 40), *sewn*, 2s 1900
- 15534 ——— The RECENT DEVELOPMENT of PHYSICAL SCIENCE, with portraits, plates, and woodcuts, large post 8vo. *cl.*, 3s 6d (p. 7s 6d nett) 1904
- 15535 ——— SOLUTION and ELECTROLYSIS, with 19 illustrations and folding table, post 8vo. *cl.* (o. p.), 5s *Univ. Press, Cambridge*, 1895
- 15536 ——— TREATISE on the THEORY of SOLUTION, including the Phenomena of ELECTROLYSIS, with 66 illustrations, 8vo. *cl.*, 6s 6d (p. 10s nett) *apud eandem, ibidem*, 1902
- 15537 ——— 'On the VELOCITIES of the IONS' (Abstract), 8vo. (pp. 6), *sewn*, 1s 1895
- 15538 ——— On the VELOCITIES of the IONS and the Relative Ionization-Power of Solvents, 8vo. (pp. 5), *sewn*, 1s 6d 1894
- 15539 **W[HITE]** (J[ohn, Vicar of Cherton]) RICH CABINET, with VARIETY of INVENTIONS: unlock'd and open'd, for the Recreation of Ingenious Spirits at their vacant Hours, being Receipts and Conceits of several Natures, and fit for those who are Lovers of Natural and Artificial Conclusions; as also Variety of Recreative FIRE-WORKS both for Land, Air, and Water, and Fire-works of Service for Sea and Shore, with divers Experiments in Drawing, Painting, ARITHMETICK, GEOMETRY, ASTRONOMY, and other Parts of the Mathematicks, likewise Directions for Ringing the most usual Peals that belong to that Art; 5th Edition, with many Additions, with engraved title in compartments by T. Cross, and numerous woodcuts, 12mo. handsomely bound in mottled calf (hole burnt in one leaf and slightly soiled, but a sound copy); RARE, £1. 10s
W. Whitwood, 1677
- Especially interesting for containing numerous recipes for fireworks. There are also descriptions of some curious dials, a diving bell, 'a Ship that cannot be drowned', etc. etc.; while Bell-ringing is probably included from the interest which the extraordinarily complex combinations in a ring of eight may have to a mathematician.
- 15540 **WIDMER** (Georg, M.D.) CHYMIA CORPORIS ANIMALIS, cum Lithoegnosia et Artificio Aquas Salsas dulcificandi, Methodo scientifica pertractata, 4to. (pp. 40), *sewn*, 4s *Argentorati*, 1751
- 15541 ——— THEORIA CHIMIFICATIONIS, CHYLIFICATIONIS, et LACTIFICATIONIS Methodo scientifica pertractata, 4to. (pp. 28), *sewn*, 5s *ibidem*, 1753
- 15542 **WIEGLEB** (Johann Christian) CHEMISCHE VERSUCHE über die ALKALISCHEN SALZE, neue verbesserte und vermehrte Auflage, 8vo. *sewn* (rare), 8s 6d *Berlin, Friedrich Nicolai*, 1781
- An important work, in which the author proved the existence of alkalies in fresh plants, against the opinion then held that they only existed there in the burnt state.
- 15543 ——— HANDBUCH der ALLGEMEINEN CHEMIE, 2. neuberichtigte Auflage, 2 vols. 8vo. *hf. calf*, 7s 6d *ibidem, apud eundem*, 1786
- 'He enriched pharmaceutical and technical chemistry by valuable observations.'—*Prof. E. v. Meyer*.
The publisher of both works was Friedrich Nicolai, polygraph and friend of Lessing.
- 15544 **WILCKE** (Johan Carl) TAL om MAGNETEN; with vignette on title, 12mo. (pp. 44), *sewn* (rare), 8s 6d *Stockholm*, 1764
- A short historical account of magnetism, copiously quoting the original authorities. There was no copy of it in the Ronalds Library.
- 15545 **WILDA** (Hermann, *Technikum Bremen*) Der SCHIFFSMASCHINENBAU: Grundlagen der Theorie, Berechnung und Konstruktion, auf Grund des Werkes 'Machines Marines' von L. E. BERTIN bearbeitet; with folding plate, and 492 illustrations, roy. 8vo. *cl.*, 13s (p. M. 26)
Hannover, 1901
- 15546 **WILKENS** (Marten) ARITHMETICA ofte REKEN-KONST, verciert met veel schoone Regulen ende Exempelen; laetste Druck veel verbeterd en vermeerderd; with fine portrait, 12mo. *old hf. calf*, 7s 6d *Groningen*, 1719
- Unknown to Professor de Morgan, who does not mention the author in his 'List of 1580 Names of Authors of Works on Arithmetic.'
- 15547 **WILLCOCKS** (Sir William; *Roorkee Coll.*: M.I.C.E., designer of the Aswan Dam) EGYPTIAN IRRIGATION. with Introduction by LT.-COL. J. C. ROSS, R.E., 26 folding plates and plans, and 69 other illustrations, thick roy. 8vo. *cl.*, 9s (p. £1. 16s) 1889
- 15548 ——— The IRRIGATION of MESOPOTAMIA, roy. 8vo. *cl.*, with Atlas, containing 46 plates, folio, portfolio—2 vols., 12s 6d (p. £1 nett) 1911
- 15549 ——— The RESTORATION of the ANCIENT IRRIGATION WORKS on the TIGRIS, or the Re-Creation of Chaldea, with Appendixes (Meteorological Information about Bagdad, etc.), with 10 folding plates and plans, roy. 8vo. *sewn*, 4s *Cairo*, 1903
- Perhaps now that superhate has ruined German prospects in Mesopotamia, General Chesney's ghost may yet see the Euphrates Valley Railway carried out by the country which first surveyed it.
- 15550 **WILLIAMS** (John) The CLIMATE of GREAT BRITAIN; or Remarks on the Change it has undergone, particularly within the last 50 Years, accounting for the increasing Humidity and consequent CLOUDINESS and COLDNESS of our SPRINGS and SUMMERS . . . including various Experiments to ascertain the Causes of such Change, 8vo. *old hf. calf*, 6s 6d 1806
- The author would have 'improved' our greatest national asset and the good Graf Zeppelin's *bête noire* by charging the air with electricity by means of electrical machines.
- 15551 **WILLIAMS** (John, *mineral surveyor*) The NATURAL HISTORY of the MINERAL KINGDOM, relative to the Strata of Coal, Mineral Veins, and the prevailing Strata of the Globe, 2nd Edition, with Appendix, containing a more extended View of Mineralogy and Geology, by JAMES MILLAR, M.D., with 2 copperplates, 2 vols. 8vo. *old calf* (rare), 10s *Edin.*, 1810
- 'A work of great merit for that day, and of practical utility, as containing the best account of the coal strata.'—*Sir Charles Lyell*. The work contains an attack on the Huttonian System, which, the author fears, will 'lead to downright infidelity and atheism'.

- 15553 **WILKINS** (John, 14th Bp. of Chester; first Sec. Roy. Society) MATHEMATICAL and PHILOSOPHICAL WORKS, with Life and Account of his Works, *portrait, fs. title, and numerous woodcuts*, 8vo. *old panelled calf (rare)*, 15s
1708
Comprising: I. Discovery of a New World in the Moon: II. Discourse concerning a New Planet: III. Mercury, or the Secret and Swift Messenger: IV. Mathematical Magic: V. Abstract of his Essay towards a Real Character, and a Philosophical Language.
- 15554 [—] THE DISCOVERY of a WORLD in the MOONE, or a Discourse tending to prove, that 'tis probable there may be another Habitable World in that Planet, *first edition, with frontispiece, woodcuts, and diagrams*, 18mo. *calf gilt (a few wormholes in blank margin, otherwise a LARGE AND VERY FINE COPY)*, very rare, £3. 3s *E. G. for Michael Sparke and Edward Forrest, 1638*
- 15555 [—] SECOND EDITION: THE DISCOVERY of a NEW WORLD, or, a Discourse tending to prove, that 'tis probable there may be another HABITABLE WORLD in the MOONE, with a Discourse concerning the Possibility of a PASSAGE thither; the third Impression, enlarged, *with fine astronomical frontispiece with Copernicus, Galileo, and Kepler, by W. MARSHALL, and woodcuts: DISCOURSE concerning a NEW PLANET. Tending to prove, That 'tis probable our Earth is one of the Planets, first edition, with woodcuts, and engraving on copper—2 vols. sm. 8vo. in 1, sprinkled calf (LARGE AND VERY SOUND COPIES); rare, £1. 10s* *J. Maynard, 1640*
The 'Discourse' is a stout defence of the Copernican system, by no means generally accepted at this time—*cf. No. 4085 ante.*
- 15556 [—] ANOTHER COPY, 2 vols. in 1, *old tree-calf (back damaged)*, £1. 5s
Although mentioning 'third Impression', this is really the second edition of the first work, and the first collected edition.
This edition of the *Discovery* has the 14th Proposition, famous in the history of airmanship, which is not included in the first: 'That tis possible for some of our postgritte, to find out a conveyance to this other world; and if there be inhabitants there, to have commerce with them.' The 13th Proposition, however, is shortened in this edition. The conveyance suggested is a 'flying Chariot', of which the particulars of construction are given in the 'Mathematicall Magick'. The author supposes a natural passage to the moon, whence he imagines locusts to come, and whither he supposes birds to migrate.
- 15557 [—] FOURTH [LAST] EDITION, corrected and amended, *with frontispiece and woodcuts*, 2 vols. sm. 8vo. in 1, *old calf, newly rebounded (front. and some ll. soiled)*, 17s 6d *J. Gillibrand, 1684*
- 15558 [—] Le MONDE dans la LUNE, divisé en deux Livres. Le Premier, prouant que la Lune peut estre un Monde. Le Second, Que la Terre peut-estre une Planette. De la Traduction du Sr [J.] DE LA MONTAGNE; *with engraved frontispiece, and woodcuts*, thick 12mo. *fine copy in old calf gilt (RARE)*, £1. 5s *Rouen, Jacques Cailloüé, 1656*
'This translation, bearing the illustrious name of Montagne, is scarce, and was unknown to Lalande. The preface, by Montagne, is written with great freedom and courage.'—*Libri Catalogue.*
The lax M. Libri here had MONTAIGNE in his head, and makes himself guilty of a singular chronological blunder, since Montaigne died in 1592.
- 15559 [—] MATHEMATICALL MAGICK, or the Wonders that may be performed by Mechanicall Geometry, concerning Mechanicall Powers and Motions. Being one of the most easie, pleasant, usefull (and yet most neglected) parts of Mathematicks. Not before treated of in this Language. By J. W. M. A., *first edition, with numerous engravings on copper and wood*, 12mo. *sound copy in old calf (RARE)*, £1. 10s *S. Gellibrand, 1648*
- 15560 [—] ANOTHER COPY, FINELY BOUND in CONTEMPORARY DARK BLUE ENGLISH MOROCCO EXTRA, *with Harleian good tooling on sides, g. e., probably by SAMUEL MEARNE (back slightly rubbed, otherwise a very fine copy)*, £3. 3s
- 15561 [—] [SECOND EDITION; a Reprint of the First], *with portrait, and numerous engravings on copper and wood*, 12mo. *old calf*, 17s 6d *E. Gellibrand, 1680*
- 15562 [—] FOURTH EDITION [unaltered], *with portrait, and numerous engravings on copper and wood*, 12mo. *contemporary calf, rebounded (a sound and clean copy)*, 15s *R. Baldwin, 1691*
- 15563 [—] ANOTHER COPY, *wanting the portrait; contemporary calf*, 10s
An exceedingly interesting storehouse of extravaganzas in engineering, and of special interest for containing descriptions of a number of machines, some of them the author's own invention, supposed to produce PERPETUAL MOTION, a subject in which he took a special interest; 72 pages are devoted to this subject. There are also three chapters on **AIRMANSHIP**: 'Of the volant Automata, Archytas his Dove, and Regiomontanus his Eagle. The possibility and great usefulness of such inventions; Concerning the Art of flying. The several ways whereby this hath been, or may be attempted. A resolution of the two chief difficulties that seem to oppose the possibility of a flying Chariot; and others 'of the contrivance of several motions by rarified air,' on 'Wind-guns,' 'an Ark for submarine Navigation,' etc. etc. etc.
'He was well versed in mechanical science, and his writings display an extensive acquaintance with a variety of ancient authorities on every-matter on which he discourses. He is the most exact writer of the XVIIth. century on the subject of Perpetual Motion, examining it thoroughly, with admirable acuteness as well as candour.'—*H. Dircks, C.E.*
- 15564 [—] MERCURY: or the SECRET AND SWIFT MESSENGER, shewing how a Man may with Privacy and Speed communicate his Thoughts to a Friend at any Distance, 2nd Edition, *with portrait, and numerous diagrams*, 12mo. *contemporary calf (RARE)*, £1. 1s *R. Baldwin, 1694*
- 15565 [—] ANOTHER COPY, *wanting the portrait; old sheep (back damaged; also somewhat browned or water-stained)*, 15s
'A very ingenious work on cryptography and modes of rapid correspondence.'—*D. N. B.* It contains a chapter 'concerning a language that may consist only of tunes and musical notes, without any articulate sound', and another 'concerning an universal character, that may be legible to all nations and languages'. The work includes much historical information on its subject.
- 15566 **WILKINSON** (Abraham, F.S.A. Scot.) TENTAMEN PHILOSOPHICO-MEDICUM de ELECTRICITATE, 8vo. (pp. 61), *sewn*, 4s 6d *Edinburgi, 1783*
There is no copy of this work in the Ronalds Library.
- 15567 **WILLIS** (John) EASY METHOD of CONSTRUCTING the various Types of MAGIC SQUARES and MAGIC CUBES, with Symmetric Designs founded thereon, *with coloured illustrations and folding table, cr. 4to. cl., 8s* *Bradford, 1909*
- 15568 **WINTERSTEIN** (Ernst, Zürich) und **George TRIER**: Die ALKALOIDE: eine Monographie der natürlichen Basen, roy. 8vo. *sewn*, 7s (p. M. 11) *Berlin, 1910*

- 15570 **WILSON** (Benjamin; F.R.S., *portrait painter*) ESSAY towards an EXPLICATION of the PHENOMENA of ELECTRICITY, deduced from the Æther of Sir Isaac Newton, *with folding copper-plate of electrical machine, etc.*, 8vo. (pp. 110), *sewn*, 7s 6d 1746
- 15571 ——— ANOTHER COPY, *wanting the plate; sewn*, 4s
Advancing a theory that 'the electric matter is in all bodies, in reciprocal proportion to their densities, luminous, sulphureous, and unctuous bodies only excepted, that it issues from all bodies, electrified or not electrified', and attempting an explanation of the cause of gravitation.
- 15572 ——— SERIES of EXPERIMENTS relating to PHOSPHORI and the Prismatic Colours they are found to exhibit in the Dark; with Translation of TWO MEMOIRS on the same, from the Bologna Acts, by J. B. BECCARI [*sic*], 4to. *boards, uncut*, 9s 1775
'This work was communicated to several foreign learned bodies, and was the subject of a memoir by Leonhard Euler, read at the Academia Scientiarum Imperialis at St. Petersburg, and of a Letter from G. B. Beccaria'.—D. N. B.
- 15573 ——— SHORT VIEW of ELECTRICITY, *with plate, woodcuts, and diagrams*, 4to. (pp. 37), *sewn*, 6s 1780
- 15574 ———: SUNDRY PAPERS relative to an ACCIDENT from LIGHTNING at PURFLEET, *with 4 folding plates by Basire, including one of the Great Cylinder in the Pantheon, and etched portrait of Wilson by himself (inserted)*, 4to. (pp. 81), *sewn (rare)*, 12s 6d [1777]
Including 'New Experiments and Observations [made at the Pantheon] on the Nature and Use of Conductors,' by B. WILSON (pp. 69).
'He had a long controversy with Benjamin Franklin on the question whether lightning-conductors should be round or pointed at the top [asserting that pointed conductors attracted the lightning], and was supported in his views by George III., who declared his experiments were sufficient to convince the apple-women in Covent Garden.'—D. N. B. The above was the author's last effort in the advocacy of ball-shaped conductors, which in the above case gained strength from the fact that the Purfleet Powder Magazine, which was provided with pointed conductors, was struck by the lightning.
- 15575 ——— TREATISE on ELECTRICITY, 2nd Edition, *with fine etched portrait by the ARTIST HIMSELF, and 5 copperplates*, 8vo. *old calf (rare)*, 15s 1752
The author was the first to use a conductor with the collector of his cylinder electrical machine. He also found that the electric property of tourmaline was shared by other crystals. He received the Royal Society's gold medal in 1760 for his electrical experiments.
- 15576 **WILSON** (Eugene Benjamin) The CHLORINATION PROCESS, *with 8 illustrations*, cr. 8vo. *cl.*, 3s 6d (p. 6s 6d nett) *New York*, 1901
Chlorine is used in the civilised world to extract gold from the ore and to bleach fabrics: in Germany to torture men to satisfy the hate of Eucken and Harnack.
- 15577 **WILSON** (George, *Chymist*) COMPLETE COURSE of CHYMISTRY, containing near Three Hundred Operations, several of which have not been Publish'd before; also the Structure of several Furnaces, with near 300 Characters, which are dispers'd in Chymical Authors, and such Instruments and Vessels as are necessary in a Compleat Elaboratory, *first edition, with 8 plates of chemical characters and apparatus*, 8vo. *old calf (sound copy)*; RARE, 16s 6d *W. Turner*, 1699
- 15578 ——— THIRD EDITION, very much enlarged, with the Author's Experiments upon Metals, *with portrait et. 78 by v. d. Gucht, and 8 copperplates of chemical characters and apparatus*, 8vo. *old panelled calf (partly water-stained)*; *rare*, 10s 6d 1709
The last 29 pp. contain experiments on the transmutation of metals, which are not included in the foregoing editions.
- 15579 **WILSON** (Giffu; F.R.S.) ESSAY on the RESOLUTION of ALGEBRAIC EQUATIONS: attempting to distinguish particularly, the Real Principle of every Method, and the True Causes of the Limitations to which it is subject, 4to. (pp. 40), *sewn*, 2s 6d [1799]
- 15580 **WILSON** (Henry, *late Mathematician to H.M.'s Navy*) The DESCRIPTION and USE of that most Excellent Invention, call'd the GLOBULAR CHART: shewing its Agreeableness to the Globe, and the natural and easy Consequences thereof in the Practice of Navigation, with a Specimen of a Sea-Chart in that Projection, and Trigonometrical Calculation to prove the Truth thereof . . . also an Answer to Mr. Haselden's Letter to Dr. Halley, proving by Mathematical Demonstration, that his Principal Argument is false by above Three in Five, the rest invalid, and the whole incoherent, and Appendix, containing an Answer to Mr. Collier, and proving that these two Authors contradict themselves, and one another, *with plate and folding map*, 4to. (pp. 44), *sewn (rare)*, 12s 6d *J. Senex and T. Taylor*, 1722
This was published in connexion with the proposal to Parliament of John Senex, F.R.S., for the publication of a complete Sea Atlas on the globular projection
- 15581 ——— SURVEYING IMPROVED: or the Whole Art, both in Theory and Practice, fully demonstrated; 4th Edition, with Additions; also GEODESIA ACCURATA: or Surveying made Easy by the Chain only, with a new Essay on Solids, by WILLIAM HUME, *with numerous plates and diagrams*, 8vo. *contemporary calf (fine copy)*, 7s 6d 1755
- 15582 **WILSON** (Herbert Michael; *U.S. Bureau of Mines*) IRRIGATION ENGINEERING, 5th Edition, *with 41 plates and 148 other illustrations*, large cr. 8vo. *cl. (cover stained)*, 8s (p. 17s nett) *New York*, 1906
- 15583 ——— TOPOGRAPHIC SURVEYING, including Geographic, Exploratory, and Military Mapping, with Hints on Camping, Emergency Surgery, and Photography, *with 4 plates and 205 other illustrations*, 8vo. *cl. (cover damaged)*, 6s 6d (p. 15s nett) *ibidem*, 1902
- 15584 **WINCHILSEA** (Heneage Finch, 2nd Earl of): A TRUE and EXACT RELATION of the late PRODIGIOUS EARTHQUAKE and ERUPTION of MOUNT ÆTNA, or Monte-Gibello; as it came in a Letter written to His Majesty from Naples by the Right Hon. the EARLE of WINCHILSEA, His Majesty's late Ambassador at Constantinople, who in his Return from thence, visiting Catania in the Island of Sicily, was an EY-WITNESS of that DREADFUL SPECTACLE. Together with a more particular Narrative of the same, as it is collected out of several Relations sent from Catania, *with folding copperplate, and another contemporary view on copper of the Eruption (added)*, sm. 4to. (pp. 38), *hf. roan (VERY RARE)*, £1. 5s *T. Newcomb in the Savoy*, 1669
The last 2 pp. contain 'a List of the most considerable Towns and Places Ruin'd and destroyed by the Dreadful Earthquake and Eruptions.'

15586 **WING (Vincent)** EPHEMERIDES of the CELESTIAL MOTIONS for XIII Years, 1659-1671, diligently calculated according to the Doctrine of Astronomia Instaurata, and applied to the Horizon of the most famous CITY of LONDON, with a brief Introduction [pp. 156] for the Use thereof, with woodcuts and diagrams, sm. 4to. FINE COPY in contemporary calf, with bookplate of Lord Arundell of Wardour, and auto. of [HENRY 3RD] LORD ARUNDELL [of WARDOUR] on title (RARE), £1. 15s
R. and W. Leybourn, 1658

*Wing issued ephemerides, the 'exactest' then to be had, according to John Flamsteed, who maintained 'a fair correspondence' with him.—D. N. B. They include astrological meteorology.

15587 ———: GEODETES PRACTICUS REDIVIVUS: the ART of SURVEYING, formerly publish'd by VINCENT WING, now much augmented and improv'd; with APPENDIX, shewing the whole Art of Surveying by a New Instrument, called the EMPERIAL TABLE, performing the Work of the Theodolite, Circumferenter, Semi-Circle, Chard and Needle; with the Description and Use of a New QUADRANT, with Supplement, SCIENTIA STELLARUM, containing new and accurate Tables of the Planetary Motions, etc. etc., by JOHN WING, with copperplates, and numerous diagrams, folio, old panelled calf, newly and neatly rebaked (RARE), £1. 7s 6d 1700

The 'Emperial Table' was the editor's own invention, and consisted of 'a perfect plain table, an exact theodolite and circumferenter, and the peractor exactly adjusted, the needle or declinatory also fully completed thereon, in its own kind and order, which instruments are here fully completed upon this one instrument, without the least confusion of lines or parts.'

One of Vincent Wing's best known publications was the *Olympia Domata*, a semi-astrological almanack, continued for over a hundred years by the Stationers' Company.

15588 ——— HARMONICON CŒLESTE: or, the Cœlestial Harmony of the Visible World: containing, an absolute and entire Piece of Astronomie, wherein is succinctly handled the TRIGONOMETRICALL PART, generally propounded, and particularly applied to the Diurnall Motion . . . the Second Motions of the Luminaries and the other Planets, with their Eclipses, etc., grounded on the most Rationall Hypothesis yet constituted, and compared with the best Observations, especially those of TYCHO BRAHE, and other more modern Observators, fitted to the Meridian of London, with numerous diagrams, folio, boards (stained and last l. mounted), 8s 6d R. Leybourn, 1651

15589 **WINGATE (Edmund)** ARITHMETIQUE MADE EASIE, the SECOND BOOK: containing a perfect Method for the true Knowledge, and Practice of ARTIFICIAL ARITHMETIQUE performed by LOGARITHMS: and resolving all Arithmetick Questions by Addition and Subtraction. Together with the Construction and use of an Instrument called the LINE of PROPORTION, exhibiting the Logarithm of any Number under 100000, with Appendix, resolving likewise by Addition and Subtraction all Questions, that concern Equation of Time, Interest of Money, and Valuation of Purchases, Leases, Annuities, and the like; 2nd Edition, much enlarged by the Author himselfe, with 10 copperplates, 24mo. hf. calf neat (title very slightly soiled, and some ll. waterstained, but a REMARKABLY SOUND COPY); very rare, £1. 10s R. and W. Leybourn, 1652

Wingate's Arithmetic was originally published, in two parts, in 1630. The first part appeared in 1650, revised by JOHN KERSEY the elder, as 'Arithmetique made easie.' The above second part was reprinted for the first and last time in 1652.

15590 ——— ARITHMETICK, containing a plain and familiar Method for attaining the Knowledge and Practice of Common Arithmetick; 4th Edition, with Appendix, containing choice Knowledge in Arithmetick, both Practical and Theoretical (pp. 243), by JOHN KERSEY [the Elder], 12mo. hf. bound (title wanting); RARE, 10s 6d [1668]

Both the above editions were unknown to Professor de Morgan. The earliest edition described by him is that of 1673. This edition was also unknown to D. N. B.

15591 ——— TWELFTH EDITION, with a New SUPPLEMENT, of Easie Contraction in the necessary Parts of Arithmetick, useful Tables of Interest and Flemish Exchanges, also a Practical Mensuration, by GEORGE SHELLEY, sm. 8vo. contemporary calf, 6s 1708

15592 ——— THIRTEENTH EDITION, with a new Supplement, by GEORGE SHELLEY, sm. 8vo. contemporary panelled calf (sound copy), 6s 1713

15593 ——— EIGHTEENTH EDITION, with the Additions and Emendations by JOHN KERSEY and GEORGE SHELLEY, and all the Improvements that have appeared in other Writers since their Time; also sundry others, that are entirely new, by JAMES DODSON, with frontispiece, 8vo. old calf, 7s 6d 1751

The first edition published by James Dodson, and the best of the work, but according to Professor de Morgan, with very little Wingate in it. D. N. B. mistakenly gives the date as 1753.

15594 ——— NINETEENTH EDITION [unchanged], with frontispiece, 8vo. cl., 5s 1760

15595 ——— ANOTHER COPY, old calf, 6s

The last edition published.

15596 ——— ΛΟΓΑΡΙΘΜΟΤΕΧΝΙΑ, or the CONSTRUCTION and USE of the LOGARITHMETICALL TABLES, by the Helpe whereof, Multiplication is performed by Addition, Division by Subtraction, the Extraction of the Square Root by Bipartition, and the Cube Root by Tripartition, etc.; finally, the Golden Rule, and the Resolution of Triangles as well right lined as sphericall by Addition and Subtraction, first published in the French Tongue, and after translated by the same Author; 3rd Edition, enlarged by the Author himself, 24mo. contemporary sheep (sound and clean copy); RARE, £1. 1s Miles Flesher, 1648

First published at Paris, 1626, in French. The tables of logarithms are compiled from HENRY BRIGGS's.

15597 ——— THE USE of the RULE of PROPORTION, in Arithmetique and Geometrie, first published in the French Tongue, and now translated by the same Author; whereinto is now also inserted the Construction of the same Rule, and a further Use thereof, in Questions that concern Astronomie, Dialling, Geographie, Navigation, Gaging of Vessels, Military Orders, Interest, and Annuities, with large folding plate of Gunter's Scale, 32mo. contemporary sheep (RARE), £1. 1s

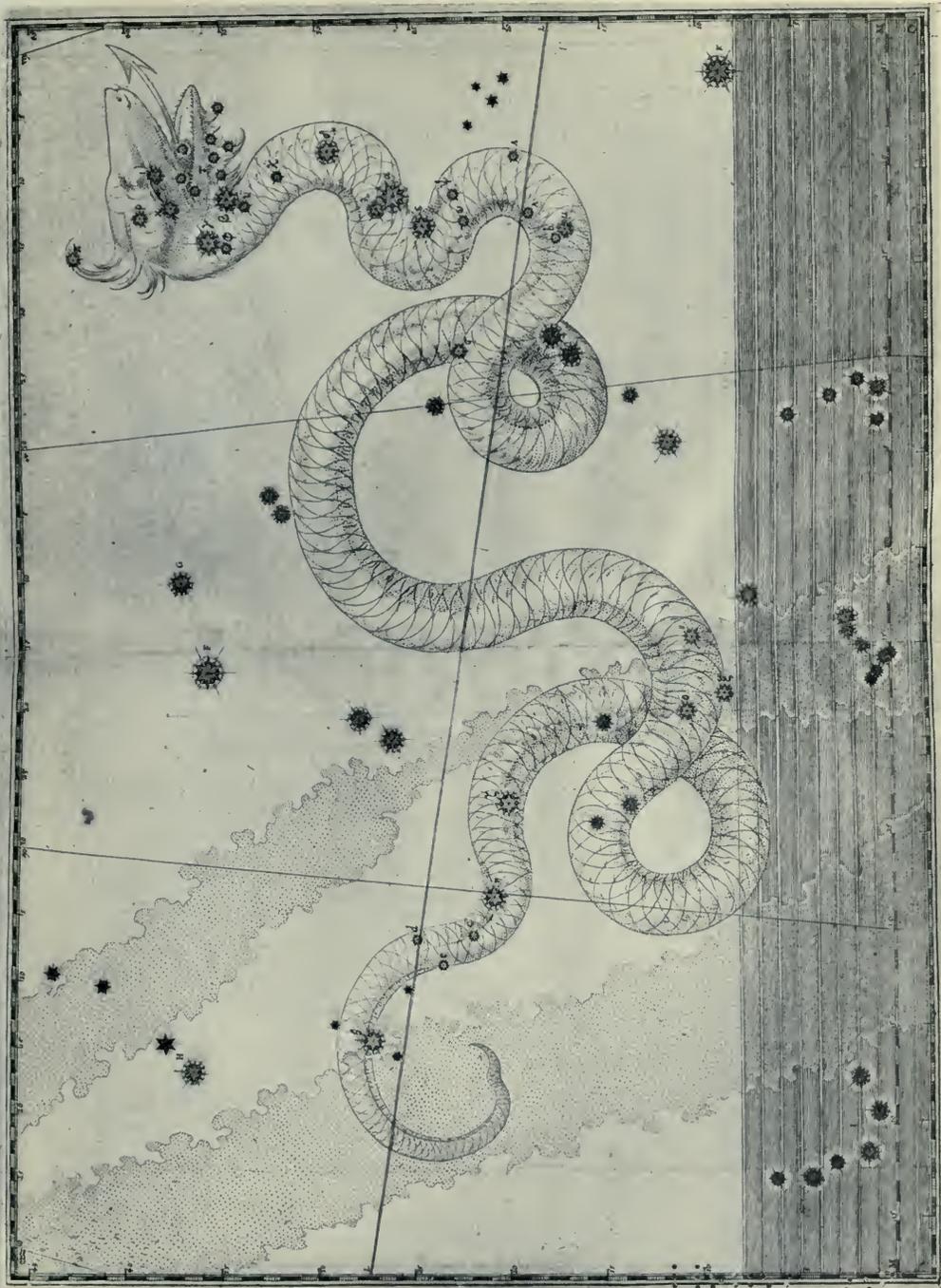
M. F. for P. Stephens, 1645

An account of Gunter's logarithmic scale, which was first published (in French) at Paris in 1624.

- 15599 **WINKLER** (Johann Heinrich; *Univ. Leipzig*) ELEMENTS of NATURAL PHILOSOPHY Delineated, translated from the 2nd German Edition, as enlarged by the Author, with 14 plates, 2 vols. 8vo. *tree-calf, newly rebound (scarce)*, 12s 6d 1757
- 15600 — Die EIGENSCHAFTEN der ELECTRISCHEN MATERIE und des ELECTRISCHEN FEUERS, aus verschiedenen neuen Versuchen erklärt, und nebst etlichen NEUEN MASCHINEN zum ELECTRISIREN; with 4 plates, sm. 8vo. *sewn (RARE)*, 17s 6d Leipzig, 1745
This work contains a description of the author's electrical machines, in which for the first time a leathern cushion is used, which is pressed against the glass globes by a spring.
- 15601 — GEDANKEN von den EIGENSCHAFTEN, WIRKUNGEN und URSACHEN von der ELECTRICITÄT, nebst einer Beschreibung zwo NEUER ELECTRISCHEN MASCHINEN; with 3 plates, sm. 8vo. *sewn, or, boards (rare)*, 12s *ibidem*, 1744
Containing experiments in which the author first showed that the electric spark ignites alcohol, etc.
- ESSAI sur la NATURE, les EFFETS, et les CAUSES de l'ELECTRICITÉ (1748)—v. No. 12736 *ante*.
- 15602 — Die STÄRKE der ELECTRISCHEN KRAFT des WASSERS in gläsernen Gefässen, welche durch den Musschenbrötkischen [*sic*] Versuch bekannt geworden; with 2 plates, 8vo. *sewn (rare)*, 15s *ib.*, 1746
- 15603 — ANOTHER COPY, wanting the plates; *sewn*, 6s
Including his experiments with three powerful Leyden jars, when he obtained sparks that could be seen at a distance of 200 yards in broad daylight. From their discharge he inferred that the phenomena of lightning and thunder must be the result of an electric discharge on a large scale. Winkler was also the first to mention that the earth was a good conductor of electricity.
There was no copy of any of the above three works, the only important ones written by the author on electricity, in the Ronalds Library.
- 15604 **WISLICENUS** (Johannes; *Univ. Leipzig*) Über die RÄUMLICHE ANORDNUNG der ATOME in ORGANISCHEN MOLEKULEN und ihre Bestimmung in geometrisch-isomeren ungesättigten Verbindungen, 2. mit Nachträgen versehener Abdruck; with 186 diagrams, impl. 8vo. *sewn*, 2s 6d (p. M. 4) Leipzig, 1889
One of the classic contributions to stereo-chemistry.
*Wislicenus has attempted to explain phenomena of this kind [metamerism] by the aid of an hypothesis propounded by van t'Hoff and Lebel. According to this hypothesis, which was designed with the object of explaining the optical activity of isomeric compounds, the centre of gravity of an atom in carbon is supposed as in the middle of a tetrahedron, and its four affinities as at the four corners. . . . Wislicenus has made this hypothesis the basis of his discussions and experimental researches.'—*Prof. E. v. Meyer*.
- 15605 **WOLLASTON** (William Hyde, M.D., F.R.S.) On the APPARENT DIRECTION of EYES in a PORTRAIT, with 4 fine copperplates (2 with superposed slips, showing the relation of facial expression to the eyes) by SIR THOMAS LAWRENCE, R.A., 4to. (pp. 10), *sewn (rare)*, 10s 1824
'An ingenious explanation of the apparent direction of eyes in a portrait, illustrated by his friend Sir Thomas Lawrence'.—*D. N. B.*
- 15606 — On the ELEMENTARY PARTICLES of CERTAIN CRYSTALS (Bakerian Lecture), with plate, 4to. (pp. 15), *sewn*, 3s 6d 1813
- 15607 — On METALLIC TITANIUM, 4to. (pp. 6), *sewn*, 2s 1822
- 15608 — METHOD of DRAWING EXTREMELY FINE WIRES; and DESCRIPTION of a SINGLE LENS MICROMETER, with plate, 4to. (pp. 9), *sewn*, 4s 6d 1813
'This method is still used in the construction of the bolometer'.—*D. N. B.*
- 15609 — On a METHOD of rendering PLATINA MALLEABLE (Bakerian Lecture), with plate, 4to. (pp. 8), *sewn (scarce)*, 7s 6d 1828
'The discovery of a method for producing pure platinum and welding it into vessels, made about 1804 and published as the Bakerian lecture in 1828, has proved of the highest importance, scientific and commercial, from the fact that the metal is attacked by extremely few chemical reagents. The Royal Society in 1828 awarded Wollaston a royal medal for his work. It was from this source that he accumulated his considerable fortune.'—*D. N. B.*
- 15610 — On the PRIMITIVE CRYSTALS of CARBONATE of LIME, BITTER-SPAR, and IRON-SPAR, 4to. (pp. 4), *sewn*, 2s 6d 1812
- 15611 — SYNOPTIC SCALE of CHEMICAL EQUIVALENTS, with plate, 4to. (pp. 22), *sewn, with inscr. to Thomas Allan, F.R.S. (scarce)*, 10s 6d 1814
'Wollaston's most important paper in theoretical chemistry. He proposes, in order to avoid undue use of hypothesis, to replace Dalton's 'atomic weights' by 'equivalents' which were to express the bare facts of quantitative analysis. Wollaston's criticism of Dalton in this paper is fundamental. . . . The battle between 'atomic weights' and equivalents lasted, with many fluctuations, down to recent times.'—*D. N. B.*
- 15612 **YOUNG** (Thomas, M.D., F.R.S.) On the THEORY of LIGHT and COLOURS (Bakerian Lecture), with plate, roy. 4to. (pp. 37), *sewn (RARE)*, 12s 6d 1801
'A more detailed account of his doctrine of interference and its applications appeared in his brilliant memoir *On the Theory of Light and Colours*, which marks an epoch in the history of the subject. In it he showed that the colours of thin and thick plates, of striated surfaces, and those seen at the edge of the shadow of an obstacle, could all be explained by the interference of light undulations which had traversed different paths, and concluded with the proposition 'Radiant light consists of undulations of the luminiferous ether'.'—*D. N. B.*
- 15613 **ZABARELLA** (Giacomo Conte) TABULÆ LOGICÆ, in quibus summa cum Facilitate ac Brevitate ea omnia explicantur, quæ ab aliis prolixè declarari solent, Editio postrema, 4to. *old hf. calf (joint cracked)*, with auto. and inscr. by Thomas Taylor, 'Platonist' (as below), 10s 6d
'Aristotelis alumni sumus nec posnitet. T. TAYLOR. An. 1781.'—*Inscr. on last leaf*.
'Ses idées philosophiques, et surtout sa méthode appliquée à la Logique d'Aristote, firent autorité en Allemagne.'—*Biogr. Gén.*

FURTHER ADDENDA.

- 15614 **ADAMS** (John Couch, F.R.S., *Lowndean Prof. Astronomy and Geometry, Cantab.*; discoverer of *Neptune*) SCIENTIFIC PAPERS, edited by WILLIAM GRYLLS ADAMS, F.R.S., and RALPH ALLEN SAMPSON, F.R.A.S., with Memoir by J. W. L. GLAISHER, F.R.S., with fine portrait on India paper, fs. of 4 p. MS., and diagrams, 2 vols. 4to. cl., 15s (p. £2. 10s) Univ. Press, Cambridge, 1896-1900



Nos. 15617-18 (page 787).

First edition of the first important star atlas.

Bas. xxii. capitel

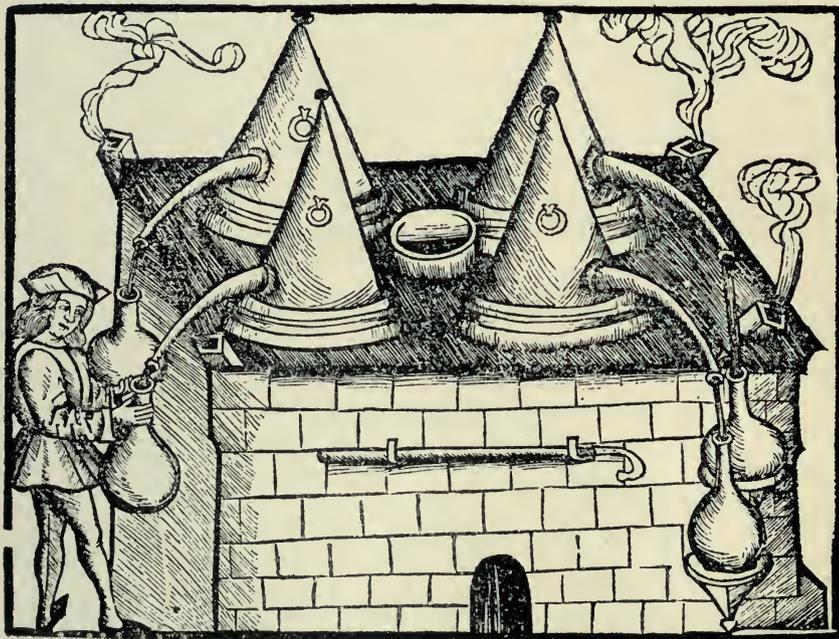
sicas colericas, das seindt bleßlin vff der
heit die von grosser hitz entspringen. Wie
man das bleiweiß macht ist geoffenbarer
In seruitoribus Rasis, vnd an andern en/
den me.

Das. xxii. capitel wie man
distillieren soll per descensum / vnder sich
vnd nit ober sich.



Sich dir verheiß
sen hab in vil vñ manicherlei
weiß vnd maß dich zü leren
wie man distillieren sol / be/
zwingt mich solich gelübde weiter zü strec/
ken vnd dir zü offenbare vñ zeigen wie mā
sol distillieren per descensum, das ist vnd
sich vnd nit ober sich / als sich gebürt vnd
wol gezimpt in vil dinge / als du wol sehe
bist / so mā distillier oder b:et oly vß weck
olter / heßlin / od alten karch speichē holtz /
zū heilen rinnēde vñ trieffende schwadē / ich
selber gesehen hab / vñ muschat nüss oly / be

nedicte oly / von eyer dotter / vñ vil andere
der gleiche vñ kürzerüg willē anderwegē
gelassen. Solich distillierüg mag gesche
hen in ein ofen gemacht von vngediand
ten mursteinen / siereckecht in weit vnd
breit einer elen vund einn fiertail / sie einn
stein flach neben den andern geleit gleich
ein herd / zü ring omb der selbē murstein
vffrecht gesetzt. in höhe von dem herd. iiii.
fiertail einer elen / vßgenommen das for/
teil / daruff werden ysen geleit / daruff and
stein die tün seint / oder ziegel genät Basel
tack im Elsaß / gleich ein glatten bodē od
herd haben / in der mittē ein loch einer
halben elen weit / so vß der leng gemacht
würdt ein ring / das dar durch gon ist eins
menschen fust. Vff dem selbigen boden
verd gemacht zü ring omb / vund vff alle
end ein gesetzt von den steinen wie vo: / in
tieffe von dem obern boden / vff drit hal/
oder drei fiertail einer elen. Des form ist
also.



No. 15621 (page 787).

An early and rare book on distilling.

A COMPLETE SET TO 1909 :

- 15616 **ASTRONOMICAL SOCIETY (ROYAL). MEMOIRS** of the, complete from the Beginning in 1822 to 1909 (Vols. 1-59), with numerous plates (some coloured or folding), maps, and other illustrations, 59 vols. 4to., vv. 1-51 in 37 v. hf. calf gilt, and the rest in parts or boards as issued (FINE SET); SCARCE, £42. 1822-1909

A complete set of the Memoirs of the first Astronomical Society ever constituted, and containing many contributions of great value.

The earlier volumes are now out of print and VERY SCARCE.

- 15617 **BAYER (Johann) URANOMETRIA**, omnium Asterismorum continens Schemata, nova Methodo delineata, editio princeps; with fine engraved title, and 51 star-maps on copper by Alex. Mair, folio, hf. calf gilt (sound and clean copy); very rare, £3. 10s

(col. :) Augustæ Vindel., Christ. Mangus, 1603

- 15618 ——— ANOTHER COPY, old white vellum (guarding of the maps wormed, otherwise a VERY LARGE AND FINE COPY), with bookplate of MICHELANGELO GIACOMELLI, Abp. of Chalcedon (1695-1774), £4. 4s

FIRST EDITION OF THE FIRST IMPORTANT STAR ATLAS. 'Bayer, the German astronomer, was the first to improve on the old plan [of distinguishing stars by the locality they occupied and their constellations, e.g., *Oculus Tauri* for a *Tauri*], which he did by publishing in 1603 a celestial atlas, in which the stars of each constellation were distinguished by the letters of the Greek alphabet. Bayer's letters are still in common use.'—*The late G. F. Chambers, F.R.A.S.*

An earlier attempt to classify stars was made by ALESSANDRO PICCOLOMINI (v. Nos. 3625-8 and 13298 ante), who used Latin letters for distinguishing four different magnitudes.

- 15619 **BLACK (Joseph, M.D., F.R.S.E., Prof. Chemistry, Edin.) LECTURES** on the ELEMENTS of CHEMISTRY, delivered in the University of Edinburgh, now published from his MSS., by JOHN ROBISON, Prof. Natural Philosophy, Edinburgh, with fine portrait on copper, and 3 plates, 2 vols. 4to. scored calf gilt (sound copy); VERY RARE, £2. 5s Edin., 1803

'During above 30 years he inculcated the elements of chemistry upon enthusiastic and continually growing audiences. 'It could not be otherwise', Robison wrote in 1803. 'His personal appearance and manner were those of a gentleman, and peculiarly pleasing. His voice in lecturing was low, but fine; and his articulation so distinct that he was perfectly well heard by an audience consisting of several hundreds. His discourse was so plain and perspicuous, his illustrations by experiments so apposite, that his sentiments on any subject never could be mistaken, even by the most illiterate; and his instructions were so clear of all hypothesis or conjecture, that the hearer rested on his conclusions with a confidence scarcely exceeded in matters of his own experience.' His lectures had thus a powerful effect in popularising chemistry; and attendance upon them even came to be a fashionable amusement'.—*D. N. B.*

LORD LISTER'S COPY :

- 15620 ——— : **ESSAYS and OBSERVATIONS, PHYSICAL and LITERARY**, read before a [the PHILOSOPHICAL] SOCIETY in EDINBURGH, and published by them, VOLS. II-III, with numerous folding copperplates, 2 vols. 8vo. old calf gilt (2 joints cracked, otherwise a very sound and large copy); VERY RARE, £2. 10s *ibidem*, 1770-1

Vol. II of this now very rare publication is of great importance as it first contains (on pp. 172-248) Dr. JOSEPH BLACK'S classic 'Experiments upon Magnesia Alba, Quick-lime, and some other Alkaline Substances', a description of which may be found under BLACK (p. 315, No. 6248). It also includes (pp. 159-71) the important essay by WILLIAM CULLEN, M.D., F.R.S., 'Of the Cold produced by evaporating Fluids, and of some other Means of producing Cold', containing the discovery of latent heat, and the author's theory of 'specific heat'; also 'A Solution of Kepler's Problem', by MATTHEW STEWART, F.R.S. (in v. III), a Letter from BENJAMIN FRANKLIN to David Hume, on the 'Method of securing Houses from the Effects of Lightning', and the important essay by THOMAS MELVILLE, 'Observations on Light and Colours', containing fundamental experiments in spectrum analysis; besides numerous contributions (some important) on medical and other subjects.

The above copy is of special interest as having belonged to LORD LISTER, F.R.S.

- 15621 **BRUNSCHWYG [oder BRUNSWICH] (Hieronymus) Das BUCH zu DISTILLIEREN** die zusammen gethonen ding COMPOSITA genant | durch die einzige ding | vnd das buch Thesaurus pauperū | für die armen | durch experiment von mir JHERONYMO BRUNSCHWICK vff geklubb vnd geoffenbart | zu trost vñ heil dē menschen vñ nutzlich ir leben und lieb daruss zu erlerengeren vnd in gesuntheit zu behalten; gothic letter, with 238 large and fine woodcuts of chemical apparatus and manipulations, etc., folio, old calf extra, inside borders, with silken linings and flyleaves, g. e. (title slightly soiled and blank bottom margined, with 2 letters replaced in fs., also last l. mounted, and a few other slight repairs, otherwise an unusually fine copy); very rare, £9.

Strassburg, durch Jahañem Grüninger, 1519

- 15622 ——— LATER ISSUE OF THE GERMAN EDITION, printed in gothic letter; with all the 238 fine woodcuts, folio, oaken boards covered with richly pressed pigskin, with portraits in centre, metal clasps (title and a few ll. browned, and a number of others slightly waterstained, also 2 ll. torn and one slightly defective); rare, £5. 15 *ibidem*, durch Bartholomeū Grüniger [sic], 1537

'La plupart des réimpressions dont nous avons déjà parlé reproduisent le petit *Destillirbuch* et non le grand, lequel ne reparait que dans les éditions de Strasbourg, Jo. Grüninger, 1519, et de Strasb., Barth. Grüninger, 1537, in-fol.'—*Brunet*.

- 15623 ——— : A VERTUOSE BOKE OF DISTYLLACYON of all MANER of WATERS of the HERBES, with the Figures of the Styllatoryes, fyrst made and compyled by the thyrte Yeres Study and Labour of the moste conyng and famous Master of Phisyke, MASTER JHEROM BRUYNISWYKE, and now newly translate out of Duche into Englishhe, by LAURENCE ANDREWES, first English edition, black letter, in double columns, with numerous woodcuts, and printer's device on last l., sm. folio, old hf. calf (title missing, and some inner margins stained, otherwise A TALL AND DESIRABLE COPY); very rare, with the Duke of Sussex's bookplate, £7. 15s

[Imprynted at London in the Flete Strete by me Laurens Andrewe, in the sygne of the Golden Crosse, M.CCCCXXVII, the XVIII. daye of Apryll]

The author is not mentioned by Poggenдорff or H. Kopp.

'Les 238 figures en bols imprimées dans le texte sont les premières essais de représenter les opérations chimiques par l'art de dessin . . . Dans ces réimpressions-ci [de 1519 et 1537] on a ajouté une traduction allemande des deux premiers livres (*de vita sana et longa*) de l'ouvrage de Marsilius Ficinus, *De vita triphlei libri III* sous le titre *Medicinarium, das buch der Gesuntheit* faite par Joh. Adelphus. Les éditions publiées depuis 1540 ont été entièrement changées, les deux livres de distillation, le grand et le petit, y ayant été entièrement entremêlés.'—*Groesse*.

15625 **BAUSCHINGER** (Julius; *Univ. Strasbourg*) Die *BAHNBESTIMMUNG* DER HIMMELSKÖRPER; with 84 diagrams, 4to. original *hf. calf* (slightly rubbed), £1. 2s 6d (p. M. 37) Leipzig, 1906

15626 ——— **TAFELN** ZUR THEORETISCHEN ASTRONOMIE; with 2 plates, 4to. *cl.*, with author's *inscr.* to *ibidem*, 1901
Dr. Downing, F.R.S., 7s (p. M. 12)

15627 **BURNHAM** (Sherburne Wesley; F.R.A.S., *Yerkes Observatory*) GENERAL CATALOGUE OF DOUBLE STARS, within 121° of the North Pole, with Notes to the Catalogue, diagrams, 2 vols. roy. 4to. (pp. 1086), *cl.*, £2. 2s (p. \$28) Carnegie Inst., Washington, 1906

The only catalogue published of all known double stars visible in the Northern Hemisphere, including 1,274 new ones discovered by the author himself.

15628 **CAUS** (Salomon de, *ingénieur du Prince de Galles*) La PERSPECTIVE, avec la Raison des Ombres et Miroirs; with finely engraved frontispiece (? by J. T. DE BRY), and 63 large engravings, folio, *sewn* (RARE), £2. 5s Londres, Jan Norton, 1612

'Livre très-rare.'—*Biogr. Gén.* The author was mathematical tutor to Henry Prince of Wales, and drawing-master to the Princess Elizabeth. His best-known work is 'Les Raisons des Forces Mouvantes' (v. No. 730 ante), through which the invention of the steam-engine has been claimed for him.

15629 **CESI** [ò **CESIO**; *Latine CÆSIUS*] (Bernardo, s.j.) MINERALOGIA, sive Naturalis Philosophiæ Thesauri, in quibus Metallicæ Concretionis Medicamentorumque Fossilium Miraculæ, Terrarum Pretium, Colorum et Pigmentorum Apparatus, Concretorum Succorum Virtus, Lapidum atque Gemmarum Dignitas continentur, thick folio, *old vellum*, or, *parchment* (RARE), £2. 2s Lugduni, J. et P. Prost, 1636

Containing also much of chemical interest. Pp. 1-187 treat of Mineralogy proper, pp. 187-288 of Colours and Pigments and pp. 541-603 of Gems. The work is not noticed by Brunet and is rare.

15630 **CROLL** (Oswald) : **BAZILICA CHYMICA, et PRAXIS CHYMIATRICE, or ROYAL and PRACTICAL CHYMISTRY**, in Three Treatises, wherein all those excellent Medicines or Chymical Preparations are fully discovered, from whence all our modern Chymists have drawn their choicest Remedies, being a Translation of Oswald Crollius his Royal Chymistry, augmented and enlarged by JOHN HARTMAN. To which is added his TREATISE of SIGNATURES of INTERNAL THINGS, or a true and lively Anatomy of the greater and lesser World, as also the PRACTICE of CHYMISTRY of JOHN HARTMAN, M.D., augmented and enlarged by his SON: all faithfully Englished by a Lover of Chymistry, with woodcuts, folio, *large and fine copy in old calf* (back slightly damaged); rare, £1. 10s J. Starkey and T. Passinger, 1670-69-70

'Having a good knowledge of chemistry, Croll brought into use many of the medicaments of Paracelsus, together with other new preparations; among the latter, he was the first to recommend the use of sulphate of potash (K_2SO_4) and of volatile salt of amber (succinic acid).'—*Prof. E. v. Meyer.*

'He knew chloride of silver well, and first gave it the name of *luna cornea*, or *horn silver*; fulminating gold was known to him, and called by him *aurum volatile*.'—*Dr. Thomas Thomson.*

15631 **EIFFEL** (Alexandre Gustave; *builder of the Tower*) NOUVELLES RECHERCHES sur la RÉSISTANCE de l'AIR et l'AVIATION faites au Laboratoire d'Auteuil; with frontispiece of the author's Aerodynamic Laboratory, and 267 illustrations, and Atlas, containing 67 pp. of numerical tables and 39 plates, 2 vols. roy. 4to. *cl.*, with author's *inscr.*, £1. 10s (p. F. 50 nett) 1914

Containing in an extended form the author's important researches first published in his *La Résistance de l'Air et l'Aviation*, which 'enseignés dans un grand nombre de cours sont à peu près devenus classiques.'

Lauded at for many years as an engineering *tour de force*, the Eiffel Tower gained a double justification, first by its great use in wireless telegraphy, and then as a conning tower against the air murder brigade of William the Poisoner.

15632 **MOISSAN** (Henri, *de l'Institut*), et autres: TRAITÉ de CHIMIE MINÉRALE; with numerous woodcuts, 5 thick vols. roy. 8vo. *hf. olive Levant morocco gilt, uncut, t. e. g.* (FINE COPY), £4. 10s (p. F. 150 nett *sewn*) 1904-6

The most authoritative French work on the chemistry of metalloids and metals. The author's collaborators were MM. Aloy, André, Brochet, Charpy, A. Colson, H. Gautier, Le Chatelier, Lemoine, Massol, Metzner, Sabatier, Verneuil, Vigouroux, Vogt, and other eminent chemists.

THE NEW EDITION JUST PUBLISHED AT £1. 10s NETT :

15633 **MORGAN** (Augustus de; F.R.A.S., *Prof. Mathematics, Univ. Coll., London*) A BUDGET OF PARADOXES, revised and edited with full BIBLIOGRAPHICAL NOTES and INDEX by DAVID EUGENE SMITH, Teachers' College, Columbia University, 2 vols. 8vo. (pp. 1000), *cl.* Chicago, 1915

One of the most interesting and witty books ever written, and invaluable for its history and bibliography of some scientific fallacies, e.g. 'circle-squaring'. It contains besides a large number of anecdotes, etc. on mathematical and scientific subjects. 'He had a love of puns, and all ingenious puzzles and paradoxes, which makes his 'Budget of Paradoxes' as amusing as it is learned.'—*Sir Leslie Stephen.*

'It is by far the most individual book of the age—individual, not merely in its own singularity as a book, but as presenting with a marked degree of clearness and exactness the personality of one who was never quite a man among other men. . . . To sum up, this is a book that should be read by those who care about circle squarers and all manner of jokes, mathematical and other; by those who care to make the acquaintance of Augustus de Morgan, which it is well worth while to do; but above all by those who care to be led into right thinking and warned from wrong.'—*Prof. W. K. Clifford.*

The work is now rendered additionally valuable by the bibliographical notes and index by Prof. D. E. Smith. The original edition has been out of print for many years, and is very scarce.

15634 [NUNEZ, *Latine*] **NONIUS** (Pedro) OPERA: Problemata, Regulæ et Instrumenta Artis Navigandi, quibus varia Rerum Astronomicarum $\Phi\alpha\nu\acute{\omicron}\mu\epsilon\tau\alpha$ circa Cælestium Corporum Motus explorare possumus: Annotationes in Aristotelis Problema Mechanicum de Motu Navigii, in Georgii Purbachii Planetarum Theoricæ Annotationes; de Erratis Orontii Fincei [*sic*]; de Crepusculis Lib. I, cum Libello Allacæ de Causis Crepusculorum; with printer's device on the title and last leaf, and very numerous diagrams, folio, *mottled calf* (FINE COPY); very rare, £5. 5s Basileæ, Seb. Henricpetri, 1592

'Quoique le géomètre et astronome portugais Nonius n'ait pas écrit de traité de gnomonique, il mérite ici une place distinguée, par la remarque et l'explication d'un phénomène gnomonique fort singulier [the *loxodromic curve*]: c'est celui de la rétrogradation de l'ombre sur un cadran sous certaines latitudes.'—*Monruca.*

The work also contains an exposure of the errors in Fincaeus's dialling, etc. The author is best known as the inventor of the *Nonius*.

BIBLIOTHECA REUTERIANA:

Part VI, and last,

containing MODERN STANDARD WORKS on

**Mathematics, Astronomy, Physics, Chemistry, Engineering,
Crystallography and Meteorology,**

and FORMING THE FINAL SUPPLEMENT to the

Bibliotheca Chémico-Mathematica.

OFFERED AT THEIR NETT PRICES BY

HENRY SOTHERAN & CO.,

140, STRAND. W.C., AND 43, PICCADILLY, W.

. To prevent disappointment, Customers are advised to address their orders to H. S. & Co. direct.

Telegraphic and Cable Address: **BOOKMEN, LONDON.** Codes: **UNICODE** and **A. B. C.**
Telephones: (STRAND), **CENTRAL 1515.** (PICCADILLY), **MAYFAIR 3601.**

CONTRACTIONS: *Bp.*, bishop; *C. M. H.*, Cambridge Modern History; *cl.*, cloth; *cr.*, crown; *D. N. B.*, Dictionary of National Biography; *fs.*, facsimile; *g. e.*, gilt edges; *o. p.*, out of print; *O. T. F.*, Oriental Translation Fund; *p.*, published at; *pr.*, priest; *r. e.*, red edges; *sm.*, small; *sq.*, square; *T. C. D.*, Trinity College, Dublin; *t. e. g.*, top edges gilt.

Of books not otherwise noted, all in English bear the imprint of London, and all in French, of Paris.

GENERAL WORKS:

15635 **CYON** (Elice v.; *quondam Univ. Petrograd*) Das OHRLABYRINTH als ORGAN der MATHEMATISCHEN SINNE für RAUM und ZEIT; with fine portrait, 5 plates, and 45 text-illustrations, 8vo. handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new), 10s 6d (p. M. 14 sewn) *Berlin, 1908*

An important contribution to the psychology of the exact sciences, some of the chapters being: experimentelle Grundlagen, Entwicklung und Aufbau der Lehre von Raumsinn: Täuschungen in der Wahrnehmung der Richtungen; physiologische Grundlagen der Geometrie von Euklid; Zeitsinn und Zahlenbewusstsein, etc. etc.

15636 **DUNCAN** (Robert Kennedy, *Washington and Jefferson Coll.*) The NEW KNOWLEDGE: a Popular Account of the New Physics and the New Chemistry in their Relation to the New Theory of Matter [5th Edition], with 54 illustrations, large cr. 8vo. buckram, 4s (p. 6s nett) 1909

15637 **DYCK** (Walther v.; *Technische Hochschule, München*) KATALOG MATHEMATISCHER und MATHEMATISCH-PHYSIKALISCHER MODELLE, APPARATE und INSTRUMENTE, unter Mitwirkung zahlreicher Fachgenossen herausgegeben im Auftrage des Vorstandes der DEUTSCHEN MATHEMATIKER-VEREINIGUNG; mit Nachtrag; with numerous illustrations, 2 vols. roy. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides (fine copy), 14s (p. M. 18 sewn) *München, 1892-3*

One of the best descriptive catalogues of mathematical instruments ever published, being that of the loan-collection arranged by the Deutsche Mathematiker-Vereinigung. The first 183 pp. contain introductory chapters by A. ANSLER, L. BOLTZMANN, A. V. BRAUNMÜLL, A. BRILL, G. HAUCK, O. HENRICI, and F. KLEIN.

15638 **ENRIQUES** (Federigo; *Univ. Bologna*) PROBLEME der WISSENSCHAFT (Wirklichkeit und Logik. Grundbegriffe der Wissenschaft), übersetzt von KURT GRELLING, 2 vols. post 8vo. cl. 5s 6d (p. M. 9) *Leipzig, 1910*

15639 **GALLE** (Andreas; *Geodetic Inst., Potsdam*) MATHEMATISCHE INSTRUMENTE; with 86 illustrations, 8vo. cl., or, buckram, 3s (p. M. 4.80) *Leipzig, 1912*

Including a bibliography of modern works on the subject.

15640 **GOODCHILD** (G. F.), and **C. F. TWENEY**: TECHNOLOGICAL and SCIENTIFIC DICTIONARY, with numerous illustrations, cr. 4to. (pp. 875), hf. morocco, cl. sides (joints rubbed); o. p., 15s [1906]

The object is to furnish the modern signification of technical terms employed in the Arts and Sciences, and by means of compendious articles to elucidate the principles and processes of pure and applied science.—Preface.

15641 **HEATHER** (J. F., *R.M.A., Woolwich*) MATHEMATICAL INSTRUMENTS, comprising Drawing, Measuring, Optical, Surveying, and Astronomical Instruments; enlarged [latest] Edition, for the most part wholly rewritten, with plates and numerous woodcuts, 3 vols. fcap. 8vo. in 1, buckram, 2s 6d *1888-92*

GENERAL WORKS, *continued* :—

- 15643 **HINTON** (Charles Howard) *The FOURTH DIMENSION, with coloured frontispiece of the Tessaract and numerous diagrams*, post 8vo. *cl.*, 2s 6d 1904 or 1906
- 15644 ——— **SCIENTIFIC ROMANCES** [Nos. I—VI], *with illustrations*, post 8vo. *cl.* (*scarce*), 6s 1886
Treating of fourth dimensional problems.
- 15645 **JEVONS** (William Stanley, F.R.S.) *The PRINCIPLES OF SCIENCE: a Treatise on Logic and Scientific Method*; 3rd Edition, *with frontispiece of the Logical Machine*, thick post 8vo. *cl.*, 6s (p. 12s 6d) 1879
Professor Jevons's most important work, with illustrations derived from almost every branch of science, wherein 'he developed his theory of logic and scientific method, and of its applications beyond and, so to speak, above the sphere of physical science alone. It proved more stimulative to mathematicians than to metaphysicians'.—*D. N. B.*
'W. S. Jevons in his *Principles of Science* founds induction upon the theory of inverse probability.'—*Prof. Cajori.*
- 15646 **LECHALAS** (Georges) *ÉTUDE sur l'ESPACE et le TEMPS*, post 8vo. *buckram*, 2s 6d 1896
- 15647 ——— *DEUXIÈME ÉDITION*, revue et augmentée, 8vo. *buckram*, *t. e. g.*, 3s 6d 1909
- 15648 **NATORP** (Paul; *Prof. Philosophy, Marburg*) *Die LOGISCHEN GRUNDLAGEN der EXAKTEN WISSENSCHAFTEN*, post 8vo. *cl.*, 4s (p. M. 6.60) Leipzig, 1910
- 15649 **PEARSON** (Karl, F.R.S.; *Galton Prof. Eugenics, Univ. London*) *The GRAMMAR of SCIENCE*; 2nd Edition, revised and enlarged, *with 33 illustrations*, thick 8vo. *cl.*, 7s 6d 1900
The last complete edition, part II not having been reissued.
- 15650 ——— *THIRD [LATEST] EDITION*, enlarged, Part I (all published): *PHYSICAL, with diagrams*, 8vo. *cl.*, 4s (p. 6s nett) 1911
——— *v. TODHUNTER, sub PHYSICS, post.*
- 15651 **POIRÉ** (Paul), Rémy et Edmond **PERRIER**, et Alexandre **JOANNIS**: *NOUVEAU DICTIONNAIRE des SCIENCES et de leurs APPLICATIONS; with 5402 illustrations*, 2 thick vols. roy. 8vo. (pp. 3362), *handsomely bound in hf. pigskin (backs slightly worn)*, £1. 5s (p. F. 45 nett sewn) s. d.
- 15652 **PRIVAT-DESCHANEL** (Augustin), et Adolphe **FOCILLON**: *DICTIONNAIRE GÉNÉRAL des SCIENCES théoriques et appliquées: Mathématiques, Physique et Chimie, Technologie-Mécanique, Ethnologie, Histoire naturelle, Médecine-Agriculture; 5^e [dernière] Edition, entièrement refondue par JULES GAY et LOUIS MANGIN; with about 3500 illustrations*, 2 thick vols. roy. 8vo. (pp. 3488), *handsomely bound in hf. pigskin (backs slightly worn), cl. sides*, £1. 5s (p. F. 40 nett sewn) [1903-5]
- 15653 **ROBB** (Alfred A.) *A THEORY of TIME and SPACE, with 43 diagrams*, roy. 8vo. *cl.*, 7s (p. 10s 6d nett) 1914
Univ. Press, Cambridge
'The special object here aimed at has been to show that spacial relations may be analyzed in terms of the time relations of *before* and *after*.'—*Preface.*
- 15654 **TECHNOLOGICAL DICTIONARY: ENGLISH, GERMAN, and FRENCH**, published by ERNST RÖHRIG and ERICH SCHILLER, with Preface by KARL KARMARSCHE; 3rd completely revised Edition (Vol. I 4th Edition), 3 thick vols. roy. 8vo. in one, *hf. maroon morocco neat, cl. sides*, 12s (p. M. 34 sewn) 1878-87
- 15655 **VILLIÉ** (Edmond, *Univ. LILLE*) *COMPOSITIONS d'ANALYSE, CINÉMATIQUE, MÉCANIQUE et ASTRONOMIE, données depuis 1869 à la Sorbonne, suivies d'Exercices sur les Variables Imaginaires: ÉNONCÉS et SOLUTIONS; with numerous diagrams*, 3 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 15s (p. F. 25.50 nett sewn) 1885-98
Universities in North-Eastern France equally with those in Belgium will keep the savagery of the educated German officer in the world's remembrance to all time.
- 15656 **WARRAIN** (F.) *Les MODALITÉS UNIVERSELLES de la QUANTITÉ: l'ESPACE; with illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g.*, 7s (p. F. 10 nett sewn) 1907
- 15657 **WRAPSON** (James P.), and W. W. Haldane **GEE**: *MATHEMATICAL and PHYSICAL TABLES, with illustrations*, 8vo. *buckram*, 4s (p. 6s 6d nett) 1898
- 15658 **WRIGHT** (Charles Romley Alder, F.R.S.) *The THRESHOLD of SCIENCE: a Variety [404] of simple and amusing EXPERIMENTS [in CHEMISTRY and PHYSICS]*; 2nd [latest] Edition, enlarged, *with 203 illustrations*, large cr. 8vo. *buckram*, 3s (p. 6s) 1892

MATHEMATICS :

- 15659 **ACTA MATHEMATICA**: 1882-1912: *TABLE GÉNÉRALE des Tomes 1-35, redigée par MARCEL RIESZ; with 202 portraits of famous mathematicians*, 4to. *finely bound in crushed crimson Levant morocco gilt, uncut, t. e. g.* (CHOICE COPY), *with inser. from Prof. Mittag-Leffler to Baron de Reuter*, £1. 5s Uppsala, 1913
Very interesting for containing portraits and short biographies of mathematicians who contributed to the journal.
- 15660 **ADLER** (August; *Vienna*) *THEORIE der GEOMETRISCHEN KONSTRUKTIONEN; with 177 diagrams*, cr. 8vo. *cl.*, or, *buckram*, 6s (p. M. 9) Leipzig, 1906
- 15661 **AHRENS** (W.) *MATHEMATISCHE UNTERHALTUNGEN und SPIELE; with folding plate and numerous text-illustrations*, 8vo. *buckram*, 7s (p. M. 10 sewn) Leipzig, 1901
- 15662 ——— *ANOTHER COPY, handsomely bound in hf. black morocco neat, cl. sides*, 8s

MATHEMATICS, continued:—

- 15664 **ADHÉMAR** (Vicomte Robert d'; *Univ. Lille*) EXERCICES et LEÇONS d'ANALYSE: Quadratures, Équations différentielles, Équations intégrales de FREDHOLM et VOLTERRA, Équations aux Dérivées partielles du second Degré, 8vo. *buckram*, *t. e. g.*, 4s (p. F. 6 nett sewn) 1903
The world will never forget the deprivation to forced labour of the women and girls of Lille.
- 15665 ——— LEÇONS sur les PRINCIPES de l'ANALYSE, avec Note de SERGE BERNSTEIN, de l'Université de Kharkow; *with numerous diagrams*, 2 vols. large 8vo. in 1, *hf. black morocco neat, cl. sides, t. e. g.*, 13s 6d (p. F. 20 nett sewn) 1912-13
^{Si j'emploie le mot Principes, j'ai voulu dire questions principales, fondamentales et non point approfondissement des premiers principes de la science mathématique. — Préface.}
- 15666 **ALDIS** (William Steadman, *Trinity Coll., Cantab.*) ELEMENTARY TREATISE on SOLID GEOMETRY, 3rd Edition, revised, *with diagrams*, cr. 8vo. *cl.*, 2s 6d Cambridge, 1880
- 15667 **AMIGUES** (E.) LEÇONS d'ALGÈBRE [SUPÉRIEURE], thick 8vo. *hf. black morocco neat, cl. sides (nice copy)*, o. p., 5s (p. F. 10 nett sewn) 1890
- 15668 **AMIOT** (A.) APPLICATIONS de la GÉOMÉTRIE ÉLÉMENTAIRE, 4^e Édition, augmentée; *with folding plate and diagrams*, 8vo. *hf. French morocco neat (o. p.)*, 2s 6d 1865
- 15669 ——— ÉLÉMENTS de GÉOMÉTRIE; nouvelle Édition, entièrement refondue par F. VINTÉJOUX; *with numerous diagrams*, 8vo. *buckram*, 3s 6d 1897
- 15670 ——— ANOTHER COPY; also: SOLUTIONS RAISONNÉES des PROBLÈMES, nouvelle Édition, augmentée; *with 25 folding plates (neatly linen-mounted)*, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (fine copy)*, 8s 1897—s. d.
- 15671 ——— LEÇONS NOUVELLES de GÉOMÉTRIE ÉLÉMENTAIRE, 2^e Édition, entièrement refondue; *with diagrams*, 2 vols. 8vo. in 1, *hf. French morocco neat*, 4s 1865-6
- 15672 ——— LEÇONS NOUVELLES de GÉOMÉTRIE DESCRIPTIVE, 3^e Édition, par A. CHEVILLARD; *with 28 double plates*, 2 vols. 8vo. in 1, *hf. morocco neat*, 5s 1869
- 15673 ——— SOLUTIONS RAISONNÉES des PROBLÈMES énoncés dans les ÉLÉMENTS de GÉOMÉTRIE, avec Observations sur la Résolution des Problèmes de Géométrie par A. AMIOT et A. DESVIGNES, 5^e Édition, augmentée; *with 25 plates*, 8vo. *hf. morocco neat*, 3s 1873
- 15674 ——— NOUVELLE ÉDITION, revue et augmentée; *with 25 plates (neatly linen-mounted)*, 8vo. *hf. black morocco neat, cl. sides (nice copy)*, 4s 6d s. d.
- 15675 **ANDOYER** (Henri, *de la Sorbonne*) LEÇONS ÉLÉMENTAIRES sur la THÉORIE des FORMES et ses Applications géométriques; *neatly autographed on 184 pp.*, large 4to. *buckram*, 5s 6d (p. F. 8 nett sewn) 1898
- 15676 ——— LEÇONS sur la THÉORIE des FORMES et la GÉOMÉTRIE ANALYTIQUE SUPÉRIEURE, Tome I [seul paru], roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (nice copy)*, 10s (p. F. 15 nett sewn) 1900
- 15677 ——— NOUVELLES TABLES TRIGONOMÉTRIQUES FONDAMENTALES, contenant les LOGARITHMES des Lignes trigonométriques de Centième en Centième du Quadrant avec 17 Décimales, de 9 en 9 Minutes avec 15 Décimales, et de 10 en 10 Secondes avec 14 Décimales, 4to. *handsomely bound in hf. pigskin, cl. sides (nice copy)*, £1. 1s (p. F. 30 nett sewn) 1911
Together with Bauschlinger's (*q. v. post*) the most important logarithmic work published within recent years. Its publication was made possible by a subsidy from the Fondation Commercy in the University of Paris.
- 15678 **ANDRÉ** (Désiré) Des NOTATIONS MATHÉMATIQUES: Énumération, Choix et Usage; *with diagrams*, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g.*, 11s (p. F. 16 nett sewn) 1909
- 15679 **ANDRÉ** (Philippe) NOUVEAU COURS COMPLET d'ALGÈBRE ÉLÉMENTAIRE, 18^e Édition; avec les Exercices, 9^e Édition; *with numerous diagrams*—2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides*, 6s 6d (p. F. 10 nett sewn) s. d.
- 15680 ——— TRAITÉ de GÉOMÉTRIE ÉLÉMENTAIRE, 5^e Édition; *with 709 diagrams*: EXERCICES de GÉOMÉTRIE, 13^e Édition; *with 527 diagrams*—2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 6s (p. F. 12 nett sewn) 1906—s. d.
- 15681 **ANDREWS** (W. S.) MAGIC SQUARES and CUBES, with Chapters by PAUL CARUS, F. S. FRIERSON, C. A. BROWNE, JR., and Introduction by PAUL CARUS, *with 337 diagrams and woodcut*, roy. 8vo. *cl.*, 5s (p. 7s 6d nett) Chicago, 1908
- 15682 **ANGEL** (Henry) PRACTICAL PLANE GEOMETRY and PROJECTION, *with numerous illustrations*, post 8vo., with ATLAS, *containing 80 plates*, 4to.—2 vols. *cl.*, 6s (p. 12s) n. d.
- 15683 **ANTOMARI** (Xavier) COURS de GÉOMÉTRIE DESCRIPTIVE; 2^e Édition, conforme au nouveau Programme d'Admission à l'École Polytechnique; TRAITÉ de GÉOMÉTRIE DESCRIPTIVE; *with numerous diagrams*—2 vols. roy. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 8s (p. F. 12 nett sewn) 1904
- 15684 **AOUST** (Abbé Barthélemy, *Univ. Marseille*) ANALYSE INFINITÉSIMALE des COURBES; *with 120 diagrams*, 3 vols. 8vo. in 2, *hf. black morocco neat, cl. sides, t. e. g.*, 12s 6d (p. F. 26.50 nett sewn) 1869-76

CONTENU:—Courbes tracées sur une Surface quelconque, '69: — Planes, contenant la Résolution d'un grand Nombre de Problèmes choisis, '73: — dans l'Espace, '76.

MATHEMATICS, *continued* :—

- 15686 **APOLLONIUS Pergæus**: TREATISE ON CONIC SECTIONS, edited in Modern Notation, with Introductions, including an Essay on the earlier History of the Subject, by SIR THOMAS LITTLE HEATH, F.R.S., *with frontispiece*, 8vo. (pp. 424), *cl.* (SCARCE), 15s *Univ. Press, Cambridge*, 1896
- 15687 **APPELL** (Paul Émile, *de l'Institut*) ÉLÉMENTS D'ANALYSE MATHÉMATIQUE à l'Usage des Ingénieurs et des Physiciens; 2^e Édition; *with 229 diagrams*, large 8vo. *handsomely bound in hf. pigskin, cl. sides*, 12s (p. F. 24 nett sewn) 1905
- 15688 —, et Édouard GOURSAT, *de la Sorbonne*: THÉORIE des FONCTIONS ALGÈBRIQUES et de leurs INTÉGRALES: Étude des Fonctions analytiques sur une Surface de RIEMANN [avec Préface de CH. HERMITE]; *with 91 diagrams*, roy. 8vo. *handsomely bound in hf. pigskin, uncut, t. e. g. (fine copy)*, 10s 6d (p. F. 16 nett sewn) 1895
- 15689 **ARNOUX** (Gabriel, *ancien Officier de Marine*) ARITHMÉTIQUE GRAPHIQUE: Introduction à l'ÉTUDE des FONCTIONS ARITHMÉTIQUES; *with diagrams*, roy. 8vo. *buckram*, 5s (p. F. 7.50 nett sewn) 1906
- 15690 — ANOTHER COPY, also: Les ESPACES ARITHMÉTIQUES HYPERMAGIQUES; *with coloured folding plate and diagrams*, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 9s (p. F. 13.50 nett sewn) 1894-1906
- 15691 **ASKWITH** (Edward Harrison, *Trinity Coll., Cantab.; Vicar of Kirkby Lonsdale*) The ANALYTICAL GEOMETRY of the CONIC SECTIONS, *with 76 diagrams*, 8vo. *buckram*, 5s (p. 7s 6d nett) 1908
- 15692 — COURSE of PURE GEOMETRY, *with diagrams*, post 8vo. *buckram*, 2s 6d (p. 5s) *Univ. Press, Cambridge*, 1903
- 15693 **ATKINSON** (Capt. E. H. de V., R.E.) TEXT-BOOK of PRACTICAL SOLID GEOMETRY, etc.; 2nd Edition, revised by MAJOR B. R. WARD, R.E., *with 21 folding plates*, 8vo. *buckram*, 4s (p. 7s 6d) 1901
- 15694 **AUBERT** (P.), et G. PAPELIER: EXERCICES d'ALGÈBRE, d'ANALYSE et de TRIGONOMÉTRIE; *with diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 8s (p. F. 12 nett sewn) 1908-10
- 15695 — ANOTHER COPY, 2 vols. in 1, *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 8s 6d
- 15696 **AUTENHEIMER** (Fr., *Winterthur*) ELEMENTARBUCH der DIFFERENTIAL- und INTEGRALRECHNUNG, mit zahlreichen Anwendungen; 5. verbesserte Auflage, bearbeitet von ALFRED DONADT; *with 156 diagrams*, 8vo. *handsomely bound in hf. pigskin, cl. sides*, 6s (p. M. 9 sewn) *Leipzig*, 1901
- 15697 — SECHSTE [NEUESTE] AUFLAGE, bearbeitet von ALFRED DONADT; *with 161 diagrams*, 8vo. *handsomely bound in hf. pigskin, cl. sides*, 7s (p. M. 9 sewn) *ibidem*, 1910
- 15698 — ANOTHER COPY, *half black morocco neat, cl. sides (as good as new)*, 7s 6d
- 15699 **BABBAGE** (Charles, F.R.S.) EXAMINATION of some QUESTIONS connected with GAMES of CHANCE, 4to. (pp. 23), *sewn (name cut off title)*, 3s 6d *Edin.*, 1820
Written about the time when Mr. Babbage was first setting to work on the Difference Engine.
- 15700 **BACHELIER** (Louis) CALCUL des PROBABILITÉS, Tome Ier [seul paru], 4to. *half black morocco neat, cl. sides, uncut, t. e. g. (fine copy)*, 16s 6d (p. F. 25 nett sewn) 1912
'Cet ouvrage n'a pas seulement pour but d'exposer, avec quelques développements, l'ensemble des connaissances acquises dans le passé sur le calcul des probabilités, il a aussi pour objet de faire connaître de nouvelles méthodes et de nouveaux résultats qui représentent, à certains points de vue, une transformation complète de ce calcul.'—*Préface*.
- 15701 **BACHMANN** (Paul; *Univ. Breslau*) GRUNDLEHREN der NEUEREN ZAHLENTHEORIE; *with 10 diagrams*, large cr. 8vo. *cl.*, 4s 6d (p. M. 6.50) *Leipzig*, 1907
- 15702 — Die LEHRE von der KREISTHEILUNG und ihre Beziehungen zur ZAHLENTHEORIE: akademische Vorlesungen; *original impression, with folding plate and diagrams*, 8vo. *buckram (scarce)*, 7s 6d *ibidem*, 1872
- 15703 — NIEDERE ZAHLENTHEORIE, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (fine copy)*, £1. 2s 6d (p. M. 30 sewn) *ib.*, 1902-10
- 15704 — ZAHLENTHEORIE: Versuch einer Gesamtdarstellung dieser Wissenschaft in ihren Haupttheilen, I.—IV. Teil; *original impressions throughout, with folding plate (linen-mounted)*, 4 vols. 8vo. in 2, *hf. maroon morocco neat, cl. sides (fine copy)*, £1. 12s 6d (p. M. 43.40 sewn) *ib.*, 1872-98
One of the standard works on the theory of numbers.
CONTENTS:—I. Elemente der Zahlentheorie; II. Analytische Zahlentheorie; III. Lehre von der Kreistellung; IV. Arithmetik quadratischer Formen, I. Abteilung. Vol. I and III, which can now be obtained at the publisher's only in an inferior anastatic reprint, are in the above copy in the original impression.
- 15705 **BALL** (Walter William Rouse, *Fellow of Trinity*) MATHEMATICAL RECREATIONS and PROBLEMS of Past and Present Times, *with diagrams*, post 8vo. *cl.*, 3s 6d (p. 7s nett) 1892
- 15706 — FOURTH EDITION, *with illustrations*, cr. 8vo. *buckram*, 4s 6d (p. 7s 6d nett) 1905
- 15707 — FIFTH [LATEST] EDITION [enlarged], *with illustrations*, large post 8vo. *buckram*, 6s (p. 8s 6d nett) 1911

With interesting chapters on Magic Squares, Astrology, Hyper-Space, and the Constitution of Matter.

MATHEMATICS, *continued*:—

- 15709 **BACHET de MÉZIRIAC** (Claude Gaspard, s.j.) PROBLÈMES PLAISANTS et DÉLECTABLES, qui se font par les NOMBRES; 3^e Édition, revue, simplifiée, et augmentée par A. LABOSNE, large cr. 8vo. *buckram, t. e. g., 3s 6d* 1874
 'Containing an interesting collection of arithmetical tricks and questions.'—*W. W. R. Ball.*
- 15710 **BALTZER** (Richard; *Univ. Giessen*) ANALYTISCHE GEOMETRIE; with 65 woodcuts, 8vo. *handsomely bound in hf. black morocco, cl. sides, 6s 6d* (p. M. 8 sewn) *Leipzig, 1882*
- 15711 — Die ELEMENTE der MATHEMATIK; 6. verbesserte Auflage; with diagrams, 2 vols. 8vo. in 1, *hf. cl. (used copy), 5s* (p. M. 11.50) *ibidem, 1879-83.*
- 15712 — THEORIE und ANWENDUNG der DETERMINANTEN, 4. verbesserte Auflage: **DRONKE** (Adolf) EINLEITUNG in die HÖHERE ALGEBRA; with diagrams—2 vols. 8vo. in 1, *buckram, 5s* *ib., 1875—Halle, 1872*
(o. p.), 6s
 Containing the author's method of simplifying Gauss's deduction of the formula of curvature by the use of determinants.
- 15714 **BARDEY** (Ernst) ALGEBRAISCHE GLEICHUNGEN, nebst den Resultaten und den Methoden zu ihrer Auflösung; 4. Auflage, 8vo. *red buckram, 3s 6d* *Leipzig, 1893*
- 15715 — FÜNFTE AUFLAGE, bearbeitet von FRIEDRICH PIETZKER, 8vo. *buckram, 5s* (p. M. 8) *ibidem, 1902*
- 15716 **BARNARD** (S.), and J. M. CHILD: A NEW ALGEBRA, with Key, with diagrams, 4 vols. cr. 8vo. in 2, *hf. black morocco neat, cl. sides (fine copy), 14s* (p. £1. 1s 6d in cl.) 1909-10
- 15717 **BASSET** (Alfred Barnard, F.R.S.) ELEMENTARY TREATISE ON CUBIC and QUARTIC CURVES, with diagrams, 8vo. *buckram, 6s* (p. 10s 6d) *Cambridge, 1901*
- 15718 — TREATISE on the GEOMETRY of SURFACES, 8vo. *buckram, t. e. g., 6s* (p. 10s 6d) *ibidem, 1910*
- 15719 **BAUER** (Gustav; *Univ. Munich*) VORLESUNGEN über ALGEBRA, herausgegeben vom MATHEMATISCHEN VEREIN MÜNCHEN [mit Vorrede von KARL DOEHLEMANN]; 2. [neueste] Auflage; with portrait and 11 diagrams, large 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy), 8s 6d* (p. M. 11 sewn) *Leipzig, 1910*
 The author's portrait bears an odd likeness to a composite photograph of Mr. Gladstone and Thomas Hardy.
- 15720 **BAUSCHINGER** (Julius; *Univ. Strasbourg*), and Jean PETERS, *K. Astronomisches Recheninstitut, Berlin*: LOGARITHMISCH-TRIGONOMETRISCHE TAFELN mit ACHT DEZIMALSTELLEN, enthaltend die Logarithmen aller Zahlen von 1 bis 200000 und die Logarithmen der trigonometrischen Funktionen für jede Sexagesimalsekunde des Quadranten, neu berechnet und herausgegeben; with frontispiece of calculating machine, 2 vols. inpl. 8vo. in 1 (pp. 1339), *handsomely bound in hf. pigskin, cl. sides (fine copy), £2. 2s* (p. M. 52 sewn) *Leipzig, 1910-11*
 Together with Andoyer's work (*q. v. ante*) this is the most important logarithmic work published within recent years. Its publication was made possible by a subsidy from the Berlin and Vienna Academies.
- 15721 **BEAU** (Otto) ANALYTISCHE ÜNTERSUCHUNGEN im Gebiete der TRIGONOMETRISCHEN REIHEN und der FOURIER'schen INTEGRALÉ, 2. vermehrte Auflage, 4to. *buckram, 3s* (p. M. 5.50 sewn) *Halle, 1885*
- 15722 **BELL** (Robert J. T., *Univ. Glasgow*) ELEMENTARY TREATISE ON COORDINATE GEOMETRY OF THREE DIMENSIONS, with 55 diagrams, 8vo. *hf. black morocco neat, cl. sides (as good as new), 7s* (p. 10s nett in cl.) 1910
- 15723 **BELLAVITIS** (Giusto; *Univ. Padua*) EXPOSITION de la MÉTHODE des EQUIPOLLENCES, traduite par C. A. LAISANT; with diagrams, large post 8vo. *buckram (o. p.), 6s* 1874
- 15724 **BERKELEY** (Hastings) MYSTICISM in MODERN MATHEMATICS, 8vo. *cl., uncut, 5s* (p. 8s nett) *Univ. Press, Oxford, 1910*
 Especially directed against non-Euclidean geometry.
- 15725 **BERNHARD** (Max) DARSTELLENDÉ GEOMETRIE, mit Einschluss der Schattenkonstruktionen und der Perspektive, 2. stark vermehrte Auflage; with 311 diagrams, 8vo. *handsomely bound in hf. black morocco, cl. sides, 3s 6d* (p. M. 5.20 sewn) *Stuttgart, 1905*
- 15726 — DRITE [NEUESTE] VERMEHRTE AUFLAGE; with 321 illustrations, 8vo. *buckram, 4s 6d* (p. M. 5.20 sewn) *ibidem, 1909*
- 15727 **BERNOULLI** (Jacques) WAHRSCHEINLICHKEITSRECHNUNG (ARS CONJECTANDI), übersetzt und herausgegeben von R. HAUSSNER, 2 vols. post 8vo. *boards (partly o. p.), 6s* *Leipzig, 1899*
 'A development of the calculus of probabilities, and containing the investigation now called *Bernoulli's theorem* and the so-called *numbers of Bernoulli*, which are in fact (though not so considered by him) the coefficients of $\frac{x^n}{n!}$ in the expansion of $(e^x - 1)^{-1}$.—*Prof. Cajori.*
- 15728 **BERTRAND** (Louis; *Univ. Geneva*) GÉOMÉTRIE de POSITION, 1^{re} Partie (seule parue); with diagrams, 8vo. *cl. (o. p.), 3s 6d* (p. F. 6 nett sewn) 1873
- 15729 **BESANT** (William Henry, F.R.S.; brother of Sir Walter) CONIC SECTIONS treated GEOMETRICALLY, 8th Edition, revised, with diagrams, with the Solutions, 2 vols. fcap. 8vo. *cl., 4s* (p. 8s 6d) *Cambridge, 1890*
- 15730 — [NINTH AND LATEST EDITION, enlarged], with the Solutions, 2 vols. cr. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, 7s* (p. 9s 6d nett in cl.) 1900-1

MATHEMATICS, *continued*:—

- 15732 **BERTRAND** (Joseph Louis François, *de l'Institut*; F.R.S.) CALCUL des PROBABILITÉS, roy. Svo. *hf. maroon morocco neat, cl. sides, uncut, t. e. g. (fine copy), 8s 6d* (p. F. 12 nett sewn) 1889
A standard work. It includes a preface of 50 pp. on the laws of chance.
- 15733 ——— TRAITÉ de CALCUL DIFFÉRENTIAL et de CALCUL INTÉGRAL; *with diagrams*, 2 vols. 4to. *hf. calf gilt* (SCARCE), £4. 17s 6d 1864-70
- 15734 ——— ANOTHER COPY, 2 vols. *hf. French red morocco gilt, uncut, t. e. g.*, £5.
The first volume, which contains a very interesting introduction on the history of the differential calculus (pp. 44), is out of print and VERY SCARCE
A number of ll. of writing paper are bound up with v. II of the 2nd copy, the first 8 pp. containing a MS. 'Recueil d'Intégrales: Formules fondamentales, ou usuelles, et auxiliaires'.
- 15735 ———, et Henri GARCET: TRAITÉ d'ALGÈBRE, 8^e Édition, 2 vols. 8vo. *hf. French morocco neat, 4s* 1873-4
- 15736 ——— DIX-HUITIÈME ÉDITION, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (fine copy), 7s 6d* 1904-00
- 15737 ——— II^e PARTIE, à l'Usage des Classes de Mathématiques spéciales; nouvelle Édition, 8vo. *buckram, 3s* 1900
- 15738 **BIANCHI** (Luigi; *Univ. Pisa*) VORLESUNGEN über DIFFERENTIALGEOMETRIE; autorisierte deutsche Übersetzung von MAX LUKAT, large 8vo. *handsomely bound in hf. crushed purple Levant morocco, cl. sides (fine copy), 14s* (p. M. 22.60 sewn) Leipzig, 1899
- 15739 ——— ZWEITE [NEUESTE] VERMEHRTE AUFLAGE; *with diagrams*, roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 18s (p. M. 22.60 sewn) *ibidem*, 1910
- 15740 **BIERENS** de HAAN (D.; *Univ. Leyden*) NOUVELLES TABLES d'INTÉGRALES DÉFINIES, thick 4to. (pp. 734), *hf. black morocco neat, cl. sides (fine copy); o. p.*, 16s (p. £1. 5s nett) Leide, 1867
- 15741 **BIERMANN** (Otto, *Deutsche Technische Hochschule, Brünn*) ELEMENTE der HÖHEREN MATHEMATIK: Vorlesungen zur Vorbereitung des Studiums der Differentialrechnung, Algebra und Functionentheorie, large 8vo. *handsomely bound in hf. black morocco, cl. sides, 7s 6d* (p. M. 10 sewn) Leipzig, 1895
- 15742 ——— THEORIE der ANALYTISCHEN FUNCTIONEN, 8vo. *hf. black morocco neat, cl. sides (nice copy); SCARCE*, 15s *ibidem*, 1887
- 15743 ——— VORLESUNGEN über MATHEMATISCHE NÄHERUNGSMETHODEN; *with 35 diagrams*, large 8vo. *buckram, 6s* (p. M. 8 sewn) Braunschweig, 1905
- 15744 **BINDER** (Wilhelm) THEORIE der UNICURSALEN PLANCURVEN IV.—III. ORDNUNG in synthetischer Behandlung; *with 65 diagrams, including 2 folding plates (linen-mounted)*, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides (nice copy), 9s* (p. M. 12 sewn) Leipzig, 1896
- 15745 **BLIND** (August) LEHRBUCH der GLEICHUNGEN des 2^{TE}N GRADES (Quadratische Gleichungen) mit einer, zwei und mehreren Unbekannten, mit Aufgaben und Resultaten; *with diagrams*—2 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, 8s 6d* (p. M. 14 sewn) Bremerhaven [1890-5]
- 15746 **BLUTEL** (E.) LEÇONS de MATHÉMATIQUES SPÉCIALES; *with numerous diagrams*, 2 thick vols. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 12s 1914
- 15747 **BLYTHE** (W. H., *Jesus Coll., Cantab.*) ON MODELS of CUBIC SURFACES, *with illustrations*, cr. 8vo. *cl. (o. p.)*, 4s *Univ. Press, Cambridge*, 1905
- 15748 **BOBEK** (K. J.) LEHRBUCH der WAHRSCHEINLICHKEITSRECHNUNG, mit Aufgaben und Ergebnissen; *with diagrams*, large 8vo. *buckram, 3s 6d* (p. M. 6 sewn) Bremerhaven [1890]
- 15749 ——— ANOTHER COPY; also: LEHRBUCH der AUSGLEICHSRECHNUNG nach der Methode der kleinsten Quadrate, mit Aufgaben und Ergebnissen; *with diagrams*—2 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, 6s 6d* (p. M. 11 sewn) *ibidem* [1890]
- 15750 **BÔCHER** (Maxime, *Prof. Mathematics, Harvard Univ.*) INTRODUCTION to HIGHER ALGEBRA, prepared for Publication with the Coöperation of E. P. R. DUVAL, 8vo. *cl.*, 5s (p. 8s nett) New York, 1907
- 15751 ——— REPRINT, *hf. black morocco neat, cl. sides (nice copy)*, 6s (p. 8s nett in cl.) *ibidem*, 1912
- 15752 **BOEHM** (Karl, *Univ. Heidelberg*) ELLIPTISCHE FUNKTIONEN; *with 39 diagrams*, 2 vols. large cr. 8vo. *cl.*, 9s (p. M. 13.60) Leipzig, 1903-10
- 15753 **BÖGER** (Rudolf) EBENE GEOMETRIE der LAGE; *with 142 diagrams*, large cr. 8vo. *cl.*, or, *buckram, 3s* (p. M. 5) Leipzig, 1900
- 15754 **BOIS-REYMOND** (Paul du; *Prof. Mathematics, Berlin*) Die ALLGEMEINE FUNCTIONENTHEORIE, I. [einziger] Theil: METAPHYSIK und THEORIE der MATHEMATISCHEN GRUNDBEGRIFFE: Grösse, Grenze, Argument und Function, 8vo. *red buckram, 5s* (p. M. 8 sewn) Tübingen, 1882
- 15755 **BOLYAI** (János) The SCIENCE ABSOLUTE of SPACE independent of the Truth or Falsity of Euclid's Axiom XI (which can never be decided *a priori*), translated from the Latin by GEORGE BRUCE HALSTED, Univ. Texas; 4th Edition, *with diagrams*, large post 8vo. *cl. (scarce)*, 8s 6d
The Neomon, Austin, Texas, 1896

The only English translation of this classic—and the author's only—contribution to science, which made him, together with Gauss and Lobachevsky (*q. v.*), the founder of non-Euclidean geometry.

— v. ENGEL, and FRISCHAUF, *post*.

MATHEMATICS, continued:—

- 15757 **BOLZA** (Oskar, *Univ. Chicago*) VORLESUNGEN ÜBER VARIATIONSRECHNUNG, umgearbeitete und stark vermehrte deutsche Ausgabe der 'Lectures on the Calculus of Variations'; with 117 diagrams, 8vo. (pp. 724), *cl.*, 13s (p. M. 20) Leipzig, 1909
- 15758 **BOLZANO** (Bernard) PARADOXIEN DES UNENDLICHEN, herausgegeben aus seinem schriftlichen Nachlasse von FR. PRIBONSKY; with diagrams, large post 8vo. *cl.*, 2s 6d (p. M. 4 sewn) Berlin, 1889
- 15759 **BONNEL** (Joseph Florentin) LES ATOMES et HYPOTHÈSES dans la GÉOMÉTRIE; 3^e [dernière] Edition, augmentée; with 27 diagrams, 8vo. buckram, *t. e. g.*, 3s (p. F. 5 nett sewn) 1999
- 15760 ——— ESSAI des DÉFINITIONS GÉOMÉTRIQUES, 2 vols. large 8vo. in 1, buckram (scarce), 5s 1870-4
- 15761 **BOOLE** (George, F.R.S.) THE MATHEMATICAL ANALYSIS OF LOGIC: an Essay towards a Calculus of Deductive Reasoning, 8vo. buckram, *t. e. g.* (VERY SCARCE), 18s Cambridge, Macmillan, Barclay, and Macmillan, 1847
- Very interesting as containing the leading principles afterwards elaborated in the *Laws of Thought*, and of importance for having created symbolic and mathematical logic. It is also a witness to the appreciation of power in a young writer already characteristic in his early publishing days of Daniel Macmillan.
- 15762 ——— ON THE THEORY OF PROBABILITIES, 4to. (pp. 28), sewn (scarce), 5s 1862
- 15763 ——— TREATISE ON THE CALCULUS OF FINITE DIFFERENCES, 2nd [final] Edition, edited [and greatly enlarged] by JOHN FLETCHER MOULTON [LORD MOULTON], post 8vo. *cl.*, uncut (SCARCE), £1. 1s 1872
- One of the very few treatises on its subject in existence. A so-called 'third edition' is a verbatim reprint of that of 1872.
- 'Of very high merit, and including much original research.'—D. N. B.
- 15764 ——— TREATISE ON DIFFERENTIAL EQUATIONS; 4th [last] Edition [edited by ISAAC TODHUNTER, F.R.S.], with plate, post 8vo. buckram (SCARCE), 15s 1877
- 'A standard text-book on *Differential Equations*, including original matter on integrating factors, singular solutions, and especially on symbolical actions.'—Prof. Cajori.
- 'To a certain extent these [the above two] works embody the more important discoveries of their author. In the 16th and 17th chapters of the *Differential Equations* we find, for instance, a lucid account of the general symbolic method, the bold and skilful employment of which led to Boole's chief discoveries, and of a general method in analysis, originally described in his famous memoir printed in the *Philosophical Transactions* for 1814. Boole was one of the most eminent of those who perceived that the symbols of operation could be separated from those of quantity and treated as distinct objects of calculation.'—Professor Stanley Jevons.
- 15765 **BOREL** (Émile, *de la Sorbonne*) ÉLÉMENTS DE LA THÉORIE DES PROBABILITÉS, large 8vo. buckram, *t. e. g.*, 3s 6d (p. F. 6 nett sewn) 1909
- 15766 ——— DEUXIÈME [DERNIÈRE] EDITION, large 8vo. buckram, *t. e. g.*, 4s 1910
- 15767 ——— INTRODUCTION GÉOMÉTRIQUE à quelques THÉORIES PHYSIQUES, 8vo. buckram, *t. e. g.*, 3s 6d (p. F. 5 nett sewn) 1914
- 15768 ——— LEÇONS SUR LA THÉORIE DES FONCTIONS (voir en bas); with diagrams, 6 vols. roy. 8vo. in 1, handsomely bound in hf. pigskin, *cl. sides*, uncut, *t. e. g.* (fine copies), 15s (p. F. 23 nett sewn) 1898-1905
- CONTENU:—Théorie des Fonctions, '98: Fonctions entières, 1900: Séries divergentes, '01: Séries à Termes positifs, rédigées par R. d'ADHÉMAR, '02: Fonctions méromorphes, rédigées par L. ZORETTI, '03: Fonctions des Variables réelles, et les Développements en Séries de Polynômes, rédigées par M. FRÉCHET, '05.
- 15769 **BOSE** (A.) TRAITÉ DE GÉOMÉTRIE ANALYTIQUE, précédé des Éléments de la Trigonométrie rectiligne et sphérique; with 322 diagrams, 8vo. hf. morocco, 5s (p. F. 12 nett sewn) BRUXELLES, 1881
- 15770 ——— ANOTHER COPY, hf. black morocco neat, *cl. sides* (nice copy), 6s *ibidem*, 1878
- 15771 **BOUASSE** (Henri, *Univ. Toulouse*) COURS DE MATHÉMATIQUES GÉNÉRALES, spécialement écrit pour les PHYSICIEUS et les INGÉNIEURS; with 323 illustrations, roy. 8vo. (pp. 646), hf. black morocco neat, *cl. sides*, uncut, *t. e. g.* (nice copy), 14s (p. F. 20 nett sewn) [1911]
- 15772 ———, et E. TURRIÈRE: EXERCICES et COMPLÈMENTS DE MATHÉMATIQUES GÉNÉRALES, faisant Suite au Cours de Mathématiques Générales, comprenant, outre l'Étude des Courbes et Transformations usuelles, les Éléments de la Géométrie du Compas, les Systèmes articulés, du Calcul des Séries, du Calcul des Différences finies, du Calcul des Probabilités, du Calcul Vectoriel; with 375 illustrations, large 8vo. hf. black morocco neat, *cl. sides*, *t. e. g.* (nice copy), 12s (p. F. 18 nett sewn) [1912]
- 15773 **BOUCHARLAT** (Jean Louis) ÉLÉMENTS DE CALCUL DIFFÉRENTIEL et INTÉGRAL; 9^e [dernière] Edition, revue et annotée par H. LAURENT; with 5 folding plates (neatly linen-mounted), 8vo. handsomely bound in hf. pigskin, *cl. sides*, 5s 6d (p. F. 8 nett sewn) 1891
- 15774 **BOURLET** (Carlo) LEÇONS DE TRIGONOMÉTRIE RECTILIGNE, 2^e Edition, augmentée; with 64 diagrams, large 8vo. buckram, 4s (p. F. 6 nett sewn) 1905
- 15775 **BOUSSINESQ** (Joseph, *de l'Institut*) COURS D'ANALYSE INFINITÉSIMALE, à l'Usage des Personnes qui étudient cette Science en Vue de ses Applications mécaniques et physiques; with diagrams, 2 thick vols. large 8vo. handsomely bound in hf. pigskin, *cl. sides*, £1. 7s 6d (p. F. 40.50 nett sewn) 1887-90
- 15776 **BOWDEN** (Joseph, *Adelphi Coll., Brooklyn*) ELEMENTS OF THE THEORY OF INTEGERS, cr. 8vo. buckram (o. p.), 5s New York, 1903

MATHEMATICS, continued:—

- 15778 **BOWLEY** (Arthur Lyon; *Prof. Statistics, Univ. London*) ELEMENTS OF STATISTICS, 3rd [latest] Edition; with folding tables (linen-mounted), and diagrams, large post 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 8s (p. 10s 6d nett in cl.) 1907
- 15779 **BOWSER** (Edward Albert, *Rutgers Coll.*) ELEMENTARY TREATISE ON ANALYTIC GEOMETRY, embracing Plane Geometry, and an Introduction to Geometry of Three Dimensions; 22nd Edition, with numerous diagrams, cr. 8vo. *cl.*, 4s (p. \$1.75) *New York*, 1905
- 15780 ——— ELEMENTARY TREATISE ON the DIFFERENTIAL and INTEGRAL CALCULUS, with numerous Examples; 21st Edition, enlarged by 640 additional Examples, with diagrams, cr. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 6s *ibidem*, 1905
- 15781 **BOYMAN** (Johann Robert) LEHRBUCH DER MATHEMATIK, I. Teil: GEOMETRIE DER EBENE, 23. Auflage von DR. VERING; mit Lösung der Aufgaben von HEINRICH FÜCHTJOHANN; with numerous diagrams, 3 vols. 8vo. in 1, handsomely bound in *hf. black morocco, cl. sides (fine copy)*, 6s (p. M. 9.80 sewn) *Bonn*, 1901—*Düsseldorf*, 1906
- 15782 **BRAHY** (Édouard, *de l'Athénée Royal de BRUGES*) EXERCICES MÉTHODIQUES DE CALCUL DIFFÉRENTIEL, 8vo. *red buckram*, 3s *Bruxelles*, 1867
- 15783 ——— NOUVELLE ÉDITION, entièrement revue: EXERCICES MÉTHODIQUES DE CALCUL INTÉGRAL—2 vols. 8vo. in 1, handsomely bound in *hf. pigskin, cl. sides*, 6s 6d (p. F. 10 nett sewn) 1898—*Bruzelles*, 1955
- 15784 ——— NOUVELLE [TROISIÈME et DERNIÈRE] ÉDITION, 2 vols. 8vo. in 1, handsomely bound in *hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, 8s 1905-3
- 15785 **BREITHOF** (N., *Univ. LOUVAIN*) COURS DE GÉOMÉTRIE DESCRIPTIVE: SURFACES, COURBES; neatly autographed, with numerous diagrams, 2 vols. roy. 4to. *hf. cl. (scarce)*, 15s *LOUVAIN*, 1875
- 15786 **BRIOSCHI** (Francesco, *Univ. Pavia*) THEORIE DER DETERMINANTEN und ihrer Anwendungen, übersetzt von PROF. SCHELLBACH, 4to. *hf. bound*, 3s 6d *Berlin*, 1856
The first scientific and complete exposition of the theory of determinants.
- 15787 **BRIOT** (Charles Auguste Albert, *de la Sorbonne*) ÉLÉMENTS DE GÉOMÉTRIE: THÉORIE, 7^e Edition; with 479 diagrams, 8vo. *red buckram (o. p.)*, 3s 1875
- 15788 ——— LEÇONS d'ALGÈBRE, 13^e et 16^e Éditions, 2 vols. 8vo. *hf. calf neat (partly o.p.)*, 7s 6d 1891-2
- 15789 ——— DERNIÈRE ÉDITION (I 14^e Éd. et II 17^e Éd.), revue par E. GOURSAT et E. LACOUR, 2 vols. 8vo. in 1, handsomely bound in *hf. pigskin, cl. sides*, 12s 6d 1896-7
- 15790 ——— THÉORIE des FONCTIONS ABÉLIENNES; with 13 diagrams, 4to. *hf. olive morocco neat, cl. sides, t. e. g. (fine copy)*, 9s (p. F. 15 nett sewn) 1879
- 15791 ———, et Jean Claude **BOUQUET**: COMPLÉMENT DE GÉOMÉTRIE ANALYTIQUE; with 1264 diagrams, 8vo. *hf. French olive morocco neat (scarce)*, 4s 1864
- 15792 ——— LEÇONS DE GÉOMÉTRIE ANALYTIQUE; 14^e Édition, revue et annotée par PAUL APPELL; with numerous diagrams, 8vo. *hf. maroon morocco, cl. sides*, 4s 6d 1890
- 15793 ——— DIX-SEPTIÈME ÉDITION, revue et annotée par PAUL APPELL, de l'Institut; with numerous diagrams, 8vo. handsomely bound in *hf. pigskin, cl. sides*, 6s (p. F. 8.75 nett sewn) *s. d.*
- 15794 ——— LEÇONS DE TRIGONOMETRIE, 6^e Édition; with diagrams, 8vo. *hf. maroon morocco neat*, 2s 6d 1873
- 15795 ——— DIXIÈME ÉDITION; with diagrams, 8vo. *buckram*, 2s 6d 1887
- 15796 ——— ANOTHER COPY, *hf. red morocco neat, cl. sides (as good as new)*, 3s 6d
- 15797 ——— DOUZIÈME ÉDITION; with diagrams, 8vo. *buckram*, 3s *s. d.*
- 15798 ——— TREIZIÈME ÉDITION; with diagrams: **SERRET** (J. A.) TRAITÉ DE TRIGONOMETRIE, 9^e [dernière] Edition; with diagrams—2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 5s *s. d.*—1908
- 15799 ——— THÉORIE des FONCTIONS ELLIPTIQUES, 2^e [dernière] Édition; with diagrams, 4to. *hf. maroon morocco neat, cl. sides, t. e. g. (FINE COPY)*; *SCARCE*, £1. 5s 1875
The standard work on the subject, 'extending and connecting the investigations by A. Cauchy and J. Liouville.'
- 15800 ———, et Édouard Jean Baptiste GOURSAT, *de la Sorbonne*: LEÇONS d'ALGÈBRE, II^e PARTIE, à l'Usage de la Classe des Mathématiques spéciales, 18^e Édition; with diagrams, 8vo. *hf. black morocco neat, cl. sides*, 6s (p. F. 8.50 nett) *s. d.*
- 15801 ———, et Charles VACQUANT: ÉLÉMENTS DE GÉOMÉTRIE: APPLICATIONS, 6^e Édition; with 4 folding plates and text-illustrations, 8vo. *red buckram*, 3s 1884
- 15802 ——— ÉLÉMENTS DE GÉOMÉTRIE DESCRIPTIVE, 5^e Édition; with 7 plates (neatly linen-mounted), 8vo. *buckram*, 3s 1881
- 15803 ——— SIXIÈME ÉDITION; with 7 plates, 8vo. *red buckram*, 3s 1887
- 15804 **BRISSE** (Charles) RECUEIL DE PROBLÈMES DE GÉOMÉTRIE ANALYTIQUE: Solutions des Problèmes donnés au Concours d'Admission à l'École Centrale depuis 1862; 2^e [dernière] Édition; with diagrams, 8vo. *cl.*, or, *buckram*, 3s (p. F. 5 nett sewn) 1892
- 15805 **BROMWICH** (Thomas John l'Anson, F.R.S., *St. John's Coll., Cantab.*) INTRODUCTION TO the THEORY OF INFINITE SERIES, with diagrams, 8vo. handsomely bound in *hf. black morocco, cl. sides, t. e. g. (as good as new)*, 12s (p. 15s nett in cl.) 1908
- 15806 ——— ANOTHER COPY, *hf. black morocco neat, cl. sides (nice copy)*, 11s 6d
- 15807 ——— QUADRATIC FORMS and their CLASSIFICATION by Means of INVARIANT FACTORS, with diagrams, 8vo. *sewn*, 2s 6d (p. 3s 6d nett) *Univ. Press, Cambridge*, 1906

MATHEMATICS, continued:—

- 15809 **BRÜCKNER (Max)** Die ELEMENTE der VIERDIMENSIONALEN GEOMETRIE, mit besonderer Berücksichtigung der POLYTOPE; *interleaved*, 8vo. *cl.*, 3s
Zwickau, 1894
- 15810 ——— **VIELECKE** und **VIELFLACHE**: Theorie und Geschichte; *with 12 folding plates* and 113 *text-illustrations*, 4to. *handsomely bound in hf. black morocco, cl. sides, t. e. g.*, 12s 6d (p. M. 16 in boards)
Leipzig, 1900
- 15811 **BURALI-FORTI (Cesare, Académie militaire, Turin)** INTRODUCTION à la GÉOMÉTRIE DIFFÉRENTIELLE suivant la Méthode de H. GRASSMANN; *with diagrams*, 8vo. *buckram*, 3s 1897
- 15812 ———, et **Roberto MARCOLONGO, Univ. Naples**: ANALYSE VECTORIELLE GÉNÉRALE (I. Transformations linéaires. II. Applications à la Mécanique et à la Physique), traduit par P. BARIDON, 2 vols. large 8vo. in 1, *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 7s 6d (p. F. 11 nett sewn)
Pavie, 1912-15
- 15813 ——— ——— ÉLÉMENTS de CALCUL VECTORIEL, avec des nombreuses Applications à la Géométrie, Mécanique et Physique mathématique; Édition française, augmentée d'un Supplément par S. LATTÈS: *with diagrams*, roy. 8vo. *buckram, uncut, t. e. g.*, 5s (p. F. 8 nett sewn)
1910
- 15814 ——— ——— ANOTHER COPY, *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 6s
- 15815 **BURCKHARDT (W.)** und **C. L. BLANK**: MATHEMATISCHE UNTERRICHTSBRIEFE zum SELBSTSTUDIUM: *with numerous diagrams*, complete in 2 vols. sq. 8vo. *handsomely bound in hf. pigskin, cl. sides, t. e. g.*, £1. 7s 6d (p. M. 60 sewn)
Gera [c. 1900]
- 15816 **BURG (Adam)** AUSFÜHRLICHES LEHRBUCH der HÖHERN MATHEMATIK, mit besonderer Rücksicht auf die Zwecke des praktischen Lebens; *with 12 plates*, 3 vols. 8vo. *hf. cl.*, 4s
Wien, 1832-3
- 15817 **BURKHARDT (Heinrich, Univ. Zürich)** EINFÜHRUNG in die THEORIE der ANALYTISCHEN FUNKTIONEN einer KOMPLEXEN VERÄNDERLICHEN, 2. teilweise umgearbeitete Auflage; *with diagrams*, 8vo. *buckram*, 3s 6d (p. M. 6.20 sewn)
Leipzig, 1903
- 15818 ——— ——— FUNKTIONSTHEORETISCHE VORLESUNGEN; *with numerous illustrations*, 3 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 12s 6d (p. M. 21.40 sewn)
ibidem, 1899-1903
- INHALT:—I. 1. Algebraische Analysis, '03: 1. 2. Einführung in die Theorie der analytischen Funktionen einer komplexen Veränderlichen, 2. umgearbeitete Auflage, '03: II. Elliptische Funktionen, 1899.
- 15819 ——— ——— VORLESUNGEN über die ELEMENTE der DIFFERENTIAL- und INTEGRALRECHNUNG und ihre Anwendung zur Beschreibung von Naturscheinungen; *with 38 illustrations*, roy. 8vo. *cl.*, 4s (p. M. 6)
ib., 1907
- 15820 **BURN (J.)**, and **E. H. BROWN, Prudential Assurance Co.**: ELEMENTS of FINITE DIFFERENCES, also Solutions to Questions set for Part I of the Examinations of the Institute of Actuaries, 8vo. *buckram*, 5s (p. 7s 6d nett)
1902
- 15821 **BURNSIDE (William, Pembroke Coll., Cantab.; F.R.S., Prof. Mathematics, Royal Naval Coll., Greenwich)** THEORY of GROUPS of FINITE ORDER, *with plate and illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g.*, 7s 6d (p. 15s in *cl.*)
Univ. Press, Cambridge, 1897
- 15822 **BURNSIDE (William Snow)**, and **Arthur William PANTON, Fellows T.C.D.**: THE THEORY of EQUATIONS: *with Introduction to the Theory of Binary Algebraic Forms*; 3rd Edition [enlarged], thick 8vo. *cl.*, 5s (p. 15s)
Dublin, 1892
- 15823 ——— ——— FIFTH [LATEST] EDITION [greatly enlarged]. 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy)*, 14s (p. £1. 1s in *cl.*)
ibidem, 1904
- 15824 **BYERLY (William Elwood, Harvard Univ.)** ELEMENTARY TREATISE on FOURIER'S SERIES and Spherical, Cylindrical, and Ellipsoidal Harmonics, *with Applications to Problems in Mathematical Physics, with diagrams*, large 8vo. *cl.*, 7s 6d (p. 12s 6d)
Boston [Mass.], 1893
- 15825 ——— ——— ELEMENTS of the DIFFERENTIAL CALCULUS, *with Examples and Applications, diagrams*, 8vo. *buckram*, 4s 6d (p. 8s 6d)
ibidem, 1901
- 15826 ——— ——— ELEMENTS of the INTEGRAL CALCULUS, *with KEY to the Solution of Differential Equations, with diagrams*, 8vo. *buckram*, 4s 6d (p. 8s 6d)
ib., 1889
Including 'A Short Table of Integrals,' and a chapter on integration, taken from the author's 'Differential Calculus.'
- 15827 ——— ——— HARMONIC FUNCTIONS, 4th Edition, enlarged, large 8vo. *cl.*, 3s (p. 4s 6d nett)
New York, 1906
- 15828 **CAHEN (Eugène; de la Sorbonne)** ÉLÉMENTS de la THÉORIE des NOMBRES: Congruences, Formes quadratiques, Nombres incommensurables, Questions diverses, roy. 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (as good as new)*, 8s 6d (p. F. 12 nett sewn)
1900
- 15829 **CAIN (William, Prof. Mathematics, Univ. N. Carolina)** BRIEF COURSE in the CALCULUS; 2nd Edition, *with diagrams*, large cr. 8vo., *buckram*, 4s (p. 6s nett)
1909
'Intended for the student without a teacher, who hopes to acquire some knowledge of the working principles of the Calculus in a short time.'—*Preface.*
- 15830 **CAJORI (Florian, Colorado Coll.)** INTRODUCTION to the MODERN THEORY of EQUATIONS, *with diagrams*, large cr. 8vo. *buckram, t. e. g.*, 4s 6d (p. 7s 6d nett)
New York, 1904
- 15831 **CALINON (A.)** ÉTUDE sur la SPHERE, la LIGNE DROITE et le PLAN; *with diagrams* (pp. 51), '88: INTRODUCTION à la GÉOMÉTRIE des ESPACES à TROIS DIMENSIONS; *with diagrams* (pp. 25), '91: La GÉOMÉTRIE à DEUX DIMENSIONS des SURFACES à COURBE CONSTANTE; *with diagrams* (pp. 47), '95—3 vols. roy. 8vo. in 1, *buckram*, 5s
1888-95

MATHEMATICS, continued:—

- 15833 **CALLET (François)** TABLES PORTATIVES de LOGARITHMES des Nombres de 1 à 108,000 et des Sinus et des Tangentes, entièrement revues et corrigées par M. SAIGEY; *with plate*, roy. 8vo. *hf. French morocco gilt*, 4s *F. Didot*, 1861
 'One of the most complete and practically useful collections of logarithms published, and peculiar in giving a contentiously divided canon.'—*J. W. L. Gluisler, F.R.S.*
- 15834 **CANTOR (Georg Ferdinand Louis Philippe; Prof. Mathematics, Halle)** Ein BEITRAG zur MANNIGFALTIGKEITSLEHRE, 4to. (pp. 18), *cl.*, 2s 6d Berlin [1877]
- 15835 **CANTOR (Moritz; Univ. Heidelberg)** VORLESUNGEN über GESCHICHTE der MATHEMATIK, von den ältesten Zeiten bis 1799; NEUESTE AUFLAGEN (Bd. I 3. A. und Bd. II—III 2. A.); *with plate and 551 diagrams*, 4 thick vols. large 8vo. *handsomely bound in hf. black morocco, cl. sides (AS GOOD AS NEW)*, £4. 4s (p. M. 107 sewn) Leipzig, 1900-8
 The standard work on the history of mathematics, indispensable to any good scientific library. Vol. IV. contains contributions by V. BOBYNIN, A. v. BRAUNMÜHL, F. CAJORI, T. GÜNTHER, V. KOMMERELL, G. LORIA, E. NETTO, G. VIVANTI, and C. R. WALLNER.
- 15836 **CAPITO (Charles A. A., M. I. Mech. E.)** TEXT-BOOK OF MATHEMATICS AND MECHANICS, *with numerous diagrams*, cr. 8vo. *buckram*, 8s (p. 12s 6d nett) 1913
- 15837 **CARLL (Lewis Buffett)** TREATISE on the CALCULUS OF VARIATIONS, presenting in all important Particulars a complete View of the present State of the Science, 8vo. *cl. (SCARCE)*, £1. 1s New York, 1881
 The most comprehensive and best account of the subject in English. It is now out of print and scarce.
- 15838 **CARNOT (Lazare Nicolas Marguerite, de l'Institut; 'the Organiser of Victory'; grandfather of President Carnot)** RÉFLEXIONS sur la MÉTAPHYSIQUE du CALCUL INFINITÉSIMAL, 4^e Edition; *with plate*, 8vo. *hf. cl. (scarce)*, 8s 6d 1860
 'Il y prend partie contre la réforme qu'avait tenté Lagrange par sa méthode des variations. Il souhaite qu'on s'en tienne à la marche si simple, si lumineuse de Leibniz, qui se prête d'ailleurs mieux aux applications. Les mathématiciens ont suivi ses conseils, sans goûter toutefois ses raisonnements.'—*J. Boyer*.
 In spite of the splendid achievement of German mathematicians, as evidenced by this catalogue, they have not produced their Organiser of Victory. But then they have had to serve NAPOLEONUNCULUS.
- 15839 **CARNOY (Joseph; Univ. LOUVAIN)** COURS d'ALGÈBRE SUPÉRIEURE: Principes de la Théorie des Déterminants; Théorie des Équations; Introduction à la Théorie des Formes algébriques, 2^e [dernière] Edition, large 8vo. *hf. black calf neat, cl. sides (o. p.)*, 10s 6d Louvain, 1900
 The imprint of every worthy Belgian book will mark German learning for a century to come with the brand of Cain.
- 15840 ——— COURS de GÉOMÉTRIE ANALYTIQUE (I. Géométrie Plane, 6^e Éd. II. Géométrie de l'Espace, 5^e Éd. augmentée); *with numerous diagrams*, 2 vols. large 8vo. *hf. maroon morocco neat, cl. sides*, 12s 6d (p. F. 22 nett sewn) *ibidem*, 1899
- 15841 ——— DERNIÈRE ÉDITION (T. I 7^e et T. II 6^e Éditions); *with numerous diagrams*, 2 vols. large 8vo. *hf. black morocco neat, cl. sides (nice copy)*, 17s 6d (p. F. 25 nett sewn) *ib.*, 1904-5
 Bound up with this copy is: ÉLÉMENTS de la THÉORIE des DÉTERMINANTS, avec des nombreux Exercices, par P. MANSION, 6^e [dernière] Edition, 1900.
 ——— v. MANSION, *post*.
- 15842 **CARON (J.)** COURS de GÉOMÉTRIE DESCRIPTIVE. I. Droite et Plan, 6^e Édition. II. Cones, Cylindres, Sphère, 3^e Édition. III. Géométrie Cotée; *with numerous diagrams*, with *Atlas*, containing 36 plates—5 vols. 8vo. in 2, *handsomely bound in hf. black morocco, cl. sides (fine copy); partly o. p.*, 11s (p. F. 17 nett sewn) 1895-1901
- 15843 **CARONNET (Th.)** COURS de TRIGONOMÉTRIE; *with diagrams*, 8vo. *buckram*, 3s 1912
- 15844 **CARR (G. S.)** SYNOPSIS of ELEMENTARY RESULTS in PURE and APPLIED MATHEMATICS, containing Propositions, Formulae, and Methods of Analysis, with abridged Demonstrations, with Index to the Papers on Pure Mathematics in the principal Journals and Transactions of the Learned Societies, English and Foreign, of the present Century, *with 20 folding plates and numerous diagrams*, roy. 8vo. (pp. 971), *hf. maroon morocco neat (fine copy)*; SCARCE, £1. 15s 1886
- 15845 ——— ———: DIFFERENTIAL and INTEGRAL CALCULUS (pp. 257-440), roy. 8vo. *buckram*, 6s [1886]
- 15846 **CARSLAW (Horatio Scott, Prof. Mathematics, Sydney)** INTRODUCTION to the THEORY of FOURIER'S SERIES and INTEGRALS, and the MATHEMATICAL THEORY of the CONDUCTION of HEAT, *with illustrations*, 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 10s 6d (p. 14s nett in *cl.*) 1906
 Pp. 411-29 contain Bibliographies.
- 15847 ——— PLANE TRIGONOMETRY, with the SOLUTIONS of the QUESTIONS, *with numerous diagrams*, 2 vols. cr. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 7s 6d (p. 11s nett in *cl.*) 1913-15
- 15848 **CATALAN (Eugène Charles; Univ. LOUVAIN)** COURS d'ANALYSE à l'Université de LIÈGE: Algèbre, Calcul différentiel, 1^{re} Partie du Calcul intégral; *with diagrams*, 8vo. *hf. morocco*, 5s Bruxelles, 1870
- 15849 ——— REMARQUES sur la THÉORIE des MOINDRES CARRÉS, roy. 4to. (pp. 42), *sewn*, 2s *ibidem*, 1878
- 15850 ——— THÉORÈMES et PROBLÈMES de GÉOMÉTRIE ÉLÉMENTAIRE, 5^e Édition, revue; *with 18 plates*, 8vo. *hf. brown morocco*, 4s 1872
- 15851 ——— SIXIÈME ÉDITION, augmentée; *with numerous diagrams*, large 8vo. *hf. calf gilt*, 4s 6d 1879
- 15852 ——— TRAITÉ ÉLÉMENTAIRE des SÉRIES; *with diagrams*, roy. 8vo. *hf. cl. (scarce)*, 6s 6d 1860

MATHEMATICS, continued:—

- 15854 **CARVALLO (E.)** Le CALCUL des PROBABILITÉS et ses APPLICATIONS; *with diagrams*, roy. 8vo. *buckram, t. e. g.*, 4s (p. F. 6.50 nett sewn). 1912
- 15855 **CAUCHY (Augustin Louis; de l'Institut; F.R.S.)**, et l'Abbé François Napoléon Marie MOIGNO: LEÇONS de CALCUL DIFFÉRENTIEL et de CALCUL INTÉGRAL, Tomes I et II, 1^e Partie [le tout paru]; *with 2 plates, 2 thick vols. 8vo. hf. calf (rubbed)*; SCARCE, £1. 1s 1840-4
 'A work of great merit. Had it been studied more diligently by writers of text-books in England and the United States, many a lax and loose method of analysis hardly as yet eradicated from elementary text-books would have been discarded over half a century ago. Cauchy was the first to publish a rigorous proof of Taylor's theorem. He greatly improved the exposition of fundamental principles of the differential calculus by his mode of considering limits and his new theory on the continuity of functions.'—*Prof. Cajori.*
- 15856 **CAUNT (G. W. Armstrong Coll.)** INTRODUCTION to the INFINITESIMAL CALCULUS, *with Applications to Mechanics and Physics, with 184 diagrams*, 8vo. *hf. black morocco neat, cl. sides, uncut (as good as new)*, 7s 6d (p. 12s in cl.) Clarendon Press, Oxford, 1914
- 15857 **CAYLEY (Arthur, F.R.S., Sadlerian Prof. Pure Mathematics, Cantab.)** ELEMENTARY TREATISE on ELLIPTIC FUNCTIONS, 2nd [latest] Edition, 8vo. *cl. (o.p.)*, 6s 6d (p. 15s) 1895
- 15858 **CESÀRO (Ernesto; Univ. Naples)** ELEMENTARES LEHRBUCH der ALGEBRAISCHEN ANALYSIS und der INFINITESIMALRECHNUNG, mit zahlreichen Übungsbeispielen, nach einem Manuskript des Verfassers deutsch herausgegeben von GERHARD KOWALEWSKI; *with 97 diagrams*, 8vo. (pp. 394), *handsomely bound in hf. pigskin, cl. sides*, 10s (p. M. 15 in cl.) Leipzig, 1904
- 15859 ——— VORLESUNGEN über NATÜRLICHE GEOMETRIE, autorisierte deutsche Ausgabe von GERHARD KOWALEWSKI; *with 48 diagrams*, roy. 8vo. *cl.*, 8s (p. M. 12) *ibidem*, 1901
- 15860 **CHALLIS (James, pr., Plumian Prof., Cantab., F.R.S.)** NOTES on the PRINCIPLES of PURE and APPLIED CALCULATION; and Applications of Mathematical Principles to Theories of Physical Forces, *with plate, thick 8vo. cl. (o.p.)*, 7s 6d Cambridge, 1869
 'Certain hydrodynamical theorems, which he believed himself to have demonstrated, admitted, in his firm conviction, of application to the observed laws of light, heat, gravity, molecular attraction, and electricity. The conclusion pointed to was that the physical forces are mutually related, because all are modes of pressure of the same ethereal medium. The work in which these views were most fully embodied was 'Notes on the Principles on Pure and Applied Calculation'.'—*Miss Agnes M. Clerke.*
- 15861 **CHARLON (Hippolyte)** THÉORIE MATHÉMATIQUE des OPÉRATIONS FINANCIÈRES; 2^e [dernière] Edition, large 8vo. *buckram (very scarce)*, 15s 1878
- 15862 ——— ANOTHER COPY, *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 16s 6d
 One of the few works on Stock-Exchange Mathematics. At the end are tables of logarithms.
- 15863 **CHARUIT (N.)** PROBLÈMES et ÉPURES de GÉOMÉTRIE DESCRIPTIVE et de GÉOMÉTRIE COTÉE, Tome I (seul paru); 2^e [dernière] Edition; *with illustrations*, roy. 8vo. *buckram, uncut, t. e. g.*, 4s (p. F. 8 nett) 1897
- 15864 **CHASLES (Michel, de l'Institut; F.R.S.)** TRAITÉ de GÉOMÉTRIE SUPÉRIEURE; 2^e Edition; *with 12 folding maps*, roy. 8vo. (pp. xlii + 585), *hf. green morocco neat (nice copy)*; SCARCE, £1. 5s 1880
 'Chasles introduced the term *anharmonic ratio*, corresponding to the German *Doppverhältnis* and to Clifford's cross ratio. . . . He gave a reduction, different from Newton's in this, that the line curves from which all others can be projected are symmetrical with respect to a centre. . . . To Chasles we owe the introduction into projective geometry of non-projective properties of figures by means of the infinitely distant imaginary spherocircle', etc. etc.—*Prof. Cajori.*
- 15865 ——— TRAITÉ des SECTIONS CONIQUES, 1^e Partie [seule parue]; *with 5 folding plates and 134 diagrams*, 8vo. *hf. red morocco neat, cl. sides, uncut, t. e. g. (fine copy)*, 10s 1865
 Intended as a supplement to the 'Traité de Géométrie supérieure.'
- 15866 ——— Les TROIS LIVRES de PORISMES d'EUCLIDE, rétablis pour la première Fois, d'après la Notice et les Lemmes de PAPPUS, et conformément au Sentiment de R. SIMSON sur la Forme des Énoncés et ces Propositions; *with 259 diagrams*, 8vo. *hf. French olive morocco neat (nice copy)*; SCARCE, 12s 6d 1860
 'In this reproduction will be found the conceptions of cross ratios and projection—in fact those ideas of modern geometry which Chasles and other writers of this century have used so largely.'—*W. W. R. Bell.*
 The author was the victim of one of the most remarkable and barefaced forgeries ever committed. Starting with the purchase of a spurious correspondence by Pascal, in which the latter claimed all the discoveries made by Newton, the forger, Lucas, a half-educated frequenter of the Bibliothèque Nationale, was encouraged to the production of the most extraordinary forgeries, which were all bought greedily and in good faith by the same mathematician. They included 'autograph' letters of Socrates, Aristotle, Alexander the Great, Cicero, Caesar, Cleopatra, and St. Jerome; besides Judas Iscariot, Lazarus after his resurrection, and even the Blessed Virgin Mary; and every one of them written in modern French!
- 15867 **CHATELET (A., Univ. Toulouse)** LEÇONS sur la THÉORIE des NOMBRES (Modules, Entiers algébriques, Réduction continue), roy. 8vo. *buckram, t. e. g.*, 3s 6d (p. F. 5.50 nett sewn) 1913
- 15868 **CHAUVENET (William, Washington Univ., St. Louis)** TREATISE on the METHOD of LEAST SQUARES, or the Application of the Theory of Probabilities in the Combination of Observations, 8vo. *cl.*, 2s 6d (p. \$1.75) Philadelphia, 1880
- 15869 **CHRYSAL (George, Prof. Mathematics, Edin.)** ALGEBRA: an Elementary Text-Book (Vol. I 4th and v. II 2nd Edition), *with numerous diagrams*, 2 vols. large cr. 8vo. *hf. pigskin, cl. sides*, 14s (p. £1. 3s in cl.) 1898-1900
- 15870 ——— LATEST EDITION, Part I 5th and Pt. II 2nd Edition [enlarged], *with diagrams*, 2 thick vols. large cr. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 19s (p. £1. 5s in cl.) 1910-6
 A standard work of well-known excellence.
- 15871 ——— INTRODUCTION to ALGEBRA, 3rd [latest] Edition, *with 32 diagrams*, cr. 8vo. *buckram*, 3s (p. 5s) 1905

MATHEMATICS, continued:—

- 15873 **CHOMÉ** (Félix, *École militaire de BELGIQUE*) COURS de GÉOMÉTRIE DESCRIPTIVE; 3^e Édition, entièrement revue, corrigée et augmentée, contenant les Prescriptions à observer pour l'Exécution des Épure; with 122 plates, 3 vols. 4to. in 1, *handsomely bound in half pigskin, cl. sides, uncut, t. e. g.*, 18s (p. F. 35 nett sewn) BRUXELLES, 1898-1904
- 15874 **CLEBSCH** (Rudolf Friedrich Alfred; *Univ. Göttingen*) Ueber eine FUNDAMENTALAUFGABE der INVARIANTENTHEORIE (pp. 62), 1872: Ueber die PARTIELLEN DIFFERENTIALGLEICHUNGEN, welchen die absoluten Invarianten binärer Formen bei höheren Transformationen genügen (pp. 35), '70: Ueber die ABBILDUNG einer CLASSE von FLÄCHEN 5. ORDNUNG (pp. 64), '70: Zur THEORIE der BINÄREN FORMEN 6. ORDNUNG und zur Dreitheilung der hyperelliptischen Funktionen (pp. 59), '69—4 vols. 4to. in 1, *red buckram, 8s 6d* Göttingen, 1869-72
- 15875 ——— THEORIE der BINÄREN ALGEBRAISCHEN FORMEN, 8vo. *hf. maroon morocco neat, cl. sides (as good as new)*; SCARCE, 12s Leipzig, 1872
- 15876 ——— VORLESUNG über GEOMETRIE, bearbeitet und herausgegeben von FERDINAND LINDEMANN, mit Vorwort von FELIX KLEIN, Bd. I, I-II, und II, I [soweit bisher erschienen]; with diagrams, 3 vols. 8vo. *hf. maroon morocco neat, cl. sides (fine copy)*; partly o. p., £1. 5s (p. M. 36 sewn) *ibidem*, 1875-91
- ‘He proved theorems on the pentahedron enunciated by Sylvester and Steiner; he made systematic use of ‘deficiency’ (Geschlecht) as a fundamental principle in the classification of algebraic curves. . . . Not only did he apply Abelian functions to geometry, but conversely, he drew geometry into the service of Abelian functions. . . . The representation of one surface on another (Flächenabbildung), so that they have a (1, 1) correspondence, was thoroughly studied for the first time by Clebsch,’ etc. etc.—*Prof. Cajori.*
- 15877 **CLEMENT-JONES** (A., *Bradford Grammar School*) INTRODUCTION to ALGEBRAICAL GEOMETRY, with diagrams, 8vo. *hf. black morocco, cl. sides, t. e. g.*, 8s (p. 12s in cl.) Clarendon Press, Oxford, 1912
- 15878 **COCKSHOTT** (Arthur, *Fellow of Trinity*), and **F. B. WALTERS**, *pr.*, *Princ. K. William's Coll., Isle of Man*: TREATISE on GEOMETRICAL CONICS, with numerous diagrams: Key by O. EMTAGE—2 vols. cr. 8vo. in 1, *buckram, 6s* (p. 10s nett) 1902-1897
- 15879 **COFFIN** (Joseph George, *Coll. of City of N.Y.*) VECTOR ANALYSIS: an Introduction to Vector-Methods and their various Applications to Physics and Mathematics, with illustrations, cr. 8vo. *buckram, 6s* (p. 10s 6d nett) New York, 1909
- 15880 **COMBEROUSSE** (Charles de) COURS d'ALGÈBRE SUPÉRIEURE; 2^e Édition, refundue et augmentée; with numerous diagrams, 2 vols. 8vo. *hf. maroon morocco neat, cl. sides, uncut, t. e. g. (nice copy)*, 15s (p. F. 30 nett sewn) 1887-90
- 15881 ——— TROISIÈME [Tome II 2^e] ÉDITION, refundue et augmentée; with diagrams, 2 thick vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, 17s 6d* (p. F. 30 nett sewn) 1904-1890
- 15882 ——— TRIGONOMÉTRIE RECTILIGNE et SPHÉRIQUE, 4^e [dernière] Édition, augmentée; with numerous diagrams, 8vo. *buckram, 3s 6d* (p. F. 5 nett sewn) 1907
- 15883 **COMBETTE** (Eugène) COURS d'ALGÈBRE ÉLÉMENTAIRE, 8^e Édition, revue; with diagrams, 1901: COMPLÉMENTS du COURS d'ALGÈBRE et NOTIONS de GÉOMÉTRIE ANALYTIQUE; with diagrams—2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, 7s 6d* (p. F. 12 nett sewn) 1901-1896
- 15884 ——— ANOTHER COPY, 2 vols. in 1, *handsomely bound in hf. pigskin, cl. sides, 7s*
- 15885 ——— COMPLÉMENTS du COURS d'ALGÈBRE, et NOTIONS de GÉOMÉTRIE ANALYTIQUE; with diagrams, 8vo. *buckram, 3s* 1896
- 15886 ——— COURS de GÉOMÉTRIE ÉLÉMENTAIRE, 8^e Édition, revue et corrigée; with numerous diagrams, 8vo. (pp. 731), *handsomely bound in hf. black morocco neat, cl. sides, 6s* (p. F. 10 nett sewn) 1903
- 15887 ——— COURS de TRIGONOMÉTRIE, 4^e Édition, entièrement refundue; with diagrams, 8vo. *buckram, 2s* 1907
- 15888 **COMPTON** (Alfred George, *Coll. of City of N.Y.*) MANUAL of LOGARITHMIC COMPUTATION, with numerous Examples, 3rd and revised Edition, post 8vo. *cl.*, 4s (p. 6s 6d nett) New York, 1904
- 15889 **COOLIDGE** (Julian Lowell, *Harvard Univ.*) The ELEMENTS of NON-EUCLIDEAN GEOMETRY, with diagrams, 8vo. *buckram, t. e. g.*, 10s (p. 15s nett) Clarendon Press, Oxford, 1909
- 15890 **COSSERAT** (Eugène; *Univ. Toulouse, et François*) THÉORIE des CORPS DÉFORMABLES, large 8vo. *buckram, t. e. g.*, 4s 6d (p. F. 8 nett) 1909
- 15891 **COURNOT** (Antoine Augustin) EXPOSITION de la THÉORIE des CHANCES et des PROBABILITÉS; with plate, 8vo. *hf. roan* (SCARCE), 12s 6d 1843
- A classic work on the subject, often quoted by Prof. Todhunter in his ‘History of the Theory of Probability.’
- 15892 ——— Die GRUNDLEHREN der WAHRSCHEINLICHKEITSRECHNUNG leichtfasslich dargestellt, deutsch herausgegeben von C. H. SCHNUSE, 8vo. *hf. German morocco, 3s 6d* Braunschweig, 1849
- 15893 **COUTURAT** (Louis) De l'INFINI MATHÉMATIQUE; with diagrams, roy. 8vo. (pp. 692), *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, 8s 6d (p. F. 12 nett sewn) 1896
- 15894 ——— Les PRINCIPES des MATHÉMATIQUES, avec Appendice sur la Philosophie des Mathématiques de KANT; with diagrams, 8vo. *buckram, t. e. g.*, 3s 6d (p. F. 5 nett sewn) 1905

MATHEMATICS, continued:—

- COX (Homersham, Judge of County Courts) The INTEGRAL CALCULUS—v. WOOLHOUSE, *post.*
- 15896 CRANZ (Carl, Polytechnische Schule, Stuttgart) SYNTHETISCH-GEOMETRISCHE THEORIE der KRÜMMUNG von KURVEN und FLÄCHEN 2.O.; with diagrams, 8vo. buckram, 2s
Stuttgart, 1886
- 15897 CRANZ (Heinrich) Das APOLLONISCHE BERÜHRUNGSPROBLEM und verwandte Aufgaben, mit Aufgaben; with diagrams, large 8vo. buckram, 3s 6d (p. M. 6 sewn) Bremerhaven [1890]
- 15898 ——— LEHRBUCH der ANALYTISCHEN GEOMETRIE der EBENE, mit gelösten Übungsaufgaben; with diagrams, 2 vols. large 8vo. in 1, handsomely bound in hf. black morocco, cl. sides, 8s 6d (p. M. 14 sewn) *ibidem*, 1891-4
- 15899 CREFŒUR (Albert J. M.) COURS d'ANALYSE (Calcul différentiel et intégral): Méthode simple pour les apprendre; with diagrams: ———, TROISIÈME PARTIE (CALCUL des PROBABILITÉS)—3 vols. 8vo. in 1, hf. black morocco neat, cl. sides (nice copy), 8s 6d (p. F. 13.50 nett sewn) Anvers, 1902-8
- 15900 CREMONA (Luigi; Prof. Mathematics, Rome) ELEMENTE des GRAPHISCHEN CALCULS, autorisierte deutsche Ausgabe, unter Mitwirkung des Verfassers übertragen von MAXIMILIAN CURTZE; with 134 diagrams, 8vo. cl., 2s
Leipzig, 1875
- 15901 ——— ELEMENTS of PROJECTIVE GEOMETRY, translated by CHARLES LEUDESDORF, with 252 diagrams, 8vo. cl., 4s (p. 12s 6d) Clarendon Press, Oxford, 1885
- 15902 ——— ELEMENTE der PROJECTIVISCHEN GEOMETRIE, unter Mitwirkung des Verfassers übertragen von FR. R. TRAUTVETTER; with 214 diagrams, 8vo. cl., 3s (p. M. 6) Stuttgart, 1882
- 15903 ——— Les FIGURES RÉCIPROQUES en STATIQUE GRAPHIQUE, avec Introduction de GIUSEPPE JUNG et Appendice de CH. SAVIOTTI, traduit par LOUIS BOSSUT; with Atlas, containing 34 plates, 2 vols. roy. 8vo. in 1, hf. black morocco neat, cl. sides, uncut, t. e. g. (as good as new) 4s 1885
- 15904 ——— GRUNDZÜGE der ALLGEMEINEN THEORIE der OBERFLÄCHEN in synthetischer Behandlung, unter Mitwirkung des Verfassers ins Deutsche übertragen von MAXIMILIAN CURTZE, 8vo. cl., 5s 6d (p. M. 8 sewn) Berlin, 1870
Developing by a uniform method many new results, and proving synthetically all important results reached before that time by analysis.—Prof. Cajori.
- 15905 CZUBER (Emanuel; Technische Hochschule, Wien) GEOMETRISCHE WAHRSCHEINLICHKEITEN und MITTELWERTE; with 115 diagrams, 8vo. red buckram, 5s (p. M. 6.80 sewn) Leipzig, 1884
- 15906 ——— THEORIE der BEOBACHTUNGSFEHLER; with 7 diagrams, 8vo. red buckram, 6s (p. M. 8 sewn) *ibidem*, 1891
- 15907 ——— VORLESUNGEN über DIFFERENTIAL- und INTEGRALRECHNUNG; with 190 diagrams, 2 vols. 8vo. cl., 11s (p. M. 22) *ib.*, 1898
- 15908 ——— ZWEITE SORGFÄLTIG DURCHGESEHENE AUFLAGE; with 202 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, t. e. g., 15s *ib.*, 1906
- 15909 ——— WAHRSCHEINLICHKEITSRECHNUNG und ihre Anwendung auf Fehlerausgleichung, Statistik und Lebensversicherung; with diagrams, large 8vo. cl., 12s (p. M. 24) *ib.*, 1903
- 15910 ——— ZWEITE [NEUESTE] SORGFÄLTIG DURCHGESEHENE und ERWEITERTE AUFLAGE; with 52 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, t. e. g., 18s 6d (p. M. 26 in cl.) *ib.*, 1908-10
A standard work on the theory of probability.
- 15911 DALLE (Antoine) DEUX MILLE THÉORÈMES et PROBLÈMES de GÉOMÉTRIE, avec Solutions; with 679 diagrams (pp. 833): COURS de GÉOMÉTRIE (avec C. de Waele); 3^e Edition; with 484 diagrams (pp. 555)—2 vols. 8vo. in 1, hf. black morocco neat, cl. sides (as good as new), 13s (p. F. 20 nett sewn) Namur, 1912
What is the state of the town where these books were published now?
- 15912 DARBOUX (Jean Gaston, de l'Institut) LEÇONS sur les SYSTÈMES ORTHOGONAUX et les COORDONNÉES CURVILIGNES; 2^e [dernière] Edition, complétée, thick roy. 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 13s (p. F. 18 nett sewn) 1910
- 15913 ——— LEÇONS sur la THÉORIE GÉNÉRALE des SURFACES, et les Applications géométriques du Calcul Infinitésimal, 4 vols. large 8vo. in 1, hf. maroon morocco, cl. sides (nice copy); partly o. p., £2. (p. F. 60 nett sewn) 1887-96
CONTENU:—I. Généralités. Coordonnées curvilignes. Surfaces minina: II. Les Congruences et les Équations linéaires aux Dérivées partielles. Des Lignes tracées sur les Surfaces: III. Lignes Géodésiques et Courbure géodésique. Paramètres différentiels. Déformation des Surfaces: IV. Déformation infiniment petite et Représentation sphérique.
- 15914 DARIES (Georges, Ingénieur de la Ville de Paris) MATHÉMATIQUES; 2^e [dernière] Edition, très augmentée; with 310 diagrams, thick cr. 8vo. limp roan, 6s 6d (p. F. 12 nett) 1905
- 15915 ——— ANOTHER COPY, hf. black morocco neat, cl. sides, t. e. g., 7s 6d
- 15916 DAUGE (Félix; Univ. Ghent) COURS de MÉTHODOLOGIE MATHÉMATIQUE, 2^e [dernière] Edition; with 12 folding plates, roy. 8vo. hf. crushed crimson morocco gilt, cl. sides, 8s (p. F. 12 nett sewn) Gand, 1896
- 15917 DAVIES (Charles), and William G. PECK: MATHEMATICAL DICTIONARY and CYCLOPEDIA of MATHEMATICAL SCIENCE, with numerous diagrams, roy. 8vo. buckram, or, hf. bound (scarce), 7s 6d New York, 1857 or '75

MATHEMATICS, *continued* :—

- 15919 **DAVIS** (Ellery Williams, *Univ. Nebraska*) INTRODUCTION to the LOGIC of ALGEBRA, with illustrative Exercises; 2nd Edition, enlarged, 8vo. *cl.* (o. p.), 7s 6d
New York, 1894
- 15920 **DAVISON** (Charles) SUBJECTS for MATHEMATICAL ESSAYS, with diagrams, cr. 8vo. *cl.*, 2s 1915
- 15921 **DEDEKIND** (Richard; *Technische Hochschule, Braunschweig*) ESSAYS on the THEORY of NUMBERS. I. Continuity and Irrational Numbers. II. The Nature and Meaning of Numbers: authorized Translation by WOOSTER WOODRUFF BEMAN, cr. 8vo. *cl.*, 2s 6d Chicago, 1901 or 1909
- 15922 — WAS SIND und was SOLLEN die ZAHLEN? 3. Auflage, post 8vo. buckram, *t. e. g.*, 2s
Braunschweig, 1911
- 15923 **DELAISTRE** (Louis) COURS COMPLET de DESSIN LINÉAIRE gradué et progressif, 5^e Édition; with 60 fine plates, oblong folio, *cl.*, 7s 6d (p. F. 15 nett)
1894
- 15924 **DELOSSUS** (Étienne; *Univ. Bordeaux*) LEÇONS sur la THÉORIE ANALYTIQUE des ÉQUATIONS aux Dérivées partielles du 1^{er} Ordre: **VOGT** (H.) LEÇONS sur la RÉOLUTION ALGÈBRE des ÉQUATIONS, avec Préface de JULES TANNERY—2 vols. large 8vo. in 1, *hf. roan*, 5s 6d (p. F. 9.50 nett sewn)
1897-5
- 15925 **DEMARTRES** (Léon; *Univ. LILLE*) COURS d'ANALYSE, rédigé par E. LEMAIRE; neatly autographed on 516 pp., with diagrams, 3 vols. 4to. in 1, new *hf. black morocco neat, cl. sides (fine copy)*; scarce, 18s
1892-6
- CONTENU:—I. Fonctions de Variables réelles: II. Propriétés des Fonctions analytiques: III. Équations différentielles et aux Dérivées partielles.
- 15926 **DESBOVES** (Adolphe) QUESTIONS d'ALGÈBRE ÉLÉMENTAIRE: Méthodes et Solutions, avec Exposé des principales Théories et de nombreux Exercices proposés; 4^e Édition, refondue et augmentée; with 2 plates, 8vo. *hf. maroon morocco (nice copy)*, 5s
1892
- 15927 — ANOTHER COPY, buckram, 4s
- 15928 — QUESTIONS de GÉOMÉTRIE ÉLÉMENTAIRE: Méthodes et Solutions, avec Exposé des principales Théories et de nombreux Exercices proposés; 2^e Édition, refondue et augmentée; with 12 plates, 8vo. *hf. roan (scarce)*, 5s
1875
- 15929 — QUESTIONS de GÉOMÉTRIE: Méthodes et Solutions, avec Exposé des principales Théories et Notes sur les Rapports entre l'Algèbre et la Géométrie; with 11 folding plates, 8vo. *hf. French morocco neat (nice copy)*; scarce, 5s
1870
- 15930 — QUESTIONS de TRIGONOMÉTRIE: Méthodes et Solutions, avec plus de 400 Exercices proposés; with 4 plates, 8vo. *hf. maroon morocco*, 3s (p. F. 5 nett sewn)
1872
- 15931 — TROISIÈME ÉDITION, revue et corrigée; with 4 folding plates (*linen-mounted*); avec les Solutions, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (fine copy)*, 7s 1884-77
- 15932 — SOLUTIONS des EXERCICES proposés dans les QUESTIONS de TRIGONOMÉTRIE RECTILIGNE, précédées d'un Recueil des principales Formules, 8vo. buckram, 3s
1877
- 15933 **DETTE** (W.) ANALYTISCHE GEOMETRIE der KEGELSCHNITTE; with 45 diagrams, 8vo. *cl.*, 3s
Leipzig, 1909
- 15934 **DICKSON** (Leonard Eugene, *Univ. Chicago*) ALGEBRAIC INVARIANTS, large 8vo. *cl.*, 3s 6d
New York, 1914
- 15935 — INTRODUCTION to the THEORY of ALGEBRAIC EQUATIONS, large post 8vo. buckram, 3s
ibidem, 1903
- 15936 **DINGELDEY** (Friedrich; *Technische Hochschule, Darmstadt*) Über die ERZEUGUNG von CURVEN 4. ORDNUNG durch Bewegungsmechanismen: Inaugural-Dissertation; with 6 folding plates, large 8vo. sewn (o. p.), 2s 6d
Leipzig, 1885
- 15937 — SAMMLUNG von AUFGABEN zur ANWENDUNG der DIFFERENTIAL- und INTEGRALRECHNUNG; with 195 diagrams; 2 vols. large 8vo. *cl.*, 13s 6d (p. M. 20)
ibidem, 1910-13
- 15938 **DINI** (Ulisse, *Univ. Pisa*) GRUNDLAGEN für eine THEORIE der FUNCTIONEN einer VERÄNDERLICHEN REELLEN GRÖSSE, deutsch bearbeitet von JACOB LÜRÖTH and ADOLF SCHEPP, 8vo. *hf. maroon morocco neat, cl. sides (fine copy)*, 9s 6d (p. M. 12 sewn)
Leipzig, 1892
- DIRICHLET** (Peter Gustav Lejeune)—v. LEJEUNE-DIRICHLET, *post*.
- 15939 **DIXON** (Alfred Cardew) THE ELEMENTARY PROPERTIES of the ELLIPTIC FUNCTIONS, with Examples, with diagrams, post 8vo. buckram, 3s (p. 5s)
1894
- 15940 **DODGSON** (Charles (Lutwidge, *deacon*; 'LEWIS CARROLL', author of 'Alice in Wonderland') CURIOSA MATHEMATICA: I. A NEW THEORY of PARALLELS: II. PILLOW PROBLEMS, thought out during wakeful Hours, with diagrams, 2 vols. post 8vo. *original cloth (scarce)*, 10s 6d
1895
- 15941 — ELEMENTARY TREATISE on DETERMINANTS, with their Application to Simultaneous Linear Equations and Algebraical Geometry, cr. 4to. *cl.*, with *inscr.* 'FROM THE AUTHOR' (SCARCE), £1. 1s
1867
- 'Presenting the subject as a continuous chain of argument, separated from all accessories of explanation or illustration, a form which I venture to think better suited for a treatise on exact science than the semi-colloquial semi-logical form often adopted by mathematical writers.'—*Preface*.
- These were some of the mathematical books which were supplied to Queen Victoria when she ordered the other works of the author of Alice in Wonderland.
- 15942 **DOEHLEMANN** (Karl; *Munich*) GEOMETRISCHE TRANSFORMATIONEN; with 189 illustrations, 2 vols. large cr. 8vo. *cl.*, 12s 6d (p. M. 20)
Leipzig, 1902-8

MATHEMATICS, continued:—

- 15944 **DOSTOR** (Georges, *de l'Institut Catholique*) ÉLÉMENTS de la THÉORIE des DÉTERMINANTS, avec Application à l'Algèbre, la Trigonométrie et la Géométrie analytique, dans le Plan et dans l'Espace, 2^e [dernière] Edition, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 6s (p. F. 8 nett sewn) 1883 or 1905
- 15945 ——— THÉORIE GÉNÉRALE des POLYGOUES ÉTOILÉS; *with diagrams*, 4to. *buckram (o. p.)*, 4s 1880
- 15946 **DREW** (William Henry, *pr. : St. John's Coll., Cantab.*) GEOMETRICAL TREATISE ON CONIC SECTIONS, *with diagrams*; *with Solutions*, 2 vols. post 8vo. *cl. (Solutions o. p.)*, 4s (p. 9s 6d) 1898-68
- 15947 **DROBISCH** (Moritz Wilhelm; *Prof. Philosophy and Mathematics, Leipzig*) ERSTE GRUNDLEHREN der MATHEMATISCHEN PSYCHOLOGIE; *with folding plate*, 8vo. *cl.*, 3s 6d Leipzig, 1850
- 15948 **DRONKE** (Adolf) EINLEITUNG in die HÖHERE ALGEBRA, 8vo. *buckram*, 2s 6d (p. M. 5. sewn) Halle, 1872
- 15949 ——— Die KEGELSCHNITTE in SYNTHETISCHER BEHANDLUNGSWEISE; *with diagrams*, 8vo. *buckram*, 1s 6d Leipzig, 1881
- v. BALTZER, *ante*.
- 15950 **DUHAMEL** (Jean Marie Constant, *de l'Institut*) ÉLÉMENTS de CALCUL INFINITÉSIMAL, 2^e Edition; *with 6 folding plates*, 2 vols. 8vo. in 1, *hf. roan (some pp. of v. II damaged)*, 3s 1860-1
- 15951 **DUPORCQ** (Ernest, *ingénieur des télégraphes*) PREMIERS PRINCIPES de GÉOMÉTRIE MODERNE; 2^e [dernière] Edition par RAOUL BRICARD; *with diagrams*, 8vo. *buckram*, 2s 6d 1912
- 15952 **DUPUIS** (Nathan F., *Queen's Univ., Kingston, Canada*) ELEMENTARY SYNTHETIC GEOMETRY of the Point, Line and Circle in the Plane, *with diagrams*, large 12mo. *buckram*, 3s (p. 6s) New York, 1903
- 15953 **DURÈGE** (Heinrich; *German Univ., Prague*) ELEMENTE der THEORIE der FUNKTIONEN einer COMPLEXEN VERÄNDERLICHEN GRÖSSE, mit besonderer Berücksichtigung der Schöpfungen RIEMANN'S, 2. umgearbeitete Auflage; *with 60 diagrams*, 8vo. *hf. bound*, 2s 6d Leipzig, 1873
- 15954 ——— VIÈRTE AUFLAGE; *with 68 diagrams*, 8vo. *red buckram*, 5s 6d (p. M. 11) *ibidem*, 1893
- 15955 ——— FÜNFTE [NEUESTE] AUFLAGE, neu bearbeitet von LUDWIG MAURER; *with 41 diagrams*, 8vo. *buckram*, 7s (p. M. 9 sewn) *ib.*, 1906
- 15956 ——— THEORIE der ELLIPTISCHEN FUNCTIONEN: Versuch einer elementaren Darstellung; 2 Auflage; *with 32 diagrams*, 8vo. *hf. black calf*, 3s 6d *ib.*, 1868
- 15957 ——— VIÈRTE AUFLAGE; *with 32 diagrams*, 8vo. *red buckram*, 5s 6d (p. M. 10 sewn) *ib.*, 1887
- 15958 ——— FÜNFTE [NEUESTE] AUFLAGE, neu bearbeitet von LUDWIG MAURER; *with 36 diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g. (as good as new)*, 8s (p. M. 10 sewn) *ib.*, 1908
- 15959 **DURELL** (Clement Vavasour, *Winchester Coll.*) COURSE OF PLANE GEOMETRY for ADVANCED STUDENTS; *with 285 diagrams*, 2 vols 8vo. in 1, *hf. black morocco neat, cl. sides*, 9s (p. 12s 6d nett in cl.) 1909-10
- 15960 **DZIOBEK** (Otto; *Prof. Higher Mathematics, Charlottenburg*) LEHRBUCH der ANALYTISCHEN GEOMETRIE; *with 121 diagrams*, 2 vols. 8vo. *cl.*, 6s (p. M. 10) Braunschweig, 1900
- 15961 **EAGLES** (Thomas Henry, *Cooper's Hill*) CONSTRUCTIVE GEOMETRY of PLANE CURVES, with numerous Examples, *with 186 diagrams*, post 8vo. *cl.*, or, *buckram*, 6s (p. 12s) 1885
- 15962 **EASTON** (Burton Scott, *Univ. Penna.*) THE CONSTRUCTIVE DEVELOPMENT of GROUP-THEORY, with a Bibliography, roy. 8vo. *sewn*, 3s Philadelphia, 1902
- 15963 **EBERHARD** (Viktor; *Prof. Mathematics, Halle*) ZUR MORPHOLOGIE der POLYEDER; *with 2 folding plates and numerous diagrams*, 8vo. *red buckram*, 6s (p. M. 8 sewn) Leipzig, 1891
- 15964 **EBNER** (F.) LEITFADEN der TECHNISCH WICHTIGEN KURVEN; *with 93 diagrams*, 8vo. *cl.*, 2s 6d (p. M. 4) Leipzig, 1906
- 15965 **ECKHARDT** (Ernst) ZURÜCKFÜHRUNG der SPHÄRISCHEN TRIGONOMETRIE auf die GEOMETRIE des EBENEN KREISVIERECKS: neue Grundlegung für die Formeln der sphärischen Trigonometrie; *with 35 diagrams*, 8vo. *buckram, t. e. g.*, 3s 6d (p. M. 4.40 sewn) Leipzig, 1909
- 15966 **EDWARDS** (Joseph, *Sidney Sussex Coll., Cantab.*) ELEMENTARY TREATISE on the DIFFERENTIAL CALCULUS, with Applications and numerous Examples [3rd and latest Edition], *with 130 illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 9s (p. 14s in cl.) 1909
- 15967 **EGERER** (Heinz) INGENIEUR-MATHEMATIK: Lehrbuch der höheren Mathematik für die technischen Berufe, I. BAND: Niedere Algebra und Analysis. Lineare Gebilde der Ebene und des Raumes in analytischer und vektorieller Behandlung. Kegelschnitte; *with 320 illustrations*, large 8vo. *cl.*, 8s (p. M. 12) Berlin, 1913
- 15968 ——— REPETITORIUM der HÖHEREN MATHEMATIK: Lehrsätze, Formeln, Tabellen; *with diagrams*, large 8vo. *buckram*, 4s 6d (p. M. 6 sewn) München, 1908
- 15969 **EISENHART** (Luther Pfahler, *Prof. Mathematics, Princeton Univ.*) TREATISE on the DIFFERENTIAL GEOMETRY of CURVES and SURFACES, 8vo. *hf. black morocco neat, cl. sides (fine copy)*, 12s 6d (p. £1. in cl.) Boston [Mass., 1909]

¹I have introduced the idea of moving axes, and have derived the formulas pertaining thereto from the previously obtained Frenet-Serret formulas.—*Preface*.

MATHEMATICS, continued:—

- 15971 **ELLIOTT** (Edwin Bailey, F.R.S., *Waynflete Prof. Pure Mathematics, Oxon.*) INTRODUCTION to the ALGEBRA of QUANTICS, 8vo. *buckram, t. e. g.*, 6s (p. 15s) Clarendon Press, Oxford, 1895
- 15972 ——— SECOND [LATEST] EDITION [enlarged], 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (fine copy)*, 12s 6d (p. 15s nett in cl.) *apud eandem, ibidem*, 1913
- 15973 **EMMERICH** (A.) Die BROCARDSCHEN GEBILDE und ihre Beziehungen zu den verwandten merkwürdigen Punkten und Kreisen des Dreiecks; *with folding plate and 50 diagrams*, 8vo. *buckram, 3s 6d* (p. M. 5 sewn) Berlin, 1891
- 15974 **ENGEL** (Friedrich; *Prof. Mathematics, Giessen*), und Paul Gustav **STÄCKEL**; *Prof. Mathematics, Heidelberg*: Die THEORIE der PARALLELLINIEN von EUKLID bis auf GAUSS: eine Urkundensammlung zur Vorgeschichte der nichteuklidischen Geometrie; *with fs. letter of Gauss, and 145 diagrams*, large 8vo. *hf. calf, 7s* (p. M. 9 sewn) Leipzig, 1895
Pp. 293-313 contain a valuable bibliography.
- 15975 ——— ———, URKUNDEN zur GESCHICHTE der NICHEUKLIDISCHEN GEOMETRIE, herausgegeben von; *with fine portrait of Lobachevsky, 2 plates, and numerous diagrams*, 3 vols. roy. 8vo. in 2, *handsomely bound in hf. black morocco, cloth sides, (fine copy)*, £1. 12s 6d (p. M. 42 sewn) *ibidem*, 1898-1913
INHALT:—I. N. J. LOBACHEVSKIJ: Zwei geometrische Abhandlungen, übersetzt, mit Anmerkungen und Biographie, von FRIEDRICH ENGEL; II. WOLFGANG und JOHANN BOLYAI: Geometrische Untersuchungen, mit Unterstützung der Ungarischen Akademie der Wissenschaften herausgegeben [mit Biographie und Anmerkungen] von PAUL HÄCKEL, 2 v.
——— v. LIE, post.
- 15976 **ENRIQUES** (Federigo, *Univ. Bologna*) VORLESUNGEN über PROJECTIVISCHE GEOMETRIE, deutsche Ausgabe von HERMANN FLEISCHER, mit Einführungswort von FELIX KLEIN; *with 187 diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 6s 6d (p. M. 8 sewn) Leipzig, 1903
'Ich kenne kein Werk welches den systematischen Aufbau dieser Disziplin in einer dem heutigen Stande der Wissenschaft entsprechenden Form in so durchsichtiger und gleichzeitig so vollständiger Weise darböte, wie das vorliegende.'
—Prof. Klein.
- 15977 **ERDMANN** (Benno, *Univ. Berlin*) Die AXIOME der GEOMETRIE: eine philosophische Untersuchung, 8vo. *cl.*, 2s 6d (p. M. 4.80 sewn) Leipzig, 1877
- 15978 **EUKLID'S** ELEMENTE, funfzehn Bücher, übersetzt von JOHANN FRIEDRICH LORENZ, auf neue herausgegeben von CARL BRANDAN MOLLWEIDE, 5 Auflage; *with plate and diagrams*, 8vo. *half bound, or, buckram (title mounted)*, 3s 6d Halle, 1824
- 15979 **FAÀ de BRUNO** (François; *Prof. Mathematics, Turin*) THÉORIE des FORMES BINAIRES; *with 3 large folding tables (neatly linen-mounted)*, large 8vo. *hf. black calf neat, cl. sides, uncut, t. e. g. (nice copy)*, 8s (p. F. 16 nett sewn) Turin, 1876
- 15980 ——— TRAITÉ ÉLÉMENTAIRE du CALCUL des ERREURS, avec Tables stéréotypées, 8vo. *buckram, uncut, t. e. g.*, 3s 1869
- 15981 ——— THÉORIE GÉNÉRALE de l'ÉLIMINATION, large 8vo. *hf. maroon morocco neat, cl. sides*, 3s 1859
- 15982 **FABRY** (Charles Eugène, *Univ. Montpellier*) PROBLÈMES d'ANALYSE MATHÉMATIQUE; *with diagrams*, large 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g.*, 8s 6d (p. F. 12 nett sewn) 1913
- 15983 ——— PROBLÈMES et EXERCICES de MATHÉMATIQUES GÉNÉRALES; *with diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 6s 6d (p. F. 10 nett sewn) 1910
- 15984 ——— DEUXIÈME [DERNIÈRE] ÉDITION, revue et très augmentée; *with 79 diagrams*, roy. 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (as good as new)*, 8s 6d 1913
- 15985 ——— TRAITÉ de MATHÉMATIQUES GÉNÉRALES à l'Usage des Chimistes, Physiciens, Ingénieurs, etc., avec Préface de GASTON DARBOUX; *with diagrams*, large 8vo. *half black morocco neat, cl. sides, t. e. g. (nice copy)*, 5s 6d (p. F. 9 nett sewn) 1909
- 15986 ——— DEUXIÈME ÉDITION, revue et augmentée; *with diagrams*, roy. 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (nice copy)*, 7s 1911
- 15987 **FAIFOER** (Aurelien, *Venise*) ÉLÉMENTS de GÉOMÉTRIE, traduits par FR. TALANTI; *with numerous diagrams*, large post 8vo. *buckram, t. e. g. (o. p.)*, 3s 6d 1903
- 15988 **FÄRBER** (Carl) ARITHMETIK (Grundlehren der Mathematik); *with 9 diagrams*, 8vo. *buckram*, 6s (p. M. 9) Leipzig, 1911
- 15989 **FERRERS** (Norman Macleod; D.D., *Master of Caius Coll., Cantab.*; F.R.S.) ELEMENTARY TREATISE on TRILINEAR CO-ORDINATES, the Method of Reciprocal Polars, and the Theory of Projections, *with 24 diagrams*, post 8vo. *cl.*, 2s 6d Cambridge, 1861
- 15990 ——— FOURTH [LATEST] EDITION, *with diagrams*, cr. 8vo. *cl.*, 3s 6d (p. 6s 6d) 1890
- 15991 **FIEDLER** (Otto Wilhelm; *Univ. Zürich*) CYKLOGRAPHIE, oder Construction der Aufgaben über Kreise und Kugeln und elementare Geometrie der Kreis- und Kugel-Systeme; *with 16 folding plates*, 8vo. *buckram*, 6s 6d (p. M. 9 sewn) Leipzig, 1882
- 15992 ——— Die DARSTELLENDEN GEOMETRIE in organischer Verbindung mit der GEOMETRIE der LAGE, 3. [neueste] erweiterte Auflage; *with 23 plates and numerous diagrams*, 3 vols. 8vo. *hf. red morocco neat, cl. sides (fine copy)*, £1. 10s (p. M. 40 sewn) *ibidem*, 1883-8
INHALT:—I. Methoden der darstellenden und Elemente der projectivischen Geometrie: II. Darstellende Geometrie der krummen Linien und Flächen: III. Die konstruierende und analytische Geometrie der Lage.

MATHEMATICS, *continued*.—

- 15994 **FERVAL** (Henri) COURS DE GÉOMÉTRIE COTÉE, 3^e [dernière] Édition, complètement refondue; with plates and numerous diagrams, 8vo. *cl.*, 2s 6d 1909
- 15995 **FILIPOWSKI** (Herschell E.) TABLE of ANTI-LOGARITHMS; containing to SEVEN PLACES of Decimals, NATURAL NUMBERS, answering to all Logarithms from .00001 to .99999, and Improved Table of GAUSS'S LOGARITHMS, with Introduction, containing the HISTORY of LOGARITHMS; 3rd [last] Edition, corrected, 8vo. *buckram*, 7s 6d (p. 15s) 1861
 'All that could be wished in extent, in structure, and in typography. For its extent it is unique among modern tables'.—*Prof. de Morgan*.
- 15996 **FILON** (Louis Napoleon George; F.R.S.) INTRODUCTION to PROJECTIVE GEOMETRY, with 63 diagrams, post 8vo. *cl.*, 4s 6d (p. 8s 6d) [1908]
- 15997 **FINE** (Henry Burchard, *Princeton Univ.*) THE NUMBER SYSTEM of ALGEBRA, treated theoretically and historically; 2nd Edition, with Corrections, cr. 8vo. *cl.*, 3s *Boston [Mass.]*, 1907
 'The historical portion gives a *résumé* of the history of the most important parts of elementary arithmetic and algebra'.—*Sonnenschein*.
- 15998 **FISCHER** (Eduard) SYSTEMATISCHER GRUNDRISS der ELEMENTAR-MATHEMATIK; with diagrams, 2 vols. 8vo. in 1, *buckram*, 3s 6d (p. M. 5.25 sewn) *Berlin*, 1891
- 15999 **FLEURY** (Henry) THÉORIE RATIONNELLE de l'INFINI MATHÉMATIQUE et du CALCUL INFINITÉSIMAL; 2^e [dernière] Édition, augmentée d'une Théorie nouvelle et rigoureuse du Problème analytique des TANGENTES; with 26 diagrams, roy. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 7s (p. F. 10 nett sewn) 1899
- 16000 **FLYSTE-MARIE** (C., *Capitaine d'Artillerie*) ÉTUDES ANALYTIQUES sur la THÉORIE des PARALLÈLES; with 8 folding plates, large 8vo. *hf. black calf neat, cl. sides (as good as new)*, 4s 1871
- 16001 **FOLLOWS** (George H., *Carnegie Schools, Pittsburgh*) THE ESSENTIALS of DESCRIPTIVE GEOMETRY, with numerous illustrations, roy. 8vo. *cl.*, 5s (p. 8s 6d nett) *New York*, 1908
- 16002 **FONTENÉ** (G.) L'HYPERSPACE à $(n-1)$ DIMENSIONS: Propriétés métriques de la Corrélation générale; with diagrams, roy. 8vo. *buckram*, 3s 6d (p. F. 5 nett sewn) 1892
- 16003 — ANOTHER COPY, *hf. maroon morocco neat, cl. sides, uncut, t. e. g.*, 4s
- 16004 **FORSYTH** (Andrew Russell, F.R.S., *Sadlerian Prof., Cantab.*) LECTURES on the DIFFERENTIAL GEOMETRY of CURVES and SURFACES, with diagrams, roy. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 16s 6d (p. £1. 1s nett in *cl.*) *Univ. Press, Cambridge*, 1912
- 16005 — LECTURES introductory to the THEORY of FUNCTIONS of TWO COMPLEX VARIABLES, with diagrams, roy. 8vo. *cl.*, 7s (p. 10s nett) *apud eandem, ibidem*, 1914
- 16006 — THEORY of FUNCTIONS of a COMPLEX VARIABLE; 2nd [latest] Edition [greatly enlarged], with plate and numerous illustrations, roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, t. e. g.*, 16s 6d (p. £1. 1s nett in *cl.*) *a. e., ib.*, 1900
 A standard work on the subject.
- 16007 — TREATISE on DIFFERENTIAL EQUATIONS, 2nd Edition, 8vo. *cl.*, 6s (p. 14s) 1888
- 16008 — LEHRBUCH der DIFFERENTIAL-GLEICHUNGEN, mit den AUFLÖSUNGEN der Aufgaben von HERMANN MASER; 2. [neueste] autorisierte Auflage, nach der 3. des englischen Originals besorgt und mit Anhang von Zusätzen versehen von WALTHER JACOBSTHAL, large 8vo. (pp. 943), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, 15s (p. M. 20 sewn) *Braunschweig*, 1912
 The SOLUTIONS by H. MASER are not contained in the English original.
- 16009 **FORT** (O., *Polytechnikum, Dresden*), und Oskar SCHLÖMILCH: LEHRBUCH der ANALYTISCHEN GEOMETRIE, II. Teil: Analytische Geometrie des Raumes; 5. Auflage; with diagrams, 8vo. *original hf. binding*, 3s (p. M. 6) *Leipzig*, 1886
- 16010 — BEIDE TEILE, 6. Auflage, von R. HEGER; with 135 diagrams, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (nice copy)*, 7s (p. M. 10 sewn) *ibidem*, 1893-8
- 16011 — ANOTHER COPY (Bd. I. 7. [neueste] Auflage); with 135 diagrams, 2 vols. 8vo. in 1, *hf. black morocco, cl. sides (as good as new)*, 8s (p. M. 10 sewn) *ib.*, 1904-1898
- 16012 **FOUËT** (Édouard A., *Institut Catholique, Paris*) LEÇONS ÉLÉMENTAIRES sur la THÉORIE des FONCTIONS ANALYTIQUES, 2^e [dernière] Édition, entièrement refondue; with 31 diagrams, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, 14s 1907-9
 This copy has bound up with it a copy of Vol. II. of the first edition (now out of print and scarce), containing 'Théorèmes d'Existence; Étude des Fonctions analytiques au Point de Vue de Cauchy, Weierstrass et Riemann', which are not included in the second edition.
- 16013 **FOUREY** (E.) CURIOSITÉS GÉOMÉTRIQUES, 2^e [dernière] Édition; with 473 illustrations, 8vo. *buckram*, 3s 6d (p. F. 7 nett) *s. d.*
- 16014 — RÉCRÉATIONS ARITHMÉTIQUES, 3^e Édition; with illustrations, 8vo. *buckram*, 3s 1904
- 16015 **FREGE** (Gottlob, *Univ. Jena*) GRUNDGESETZE der ARITHMETIK, begriffsschriftlich abgeleitet, 2 vols. roy. 8vo. in 1, *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 17s 6d (p. M. 24 sewn) *Jena*, 1893-1903
 'Man findet in diesem Buche Lehrsätze, auf denen die Arithmetik beruht, mit Zeichen bewiesen, deren Ganzes ich Begriffsschrift nenne. Die wichtigsten dieser Sätze sind am Ende zum Teil mit angefügter Übersetzung zusammengestellt'.—*Vorwort*.

MATHEMATICS, continued:—

- 16017 **FRENET** (Frédéric) RECUEIL d'EXERCICES sur le CALCUL INFINITÉSIMAL, 5^e Édition, avec Appendice par H. LAURENT; with diagrams, 8vo. buckram, 5s (p. F. 8 nett sewn) 1891
- 16018 **FRICKE** (Karl Emanuel Robert, Technische Hochschule, Braunschweig) HAUPTSÄTZE der DIFFERENTIAL- und INTEGRAL-RECHNUNG, als Leitfaden zum Gebrauche bei Vorlesungen, 3. umgearbeitete Auflage; with 74 diagrams, 8vo. buckram, 2s 6d Braunschweig, 1902
- 16019 — FÜNFTE [NEUESTE] AUFLAGE; with 74 diagrams, 8vo. buckram, t. e. g., 4s (p. M. 5 sewn) *ibidem*, 1909
- 16020 — KURZGEFASSTE VORLESUNGEN über verschiedene Gebiete der HÖHERN MATHEMATIK, mit Berücksichtigung der Anwendungen, BAND I (soweit bisher erschienen): analytisch-functionentheoretischer Teil; with 102 diagrams, large 8vo. cl., 9s (p. M. 14) Leipzig, 1900
- 16021 **FRISCHAUF** (Johannes: Prof. Mathematics, Univ. Graz) ABSOLUTE GEOMETRIE nach JOHANN BOLYAI; with diagrams, 8vo. buckram (o.p.), 2s 6d Leipzig, 1872
- 16022 — ELEMENTE der ABSOLUTEN GEOMETRIE; with diagrams, 8vo. cl., 2s 6d *ibidem*, 1876
- 16023 **FROLOW** (M.) Les CARRÉS MAGIQUES: nouvelle Étude; with 7 folding plates (linen-mounted), roy. 8vo. buckram, t. e. g., 2s 6d 1886
- 16024 — Le PROBLÈME d'EULER et les CARRÉS MAGIQUES, traduit du Russe; with 18 plates, 8vo. buckram, 2s 6d St.-Petersbourg [Petrograd], 1884
- 16025 **FROST** (Percival, pr.; F.R.S.) ELEMENTARY TREATISE ON CURVE TRACING [2nd Edition], with 17 folding plates, 8vo. buckram, 6s (p. 10s nett) 1892 or 1911
- 16026 — SOLID GEOMETRY, 3rd [latest] Edition [enlarged], with numerous diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g., 9s (p. 16s in cl.) 1886
- 16027 — ANOTHER COPY, with the Solutions, 2 vols. 8vo. cl., 14s (p. £1. 4s 6d) 1886-7
- 16028 **FUHRMANN** (Arwed; Technische Hochschule, Dresden) ANWENDUNGEN der INFINITESIMALRECHNUNG in den NATURWISSENSCHAFTEN, im HOCHBAU und in der TECHNIK: Lehrbuch und Aufgabensammlung (Bd. I 2. [neueste] Auflage); with numerous diagrams, 4 vols. 8vo. cl., £1. 1s (p. M. 35.50) Berlin, 1890-1903
- 16029 **G.-M.** (F.) COMPLÈMENTS de TRIGONOMÉTRIE et Méthodes pour la Résolution des Problèmes; with numerous diagrams, 8vo. (pp. 816), handsomely bound in hf. pigskin, cl. sides, 6s 6d (p. F. 12 nett in cl.) Tours, Mame et Fils, s. d.
- 16030 — ANOTHER COPY, hf. black morocco neat, cl. sides (as good as new), 7s
- 16031 — COURS d'ALGÈBRE ÉLÉMENTAIRE, 4^e Édition; with diagrams, 8vo. hf. black morocco neat, cl. sides (nice copy), 3s *ibidem*, apud eosdem, 1907
- 16032 — CINQUIÈME ÉDITION; with diagrams, 8vo. hf. black morocco neat, cl. sides (nice copy), 3s 6d *ib.*, a. e., 1909
- 16033 — COURS de GÉOMÉTRIE ÉLÉMENTAIRE, avec Recueil d'Exercices proposés; with 667 diagrams, 8vo. hf. black morocco neat, cl. sides (nice copy), 5s *ib.*, a. e., s. d.
- 16034 — EXERCICES d'ALGÈBRE, 5^e ou 6^e Éditions; with numerous diagrams, 8vo. (pp. 980), handsomely bound in hf. pigskin, cl. sides (nice copies), 7s 6d (p. F. 14 nett in cloth) *ib.*, a. e., 1901 ou '8
- 16035 — EXERCICES de GÉOMÉTRIE, contenant l'Exposé des Méthodes géométriques et 2000 Questions résolues, 3^e Édition; with 1519 diagrams, 8vo. (pp. 1154), handsomely bound in hf. pigskin, cl. sides (nice copy), 7s (p. F. 14 nett in cl.) *ib.*, a. e., 1896
- 16036 — CINQUIÈME [DERNIÈRE] ÉDITION; with 1549 diagrams, 8vo. hf. black morocco neat, cl. sides (as good as new), 10s *ib.*, a. e., 1912
- 16037 — EXERCICES de GÉOMÉTRIE DESCRIPTIVE, 3^e ou 4^e Éditions; with 5 folding plates (linen-mounted), and 1018 diagrams, 8vo. (pp. 960), handsomely bound in hf. pigskin, cl. sides, 8s (p. F. 14 nett) *ib.*, a. e., 1893 ou s. d.
- 16038 **GANS** (Richard, Univ. Tübingen) EINFÜHRUNG in die VEKTORANALYSIS, mit Anwendungen auf die mathematische Physik, 2. [letzte] Auflage; with 35 diagrams, 8vo. cl., 2s 6d (p. M. 3.60) Leipzig, 1909
- 16039 **GAUSS** (Johann Karl Friedrich; Prof. Mathematics, Göttingen; F.R.S.) MÉTHODE des MOINDRES CARRÉS; Mémoires sur la Combinaison des Observations, traduits par J. BERTRAND, 8vo. hf. French morocco neat (nice copy); scarce, 7s 6d 1855
A collection of all the author's various papers treating on the method of least squares, which would be otherwise difficult to get.
- 16040 — RECHERCHES ARITHMÉTIQUES, traduites par A. C. M. POULLET-DELISLE, thick 4to. hf. French red morocco neat, uncut (fine copy); SCARCE, £1. 15s 1807
'His most celebrated work in pure mathematics, which has proved a starting point for several valuable investigations on the theory of numbers. This treatise and Legendre's *Théorie des Nombres* remain standard works on the theory of numbers. . . . In particular it introduced the modern theory of congruences of the first and second orders, and to this Gauss reduced indeterminate analysis. In it also he discussed the solution of binomial equations of the form $x^n = 1$, etc. etc. etc.—*W. W. R. Ball*.
- 16041 — RECHERCHES GÉNÉRALES sur les SURFACES COURBES, traduites, avec Notes et Études sur divers Points de la Théorie des Surfaces et sur certaines Classes de Courbes, par E. ROGER; 2^e [dernière] Édition, 4to. buckram, 5s Grenoble, 1870

MATHEMATICS, continued:—

- 16043 **GANTER (H.)**, und Ferdinand **RUDIO**, *Technische Hochschule, Zürich*: Die ELEMENTE der ANALYTISCHEN GEOMETRIE, mit zahlreichen Übungsbeispielen, 6. und 3. Auflage; *with diagrams*, 2 vols. 8vo. *cl.*, 3s 6d (p. M. 6) Leipzig, 1906-1
- 16044 **GEIGENMÜLLER (Robert)** LEITFADEN und AUFGABENSAMMLUNG zur HÖHEREN MATHEMATIK, 7. und 6. [neueste] Auflage; *with numerous diagrams*, 2 vols. 8vo. *buckram*, 7s 6d (p. M. 11 sewn) *Mittweida*, 1907-8
- 16045 **GEISSLER (Kurt)** Die GRUNDSÄTZE und das WESEN des UNENDLICHEN in der MATHEMATIK und PHILOSOPHIE; *with diagrams*, sq. roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 10s 6d (p. M. 14 sewn) Leipzig, 1902
- 16046 — Die KEGELSCHNITTE und ihr Zusammenhang durch die Kontinuität der WEITENBEHAFTUNGEN, mit Einführung in die Lehre von den Weitenbehaffungen; *with 19 folding plates (linen-mounted)*, 8vo. *buckram*, 4s Jena, 1905
- 16047 **GENNERICH (Otto)** LEHRBUCH der PERSPEKTIVE für BILDENDE KÜNSTLER; *with 101 woodcuts*, 8vo. *hf. bound*, with *Atlas, containing 28 plates (linen-guarded)*, impl. 4to. *buckram*—2 vols., 5s (p. M. 16 sewn) Leipzig, 1865
- 16048 **GENOCCHI (Angelo)** DIFFERENTIALRECHNUNG und GRUNDZÜGE der DIFFERENTIALRECHNUNG, herausgegeben von GIUSEPPE PEANO, autorisierte deutsche Übersetzung von O. BOHLMANN und A. SCHEPP, mit Vorwort von A. MEYER, 8vo. *handsomely bound in hf. pigskin, cl. sides*, 8s 6d (p. M. 12 in cl.) Leipzig, 1899
 'Nicht bloss ein mustergültiges Beispiel präciser Darstellung und strenger Schlussweise, es gab namentlich auch durch die Hervorhebung alt eingewurzelter Irrtümer in den vorangestellten Noten der Wissenschaft selbst den Anstoss zu neuer fruchtbarer Entwicklung.'—Prof. A. Meyer.
- 16049 **GEYGER (Erich)** LEHRBUCH der DARSTELLENDE GEOMETRIE, I. (einziger) Teil; *with 290 diagrams*, 8vo. *cl.*, 5s (p. M. 8.60) Leipzig, 1906
- 16050 **GIBSON (George Alexander, Prof. Mathematics, Glasgow)** ELEMENTARY TREATISE on the CALCULUS, *with diagrams*, cr. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 5s (p. 7s 6d in cl.) 1910
- 16051 — ELEMENTARY TREATISE on GRAPHS, *with 51 diagrams*, large 12mo. *buckram*, 2s 1904
- 16052 — INTRODUCTION to the CALCULUS, based on Graphical Methods, *with diagrams*, cr. 8vo. *cl.*, 2s (p. 3s 6d) 1904
- 16053 **GILBERT (Philippe, Univ. LOUVAIN)** COURS d'ANALYSE INFINITÉSIMALE: Partie Élémentaire [seule parue], 4^e [dernière] Édition; *with diagrams*, large 8vo. *hf. red morocco neat, cl. sides (fine copy)*; SCARCE, 12s 6d 1894
- 16054 **GIROD (Félicien)** COURS d'ALGÈBRE ÉLÉMENTAIRE, théorique et pratique; avec les Solutions, 25^e et 5^e Éditions; *with numerous diagrams*, 2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 6s 6d (p. F. 10 nett sewn) s. d.
- 16055 — COURS de GÉOMÉTRIE théorique et pratique, 25^e Édition; *with 627 diagrams*: SOLUTIONS RAISONNÉES, 15^e Édition; *with 580 diagrams*—2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (nice copy)*, 6s 6d (p. F. 10 nett sewn) s. d.
- 16056 **GLAESER (F. W.)** Das GEOMETRISCHE ZEICHNEN, die PROJEKTIONS- und SCHATTENLEHRE; *with 25 plates (some coloured), and 154 text-illustrations*, impl. 8vo. *buckram*, 4s (p. M. 5 sewn) Leipzig [1900]
- 16057 **GODEFROY (Maurice)** THÉORIE ÉLÉMENTAIRE des SÉRIES: Limites, Séries à Termes constants, Séries à Termes variables, Fonction exponentielle, Fonctions circulaires, Fonction Gamma; avec Préface de L. SAUVAGE, roy. 8vo. *buckram, uncut, t. e. g. (o. p.)*, 7s 6d 1903
- 16058 **GODFREY (Charles, Headmaster R. N. Coll., Osborne)**, and A. W. **SIDDONS, Harrow School**: MODERN GEOMETRY, *with diagrams*; with *Solutions*, 2 vols. cr. 8vo. *cl.*, 5s (p. 8s 6d nett) *Univ. Press, Cambridge*, 1908-9
- 16059 **GÖLLER (Adolf, Stuttgart)** LEHRBUCH der SCHATTENKONSTRUKTION und BELEUCHTUNGSKUNDE; *with 4 heliogravures and 171 text-illustrations*, folio, *hf. cl.*, 6s (p. M. 12) Stuttgart, 1895
- 16060 **GOMES TEIXEIRA (F.)** TRAITÉ des COURBES SPÉCIALES REMARQUABLES PLANES et GAUCHES: Ouvrage couronné et publié par l'Académie Royale des Sciences de Madrid, traduit de l'Espagnol, revu et très-augmenté; *with numerous diagrams*, 2 vols. roy. 4to. in 1, *handsomely bound in hf. pigskin, cl. sides, t. e. g.*, £1. 5s (p. F. 40 nett sewn) *Imprimerie de l'Université, Coimbre*, 1908-9
- 16061 **GOODWIN (Henry Bedingfield, Instructor R. N.)** PLANE and SPHERICAL TRIGONOMETRY, 8th Impression, *with numerous diagrams*, 8vo. *cl.*, 4s 6d (p. 8s 6d) 1907
- 16062 **GORDAN (Paul, Univ. Erlangen)** VORLESUNGEN über INVARIANTENTHEORIE, herausgegeben von GEORG KERSCHENSTEINER (Determinanten und binäre Formen), 2 vols. roy. 8vo. *cl.*, 13s (p. M. 18 sewn) Leipzig, 1885-7
 'Paul Gordan showed, with the aid of symbolic methods, that the number of distinct forms for a binary quantic is finite.'—Prof. Cajori.
- 16063 **GRACE (John Hilton; F.R.S., Fellow of Peterhouse)**, and Alfred **YOUNG**; *pr.*, *Selwyn Coll., Cantab.*: The ALGEBRA of INVARIANTS, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 8s (p. 10s nett in cl.) *Univ. Press, Cambridge*, 1903

MATHEMATICS, continued:—

- 16065 **GOUSAT** (Édouard Jean Baptiste, *de la Sorbonne*) COURS d'ANALYSE MATHÉMATIQUE; with numerous diagrams, 2 thick vols. roy. 8vo. handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (*nice copy*), £1. 1s (p. F. 40 nett sewn) 1902-5
- 16066 ——— DEUXIÈME [DERNIÈRE] ÉDITION, entièrement refondue, Tomes I—II; with diagrams, 2 vols. roy. 8vo. handsomely bound in hf. pigskin, cl. sides; uncut, t. e. g. (FINE COPY); v. I. o. p., £1. 10s 1910-11
- CONTENU:—I. Dérivées et Différentielles, Intégrales définies, Développement en Séries, Applications géométriques: II. Théorie des Fonctions analytiques, Equations différentielles, Equations aux Dérivées partielles du premier Ordre.
- 16067 ——— LEÇONS sur l'INTÉGRATION des ÉQUATIONS aux DÉRIVÉES PARTIELLES du PREMIER ORDRE, redigées par C. BOURLET, roy. 8vo. hf. maroon morocco neat, cl. sides (*nice copy*), 10s (p. F. 14 nett sewn) 1891
- 16068 ——— du SECOND ORDRE à DEUX VARIABLES INDÉPENDANTES, 2 vols. roy. 8vo. in 1, hf. maroon morocco neat, cl. sides (*nice copy*), 12s (p. F. 13 nett sewn) 1896-8
- 16069 **GRAEFÉ** (Friedrich) AUFGABEN und LEHRSÄTZE aus der ANALYTISCHEN GEOMETRIE, mit den AUFLÖSUNGEN und BEWEISEN, 4 vols. 8vo. in 2, buckram, 12s 6d (p. M. 18.20 sewn) Leipzig, 1885-90
- INHALT:—I. Punkt, gerade Linie, Kreis und Kegelschnitte: II. Flächen zweiten Grades.
- 16070 ——— VORLESUNGEN über die THEORIE de QUATERNIONEN, mit ANWENDUNG auf die allgemeine Theorie der Flächen und der Linien doppelter Krümmung, 8vo. buckram, 3s *ibidem*, 1883
- 16071 **GRAINDORGE** (Joseph, *Univ. LIÈGE*) EXERCICES de CALCUL INTÉGRAL; 2^e Édition; with folding plate (linen-mounted), 8vo. buckram, 4s LIÈGE, 1885
- 16072 **GRASSMANN** (Hermann Günther) Die AUSDEHNUNGSLEHRE von 1844, oder die LINEALE AUSDEHNUNGSLEHRE ein NEUER ZWEIG der MATHEMATIK dargestellt und durch ANWENDUNGEN auf die übrigen Zweige der Mathematik erläutert, 2. Auflage; with plate, 8vo. hf. black calf neat (*nice copy*), 5s Leipzig, 1878
- ‘His great classical work. Common to the Ausdehnungslehre and to quaternions are geometric addition, the function of two vectors represented in quaternions by $S\alpha\beta$ and $V\alpha\beta$, and the linear vector functions. The quaternion is peculiar to Hamilton [q. v.], while with Grassmann we find in addition to the algebra of vectors a geometrical algebra of wide application, in which the point is the fundamental element.’—Prof. Cajori.
- 16073 ——— Die AUSDEHNUNGSLEHRE von 1862, in Gemeinschaft mit HERMANN GRASSMANN JUN. herausgegeben von FRIEDRICH ENGEL; with 37 diagrams, large 8vo. handsomely bound in hf. black morocco, cl. sides, 12s (p. M. 16 sewn) *ibidem*, 1896
- ‘His researches on non-commutative algebras are contained in his *Ausdehnungslehre*. This work has had great influence, especially on the continent [vectorial analysis v. quaternions], where Grassmann's methods have generally been followed in preference to Sir W. R. Hamilton's'.—W. W. R. Ball.
- 16074 **GRAY** (Andrew, F.R.S., *Prof. Natural Philosophy, Glasgow*), and **George Ballard MATHEWS**, F.R.S.: TREATISE on BESSEL FUNCTIONS, and their Applications to Physics, with diagrams, 8vo. cl., 9s (p. 14s nett) 1895
- Including a special chapter on Steady Flow of Electricity or of Heat in Uniform Isotropic Media; Propagation of Electromagnetic Waves along Wires; Diffraction of Light; and at end a Bibliography.
- 16075 **GREENHILL** (Sir Alfred George, F.R.S.; *R. A. Coll., Woolwich*) DIFFERENTIAL and INTEGRAL CALCULUS, with Applications, 3rd [latest] Edition, with 62 diagrams, thick post 8vo. cl., 6s (p. 10s 6d) 1896
- ‘The chief novelties in the present work consist in carrying on the subjects of the differential and integral calculus together, and in the use of the hyperbolic functions in conjunction with the ordinary circular trigonometrical functions.’—Preface.
- 16076 **GREGORY** (Duncan Farquharson; *first editor of the Cambridge Mathematical Journal*) EXAMPLES of the PROCESS of the DIFFERENTIAL and INTEGRAL CALCULUS; 2nd [last] Edition, by WILLIAM WALTON, with 4 folding plates, 8vo. hf. calf gilt, 6s 6d Cambridge, 1846
- 16077 ——— ANOTHER COPY, hf. black morocco neat, cl. sides, t. e. g. (*nice copy*), 7s 6d
- ‘A work which produced a great change for the better in the Cambridge mathematical books. It is the first in which constant use is made of the method known by the name of the separation of the symbols of operation, and the author has enlivened its pages by occasionally introducing historical notices of the problems discussed.’—D. N. B.
- 16078 **GRIMSEHL** (E.) ANGEWANDTE POTENTIALTHEORIE in elementarer Behandlung, I. [einzig] Band; with 74 diagrams, large cr. 8vo. cl., 3s (p. M. 5) Leipzig, 1905
- 16079 **GROSS** (E. J., *Fellow of Caius*) ALGEBRA, PART II, post 8vo. cl., 4s (p. 8s 6d) 1874
- A continuation of Hamblin Smith's Algebra, Part I.
- 16080 **GROSSMANN** (Ludwig) Die MATHEMATIK im DIENSTE der NATIONALÖKONOMIE, mit Hinweis auf die Theorie und Lösung der irreductibelen transcendenten Gleichungen, mit neuen Fundamenten für die Zinsseszins- und Rentenrechnung und die Finanzwissenschaft im Allgemeinen, 12 parts in 1 vol. roy. 8vo. handsomely bound in hf. crushed black morocco, cl. sides, t. e. g., £1. 15s (p. M. 60 sewn) Wien, 1886-1900
- 16081 **GROSSMANN** (Wilhelm) VERSICHERUNGSMATHEMATIK, large cr. 8vo. cl., 3s (p. 5s) Leipzig, 1902
- 16082 **GUGLER** (Bernhard, *Technische Hochschule, Stuttgart*) LEHRBUCH der DESKRIPTIVEN GEOMETRIE, 4. [neueste] Auflage; with 23 diagrams, 8vo., with Atlas, containing 12 plates, oblong 4to.—2 vols., buckram, 4s 6d (p. M. 8 sewn) Stuttgart, 1880
- 16083 **GUICHARD** (Claude, *de la Sorbonne*) TRAITÉ de GÉOMÉTRIE; with numerous diagrams, 2 vols. 8vo. in 1, hf. black morocco neat, cl. sides (*as good as new*), 7s (p. F. 10 nett sewn) 1899-1903

MATHEMATICS, *continued*:—

- 16085 **GUNDELFINGER** (Sigmund) VORLESUNGEN aus der ANALYTISCHEN GEOMETRIE der KEGELSCHNITTE, herausgegeben von FRIEDRICH DINGELDEY, mit Anhang: Aufgaben und weitere Ausführungen; *with diagrams*, large 8vo. *handsomely bound in hf. black morocco, cl. sides (fine copy)*, 9s (p. 12 M. sewn) Leipzig, 1895
'In diesen Vorlesungen sind sämtliche Probleme vermittelt der (Staudt-Fiedler'schen) projectivischen Coordinaten behandelt.'—Prof. F. Dindeldey.
- 16086 **GÜNTHER** (Siegmund, *Technische Hochschule, München*) GESCHICHTE der MATHEMATIK, von den ältesten Zeiten bis CARTESIUS; *with 56 diagrams*, large cr. 8vo. *cl.*, 6s (p. M. 9.60) Leipzig, 1909
 ——— v. WIELEITNER, *post*.
- 16087 ——— LEHRBUCH der DETERMINANTEN-THEORIE; 2. [neueste] umgearbeitete Auflage, mit Aufgaben-Sammlung, 8vo. *buckram*, 3s (p. M. 5 sewn) Erlangen, 1877
- 16088 **HAAG** (J., *Univ. Clermont-Ferrand*) COURS COMPLET de MATHÉMATIQUES SPÉCIALES, Tome I (ALGÈBRE et ANALYSE), avec les Exercices du Tome I; *with diagrams*, 2 vols. large 8vo. in 1, *hf. purple morocco neat, cl. sides (as good as new)*, 11s (p. F. 16.50 nett sewn) 1914
- 16089 **HAAG** (Paul, *École des Ponts et Chaussées*) COURS de CALCUL DIFFÉRENTIEL et INTÉGRAL; *with numerous diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 8s (p. F. 12 nett sewn) 1893
- 16090 **HADAMARD** (Jacques, *de la Sorbonne*) LEÇONS de GÉOMÉTRIE ÉLÉMENTAIRE (Tome I 2^e Édition); *with 632 diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 11s (p. F. 16 nett sewn) 1906
- 16091 **HAGEN** (Gotthilf) GRUNDZÜGE der WAHRSCHEINLICHKEITS-RECHNUNG, 3. [letzte] umgearbeitete Auflage, mit Nachtrag: der Constanten wahrscheinliche Fehler—2 vols. large post 8vo. in 1, *red buckram*, 5s (p. M. 7.60 sewn) Berlin, 1882-4
- 16092 **HAGEN** (Johann Georg, s.j.; *Director, Specola Vaticana*) SYNOPSIS der HÖHEREN MATHEMATIK, 3 vols. roy. 4to. *hf. black morocco neat, cl. sides (nice copy)*, £1. 5s (p. M. 100 sewn) Berlin, 1891-1905
- INHALT:—Arithmetische und algebraische Analyse: II. Geometrie der algebraischen Gebilde: III. Differential- und Integralrechnung.
- 16093 **HALL** (Henry Sinclair), and S. R. KNIGHT: ELEMENTARY ALGEBRA for SCHOOLS, containing a Chapter on Graphs, with ANSWERS, 7th Edition, enlarged, *with diagrams*; *with the Solutions*, 2 vols. cr. 8vo. in 1, *handsomely bound in hf. black morocco neat, cl. sides (nice copy)*, 8s (p. 13s in cl.) 1903-2
- 16094 ——— ELEMENTARY TRIGONOMETRY, 4th [latest] Edition, enlarged, *with diagrams*, large 12mo. *buckram*, 2s 6d (p. 4s 6d) 1912
- 16095 ——— HIGHER ALGEBRA; 3rd Edition, enlarged, *with the Solutions*—2 thick vols. cr. 8vo. in 1, *hf. pigskin (worn)*, 8s (p. 18s in cl.) 1889
- 16096 ——— FOURTH [LAST] EDITION, *with Solutions* of the Examples, 2 vols. cr. 8vo. in one, *hf. pigskin neat, 10s 6d* (p. 18s) 1896-4
- 16097 **HALLER** v. Hallerstein (F. Baron) LEHRBUCH der ELEMENTAR-MATHEMATIK für die Porteepeefährnchs-Prüfung in der Preussischen Armee u.s.w., II. Teil: GEOMETRIE, 11. [neueste] Anflav von BRUNO HÜLSEN; *with numerous diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides (fine copy)*, 5s (p. M. 6.80 sewn) Berlin, 1906
- 16098 **HALSTED** (George Bruce, *Univ. Texas*) THE ELEMENTS of GEOMETRY, *with numerous diagrams*, roy. 8vo. *buckram, t. e. g. (SCARCE)*, 15s 1886
'The present work strives to present the Elements of Geometry in a way so absolutely logical and compact that they may be ready as rock-foundation for more advanced study.'—Preface.
- 16099 ——— GEOMETRIE RATIONNELLE: Traité élémentaire de la Science de l'Espace, Traduction française par PAUL BARBARIN, avec Préface de C. A. LAISANT; *with 184 diagrams*, 8vo. *buckram, t. e. g.*, 4s (p. F. 6.50 nett sewn) 1911
- 16100 ——— RATIONAL GEOMETRY: a Text-Book for the Science of Space; 2nd Edition, thoroughly revised, *with 238 diagrams*, post 8vo. *buckram*, 4s 6d (p. 7s 6d nett) New York, 1907
'The first text-book of geometry to treat proportion without any continuity assumption.'—Preface.
- 16101 ——— REPORT and SUPPLEMENTARY REPORT on PROGRESS in NON-EUCLIDEAN GEOMETRY (pp. 28+27): The LOBACHEVSKI PRIZE (pp. 32)—in 1 vol. roy. 8vo. *cl.*, 5s 1899-1904
- 16102 ——— SYNTHETIC PROJECTIVE GEOMETRY; 4th Edition, enlarged, *with diagrams*, large 8vo. *cl.*, 3s (p. 4s 6d nett) New York, 1906
- 16103 **HAMILTON** (Sir William Rowan, *Andrews Prof. Astronomy, Dublin*) ELEMENTS of QUATERNIONS; 2nd [latest] Edition [with Index], edited by CHARLES JASPER JOLY, F.C.D., Royal Astronomer of Ireland; *with diagrams*, 2 vols. cr. 4to. in 1, *handsomely bound in hf. crushed black Levant morocco, cl. sides, uncut, t. e. g. (FINE COPY)*, £1. 12s 6d (p. £2. 2s nett in cl.) 1899-1901
 Still the classical handbook on quaternions, by their inventor. 'It is founded on the same principles as the 'Lectures,' but the plan adopted is entirely new, and the present work can in no sense be considered as a second edition of that former one.'—Author's preface.
- 16104 **HANKEL** (Hermann) THEORIE der COMPLEXEN ZAHLENSYSTEME, insbesondere der gemeinen imaginären Zahlen und der HAMILTON'SCHEN QUATERNIONEN, nebst ihrer geometrischen Darstellung, 8vo. *buckram*, 3s 6d Leipzig, 1867

MATHEMATICS, continued:—

- 16106 **HAMMER** (Ernst; *Prof. Geodesy, Stuttgart*) LEHRBUCH DER EBENEN UND SPHÄRISCHEN TRIGONOMETRIE, 2. umgearbeitete Auflage; with 164 diagrams and folding table, post 8vo. handsomely bound in hf. black morocco, cl. sides, 4s 6d (p. M. 7.40 sewn) Stuttgart, 1897
- 16107 ——— DRITTE [NEUESTE] erweiterte Auflage [entitled: Lehr- und Handbuch]; with 227 diagrams, 8vo. handsomely bound in hf. black morocco, cl. sides (nice copy), 8s 6d (p. M. 10.60 sewn) *ibidem*, 1907
- 16108 **HANUS** (Paul Henry, *Univ. Colorado*) ELEMENTARY TREATISE ON THE THEORY OF DETERMINANTS, 8vo. hf. black morocco neat, cl. sides, t. e. g. (nice copies), 5s (p. 8s 6d in cl.) Boston [Mass.], 1886 or 1903
- 16109 **HARNACK** (Axel, *Polytechnikum, Dresden*) INTRODUCTION TO THE STUDY OF THE ELEMENTS OF THE DIFFERENTIAL AND INTEGRAL CALCULUS, translated [and revised, with Notes and Index by GEORGE L. CATHCART], with diagrams, large 8vo. hf. black morocco neat, cl. sides (as good as new), 6s 6d (p. 10s 6d in cl.) 1891
- 16110 **HARTNER** (Friedrich, *Technische Hochschule, Wien*), und Josef WASTLER, *Technische Hochschule, Graz*: HAND- und LEHRBUCH DER NIEDEREN GEODÄSIE; 9. Auflage, umgearbeitet und erweitert von EDUARD DOLEŽAL; with 16 folding plates (linen-mounted) and 918 text-illustrations, 2 thick vols. roy. 8vo. handsomely bound in hf. pigskin, cl. sides (fine copy), £1. 1s (p. M. 32 sewn) Wien, 1904-5
- The best German work on surveying.
- 16111 **HARTWIG** (Theodor) SCHULE DER MATHEMATIK ZUM SELBSTUNTERRICHTE; with diagrams, 3 vols. 8vo. cl., 6s 6d (p. M. 11.50) Wien, 1904-6
- 16112 **HATTON** (John Leigh Smeathman, *Principal, East London Coll.*) THE PRINCIPLES OF PROJECTIVE GEOMETRY applied to the Straight Line and Conic, with numerous diagrams, roy. 8vo. hf. black morocco neat, cl. sides (as good as new), 8s (p. 10s 6d nett in cl.) Univ. Press, Cambridge, 1913
- 16113 **HATTON** (Richard G.) PERSPECTIVE FOR ART STUDENTS, with 208 diagrams, cr. 8vo. cl., 2s 6d (p. 5s) 1903
- 16114 **HAUCK** (Guido, *Technische Hochschule, Berlin*) LEHRBUCH DER MALERISCHEN PERSPEKTIVE, mit Einschluss der Schattenkonstruktionen, nach hinterlassenen Aufzeichnungen bearbeitet von HEDWIG HAUCK; with 6 plates and numerous diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 7s 6d (p. M. 9 sewn) Berlin, 1910
- 16115 **HAYWARD** (Robert Baldwin, F.R.S.) THE ALGEBRA OF COPLANAR VECTORS AND TRIGONOMETRY, with numerous diagrams, cr. 8vo. cl., 4s 6d (p. 8s 6d) 1892
*An attempt to supply the place of the *Trigonometry and Double Algebra* of De Morgan.—Preface.
- 16116 **HEFFTER** (Lothar, *Univ. Kiel*), und Karl KOEHLER, *Univ. Heidelberg*: LEHRBUCH DER ANALYTISCHEN GEOMETRIE, I. [einziger] BAND: Geometrie in den Grundgebilden erster Stufe und in der Ebene; with 136 diagrams, 8vo. cl., 9s (p. M. 14) Leipzig, 1905
- 16117 **HEGER** (Richard, *Dresden*) ANALYTISCHE GEOMETRIE AUF DER KUGEL; with 4 diagrams, large cr. 8vo. cl., 3s (p. M. 4.40) Leipzig, 1903
- 16118 **HEIS** (Eduard, *Prof. Mathematics, Münster*) SAMMLUNG VON BEISPIELEN UND AUFGABEN AUS DER ALLGEMEINEN ARITHMETIK UND ALGEBRA, 90.-92. Auflage; mit Kommentar und Schlüssel von LUDWIG MATTHIESSEN, 3. vermehrte Auflage, 3 v.—4 vols. 8vo. red buckram, 12s (p. M. 20 sewn) Köln, 1894-83
- 16119 ———: RULAND (N.) AUSFÜHRLICHE AUFLÖSUNG DER IN ED. HEIS' 'Sammlung von Beispielen' enthaltenen Aufgaben, III. Teil: Kettenbrüche, Teilbruchreihen, Permutationen u. s. w., 2. [neueste] verbesserte Auflage; with diagrams, 8vo. buckram, 4s 6d (p. M. 6 sewn) Bonn, 1905
- 16120 ———, und Thomas Joseph ESCHWEILER: LEHRBUCH DER GEOMETRIE, Bd. II—III (STEREOMETRIE, 4. vermehrte Auflage; EBENE und SPHÄRISCHE TRIGONOMETRIE, 3. A.); with numerous diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 4s Köln, 1881-8
- Die HYPERBOLISCHEN FUNKTIONEN—v. SOHNCKE, post.
- 16121 **HELM** (Georg, *Technische Hochschule, Dresden*) DIE GRUNDLEHREN DER HÖHEREN MATHEMATIK, zum Gebrauch bei Anwendungen und Wiederholungen; with 337 diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 10s (p. M. 13.40 sewn) Leipzig, 1910
- 16122 **HELMERT** (Friedrich Robert; *Director, Prussian Geodetic Inst., Potsdam*) DIE AUSGLEICHUNGSRECHNUNG NACH DER METHODE DER KLEINSTEN QUADRATE, mit Anwendungen auf die Geodäsie, Physik und Theorie der Messinstrumente, 2. [neueste und vermehrte] Auflage, 8vo. hf. black morocco neat, cl. sides (as good as new), 11s 6d (p. M. 16 in cl.) Leipzig, 1907
- 16123 **HENRICI** (J.), und P. TREUTLEIN: LEHRBUCH DER ELEMENTAR-GEOMETRIE (Bd. I 2. Auflage); with 516 illustrations, 3 vols. 8vo. hf. maroon morocco neat, cl. sides, 4s Leipzig, 1882-91
- 16124 ——— DRITTE AUFLAGE (Bd. II und III 2. Auflage); with folding plate and 512 illustrations, 3 vols. 8vo. in 1, hf. black morocco neat, cl. sides (as good as new), 6s (p. M. 9 sewn) *ibidem*, 1897-1901
- 16125 ——— ANOTHER COPY, 3 vols. in one, buckram, 5s
- 16126 **HENSEL** (Kurt; *Prof. Mathematics, Marburg*) ZAHLENTHEORIE, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 8s 6d (p. M. 10 sewn) Berlin, 1913

MATHEMATICS, *continued*.—

- 16128 **HERMITE** (Charles, *de l'Institut*) COURS [sur les INTÉGRALES DÉFINIES] à la Faculté des Sciences de Paris, rédigé en 1882 par H. ANDOYER; 3^e Edition, revue par C. HERMITE; *neatly autographed on 266 pp., with numerous diagrams*, 4to. *cl.* (*scarce*), 8s 6d 1887
- 16129 ——— QUATRIÈME [dernière] ÉDITION; *autographed on 293 pp., with diagrams*, 4to. *buckram*, 12s 1892
- 16130 **HERZ** (Norbert) WAHRSCHEINLICHKEITS- und AUSGLEICHUNGSRECHNUNG; *with 2 folding tables*, large cr. 8vo. *cl.*, or, *buckram*, 5s (p. M. 8) Leipzig, 1900
- 16131 **HESSE** (Ludwig Otto; *Univ. Heidelberg*) VORLESUNGEN ÜBER ANALYTISCHE GEOMETRIE des RAUMES, insbesondere über Oberflächen zweiter Ordnung, 2. Auflage, 8vo. *boards* (o. p.), 6s Leipzig, 1869
- 16132 ——— ANOTHER COPY, *hf. black morocco neat, cl. sides*, 7s 6d
 *By linear substitution, he reduced a form of curves of the third degree in three variables to one of only four terms, and was led to an important determinant involving the second differential coefficient of a form of the third degree called the *Hessian* . . . Many of the most important theorems of curves of the third order are due to Hesse.—*Prof. Cajori*.
- 16133 ——— VORLESUNGEN AUS DER ANALYTISCHEN GEOMETRIE DER GERADEN LINIE, DES PUNKTES und des KREISES in der EBENE, 3 Auflage, revidiert von S. GUNDELFINGER, 8vo. *buckram*, 3s (p. M. 5.20 sewn) *ibidem*, 1881
- 16134 ——— VIÈRTE [NEUESTE] AUFLAGE, revidiert und ergänzt von S. GUNDELFINGER; *with diagrams*, 8vo. *cl.*, 4s (p. M. 6) *ibidem*, 1906
- 16135 **HESSENBERG** (Gerhard Wilhelm; *Technische Hochschule, Breslau*) GRUNDBEGRIFFE DER MENGELEHRE; *with 6 diagrams*, sq. 8vo. *buckram*, t. e. g., 5s (p. M. 7 sewn) Göttingen, 1906
- 16136 **HILBERT** (David, *Univ. Göttingen*) GRUNDLAGEN DER GEOMETRIE; *with numerous diagrams*, roy. 8vo. *buckram*, *uncut*, t. e. g., 3s [Leipzig, 1899]
 Original form of this well-known work, as published in 'Festschrift zur Feier des Gauss-Weber Denkmals.'
- 16137 **HILL** (Micaiah John Muller, F.R.S., *Astor Prof. Mathematics, London*) THE THEORY OF PROPORTION, *with 15 diagrams*, 8vo. *cl.*, 5s 6d (p. 8s 6d nett) 1914
- 16138 **HILTON** (Harold, *Prof. Mathematics, Univ. London*) HOMOGENEOUS LINEAR SUBSTITUTIONS 8vo. *cl.*, 8s (p. 12s 6d nett) Clarendon Press, Oxford, 1914
- 16139 ——— INTRODUCTION TO THE THEORY OF GROUPS OF FINITE ORDER, *with diagrams*, 8vo. *buckram*, *uncut*, t. e. g., 9s (p. 14s nett) *apud eandem, ibidem*, 1908
- 16140 **HIME** (Lieut.-Col. Henry William Lovett, R.A.) THE OUTLINES OF QUATERNIONS, *with 46 diagrams*, cr. 8vo. *cl.* (o. p.), 6s 1894
- 16141 **HIRSCH** (Meier) SAMMLUNG VON BEISPIELEN, FORMELN und AUFGABEN AUS DER BUCHSTABENRECHNUNG und ALGEBRA, 20. Auflage von H. BERTRAM, 8vo. *red buckram*, 2s 6d Altenburg, 1890
- 16142 ——— : SACHS (S.) AUFLÖSUNGEN DER IN MEIER HIRSCH, Sammlung von Beispielen u.s.w. enthaltenen Gleichungen und Aufgaben; 13. vermehrte Auflage von G. VALENTIN, 8vo. *red buckram*, 3s (p. M. 5 sewn) *ibidem*, 1892
- 16143 **HJELMSLEV** (Johannes; *Technical High School, Copenhagen*) DARSTELLEND E GEOMETRIE; *with 315 illustrations*, post 8vo. *cl.*, or, *buckram*, 4s (p. M. 5.40) Leipzig, 1914
- 16144 **HOBSON** (Ernest William, F.R.S., *Sadlerian Prof. Pure Mathematics, Cantab.*) 'SQUARING THE CIRCLE': a History of the Problem, *with diagrams*, large 8vo. *cl.*, 2s. (p. 3s nett) *Univ. Press, Cambridge*, 1913
- 16145 ——— THE THEORY OF FUNCTIONS OF A REAL VARIABLE and the THEORY OF FOURIER'S SERIES, *with diagrams*, roy. 8vo. (pp. 788), *handsomely bound in hf. black morocco, cl. sides*, t. e. g. (as good as new), 16s 6d (p. £1. 1s nett in cl.) *apud eandem, ibidem*, 1907
- 16146 ——— TREATISE ON PLANE TRIGONOMETRY, 2nd Edition, *with diagrams*, 8vo. *buckram*, *uncut*, t. e. g., 5s (p. 12s) a. e., *ib.*, 1897
- 16147 ——— THIRD [LATEST] EDITION [enlarged], *with diagrams*, 8vo. *hf. black morocco neat, cl. sides* (as good as new), 8s 6d (p. 12s in cl.) a. e., *ib.*, 1911
- 16148 **HOCHHEIM** (Adolf) AUFGABEN AUS DER ANALYTISCHEN GEOMETRIE DER EBENE (Bd. I—II 2. Auflage), 6 parts 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 7s 6d (p. M. 13 sewn) Leipzig, 1886-99
- 16149 **HOFFMANN** (Ludwig), und L. NATANI: MATHEMATISCHES WÖRTERBUCH: alphabetische Zusammenstellung sämtlicher in die mathematischen Wissenschaften gehörender Gegenstände in erklärenden und beweisenden synthetisch und analytisch bearbeiteten Abhandlungen; *with many hundred illustrations*, 7 vols. 8vo. *hf. cl.* (NICE SET), £2. 2s Berlin, 1858-67
- 16150 **HOFMANN** (Fritz) METHODIK DER STEIGEN DEFORMATION VON ZWEI BLÄTTRIGEN RIEMANN'SCHEN FLÄCHEN; *with 76 illustrations*, 8vo. *buckram*, 2s Halle, 1888
- 16151 **HOLZINGER** (F. S.) LEHRBUCH DER POLITISCHEN ARITHMETIK, 2. unveränderte Auflage, post 8vo. *hf. cl.*, 2s 6d Braunschweig, 1898
 Not the art of imagining a majority, but insurance mathematics, lottery calculations, etc. etc.
- 16152 **HORN** (Jakob; *Darmstadt*) GEWÖHNLICHE DIFFERENTIALGLEICHUNGEN beliebiger Ordnung, large cr. 8vo. *cl.*, 6s 6d (p. M. 10) Leipzig, 1905
- 16153 ——— EINFÜHRUNG IN DIE THEORIE DER PARTIELLEN DIFFERENTIALGLEICHUNGEN, large cr. 8vo. *cl.*, 6s 6d (p. M. 10) *ibidem*, 1911

MATHEMATICS, *continued*.—

- 16155 **HOLZMÜLLER (Gustav)** EINFÜHRUNG in das STEREOMETRISCHE ZEICHNEN, mit Berücksichtigung der Krystallographie und Kartographie; *with 16 plates*, roy. 8vo. boards, 3s (p. M. 4.40) *Leipzig, 1886*
- 16156 ——— ANOTHER COPY, *with the plates linen-mounted; hf. black morocco neat, cl. sides (as good as new)*, 4s
- 16157 ——— EINFÜHRUNG in die THEORIE der ISOGONALEN VERWANDTSCHAFTEN und der CONFORMEN ABBILDUNGEN, verbunden mit Anwendungen auf mathematische Physik; *with 26 folding plates*, 8vo. handsomely bound in *hf. black morocco neat, cl. sides (as good as new)*; SCARCE, 12s 6d *ibidem, 1882*
- 16158 ——— ELEMENTE der STEREOMETRIE; *with 653 illustrations, including 2 folding plates (linen-mounted)*, 4 vols. large post 8vo. in 2, handsomely bound in *hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 5s (p. M. 34 sewn) *ib.*, 1900-2
- INHALT:—I. Lehrsätze und Konstruktionen: II. Berechnung einfach gestalteter Körper: III—IV. Untersuchung und Konstruktion schwieriger Raumgebilde.
- 16159 ——— Die INGENIEUR-MATHEMATIK in elementarer Behandlung; *with 524 illustrations*, 2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides, 8s 6d* (p. M. 11 sewn) *ib.*, 1897-8
- Vol. II has as sub-title: Das Potential und seine Anwendung.
- 16160 ——— METHODISCHES LEHRBUCH der ELEMENTAR-MATHEMATIK (Bd. I 3. Auflage); *with 512 illustrations*, 3 vols. 8vo. *cl.*, 4s (p. M. 8.20) *ib.*, 1898-4-5
- 16161 ——— NEUESTE AUFLAGE (Bd. I 4. und Bd. II—III 2. A.); *with 625 illustrations*, 3 vols. 8vo. buckram (partly o. p.), 8s *ib.*, 1904-1897-1903
- 16162 ——— VOLLSTÄNDIGE DURCHFÜHRUNG einer ISOGONALEN VERWANDTSCHAFT, die durch eine gebrochene Function zweiten Grades repräsentirt wird; *with 4 folding plates*, 8vo. (pp. 32), *cl. (scarce)*, 3s *ib.*, 1881
- 16163 **HOÜEL (Jules; Univ. Bordeaux)** COURS de CALCUL INFINITÉSIMAL; *with diagrams*, 4 vols. large 8vo. *hf. calf*, £1. 10s (p. F. 50 nett sewn) 1878-81
- 16164 ——— ESSAI CRITIQUE sur les PRINCIPES FONDAMENTAUX de la GÉOMÉTRIE ÉLÉMENTAIRE, ou Commentaire sur les XXXII premières Propositions des Éléments d'EUCLIDE; *with diagrams*, 8vo. *cl.*, 2s 1867
- 16165 ——— RECUEIL de FORMULES et de TABLES NUMÉRIQUES, 2^e Édition, roy. 8vo. *cl.*, 3s 1868
- 16166 **HOUSEL (Charles)** INTRODUCTION à la GÉOMÉTRIE SUPÉRIEURE; *with 8 folding plates*, 8vo. buckram (scarce), 6s 6d 1865
- 16167 ——— ANOTHER COPY, *hf. maroon morocco neat (nice copy)*, 7s 6d
- 16168 **HUDSON (Ronald William Henry Turnbull)** KUMMER'S QUARTIC SURFACE, *with frontispiece and diagrams*, 8vo. *cl.*, 5s 6d (p. Ss nett) *Univ. Press, Cambridge, 1905*
- The author had a brilliant mathematical career and became a Fellow of St. John's Coll., Cantab., but was killed in rock-climbing in Wales in his 29th year in 1904.
- 16169 **HUEBNER (L.)** EBENE und RÄUMLICHE GEOMETRIE des MASSES in organischer Verbindung mit der Lehre von den Kreis- und Hyperbelfunktionen neu dargestellt, 2. [neueste] Ausgabe; *with 53 diagrams*, 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, 3s 6d *Leipzig, 1895*
- 16170 **HULME (Frederick Edward, F.S.A.)** MATHEMATICAL DRAWING INSTRUMENTS, and how to use them; 6th Edition, *with 10 plates*, post 8vo. *cl. (o. p.)*, 2s 6d 1895
- 16171 **HUNÄUS (Georg Christian Konrad; Technische Hochschule, Hannover)** Die GEOMETRISCHEN INSTRUMENTE der gesammten praktischen Geometrie, deren Gebrauch und Beschreibung; *with 290 woodcuts, including folding plates*, 8vo. (pp. 690), *hf. bound*, 5s *Hannover, 1864*
- 16172 ——— LEHRBUCH der PRAKTISCHEN GEOMETRIE, 2. [neueste] umgearbeitete Auflage; *with 211 woodcuts*, 8vo. *hf. morocco neat*, 3s 6d *Leipzig, 1882*
- 16173 **HUNTINGTON (Edward Vermilye; Harvard Univ.)** Über die GRUND-OPERATIONEN an ABSOLUTEN und COMPLEXEN GRÖSSEN in geometrischer Behandlung, 8vo. buckram, *t. e. g.*, 1s 6d *Braunschweig, 1901*
- 16174 **HYDE (Edward Wyllys, actuary; Univ. Cincinnati)** GRASSMANN'S SPACE ANALYSIS, 4th Edition, *with diagrams*, 8vo. *cl.*, 3s (p. 4s 6d nett) *New York, 1906*
- 16175 **IGNATOWSKY (W. v., Univ. Giessen)** Die VEKTORANALYSIS und ihre Anwendung in der theoretischen Physik; *with 41 diagrams*, 2 vols. large post 8vo. sewn, 5s (p. M. 8.60) *Leipzig, 1909-10*
- 16176 **ISSALY (Abbé Pierre Adolphe)** PRINCIPES FONDAMENTAUX de la THÉORIE des PSEUDO-SURFACES; *with diagrams*: La GÉOMÉTRIE NON-EUCLIDIENNE et l'INSUFFISANCE des ses PRINCIPES: Mémoire faisant Suite aux 'Principes fondamentaux'—2 vols. roy. 8vo. in 1, buckram, uncut, *t. e. g.*, 4s 6d (p. F. 7 nett sewn) 1902
- One of the few attacks on Non-Euclidean geometry.
- 16177 **JABLONSKI (E.)** COMPLÉMENTS d'ALGÈBRE, suivis de nombreux Exercices; *with 44 diagrams*: THÉORIE des ÉQUATIONS: Suite aux Compléments d'Algèbre—2 vols. large 8vo. in 1, handsomely bound in *hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)* 9s (p. F. 14 nett sewn) [1888-91]

MATHEMATICS, continued:—

- 16179 **JACKSON (J. Stuart, Caius Coll.)** GEOMETRICAL CONIC SECTIONS: an Elementary Treatise in which the Conic Sections are defined as the Plane Sections of a Cone, and treated by the Method of Projections, *with diagrams*, cr. 8vo. *cl. (o. p.)*, 3s 1872
- 16180 **JACQUIER (Edme)** APPLICATION de la GÉOMÉTRIE à la SCIENCE des NOMBRES: Interprétation des Théorèmes et des Discussions de l'Algèbre élémentaire au Moyen de la Géométrie des Courbes; *with diagrams*, large post 8vo. *buckram, t. e. g.*, 3s 1888
- 16181 **JAHNKE (Eugen, Bergakademie, Berlin), und Fritz EMDE:** FUNKTIONENTAFELN mit Formeln und Kurven; *with 53 diagrams*, roy. 8vo. *cl.*, 4s (p. M. 6) Leipzig, 1909
- 16182 **JANSON-DURVILLE (E., sous-Chef au Ministère des Finances)** COURS de MATHÉMATIQUES appliquées aux OPÉRATIONS FINANCIÈRES, roy. 8vo. *hf. brown morocco neat (SCARCE)*, 12s 1887
 *Bien que je me sois placé à un point de vue absolument pratique, j'ai voulu que toutes les formules employées fussent démontrées avant leurs applications.—*Preface.*
- 16183 **JAVARY (A.)** TRAITÉ de GÉOMÉTRIE DESCRIPTIVE, 4^e Édition; *with numerous folding plates and diagrams*, 2 vols. 8vo. *red buckram*, 10s 6d (p. F. 17 nett sewn) 1893
- 16184 ——— PROJECTIONS COTÉES et SURFACES TOPOGRAPHIQUES; *with 54 illustrations*, roy. 8vo. *cl.*, *uncut*, 1s 6d [1903]
 A supplement to the above work.
- 16185 **JOACHIMSTHAL (Ferdinand, Univ. Breslau)** ANWENDUNG der DIFFERENTIAL- und INTEGRALRECHNUNG auf die allgemeine Theorie der FLÄCHEN und der LINIEN DOPPELTER KRÜMMUNG; 2. [letzte] Auflage von L. NATANI; *illustrated*, 8vo. *hf. cl. (o. p.)*, 4s (p. M. 6 sewn) Leipzig, 1881
- 16186 **JOHNSON (W. E., King's Coll., Cantab.)** TREATISE on TRIGONOMETRY, *with diagrams*, cr. 8vo. *cl.*, 4s (p. 8s 6d) 1889
 With final chapter on the interpretation of $\sqrt{-1}$, as an introduction to the study of quaternions.
- 16187 **JOHNSON (William Woolsey, Prof. Mathematics, U. S. N. Academy)** CURVE TRACING in CARTESIAN COORDINATES, *with diagrams*, post 8vo. *cl.*, 2s 6d (p. 4s 6d nett) New York, 1895
- 16188 ——— The THEORY of ERRORS and METHOD of LEAST SQUARES, *with diagrams*, cr. 8vo. *buckram*, 4s (p. 6s 6d nett) *ibidem*, 1912
- 16189 ——— TREATISE on ORDINARY and PARTIAL DIFFERENTIAL EQUATIONS, 3rd [latest] Edition, large cr. 8vo. *buckram*, 10s (p. 15s nett) *ib.*, 1910
 Containing a development of the theta functions.
 *A geometrical theory of singular solutions [of differential equations] resembling the one used by Cayley was previously employed by W. W. Johnson.—*Prof. Cajori.*
- 16190 **JOLY (Charles Jasper, F.R.S., Royal Astronomer of Ireland)** MANUAL of QUATERNIONS, *with diagrams*, 8vo. *cl.*, 7s (p. 10s nett) 1905
 *Although this book may be regarded as introductory to the works of Hamilton [*q. v. ante*], it may also to some extent be considered as supplementing them.—*Preface.*
- 16191 **JORDAN (Camille, de l'Institut)** COURS d'ANALYSE de l'ÉCOLE POLYTECHNIQUE; 2^e Édition, entièrement refondue; *with diagrams*, 3 thick vols. 8vo. *handsomely bound in hf. maroon morocco, cl. sides, uncut, t. e. g. (as good as new)*, £1. 10s (p. F. 49 nett sewn) 1893-6
- 16192 ——— TOME III^e: ÉQUATIONS DIFFÉRENTIELLES; *with diagrams*, 8vo. *hf. maroon morocco neat, cl. sides, uncut, t. e. g.*, 6s 6d (p. F. 17 nett sewn) 1887
- 16193 ——— TRAITÉ des SUBSTITUTIONS et des ÉQUATIONS ALGÈBRIQUES, 4to. *handsomely bound in hf. crushed maroon morocco, cl. sides, uncut, t. e. g. (FINE COPY); VERY SCARCE*, £3. 17s 6d 1870
 A classic on the theory of substitutions, which was created by E. GALOIS.
- 16194 ———, et Raymond FIEDLER: CONTRIBUTION à l'ÉTUDE des COURBES CONVEXES FERMÉES et de certaines Courbes qui s'y rattachent; *with diagrams*, large 8vo. *buckram*, 2s 6d 1912
- 16195 **JOUFFRET (Esprit; Lieut.-Col. d'Artillerie)** MÉLANGES de GÉOMÉTRIE à QUATRE DIMENSIONS; *with 49 illustrations*, roy. 8vo. *buckram, t. e. g.*, 4s 6d (p. F. 7.50 nett sewn) 1906
- 16196 ——— TRAITÉ ÉLÉMENTAIRE de GÉOMÉTRIE à QUATRE DIMENSIONS, et Introduction à la Géométrie à *n* Dimensions; *with 65 illustrations*, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 5s 6d (p. F. 7.50 nett sewn) 1903
- 16197 **JUBÉ (Eugène)** EXERCICES de GÉOMÉTRIE ANALYTIQUE; *with 11 folding plates*, 8vo. *buckram*, 3s 1866
- 16198 **JURISCH (Étienne)** QUESTIONS de GÉOMÉTRIE DESCRIPTIVE; *with diagrams and numerous folding plates*, 8vo. *cl.*, *uncut*, 5s (p. F. 9.50 nett sewn) 1883
- 16199 **KAISER (H.)** EINFÜHRUNG in die NEUERE ANALYTISCHE und SYNTHETISCHE GEOMETRIE; *with 3 plates, and 83 woodcuts*, 8vo. *boards*, 2s 6d (p. M. 6.70) Wiesbaden, 1887
- 16200 **KARAGIANNIDES (A.)** Die NICHT-EUKLIDISCHE GEOMETRIE vom Alterthum bis zur Gegenwart: eine historische-kritische Studie, large post 8vo. (pp. 44), *cl. (scarce)*, 3s Berlin, 1893
- 16201 **KARUP (W.)** HANDBUCH der LEBENSVERSICHERUNG, 2. [neueste] Ausgabe [herausgegeben von JOHANN KARUP], 8vo. *hf. maroon morocco neat, cl. sides, uncut, t. e. g. (as good as new)*, 6s 6d (p. M. 9 sewn) Leipzig, 1885
- 16202 **KEMPE (Sir Alfred Bray, F.R.S.; Chancellor of the Diocese of London)** MEMOIR on the THEORY of MATHEMATICAL FORM [Phil. Trans.], *with 72 diagrams*, 4to. (pp. 70), *cl.*, 4s 1886

MATHEMATICS, continued:—

- 16204 **KELLAND** (Philip, *pr.*, F.R.S., *Prof. Math., Univ. Edin.*), and Peter Guthrie TAIT; F.R.S.E.: INTRODUCTION to QUATERNIONS, with numerous Examples, diagrams, post 8vo. buckram, 2s 6d (p. 7s 6d) 1873
- 16205 ——— THIRD [LAST] EDITION, prepared by CARGILL GILSTON KNOTT, with diagrams, post 8vo. buckram, 4s 6d 1904
The author, who was a member of Queens' Coll., Cantab., Senior Wrangler in 1834, and the teacher of James Clerk Maxwell, was the first Englishman with a wholly English education who was admitted to a chair in the University of Edinburgh, and was one of the founders of the Life Association of Scotland.
- 16206 **KLÉS** (J.) TRAITÉ ÉLÉMENTAIRE de GÉOMÉTRIE DESCRIPTIVE, DERNIÈRE ÉDITION (I 8^e et II 5^e), 2 v.; with ATLASES, containing 81 plates, 2 v.—4 vols. 8vo. red buckram (*nice copy*; v. II o. p.), 12s 6d 1881-2
- 16207 **KIEPERT** (Ludwig; *Prof. Mathematics, Hannover*) GRUNDRISS der DIFFERENTIAL- und INTEGRAL-RECHNUNG, 9. (Bd. II 8.) vollständig umgearbeitete Auflage von MAX STEGEMANN; with 314 diagrams, 2 vols. 8vo. handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (*fine copy*), 12s 6d (p. M. 24 sewn) Hannover, 1901-3
- 16208 **KILLING** (Wilhelm; *Prof. Mathematics, Münster*) EINFÜHRUNG in die GRUNDLAGEN der GEOMETRIE; with 48 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 10s 6d (p. M. 14 sewn) Paderborn, 1893-8
- 16209 ——— LEHRBUCH der ANALYTISCHEN GEOMETRIE in homogenen Koordinaten; with 50 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides (*fine copy*), 8s (p. M. 9.60 sewn) *ibidem*, 1900-1
- 16210 ——— Die NICHT-EUKLIDISCHEN RAUMFORMEN in analytischer Behandlung; with folding plate, 8vo. red buckram, 4s 6d (p. M. 6.80 sewn) Leipzig, 1885
- 16211 **KING** (Willford I., *Univ. Wisconsin*) The ELEMENTS of STATISTICAL METHOD, with 26 diagrams, post 8vo. cl., 4s (p. 6s 6d nett) New York, 1912
- 16212 **KLEIN** (Christian Felix; *Prof. Mathematics, Göttingen*; F.R.S.) ANWENDUNG der DIFFERENTIAL- und INTEGRALRECHNUNG auf die GEOMETRIE: eine Revision der Prinzipien: Vorlesung, 1901, ausgearbeitet von CONRAD MÜLLER; neatly autographed on 484 pp., with numerous illustrations, cr. 4to. buckram, 7s 6d (p. M. 10 sewn) Leipzig, 1907
- 16213 ——— ELEMENTARMATHEMATIK vom HÖHEREN STANDPUNKTE aus: Vorlesungen, 1907-8, ausgearbeitet von E. HELLINGER (Bd. I 2. Auflage); neatly autographed on 1129 pp., with numerous illustrations, 2 vols. cr. 4to. in one, hf. black morocco neat, cl. sides (*nice copy*), 11s (p. M. 15 sewn) *ibidem*, 1911-9
- 16214 ——— NICHT-EUKLIDISCHE GEOMETRIE: Vorlesungen, 1889-90, ausgearbeitet von FR. SCHILLING; neatly autographed on 603 pp., with numerous illustrations, 2 vols. cr. 4to. in one, hf. German morocco (*scarce*), 14s Göttingen, 1893
- 16215 ——— VORLESUNGEN über das IKOSAEDER und die Auflösung von Gleichungen vom fünften Grade; original impression, with folding plate, roy. 8vo. red buckram, 6s 6d (p. M. 8 sewn) Leipzig, 1884
- 16216 ——— VORTRÄGE über AUSGEWÄHLTE FRAGEN der ELEMENTARGEOMETRIE, ausgearbeitet von F. TÄGERT; with 2 folding plates and 10 diagrams, 8vo. red buckram (*scarce*), 6s *ibidem*, 1895

A SOUND LIBRARY SET:

- 16217 **KLEYER** (Adolph) MATHEMATISCH - TECHNISCH - NATURWISSENSCHAFTLICHE ENCYKLOPÄDIE, enthaltend die sämtlichen DEFINITIONEN, LEHRSATZE, FORMELN, REGELN u.s.w., sowie die denkbar mannigfaltigsten gelösten und analogen ungelösten Beispiele und praktischen Aufgaben, in den sämtlichen Zweigen der Rechenkunst, der niederen, höheren und angewandten Mathematik; with many thousand illustrations, 83 vols. sq. 8vo. in 65, strongly and uniformly bound in red buckram, £12. (p. M. 458.50 sewn) Stuttgart, 1883—Bremerhaven, 1909

INHALT:—Akustik, 4 v.; Apollonisches Berührungsproblem: Astronomie: Ausgleichsrechnung: Bewegung flüssiger Körper, 3 v.; Determinanten: Differentialrechnung, 3 v.; Dynamik fester Körper: Elastizität und Festigkeit: Elektrodynamik: Elektromagnetismus: Elementargeometrie (Ebene), 8 v.: — (Räumliche): Funktionenlehre: Geometrie der Ebene (Analytische), 2 v.: — (Projektivische), 3 v.; Geschichte der Geometrie: Gleichungen des 1., 2., 3. und 4. Grades mit einer und mehreren Unbekannten, 5 v.: — (Unbestimmte) des 1. Grades: Goniometrie: Grundrechnungsarten, 3 v.: — mit Buchstabengrößen, 2 v.; Induktionselektrizität: Integralrechnung, 2 v.; Kartographie, 3 v.; Kombinatorik: Konstruktionsaufgaben (Planimetrische), 3 v.; Kontaktelektrizität: Körperberechnungen, 2 v.; Logarithmen: Logarithmentafeln: Magnetismus und Erdmagnetismus: Masse und Dimensionen (Absolute): Nautik: Physik: Potenzialtheorie: Potenzen und Wurzeln: Progressionen (Arithmetische und geometrische): Projektionszeichnen, 4 v.; Prozent- und Zinsrechnung: Reibungselektrizität: Schluss- und Kettenrechnung: Statik fester und flüssiger Körper, 2 v.; Trigonometrie (Ebene und sphärische), 2 v.: Vermessungskunde: Wahrscheinlichkeitsrechnung: Zahlen (Imaginäre und komplexe): Zinseszins und Rentenrechnung.

This is an all but complete set, including all the volumes now out of print, and only lacking Experimentalchemie, 2 v., Spezifisches Gewicht, and Perkussion fester Körper.

- 16218 ——— LEHRBUCH der ARITHMETISCHEN und GEOMETRISCHEN PROGRESSIONEN der zusammengesetzten, harmonischen, Ketten- und Teilbruchreihen, nebst Aufgaben, large 8vo. buckram, 2s 6d (p. M. 4 sewn) Bremerhaven, 1884

MATHEMATICS, continued:—

- 16220 **KLEYER (Adolph)** LEHRBUCH der GLEICHUNGEN des 17TEN GRADES mit EINER UNBEKANNTEN : **PRANGE (Otto)** LEHRBUCH der GLEICHUNGEN des 17TEN GRADES mit MEHREREN UNBEKANNTEN : **SCHÜLER (W. Fr.)** LEHRBUCH der UNBESTIMMTEN GLEICHUNGEN des ERSTEN GRADES (DIOPHANTISCHE GLEICHUNGEN), I. [einziges] Buch—3 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides*, 11s 6d (p. M. 19.50) *Bremerhaven*, [1886-91]
- 16221 ——— LEHRBUCH der GONIOMETRIE (Winkelmessungslehre), mit Sammlung von Aufgaben; *with diagrams*, roy. 8vo. *buckram*, 4s (p. M. 7 sewn) *ibidem* [1886]
- 16222 ——— LEHRBUCH der KÖRPERBERECHNUNGEN, mit Aufgaben (Bd. I. 2. Auflage); *with diagrams*, 2 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (v. I o. p.)*, 9s (p. M. 13 sewn) *ib.* [1886]
- 16223 ——— LEHRBUCH der POTENZEN und WURZELN, nebst Sammlung von Beispielen, large 8vo. *buckram (o. p.)*, 4s (p. M. 6 sewn) *ib.* [1883]
- 16224 ——— LEHRBUCH der EBENEN TRIGONOMETRIE, mit Aufgaben und Formelnverzeichnis; *with numerous illustrations*, large 8vo. *handsomely bound in hf. black morocco, cl. sides (o. p.)*, 12s (p. M. 18 sewn) *ib.* [1887]
- LEHRBUCH der ZINSESZINS- und RENTENRECHNUNG—v. **OLBRICHT**, *post.*
- 16225 ———, und **August HAAS**: LEHRBUCH der DIFFERENTIALRECHNUNG, nebst Sammlung gelöster Aufgaben; *with numerous diagrams*, 3 vols. sq. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 12s (p. M. 20 sewn) *ib.* [1888-94]
- 16226 ——— ANOTHER COPY, 3 vols. in 1, *handsomely bound in hf. black morocco, cl. sides*, 12s 6d
- 16227 ——— LEHRBUCH der INTEGRALRECHNUNG, nebst Sammlung gelöster Aufgaben; *with numerous diagrams*, 2 v.: EINFÜHRUNG in die FUNKTIONENTHEORIE von W. LASKA; *with diagrams*—3 vols. sq. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 12s (p. M. 20.50 sewn) *ibidem* [1889-99]
- 16228 ——— ANOTHER COPY, 3 vols. in 1, *handsomely bound in hf. black morocco, cl. sides*, 12s 6d
- 16229 ———, und **J. SACHS**: LEHRBUCH der EBENEN ELEMENTAR-GEOMETRIE (PLANIMETRIE), nebst Sammlung gelöster Aufgaben; *with numerous diagrams, and large folding table (linen-mounted)*, 8 vols. large 8vo. in 2, *handsomely bound in hf. black morocco, cl. sides*, £1. 1s (p. M. 37 sewn) *ib.* [1888-97]
- 16230 **KLÜGEL (Georg Simon; Univ. Halle)** MATHEMATISCHES WÖRTERBUCH oder Erklärung der Begriffe, Lehrsätze, Aufgaben und Methoden der Mathematik, mit den nöthigen Beweisen und literarischen Nachrichten, in alphabetischer Ordnung, mit Supplement von **JOHANN AUGUST GRUNERT**; *with numerous folding plates*, 7 thick vols. 8vo. *contemporary sheep*, 15s *Leipzig*, 1803-36
- 16231 **KNESER (Adolf; Prof. Mathematics, Berlin)** Die INTEGRALGLEICHUNGEN und ihre Anwendungen in der MATHEMATISCHEN PHYSIK: Vorlesungen, 8vo. *buckram, t. e. g.*, 4s 6d (p. M. 6 sewn) *Braunschweig*, 1911
- 16232 ——— LEHRBUCH der VARIATIONSRECHNUNG; *with 24 diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 6s 6d (p. M. 8 sewn) *ibidem*, 1900
 'Seit mehr als 30 Jahren ist in Deutschland und Frankreich kein Buch über die Variationsrechnung erschienen.'—*Vorwort.*
- 16233 **KNOBLAUCH (Carl Friedrich Hermann Reinhold Johannes, Univ. Berlin)** EINLEITUNG in die ALLGEMEINE THEORIE der KRUMMEN FLÄCHEN; *with diagrams*, roy. 8vo. *buckram*, 5s (p. M. 8 sewn) *Leipzig*, 1888
- 16234 **KOESTLER (W.)**, und **M. TRAMER**: DIFFERENTIAL- und INTEGRALRECHNUNG (Infinitesimalrechnung) für INGENIEURE, insbesondere auch zum Selbststudium, I. Teil (soweit bisher erschienen): GRUNDLAGEN; *with 2 folding plates and 221 diagrams*, 8vo. *hf. black morocco neat, cl. sides (nice copy)*, 10s (p. M. 13 sewn) *Berlin*, 1913
- 16235 **KOHLER (J.)** EXERCICES de GÉOMÉTRIE ANALYTIQUE et de GÉOMÉTRIE SUPÉRIEURE: QUESTIONS et SOLUTIONS; *with diagrams*, 2 vols. 8vo. *hf. maroon morocco neat, cl. sides (as good as new)*, 12s 6d (p. F. 18 nett sewn) 1886-8
- 16236 **KOHLRAUSCH (F. L., K. Telegraphen-Versuchsam, Berlin)** EINFÜHRUNG in die DIFFERENTIAL- und INTEGRALRECHNUNG, nebst DIFFERENTIALGLEICHUNGEN; *with 100 diagrams*, 8vo. *buckram, t. e. g.*, 4s 6d (p. M. 6 sewn) *Berlin*, 1907
- 16237 **KOMMERELL (V. und K.)** ALLGEMEINE THEORIE der RAUMKURVEN und FLÄCHEN; *with 36 diagrams*, 2 vols. large 8vo. *cl.*, 6s 6d (p. M. 10.60) *Leipzig*, 1903
- 16238 ——— SPEZIELLE FLÄCHEN und THEORIE der STRAHLENSYSTEME; *with 9 diagrams*, large cr. 8vo. *cl.*, 3s (p. M. 4.80) *ibidem*, 1911
- 16239 **KÖNIG (Gyula; Budapest)** EINLEITUNG in die ALLGEMEINE THEORIE der ALGEBRAISCHEN GRÖßEN, aus dem Ungarischen übertragen vom Verfasser, 8vo. *handsomely bound in hf. black morocco, cl. sides (fine copy)*, 13s (p. M. 18 sewn) *Leipzig*, 1903
- 16240 ——— NEUE GRUNDLAGEN der LOGIK, ARITHMETIK und MENGENLEHRE; *with portrait*, 8vo. *buckram, uncut, t. e. g.*, 6s (p. M. 8 sewn) *ibidem*, 1914

MATHEMATICS, *continued*.—

- 16242 **KÖNIGS** (Gabriel Paul Xavier, *de la Sorbonne*) La GÉOMÉTRIE RÉGLÉE et ses Applications: Coordonnées, Systèmes Linéaires, Propriétés infinitésimales du premier Ordre, 4to. *buckram, uncut, t. e. g.*, 4s 1895
- 16243 ——— LEÇONS de l'AGRÉGATION CLASSIQUE de MATHÉMATIQUES; *neatly autographed on 208 pp.*, 4to. *buckram, 6s 6d* (p. F. 10 nett sewn) 1892
- 16244 **KÖTTER** (Ernst, *Technische Hochschule, Aachen*) Die ENTWICKELUNG der SYNTHETISCHEN GEOMETRIE von MONGE bis auf STAUDT (1847), 8vo. *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 14s (p. M. 18.80 sewn) Leipzig, 1901
Being Jahresbericht der Deutschen Mathematiker-Vereinigung, Band V, Heft 2.
- 16245 **KOWALEWSKI** (Gerhard; *Prof. Mathematics, Prague*) EINFÜHRUNG in die DETERMINANTENTHEORIE, einschliesslich der unendlichen und der Fredholmschen Determinanten, 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 12s (p. M. 15 sewn) Leipzig, 1909
- 16246 ——— Die KOMPLEXEN VERÄNDERLICHEN und ihre FUNKTIONEN: Fortsetzung der Grundzüge der Differential- und Integralrechnung, zugleich eine Einführung in die Funktionentheorie; *with 124 diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 9s (p. M. 12 sewn) *ibidem*, 1911
- 16247 **KRAFT** (Ferdinand, *Univ. Zürich*) ABRISS des GEOMETRISCHEN KALKÜLS, nach den Werken von HERMANN GÜNTHER GRASSMANN bearbeitet; *with diagrams*, 8vo. *red buckram, 4s 6d* (p. M. 6 sewn) Leipzig, 1893
- 16248 **KRIES** (Johannes v., *Univ. Freiburg i. B.*) Die PRINZIPIEN der WAHRSCHEINLICHKEITSRECHNUNG: eine logische Untersuchung, 8vo. *buckram, 3s 6d* (p. M. 6 sewn) Freiburg i. B., 1886
- 16249 **KRÜGER** (Richard) LEHRBUCH des RECHNENS mit IMAGINÄREN und KOMPLEXEN ZAHLEN, nebst Sammlung von Aufgaben; *with diagrams*, large 8vo. *buckram, 3s* (p. M. 5 sewn) Bremerhaven [1891]
- 16250 **LACHLAN** (R., *Trinity Coll., Cantab.*) ELEMENTARY TREATISE on MODERN PURE GEOMETRY, *with numerous diagrams*, 8vo. *buckram, 4s* (p. 9s) 1893
- 16251 **LACROIX** (Sylvestre François; *de l'Institut*) COMPLÉMENT des ÉLÉMENTS d'ALGÈBRE, 7^e [dernière] Édition, 8vo. *hf. maroon morocco neat (nice copy)*, 3s 1863
- 16252 ——— TRAITÉ ÉLÉMENTAIRE de CALCUL DIFFÉRENTIEL et INTÉGRAL, 7^e Édition, revue et augmentée de Notes par C. HERMITE et J. A. SERRET; *with 5 folding plates*, 2 vols. 8vo. *hf. French morocco neat (nice copy)*, 7s 6d (p. F. 15 nett unbound) 1867
The final edition.
- 16253 ——— TRAITÉ ÉLÉMENTAIRE du CALCUL des PROBABILITÉS, 4^e Édition; *with plate*, 8vo. *buckram, 2s 6d* 1864
- 16254 ——— ANOTHER COPY, *hf. maroon morocco neat (nice copy)*, 3s
- 16255 **LA GOURNERIE** (Jules de) TRAITÉ de GÉOMÉTRIE DESCRIPTIVE (Parties I et III 3^e et II 2^e Édition), 3 vols.: Atlas; *with 156 plates*, 3 vols.—6 vols. 4to. in 1, *handsomely bound in hf. crushed purple morocco, cl. sides, t. e. g. (as good as new)*, £1. (p. F. 30 nett sewn) 1880-1901
A well-known classic on the subject.
- 16256 **LAISANT** (Charles Ange) RECUEIL de PROBLÈMES de MATHÉMATIQUES, Tomes I—III et V—VI, 5 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (fine copy)*, 12s (p. F. 19 nett sewn) 1893-6
CONTENU:—I. Arithmétique. Algèbre élémentaire. Trigonométrie: II. Géométrie et Géométrie descriptive: III. Algèbre. Théorie des Nombres. Probabilités. Géométrie de Situation: V. Géométrie analytique à trois Dimensions: VI. Géométrie du Triangle.
- 16257 **LALANDE** (Joseph Jérôme Le François de; *de l'Institut, F.R.S.*) TABLES de LOGARITHMES [à 5 Décimales] pour les Nombres et pour les Sinus, avec Formules pour la Résolution des Triangles, par M. BAILLEUL, 18mo. *polished purple calf (nice copy)*, 3s 1876
- 16258 ———, étendues à 7 DÉCIMALES par F. C. M. MARIE, avec Instruction par le BARON REYNAUD; nouvelle Édition, avec les Formules par M. BAILLEUL, 12mo. *hf. French morocco neat, with Baron de Reuter's auto.*, 3s 1872
- 16259 **LALBALETTRIER** (G.) TRIGONOMÉTRIE RECTILIGNE, suivie des Principes de la NOUVELLE GÉOMÉTRIE du TRIANGLE; *neatly autographed on 200 pp.*, *with diagrams*, 8vo. *buckram, 5s* [Orléans, 1899]
- 16260 **LAMARLE** (Ernest, *Univ. Gand*) EXPOSÉ GÉOMÉTRIQUE du CALCUL DIFFÉRENTIEL et INTÉGRAL, précédé de la Cinématique du Point, de la Droite et du Plan, et fondé tout entier sur les Notions les plus élémentaires de la Géométrie Plane; avec les APPLICATIONS du CALCUL DIFFÉRENTIEL; *with diagrams*, 2 vols. large post 8vo. in 1, *hf. black morocco neat, cl. sides (nice copy)*, 6s 6d (p. F. 12 nett sewn) 1861-3
- 16261 **LAMB** (Horace, F.R.S., *Prof. Mathematics, Manchester*) ELEMENTARY COURSE of the INFINITESIMAL CALCULUS [2nd and latest Edition], *with diagrams*, thick cr. 8vo. *buckram, 7s* (p. 12s) Univ. Press, Cambridge, 1907
- 16262 **LAMÉ** (Gabriel, *de l'Institut*) EXAMEN des DIFFÉRENTES MÉTHODES employées pour RÉSOUDRE les PROBLÈMES de GÉOMÉTRIE; édition-facsimile; *with 2 folding plates (linen-mounted)*, 8vo. *cl.*, 5s [Réimpression de] 1818

MATHEMATICS, continued:—

- 16263 **LANDAU** (Edmund Georg Hermann; *Prof. Mathematics, Göttingen*) HANDBUCH der LEHRE von der VERTEILUNG der PRIMZAHLEN, 2 thick vols. large 8vo. in one, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., £1. 5s* (p. M. 34 sewn) Leipzig, 1909
Pp. 883-961 contain 'Quellenangaben und Literaturverzeichnis.'
- 16264 **LANDFRIEDT** (E.) THEORIE der ALGEBRAISCHEN FUNKTIONEN und ihrer Integrale; *with 36 diagrams*, large cr. 8vo. *cl., 5s 6d* (p. M. 8.50) Leipzig, 1902
- 16265 ——— THETA-FUNKTIONEN und HYPERELLIPTISCHE FUNKTIONEN; *with 5 diagrams*, large cr. 8vo. *cl., 3s* (p. M. 4.50) *ibidem*, 1902
- 16266 **LARKMAN** (A. E.) The CALCULUS for ENGINEERS and others, *with 29 diagrams*, large post 8vo. *cl., 3s* (p. 4s 6d nett) Glasgow, 1904
'The reason why Marine Engineers are not very keen on the Extra Certificate is their dread of the Calculus and Higher Mathematics generally.'—*Preface.*
- 16267 **LÁSKA** (Václav; *Bohemian Univ., Prague*) LEHRBUCH der SPHÄRISCHEN TRIGONOMETRIE, nebst Sammlung gelöster Aufgaben; *with diagrams*, large 8vo. *buckram, 2s 6d* (p. M. 4.50 sewn) Bremerhaven [1890]
- 16268 ——— ANOTHER COPY, also: LEHRBUCH der ASTRONOMIE und MATHEMATISCHEN GEOGRAPHIE, I. SPHÄRISCHE ASTRONOMIE, 2. Auflage; *with numerous diagrams*—2 vols. large 8vo. in 1, *hf. black morocco neat, cl. sides (nice copy), 6s* (p. M. 9.50 sewn) *ibidem* [1890-1906]
- 16269 ——— SAMMLUNG von FORMELN der REINEN und ANGEWANDTEN MATHEMATIK; *with 3 folding plates*, 8vo. (pp. 1086), *hf. maroon morocco neat, cl. sides (nice copy), 16s 6d* (p. M. 26 sewn) Braunshweig, 1888-94
- 16270 **LATOON** (F.) On COMMON and 'PERFECT' MAGIC SQUARES, with Examples constructed by the Author; also with his Sections of the Simple and Compound 'Perfect' Square of the Mystic Number 666 (1 to 443556); *with 3 large folding tables (neatly linen-mounted)*, impl. 8vo. *buckram, t. e. g., 6s 6d* (p. 12s 6d) 1895
A mathematical study of the Number of the Beast printed in Athens.
- 16271 **LAURENT** (Hermann) La GÉOMÉTRIE ANALYTIQUE GÉNÉRALE, 8vo. *buckram, 4s* (p. F. 6 nett sewn) 1906
- 16272 ——— TRAITÉ d'ALGÈBRE; 5^e [dernière] Édition, en Harmonie avec les nouveaux Programmes, revue par J. H. MARCHAND, 4 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 9s* (p. F. 13.50 nett sewn) 1897-5
- 16273 ——— TRAITÉ d'ANALYSE; *with diagrams*, 7 vols. 8vo. *hf. maroon morocco neat, cl. sides (NICE SET), £2. 15s* (p. F. 73 nett sewn) 1885-91
CONTENU:—I. CALCUL DIFFÉRENTIEL. Applications analytiques: II. Applications géométriques: III. CALCUL INTÉGRAL. Intégrales définies et indéfinies: IV. Théorie des fonctions algébriques et leurs intégrales: V. ÉQUATIONS DIFFÉRENTIELLES ordinaires: VI. Équations aux dérivées partielles: VII. Applications géométriques de la théorie des équations différentielles.
- 16274 ——— TRAITÉ du CALCUL des PROBABILITÉS, 8vo. *cl. (scarce), 10s 6d* 1873
'Le présent traité peut être considéré comme une véritable introduction au traité de Laplace.'—*Preface.*
It includes a 'Liste des principaux Ouvrages ou Mémoires publiés sur le Calcul des Probabilités' (pp. 14).
- 16275 **LA VALLÉE POUSSIN** (Charles J. de, *Univ. LOUVAIN*) COURS d'ANALYSE INFINITÉSIMALE, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (fine copy), 12s* (p. F. 20 nett sewn) LOUVAIN, 1903-5
- 16276 ——— DEUXIÈME ÉDITION, considérablement remaniée, 2 vols. roy. 8vo. in 1 (pp. 888), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 19s* (p. F. 30 nett sewn) *ibidem*, 1909-12
The Germans should have killed the Belgians before they were able to leave any scientific or literary monuments behind them.
- 16277 **LAZZERI** (Giulio; *Univ. Pisa*), und Anselmo BASSANI, *Livorno*: ELEMENTE der GEOMETRIE (unter Verschmelzung von ebener und räumlicher Geometrie), übersetzt von P. TREUTLEIN; *with 336 illustrations*, 8vo. *hf. black morocco neat, cl. sides (as good as new), 10s* (p. M. 14 in cl.) Leipzig, 1911
- 16278 **LE BESGUE** (V. A.) EXERCICES d'ANALYSE NUMÉRIQUE: Extraits, Commentaires et Recherches relatifs à l'Analyse indéterminée et à la Théorie des Nombres, 8vo. *buckram, 2s 6d* 1859
- 16279 ——— INTRODUCTION à la THÉORIE des Nombres; avec l'APPENDICE: TABLES ARITHMÉTIQUES par J. HOÜËL—2 vols. roy. 8vo. in 1, *cl. (partly o. p.), 4s 6d* 1862-6
- 16280 **LEBESQUE** (Henri, *Univ. Rennes*) LEÇONS sur l'INTÉGRATION et la Recherche des Fonctions primitives, roy. 8vo. *buckram, t. e. g., 3s* 1904
- 16281 ——— LEÇONS sur les SÉRIES TRIGONOMÉTRIQUES, roy. 8vo. *buckram, t. e. g., 3s* 1906
- 16282 **LEBON** (Ernest) PROBLÈMES de MATHÉMATIQUES pour le Baccalauréat, post 8vo. *buckram, 2s 6d* 1898
- 16283 ——— TRAITÉ de GÉOMÉTRIE DESCRIPTIVE et COTÉE (Tome I^{er} 3^e [dernière] Édition); *with 14 folding plates (all neatly LINEN-MOUNTED), and numerous diagrams*, 2 vols. large 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), 10s* (p. F. 17 nett sewn) [1901-1882]
- 16284 **LECAT** (Maurice) LEÇONS sur la THÉORIE des DÉTERMINANTS à *n* Dimensions, avec Applications à l'Algèbre, la Géométrie, etc., large 4to. *buckram, uncut, t. e. g., 10s* (p. F. 16 nett sewn) GAND, 1910

MATHEMATICS, continued:—

- 16286 **LE COINTE** (Ignace Louis Alfred, S.J.) LEÇONS sur la THÉORIE des FONCTIONS CIRCULAIRES et la TRIGONOMÉTRIE; with diagrams, 8vo. *hf. maroon morocco neat (as good as new)*, 3s 6d 1858
- 16287 **LEFÉBURE de FOURCY** (Louis Étienne) LEÇONS d'ALGÈBRE, 10^e [dernière] Édition, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 5s (p. F. 7.50 nett sewn) 1893
- 16288 ——— TRAITÉ de GÉOMÉTRIE DESCRIPTIVE, avec Introduction renfermant la Théorie du Plan et de la Ligne Droite considérée dans l'Espace, 8^e [dernière] Édition; with 34 *folding plates (all neatly LINEN-MOUNTED)*, 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (nice copy); o. p., 8s 6d* 1881
- 16289 **LEGENDRE** (Adrien Marie; F.R.S.) ÉLÉMENTS de GÉOMÉTRIE, avec Additions et Modifications par A. BLANCHET, 39^e [dernière] Édition; with *numerous diagrams*, 8vo. *buckram, 3s s. d.*
- 16290 ——— THÉORIE des NOMBRES, 3^e [LA MEILLEURE] ÉDITION [avec Appendice: Méthodes nouvelles pour la Résolution Approchée des Equations Numériques, etc. etc.]; with *folding plate*, 2 vols. 4to. *hf. calf gilt (NICE COPY); VERY RARE, £2. 15s* Didot, 1830
THE BEST EDITION, NOW EXCESSIVELY SCARC. 'The third edition, issued in 1830, includes the results of his various later papers, and still remains a standard work on the subject. It may be said that he here carried the subject as far as was possible by the application of ordinary algebra. . . . The law of quadratic reciprocity, which connects any two odd primes, was first proved in this book. Gauss called the proposition 'the gem of arithmetic.' . . . The work also contains the useful theorem by which, when it is possible, an indeterminate equation of the 2^d degree can be reduced to the form $ax^2 + by^2 + cz^2 = 0$.'—W. W. R. Ball.
- 16291 ——— ZAHLENTHEORIE, nach der 3. Auflage ins Deutsche übertragen von H. MASER, 2. wohlfeile Ausgabe, 2 vols. roy. 8vo. in 1, *buckram, 9s* (p. M. 12 sewn) Leipzig, 1893
- 16292 **LEJEUNE-DIRICHLET** (Peter Gustav; Univ. Göttingen) VORLESUNGEN über ZAHLENTHEORIE, herausgegeben v. R. DEDEKIND, 2. umgearbeitete Auflage, 8v. *hf. cl., 3s 6d* Braunschweig, 1871
- 16293 ——— VIERTE [NEUESTE] UMGEARBEITETE UND VERMEHRTE AUFLAGE, 8vo. *hf. red morocco neat, cl. sides (nice copy); o. p., 16s* *ibidem*, 1894
'Of his original researches the most celebrated are that on the establishment of Fourier's Theorem, and that in the theory of numbers on asymptotic laws, i.e. laws which approximate more closely to accuracy as the numbers concerned become larger.'—W. W. R. Ball.
- 16294 **LEROY** (Charles François Antoine, de l'École Polytechnique) TRAITÉ de GÉOMÉTRIE DESCRIPTIVE, suivi de la Méthode des Plans cotés et de la Théorie des Engrenages cylindriques et coniques; 13^e Édition, revue et annotée par E. MARTELET; with *Atlas, containing 71 plates*, 2 vols. 4to. *hf. maroon morocco neat, cl. sides, uncut, t. e. g. (as good as new)*, 10s 6d (p. F. 16 nett sewn) 1888
- 16295 ——— TRAITÉ de STÉRÉOTOMIE, comprenant les Applications de la Géométrie descriptive à la Théorie des Ombres, la Perspective linéaire, la Gnomonique, la Coupe des Pierres et la Charpente; 12^e Édition, revue et annotée par E. MARTELET, avec SUPPLÉMENT: Théorie et Construction de l'Appareil hélicoïdal des Arches biaises, par JULES de LA GOURNERIE, redigées par ERNEST LEBON, 4to., with *Atlas, containing 76 plates, folio—2 vols., hf. maroon morocco neat, cl. sides, uncut, t. e. g. (fine copy)*, 18s (p. F. 26 nett sewn) 1890
- 16296 **LIE** (Marius Sophus; Prof. Geometry, Leipzig) GEOMETRIE der BERÜHRUNGSTRANSFORMATIONEN, dargestellt von SOPHUS LIE und GEORG SCHEFFERS, I. [einzig]er Band; with *diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 18s (p. M. 24 sewn) Leipzig, 1896
- 16297 ——— VORLESUNGEN über CONTINUIERLICHE GRUPPEN, mit geometrischen und anderen Anwendungen, bearbeitet und herausgegeben von GEORG SCHEFFERS; with *diagrams*, large 8vo. *handsomely bound in hf. pigskin, cl. sides (fine copy)*, 18s (p. M. 24 sewn) *ibidem*, 1893
- 16298 ———, und Friedrich ENGEL; Prof. Mathematics, Greifswald: THEORIE der TRANSFORMATIONSGRUPPEN, 3 vols. large 8vo. *handsomely bound in hf. red morocco, cl. sides (fine copy)*, £2. 5s (p. M. 60 sewn) *ib., 1888-93*
'The finite continuous groups were first made the subject of general research by Sophus Lie, and applied by him to the integration of ordinary linear partial differential equations.'—Prof. Cajori.
- 16299 **LIEBER** (H.), und F. v. LÜHMANN: TRIGONOMETRISCHE AUFGABEN, 3. [letzte] Auflage; with *folding plate*, 8vo. *red buckram, 3s* (p. M. 4 sewn) Berlin, 1889
- 16300 **LIEBLEIN** (Johann) SAMMLUNG von AUFGABEN aus der ALGEBRAISCHEN ANALYSIS zum Selbstunterricht; 2. [letzte] vermehrte Auflage, herausgegeben von W. LÁSKA, 8vo. *buckram, 3s* (p. M. 4.50 sewn) Prag, 1889
- 16301 **LIEBMANN** (Heinrich, Univ. Leipzig) NICHTTEUKLIDISCHE GEOMETRIE; with 22 *diagrams*, large cr. 8vo. *cl., or, buckram, 4s* (p. M. 6.50) Leipzig, 1903
- 16302 **LIGOWSKI** (W.) TASCHENBUCH der MATHEMATIK: Tafeln und Formeln, 3. [neueste] vermehrte Auflage; with *woodcuts*, post 8vo. *buckram, 2s 6d* (p. M. 3 50) Berlin, 1893
Last edition of this excellent manual of mathematical formulæ.
- 16303 **LILIENTHAL** (Franz Reinhold v.; Prof. Mathematics, Münster) GRUNDLAGEN einer KRÜMMUNGSLEHRE der CURVENSCHAREN, roy. 8vo. *buckram, 4s* (p. M. 5 sewn) Leipzig, 1896
- 16304 ——— VORLESUNGEN über DIFFERENTIALGEOMETRIE, Band I und II. 1 [soweit bisher erschienen]; with *diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, t. e. g., 17s* (p. M. 23 sewn) *ibidem*, 1908-13

MATHEMATICS, continued:—

- 16306 **LIPSCHITZ** (Rudolph Otto Sigismund; *Univ. Bonn*) LEHRBUCH der ANALYSIS (I. Grundlagen. II. Differential- und Integralrechnung), 2 vols. 8vo. *hf. cl. (nice copy)*; SCARCE, 15s *Bonn, 1877-80*
- 16307 **LISTING** (Johann Benedict; *Univ. Göttingen*) VORSTUDIEN zur TOPOLOGIE; *with woodcuts*, 8vo. (pp. 68), *sewn (scarce)*, 6s 6d *Göttingen, 1848*
 'Various researches have been brought under the head of *analysis situs*. The subject was first investigated by Leibniz, and was later treated by Gauss, whose theory of knots has been employed by J. B. Listing.'—*Prof. Cajori*.
- 16308 **LOBATSCHESKY** (Nicolai Ivanovitch) GEOMETRICAL RESEARCHES on the THEORY of PARALLELS, translated [with Introduction, and Appendix on Elliptic Geometry], by GEORGE BRUCE HALSTED, *Univ. Texas, with 37 diagrams*, roy. 8vo. *cl.*, or, *buckram (scarce)*, 10s 6d *Austin, Texas, 1891*
 The only English translation of the author's celebrated researches on the theory of parallel lines—the foundation of hyperbolic geometry. 'What Vesalius was to Galen, what Copernicus was to Ptolemy, that was Lobatschewsky to Euclid'.—*Professor Clifford*.
- 16309 ——— ÉTUDES GÉOMÉTRIQUES sur la THÉORIE des PARALLÈLES, traduit [avec Préface] par J. HOÜEL, suivi d'un Extrait de la Correspondance de GAUSS et de SCHUMACHER; *with diagrams*, roy. 8vo. (pp. 46), *sewn (scarce)*, 6s *[Bordeaux, 1866]*
 The first French translation.
 ——— v. ENGEL, ante.
- 16310 **LOCK** (John Bascombe, *pr.*, *Caius Coll.*) TREATISE on ELEMENTARY and HIGHER TRIGONOMETRY; *with Key to the Elementary Trigonometry* by HENRY CARR, of Lagos, *with diagrams*, 2 vols. fcap. 8vo. and post 8vo. *buckram*, 8s (p. 16s) [1910]
- 16311 ——— TREATISE on HIGHER TRIGONOMETRY [4th and last Edition, enlarged], *with numerous diagrams*, cr. 8vo. *buckram*, 2s 6d 1909
- 16312 ——— ANOTHER COPY, also: TREATISE on ELEMENTARY TRIGONOMETRY, *with illustrations* —2 vols. cr. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 5s 6d (p. 9s in *cl.*) 1909-12
- 16313 **LODGE** (Alfred, *Prof. Pure Mathematics, Cooper's Hill*) DIFFERENTIAL CALCULUS for BEGINNERS, with Introduction by SIR OLIVER JOSEPH LODGE, F.R.S., *with diagrams*, post 8vo. *cl.*, 2s 6d (p. 4s 6d) 1902
- 16314 **LONEY** (Sidney Luxton, *Roy. Holloway Coll.*) THE ELEMENTS of COORDINATE GEOMETRY, 2nd (latest) Edition [revised], *with diagrams*, with the SOLUTIONS, 2 vols. cr. 8vo. in one, *handsomely bound in hf. black morocco, cl. sides*, 9s (p. 13s 6d *nett in cl.*) 1906 or '12
- 16315 ——— PLANE TRIGOMETRY, *with diagrams*, with SOLUTIONS, 2 thick vols. cr. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 11s (p. 18s in *cl.*) *Univ. Press, Cambridge, 1907-1896*
- 16316 **LONGCHAMPS** (G. de) COURS d'ALGÈBRE, 2^e [dernière] Édition; *with diagrams*; SUPPLÈMENT (Trigométrie; les Infiniment Petits; les Quadratures; Mécanique), 3^e [dernière] Édition, entièrement refondue; *with numerous diagrams*—2 thick vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (nice copy)*, 10s (p. F. 17.50 *nett sewn*) 1889-93
- 16317 ——— COURS de GÉOMÉTRIE ANALYTIQUE à DEUX et TROIS DIMENSIONS; *with numerous diagrams*, 2 thick vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (nice copy)*, 10s (p. F. 17.50 *nett sewn*) 1884
- 16318 ——— COURS de PROBLÈMES de GÉOMÉTRIE ANALYTIQUE; *with numerous diagrams*, 3 vols. 8vo. in 2, *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. t. (as good as new)*, 16s 6d (p. F. 22.50 *nett sewn*) 1898-9
- 16319 ——— VOLS. I AND II ONLY, *with numerous diagrams*, 2 vols. 8vo. in 1, *buckram*, 7s (p. F. 12.50 *nett sewn*) 1898-9
- 16320 **LORENTZ** (Hendrik Antoon, *Univ. Leyden*) LEHRBUCH der DIFFERENTIAL- und INTEGRAL-RECHNUNG, nebst Einführung in andere Teile der Mathematik, mit besonderer Berücksichtigung der Bedürfnisse der Studierenden der Naturwissenschaften, unter Mitwirkung des Verfassers übersetzt von G. C. SCHMIDT, 2. [neueste] Auflage; *with 123 diagrams*, 8vo. *buckram*, 8s 6d (p. M. 12 *sewn*) *Leipzig, 1907*
- 16321 **LORIA** (Gino; *Univ. Genoa*) Die HAUPTSÄCHLICHSTEN THEORIEN der GEOMETRIE in ihrer früheren und heutigen Entwicklung, ins Deutsche übertragen von FRITZ SCHÜTTE, mit Vorwort von R. STURM, 8vo. *buckram*, 3s *Leipzig, 1888*
- 16322 ——— SPEZIELLE ALGEBRAISCHE und TRANSCENDENTE EBENE KURVEN: Theorie und Geschichte, autorisierte, nach dem italienischen MS. bearbeitete deutsche Ausgabe von FRITZ SCHÜTTE; *with 17 folding plates (finely LINEN-MOUNTED)*, thick 8vo. *handsomely bound in hf. pigskin, cl. sides*, 15s (p. M. 26 *sewn*) *ibidem, 1902*
- 16323 ——— ZWEITE [NEUESTE] AUFLAGE; *with 20 folding plates (all neatly LINEN-MOUNTED)*, 2 vols. large 8vo. *handsomely bound in hf. pigskin, cl. sides (fine copy)*, £1. 5s (p. M. 29 *sewn*) *ibidem, 1910-11*
- 16324 ——— VORLESUNGEN über DARSTELLENDEN GEOMETRIE, autorisierte, nach dem italienischen MS. bearbeitete deutsche Ausgabe von FRITZ SCHÜTTE, II. Teil: Anwendungen auf ebenflächige Gebilde, Kurven und Flächen; *with 146 diagrams*, large 8vo. *cl.*, 7s 6d (p. M. 12) *ib.*, 1913
- 16325 **LORMEAU** (E.), et P. MERLET: PROBLÈMES de GÉOMÉTRIE, donnés aux Examens de Baccalauréat, 1904-8: ÉNONCÉS et SOLUTIONS; *with numerous diagrams*, 8vo. *buckram*, 3s [1909]

MATHEMATICS, *continued*:—

- 16327 **LÜBSEN (H. B.)** AUSFÜHRLICHES LEHRBUCH DER ARITHMETIK und ALGEBRA zum Selbstunterricht, 26. Auflage, 8vo. *buckram*, 3s (p. M. 4 sewn) *Leipzig*, 1906
- 16328 ——— AUSFÜHRLICHES LEHRBUCH der ANALYTISCHEN und HÖHERN GEOMETRIE zum Selbstunterricht; 15. Auflage neu bearbeitet von A. DONADT; *with 105 diagrams*, 8vo. *buckram*, 3s (p. M. 4 sewn) *ibidem*, 1908
- 16329 ——— AUSFÜHRLICHES LEHRBUCH der EBENEN und SPHÄRISCHEN TRIGONOMETRIE zum Selbstunterricht, 17. Auflage; *with 58 diagrams*: AUSFÜHRLICHES LEHRBUCH der ANALYSIS zum Selbstunterricht, 10. Auflage; *with diagrams*—2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 4s 6d (p. M. 6 sewn) *ib.*, 1900-2
- 16330 ——— EINLEITUNG in die INFINITESIMAL-RECHNUNG (Differential- und Integral-Rechnung) zum Selbstunterricht, mit Rücksicht auf das Notwendigste und Wichtigste, 8. Auflage; *with 54 diagrams*, 8vo. *handsomely bound in hf. pigskin, cl. sides*, 6s (p. M. 8 sewn) *ib.*, 1899
- 16331 ——— MATHEMATISCHE LEHRBÜCHER, zum SELBSTUNTERRICHT mit Rücksicht auf die Zwecke des praktischen Lebens; *with numerous diagrams*, 4 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 12s (p. M. 18 sewn) *ib.*, 1899-1904
INHALT:—Ebene und sphärische Trigonometrie, 18. A. von A. DONADT, 1904; Analytische und höhere Geometrie, 14. A., 1899; Analysis, 10. A., 1902; Infinitesimal-Rechnung, 8. A., 1899.
- 16332 **LUCAS (Édouard)** RÉCRÉATIONS MATHÉMATIQUES (Tome I 2^e [dernière] Édition); *with numerous illustrations*, 4 vols. large cr. 8vo., 'PAPIER DE HOLLANDE' ÉDITION; *red buckram*, £1. 5s (p. F. 45.50 nett sewn) 1883-94
 The best French modern work of the kind.
- 16333 ——— THÉORIE des NOMBRES, TOME Ier [seul paru]: Calcul des Nombres entiers et rationnels. Divisibilité arithmétique; *with illustrations*, roy. 8vo. *hf. maroon morocco neat, cl. sides, uncut, t. e. g. (fine copy)*, 10s 6d (p. F. 15 nett sewn) 1891
- 16334 **LÜROTH (Jakob)**, *Univ. Freiburg i. B.* VORLESUNGEN über NUMERISCHES RECHNEN; *with 14 diagrams*, large 8vo. *buckram*, 5s 6d (p. M. 8 sewn) *Leipzig*, 1900
- 16335 **LUTZ (Eugen)** ANALYTISCHE GEOMETRIE der EBENE: elementares Lehrbuch; *with 132 diagrams*, roy. 8vo. *cl.*, 6s (p. M. 9) *Karlsruhe*, 1909
- 16336 **McAULAY (Alexander)**; *Univ. Tasmania* OCTONIONS; a DEVELOPMENT of CLIFFORD'S BI-QUATERNIONS, 8vo. *cl.*, 4s (p. 10s 6d) *Univ. Press, Cambridge*, 1898
- 16337 **McCLELLAND (William J.)** TREATISE on the GEOMETRY of the CIRCLE, and some Extensions to CONIC SECTIONS by the Method of Reciprocation, with numerous Examples, *numerous diagrams*, large 12mo. *buckram*, 3s (p. 6s) 1891
- 16338 ———, and Thomas PRESTON, F.R.S.: TREATISE on SPHERICAL TRIGONOMETRY, with Applications to Spherical Geometry, and numerous Examples, 3rd Edition (of Part I), *with diagrams*, 2 vols. cr. 8vo. in 1, *buckram*, 4s (p. 8s 6d) 1890-86
- 16339 ——— ANOTHER COPY (Pt. I 6th and Pt. II 2nd Edition), *with diagrams*, 2 vols. cr. 8vo. in 1, *cl.*, 5s (p. 8s 6d) 1900
- 16340 **McDOWELL (J., F.R.A.S.)** EXERCISES on EUCLID and in MODERN GEOMETRY; 4 [last] Edition, *with numerous diagrams*, post 8vo. *cl.*, or *buckram*, 3s 6d (p. 6s) *Cambridge*, 1892
- 16341 **MACÉ de LÉPINAY (A.)** COMPLÉMENTS d'ALGÈBRE et NOTIONS de GÉOMÉTRIE ANALYTIQUE, 4^e Édition; *with 224 diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides*, 3s 6d 1898
- 16342 ——— CINQUIÈME [DERNIÈRE] ÉDITION; *with 224 diagrams*, 8vo. *hf. black morocco neat, cl. sides*, 3s 6d *s. d.*
- 16343 ——— ANOTHER COPY, *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 4s
- 16344 **MACH (Ernst)**, *Univ. Vienna* SPACE and GEOMETRY in the Light of PHYSIOLOGICAL, PSYCHOLOGICAL, and PHYSICAL INQUIRY, from the German by THOMAS J. McCORMACK, *with 25 diagrams*, large cr. 8vo. *cl.*, 3s (p. 5s nett) 1906
- 16345 **MAGNUS (Ludwig Immanuel)** SAMMLUNG von AUFGABEN und LEHRSÄTZEN aus der ANALYTISCHEN GEOMETRIE des RAUMES, cr. 4to. *red buckram*, 3s 6d *Berlin*, 1837
- 16346 **MAILLET (Edmond Théodore)**; *École des Ponts et Chaussées* INTRODUCTION à la THÉORIE des NOMBRES TRANSCENDANTS et des PROPRIÉTÉS ARITHMÉTIQUES des FONCTIONS, roy. 8vo. *buckram, t. e. g.*, 7s 6d (p. F. 12 nett sewn) 1906
- 16347 **MANGOLDT (Hans v.; Prof. Mathematics, Danzig)** ANWENDUNG der DIFFERENTIAL- und INTEGRALRECHNUNG auf KURVEN und FLÄCHEN [aus Encyclopädie der mathematischen Wissenschaften]; *with diagrams*, roy. 8vo. (pp. 104), *buckram*, 3s [*Leipzig*, 1902]
- 16348 ——— EINFÜHRUNG in die HÖHERE MATHEMATIK für Studierende und zum Selbststudium; *with numerous diagrams*, 3 vols. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (fine copy)*, £1. 12s 6d (p. M. 40 sewn) *ibidem*, 1911-14
INHALT:—I. Anfangsgründe der Infinitesimalrechnung und analytischen Geometrie: II. Differentialrechnung: III. Integralrechnung.
- 16349 **MANNHEIM (Col. Amédée, de l'École Polytechnique)** PRINCIPES et DÉVELOPPEMENTS de GÉOMÉTRIE CINÉMATIQUE, contenant nombreuses Applications à la Théorie des Surfaces; *with 186 diagrams*, 4to. *hf. maroon morocco neat, cl. sides (fine copy)*, 16s 6d (p. F. 25 nett sewn) 1894

MATHEMATICS, continued:—

- 16352 **MANNING** (Henry Parker, *Brown Univ.*) GEOMETRY of FOUR DIMENSIONS, with diagrams, post 8vo. cl., 5s 6d (p. 8s 6d nett) *New York*, 1914
- 16353 ——— NON-EUCLIDEAN GEOMETRY, with diagrams, cr. 8vo. cl., 2s *Boston [Mass.]*, 1907
- 16354 **MANNOURY** (G., *Univ. Amsterdam*) METHODOLOGISCHES und PHILOSOPHISCHES zur ELEMENTAR-MATHEMATIK; with diagrams, sq. 8vo. buckram, t. e. g., 4s 6d *Haarlem*, 1909
- 16355 **MANSION** (Paul, *Univ. Ghent*) ÉLÉMENTS de la THÉORIE des DÉTERMINANTS, avec de nombreux Exercices, 4^e édition: **CARNOY** (Joseph, *Univ. Louvain*) COURS de GÉOMÉTRIE ANALYTIQUE: GÉOMÉTRIE PLANE, 5^e Édition; with numerous diagrams—2 vols. 8vo. in 1, buckram, 16s 6d 1883—*Louvain*, 1891
- 16356 ——— NOTICE sur les RECHERCHES de M. DE TILLY en MÉTAGÉOMÉTRIE [avec Notes bibliographiques], 8vo. (pp. 12), sewn (scarce), 4s *s. l.* [c. 1895]
——— v. CARNOY, ante.
- 16357 **MARC** (Ludwig) AUFGABEN aus der HÖHEREN MATHEMATIK, TECHNISCHEN MECHANIK und DARSTELLENDEN GEOMETRIE bei der Vorprüfung an der K. Technischen Hochschule zu München von 1901 ab, mit Lösungen; with 19 plates, besides diagrams, 2 vols. impl. 8vo. in 1, buckram, 6s (p. M. 8 sewn) *München*, 1907
- 16358 **MARIE** (Léon, *actuaire de la Compagnie 'le Phénix'*) TRAITÉ MATHÉMATIQUE et PRATIQUE des OPÉRATIONS FINANCIÈRES; with diagrams, roy. 8vo. (pp. 578), buckram (o. p.), 12s 1890
- 16359 **MARKOFF** (Andrej Andrejevitch; *Univ. Petrograd*) DIFFERENZENRECHNUNG, autorisierte deutsche Übersetzung von THEOPHIL FRIESENDORFF und ERICH PRÜMM, mit Vorwort von R. MEHMKE, roy. 8vo. buckram, 5s 6d (p. M. 7 sewn) *Leipzig*, 1896
- 16360 ——— WAHRSCHEINLICHKEITSRECHNUNG, nach der 2. Auflage des russischen Werkes übersetzt von HEINRICH LIEBMAN; with 7 diagrams, roy. 8vo. hf. black morocco neat, cl., uncut, t. e. g. (as good as new), 10s (p. M. 12 sewn) *ibidem*, 1912
- 16361 **MARTUS** (Hermann C. E.) MATHEMATISCHE AUFGABEN, mit den ERGEBNISSEN und ÜBUNGSBUCH, 11. und 2. Auflage; with portrait, 4 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 12s (p. M. 19.40 in cl.) *Dresden*, 1903-6
- 16362 ——— ANOTHER COPY (I—II 12. A., III 3. A., IV 2. A.); with portrait, 4 vols. 8vo. in 1, hf. black morocco neat, cl. sides (fine copy), 14s (p. M. 19.40 in cl.) *ibidem*, 1906-13
- 16363 ——— BAND III and IV, 2 vols. 8vo. cl., 4s 6d (p. M. 9.20) *ib.*, 1901
- 16364 **MATHEWS** (George Ballard, F.R.S., *Univ. Coll., Bangor*) PROJECTIVE GEOMETRY, with diagrams, thick post 8vo. buckram, 3s (p. 5s) 1914
- 16365 ——— THEORY of NUMBERS, Part I (all published), 8vo. cl., 6s (p. 12s) *Cambridge*, 1892:
——— v. GRAY (A.), ante, and SCOTT (R. F.), post.
- 16366 **MATHEWS** (G. F.) MANUAL of LOGARITHMS, treated in Connexion with Arithmetic; Algebra, Plane Trigonometry, and Mensuration, with diagrams, 8vo. cl., 3s (p. 5s nett) 1890
- 16367 **MATTHIESSEN** (Heinrich Friedrich Ludwig, *Univ. Rostock*) GRUNDZÜGE der ANTIKEN und MODERNEN ALGEBRA der LITTERALEN GLEICHUNGEN, 2. [neueste] Ausgabe, 8vo. (pp. 1017); handsomely bound in hf. black morocco, cl. sides (fine copy), 7s 6d *Leipzig*, 1896
Pp. 964-1001 contain a valuable bibliography.
- 16368 **MAUPIN** (Georges) QUESTIONS d'ALGÈBRE, avec Préface de C. A. LAISANT; with diagrams and large folding table, large 8vo. hf. roan, or, buckram (o. p.), 5s 1895
- 16369 **MELLOR** (Joseph William, D.Sc.) HIGHER MATHEMATICS for STUDENTS of CHEMISTRY and PHYSICS, with special Reference to Practical Work; 2nd [latest] Edition, enlarged, with 189 diagrams, 8vo. handsomely bound in hf. black morocco, cl. sides (as good as new), 12s (p. 15s nett in cl.) 1905
- A standard work on chemical mathematics, including an introduction to the Calculus.
- 16370 **MERAY** (Charles; *Univ. Dijon*) LEÇONS NOUVELLES sur l'ANALYSE INFINITÉSIMALE et ses APPLICATIONS GÉOMÉTRIQUES, 4 vols. large 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 5s (p. F. 40 nett sewn) 1894-8
CONTENU:—I. Principes généraux; II. Étude monographique des principales Fonctions d'une seule Variable; III. Questions analytiques classiques; IV. Applications géométriques classiques.
- 16371 ——— NOUVEAUX ÉLÉMENTS de GÉOMÉTRIE, 3^e Édition: Réduction et Refonte partielle de l'Édition de 1903; with diagrams, 8vo. buckram, 4s (p. F. 6 nett sewn) *Dijon*, 1906
- 16372 **MERRIMAN** (Mansfield, *Lekhigh Univ.*) THE SOLUTION of EQUATIONS, 4th Edition, enlarged, 8vo. cl., 3s (p. 4s 6d nett) *New York*, 1906
- 16373 ——— TEXT-BOOK on the METHOD of LEAST SQUARES, 8th [latest] Edition, with diagrams, 8vo. cl., 5s (p. 8s 6d nett) *ibidem*, 1907
- 16374 ———, and Robert Simpson **WOODWARD**, *Carnegie Inst., Washington*: HIGHER MATHEMATICS: a Textbook for Classical and Engineering Colleges, with diagrams, 8vo. hf. black morocco neat, cl. sides (as good as new); o. p., 10s 6d *ib.*, 1902
- 16375 **METGER** (Conrad) LEHRBUCH der GLEICHUNGEN 3. und 4. GRADES, nebst trigonometrischer Auflösung der Gleichungen 2. Grades, large 8vo. buckram, 3s 6d (p. M. 6 sewn) *Bremerhaven* [1892].

MATHEMATICS, *continued*.—

- 16377 **MEYER (Antoine, Univ. Liège)** EXPOSÉ ÉLÉMENTAIRE de la THÉORIE des INTÉGRALES DÉFINIES, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 6s
Bruxelles, 1851
- 16378 ——— VORLESUNGEN ÜBER WAHRSCHEINLICHKEITSRECHNUNG, deutsch bearbeitet von EMANUEL CZUBER, *with diagrams*, 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, 6s 6d
(p. M. 12 sewn) Leipzig, 1879
'Cet ouvrage de Meyer est un résumé très-complet des plus importants travaux de Bernoulli, Moivre, Laplace, Poisson, Gauss, Encke, Bienaymé, etc., sur le calcul des probabilités; et l'on peut hardiment affirmer qu'il n'existe aucun traité aussi vaste sur la matière, si l'on excepte la Théorie analytique des probabilités.'—*F. Folie.*
- 16379 **MEYER (Friedrich Wilhelm Franz; Univ. Königsberg)** ALLGEMEINE FORMEN- und INVARIANTENTHEORIE, I. [einziger] Band: BINÄRE FORMEN, large cr. 8vo. *cl.*, 6s (p. M. 9.60)
Leipzig, 1909
- 16380 ——— DIFFERENTIAL- und INTEGRALRECHNUNG; *with 49 diagrams*, 2 vols. large cr. 8vo. *cl.*, 12s (p. M. 19)
ibidem, 1901-5
- 16381 ——— DASSELBE (Bd. I 2. erweiterte Auflage); *with 49 diagrams*, 2 vols. large cr. 8vo. *buckram*, 13s (p. M. 19)
ib., 1912-5
- 16382 ——— ÜBER die THEORIE BENACHBARTER GERADEN und einen VERALLGEMEINERTEN KRÜMMUNGSBEGRIFF: eine Ergänzung zu den Lehrbüchern über Differentialgeometrie; *with 5 diagrams*, roy. 8vo. *buckram, t. e. g.*, 6s (p. M. 8 sewn)
ib., 1911
- 16383 **MEYER (Gustav Ferdinand, Univ. Göttingen)** VORLESUNGEN über die THEORIE der BESTIMMTEN INTEGRALE zwischen REELLEN GRENZEN, mit vorzüglicher Berücksichtigung von P. GUSTAV LEJEUNE-DIRICHLET'S Vorträgen über bestimmte Integrale; *with diagrams*, 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*; SCARCE, 12s
Leipzig, 1871
- 16384 **MICHEL (François)** RECUEIL de PROBLÈMES de GÉOMÉTRIE ANALYTIQUE: Solutions des Problèmes donnés au Concours d'Admission à l'École Polytechnique, 1860-1900; *with 70 diagrams*, 8vo. *buckram, uncut, t. e. g.*, 4s (p. F. 6 nett sewn)
1900
- 16385 **MILINOWSKI (A.)** ELEMENTAR-SYNTHETISCHE GEOMETRIE der KEGELSCHNITTE; *with 195 diagrams*, 8vo. *buckram*, 3s 6d (p. M. 8 sewn)
Leipzig, 1882
- 16386 ——— ANOTHER COPY; also: ——— der GLEICHSEITIGEN HYPERBEL; *with diagrams*
—2 vols. 8vo. in 1, *buckram* ('Hyperbel' o. p.), 5s (p. 12.40 sewn)
ibidem, 1882-3
- 16387 **MILLET (L.)** PRINCIPALES MÉTHODES de la GÉOMÉTRIE MODERNE; *lithographed throughout, with diagrams*, 8vo. *buckram*, 5s
Laval, 1870
- 16388 **MILNE (John James, pr., St. John's Coll., Cantab.)** ELEMENTARY TREATISE ON CROSS-RATIO GEOMETRY, with historical Notes, 129 *diagrams*, cr. 8vo. *buckram*, 3s 6d (p. 6s)
Univ. Press, Cambridge, 1911
- 16389 ——— WEEKLY PROBLEM PAPERS, with Notes, for the Use of Students preparing for Mathematical Scholarships, etc., *with diagrams*, 16mo. *cl.*, 2s 6d (p. 4s 6d)
1891
- 16390 ——— COMPANION to the WEEKLY PROBLEM PAPERS, *with diagrams*, cr. 8vo. *buckram*, 4s (p. 10s 6d)
1888
- 16391 ——— SOLUTIONS of the WEEKLY PROBLEM PAPERS, cr. 8vo. *buckram*, 4s (p. 10s 6d)
1885
- 16392 ———, and R. F. DAVIS: GEOMETRICAL CONICS: the Parabola, and the Central Conic, *with 103 diagrams*, 2 parts cr. 8vo. *cl.*, 2s 6d (p. 4s 6d)
1890-4
- 16393 **MINCHIN (George Minchin; Cooper's Hill), and John Borthwick DALE, K.C.L.** MATHEMATICAL DRAWING, *with 102 diagrams*, 8vo. *cl.*, 5s (p. 7s 6d nett)
1906
- 16394 **MINIFIE (William)** TEXT BOOK of GEOMETRICAL DRAWING, in which the Definitions and Rules of Geometry are familiarly explained, the practical Problems are arranged from the most simple to the more complex, etc. etc., with Essay on the Theory of Color: revised Edition, *with 56 plates*, roy. 8vo. *cl.*, 10s (p. \$4.00)
New York, 1903
- 16395 **MINKOWSKI (Hermann, Univ. Göttingen)** DIOPHANTISCHE APPROXIMATIONEN: eine Einführung in die Zahlentheorie; *with 82 diagrams*, large 8vo. *cl.*, 5s (p. M. 8)
Leipzig, 1907
- 16396 ——— GEOMETRIE der ZAHLEN, large 8vo. *buckram*, 7s (p. M. 9 sewn)
ib., 1910
- 16397 **MÖBIUS (August Ferdinand; Prof. Astronomy, Leipzig)** GESAMMELTE WERKE, I. Band, herausgegeben [mit Lebensbeschreibung (pp. 16)] von R. BALTZER; *with fine steel portrait and numerous diagrams*, thick roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, 12s 6d (p. M. 16 sewn)
Leipzig, 1885
Including 'Der barycentrische Calcul.
- 16398 ——— Der BARYCENTRISCHE CALCUL: ein neues Hilfsmittel zur analytischen Behandlung der Geometrie dargestellt und insbesondere auf die Bildung neuer Classen von Aufgaben und die Entwicklung mehrerer Eigenschaften der Kegelschnitte angewendet; *with 4 folding plates*, 8vo. *hf. black calf neat, cl. sides, uncut, t. e. g. (SCARCE)*, 10s 6d
ibidem, 1827
A classic of analytical geometry. 'His calculus is the beginning of a quadruple algebra, and contains the germs of Grassmann's marvellous system.'—*Prof. Cajori.*
- 16399 **MONTEIL (Lt.-Col. Parfait Louis)** THÉORIE du POINT: Géométrie rectiligne et curviligne, contenant les Solutions de la QUADRATURE du CERCLE, la TRISECTION de l'ANGLE, et la PROPOSITION de FERMAT, Édition nouvelle, considérablement simplifiée; *with folding plate (linen-mounted)*, 4to. *buckram*, 4s 6d
1912

MATHEMATICS, continued:—

- 16401 **MOIVRE** (Abraham de; *de l'Institut*; F.R.S., *friend of Newton*) The DOCTRINE OF CHANCES; or a Method of Calculating the PROBABILITIES of EVENTS in PLAY; third Edition, fuller, clearer, and more correct than the Former, with *medallion portrait by J. Dassier, and vignette*, roy. 4to., LARGE PAPER; *old hf. calf (name cut off title)*, £1. 5s 1756
The last and best edition; dedicated to Lord Carpenter, the victor over the Old Pretender.
'He introduced the principle that the probability of a compound event is the product of the probabilities of the single events composing it, and the whole subject, Todhunter remarks, 'owes more to him than to any other mathematician, with the single exception of Laplace'.—*Miss Agnes M. Clerke*.
'His work on the theory of probability surpasses anything done by any other mathematician except Laplace. His principal contributions are his investigations respecting the Duration of Play, his Theory of Recurring Series, and his extension of the value of Bernoulli's theorem by the aid of Stirling's theorem.—*Prof. Cajori*.
A very full account of the above third edition will be found in Todhunter's *History of the Theory of Probability*.
- 16402 **MONTESSUS** [de BALLORE] (Vicome Robert de; *Univ. LILLE*) LEÇONS ÉLÉMENTAIRES sur le CALCUL des PROBABILITÉS; with *diagrams*, roy. 8vo. buckram, uncut, t. e. g., 4s 6d 1908
(p. F. 7 nett sewn)
- 16403 **MONTFERRIER** (Alexandre André Victor Sarrazin de) DICTIONNAIRE des SCIENCES MATHÉMATIQUES pures et appliquées [avec le SUPPLÉMENT]; with *woodcuts and 80 plates*, 3 vols. colombier 8vo. hf. *French maroon morocco neat* (SCARCE), £1. 1s 1835 40
'Cet ouvrage résume par ordre alphabétique l'histoire de toutes les découvertes faites dans ces sciences, leurs procédés actuels et leur application aux arts industriels, ainsi que la biographie des hommes qui ont agrandi le cercle des connaissances positives'.—*Biogr. Gén.*
- 16404 **MOORE** (Eliakim Hastings; *Univ. Chicago*), Ernest Julius WILCZYNSKI, *ejusdem Univ.*, and Max MASON, *Wisconsin Univ.*: THE NEW HAVEN MATHEMATICAL COLLOQUIUM: Lectures before the American Mathematical Society, roy. 8vo. cl., 9s (p. 13s 6d nett) 1910
New Haven, 1910
CONTENTS:—Fundamental Closure and Dominance Properties of Classes of Functions of a General Variable: Fundamental Composition Properties of Classes of Functions of a General Variable: Projective Differential Geometry: Selected Topics in the Theory of Group Value: Problems of Differential Equations.
- 16405 **MORGAN** (Augustus de; F.R.S., *Prof. Mathematics, Univ. Coll., London*) The DIFFERENTIAL and INTEGRAL CALCULUS, containing Differentiation, Integration, Development, Series, Differential Equations, Differences, Summation, Equations of Differences, CALCULUS OF VARIATIONS, and Definite Integrals, with Applications, and with ELEMENTARY ILLUSTRATIONS, 8vo. (pp. 869), *hf. morocco neat, uncut*, 10s 6d [1842]
'Still a standard work, and containing much that is original with the author'.—*Prof. Cajori*. 'A work of great ability, and noticeable for the rigorous treatment of infinite series'.—*W. W. R. Ball*.
'The child of an artisan exercising any of the more ingenious manual arts, or of a savage in the state of life in which arts have made the progress which is possible without division of labour, might perhaps be considered as being most advantageously situated in this respect [of considerations connected with number and magnitude entering the mind in connexion with some application to the rough purposes of life]: but we think it beyond question that the children of the middle and upper classes in England, it may be throughout Europe, are in as unfavourable a position as any of their species'.—*Introduction*.
- 16406 ——— ESSAY ON PROBABILITIES, and on their Application to Life Contingencies and INSURANCE OFFICES, with *vignette by Finden, and diagrams*, fcap. 8vo. cl., or, buckram, 4s [1838]
A work of well-known excellence.
'The best popular, and at the same time most profound English work on the subject of probability is De Morgan's 'Essay on Probabilities'.—*Prof. Stanley Jevons*.
- 16407 ——— TRIGONOMETRY and DOUBLE ALGEBRA, with *frontispiece and diagrams*, post 8vo. cl. (scarce), 10s 1849
'His 'double algebra' was the forerunner of quaternions, and contained the complete geometrical interpretation of $\sqrt{-1}$.—*R.A.S. Monthly Notices*. Sir W. R. Hamilton acknowledged the suggestions he received from the above work in inventing Quaternions in his *Lectures on Quaternions*.
'Double algebra means algebra in which each symbol stands for an object of thought having two distinct and independent qualities'.—*Preface*.
- 16408 **MOSNAT** (E.) PROBLÈMES de GÉOMÉTRIE ANALYTIQUE [avec les Solutions] (T. I 3^e et T. II—III 2^e Edition); with *numerous diagrams*, 3 vols. 8vo. hf. *black morocco neat, cl. sides, t. e. g.* (as good as new), 15s (p. F. 21 nett sewn) [c. 1910]
- 16409 ——— ANOTHER COPY, Tomes I et II, 2^e Édition; with *numerous diagrams*, 3 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 12s (p. F. 21 nett sewn) 1894-1905
- 16410 **MOUCHOT** (A.) Les NOUVELLES BASES de la GÉOMÉTRIE SUPÉRIEURE (GÉOMÉTRIE de POSITION); with 90 *diagrams*, 8vo. buckram, uncut, t. e. g., 3s 6d (p. F. 5 nett sewn) 1892
- 16411 **MUIR** (Sir Thomas, F.R.S.; *Supt.-Gen. Education, Cape Colony*) The THEORY OF DETERMINANTS, in the HISTORICAL ORDER of DEVELOPMENT [to 1860], Vol. I in 2nd [latest] Edition, with 2 *folding tables (linen-mounted)*, 2 thick vols. 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g.*, £1. 7s 6d (p. £1. 14s nett in cl.) 1906-11
The only work on the history of determinants published in any language.
- 16412 ——— TREATISE on the THEORY of DETERMINANTS, with Graduated Sets of Exercises, cr. 8vo. buckram (o. p.), 6s 1882
- 16413 **MÜLLER** (Aloys) Das PROBLEM des ABSOLUTEN RAUMES und seine Beziehung zum allgemeinen Raumproblem, large post 8vo. buckram, 3s (p. M. 4 sewn) *Braunschweig*, 1911
- 16414 **MÜLLER** (E. R.) LEHRBUCH der PLANIMETRISCHEN KONSTRUKTIONSAUFGABEN gelöst durch geometrische Analysis; with *numerous diagrams*, 3 v.: CRANZ (Heinrich) Das APOLLONISCHE BERÜHRUNGSPROBLEM und verwandte Aufgaben; with *diagrams*—4 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides*, 10s 6d (p. M. 17 sewn) *Bremerhaven* [1890]

MATHEMATICS, *continued* :—

- 16416 **MÜLLER (Felix)** MATHEMATISCHES VOKABULARIUM FRANZÖSISCH-DEUTSCH UND DEUTSCH-FRANZÖSISCH, enthaltend die Kunstausdrücke der reinen und angewandten Mathematik, roy. 8vo. *hf. pigskin (back worn)*, 14s (p. M. 20 in cl.) *Leipzig*, 1900
- 16417 **MUSSAT (E., des Ponts et Chaussées)** RÉSUMÉ des CONNAISSANCES MATHÉMATIQUES nécessaires dans la PRATIQUE des TRAVAUX PUBLICS et de la Construction: Calcul infinitésimal; Courbes du second Degré; Mécanique rationnelle; *with diagrams*, roy. 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (as good as new)*, 7s (p. F. 10 nett sewn) 1889
- 16418 ——— ANOTHER COPY, *hf. black morocco*, 6s
- 16419 **MUTH (P.)** GRUNDLAGEN der GEOMETRISCHEN ANWENDUNG der INVARIANTENTHEORIE, mit Begleitwort von M. PASCH, 8vo. *buckram*, 2s 6d *Leipzig*, 1895
- 16420 ——— THEORIE und ANWENDUNG der ELEMENTARTHEILER, roy. 8vo. *buckram*, 6s (p. M. 8 sewn) *ibidem*, 1899
- 16421 **NAVIER (Claude Louis Marie Henry; de l'Institut)** LEHRBUCH der DIFFERENTIAL- und INTEGRALRECHNUNG, mit Zusätzen von J. LIOUVILLE; deutsch herausgegeben, mit einer Abhandlung der Methode der kleinsten Quadrate von THEODOR WITTSTEIN, 4. [letzte] Auflage; *with diagrams*, 2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (as good as new)*, 6s *Hannover*, 1875
- 16422 ——— LEHRBUCH der HÖHEREN MECHANIK, deutsch bearbeitet von LUDWIG MEJER, mit Vorrede von TH. WITTSTEIN; *with diagrams*, 8vo. *buckram*, 2s 6d *ibidem*, 1858
Forming a supplement to the foregoing work.
- 16423 ——— MECHANIK der BAUKUNST (INGENIEUR-MECHANIK), mit Anhang von G. WESTPHAL und A. FOEPL, übersetzt von G. WESTPHAL, 2. Auflage; *with woodcuts*, 8vo. *buckram*, 3s 6d *ib.* [1878]
- 16424 **NERNST (Walter; Prof. Physical Chemistry, Berlin)**, und **Arthur SCHOENFLIES; Prof. Mathematics, Königsberg**: EINFÜHRUNG in die MATHEMATISCHE BEHANDLUNG der NATURWISSENSCHAFTEN : kurzgefasstes Lehrbuch der DIFFERENTIAL- und INTEGRALRECHNUNG, mit besonderer Berücksichtigung der CHEMIE, 5. Auflage; *with 69 diagrams*, large 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g.*, 6s 6d (p. M. 11 sewn) *Berlin*, 1907
- 16425 ——— SECHSTE [NEUESTE] VERMEHRTE AUFLAGE; *with 84 diagrams*, large 8vo. *hf. black morocco neat, cl. sides*, 10s (p. M. 14 in cl.)
Dedicated to the poor feckless Monistic jingo WILHELM OSTWALD who made such unlucky loud boasting in Sweden at the opening of the war.
- 16426 **NETTO (Otto Erwin Johannes Eugen; Prof. Mathematics, Giessen)** Die DETERMINANTEN, large post 8vo. *buckram*, 2s 6d *Leipzig*, 1910
- 16427 ——— ELEMENTARE ALGEBRA: akademische Vorlesungen; *with 19 diagrams*, large 8vo. *cl.*, 2s 6d (p. M. 4.40) *ibidem*, 1904
- 16428 ——— GRUPPEN- und SUBSTITUTIONENTHEORIE, large cr. 8vo. *cl.*, 3s 6d (p. M. 5.20) *ib.*, 1908
- 16429 ——— LEHRBUCH der COMBINATORIK, roy. 8vo. *cl.*, 6s (p. M. 9) *ib.*, 1901
- 16430 ——— VORLESUNGEN über ALGEBRA; *with diagrams*, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (fine copy)*, £1. 1s (p. M. 28 sewn) *ib.*, 1896-1900
- 16431 **NEUBERG (Joseph, Univ. LIÈGE)** COURS d'ALGÈBRE SUPÉRIEURE [2^e et dernière Édition]; *with diagrams*, large 8vo. *buckram*, 5s (p. F. 7.50 nett sewn) *Liège*, 1907 or '9
- 16432 ——— COURS de GÉOMÉTRIE ANALYTIQUE; *with 49 diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 6s (p. F. 9 nett sewn) 1908
- 16433 **NEUMANN (Carl Gottfried; Univ. Leipzig)** Das DIRICHLET'SCHE PRINCIP und seine Anwendung auf die RIEMANN'SCHEN FLÄCHEN, 8vo. *red buckram*, 1s 6d *Leipzig*, 1865
- 16434 ——— VORLESUNGEN über RIEMANN'S THEORIE der ABEL'SCHEN INTEGRALE; *with plate and diagrams*, 8vo. *red buckram*, 5s (p. M. 15 sewn) *ibidem*, 1865
- 16435 ——— ZWEITE [LETZTE] VOLLSTÄNDIG UMGEARBEITETE UND WESENTLICH VERMEHRTE AUFLAGE; *with plate and diagrams*, large 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, 9s 6d (p. M. 12 sewn) *ib.*, 1884
- 16436 **NICOL (J.)** COURS de GÉOMÉTRIE COTÉE à l'Usage des Candidates à l'ÉCOLE NAVALE; 2^e Edition; *with 198 diagrams*, roy. 8vo. *buckram, uncut, t. e. g.*, 3s 1900
- 16437 **NIELSEN (Niels; Prof. Mathematics, Copenhagen)** HANDBUCH der THEORIE der CYLINDER-FUNKTIONEN, roy. 8vo. *cl.*, 9s 6d (p. M. 14) *Leipzig*, 1904
- 16438 ——— HANDBUCH der THEORIE der GAMMAFUNKTION, roy. 8vo. *cl.*, 8s (p. M. 12) *ibidem*, 1906
- 16439 ——— LEHRBUCH der UNENDLICHEN REIHEN, roy. 8vo. *buckram, uncut, t. e. g.*, 8s (p. M. 11 sewn) *ib.*, 1909
- 16440 ——— THÉORIE des FONCTIONS MÉTASPHÉRIQUES : Cours professé à l'Université de Copenhague, large 4to. *buckram, uncut, t. e. g.*, 7s 6d (p. F. 12 nett sewn) 1911
- 16441 **NUNN (T. Percy, Prof. Education, Univ. London)** EXERCISES in ALGEBRA (including TRIGONOMETRY), with the **Answers, with frontispieces and diagrams**, 2 vols. cr. 8vo. *buckram*, 6s 6d (p. 11s) 1913-14
- 16442 ——— The TEACHING of ALGEBRA (including TRIGONOMETRY), *with 158 diagrams*, cr. 8vo. *buckram*, 4s (p. 7s 6d) 1914

MATHEMATICS, continued:—

- 16444 **NIEWENGLOWSKI (B.)** COURS d'ALGÈBRE, 4^e Édition; with diagrams, 2 vols. large 8vo. *hf. calf*, 7s 6d 1897
- 16445 ——— CINQUIÈME ÉDITION, entièrement refondue, avec le Supplement; with diagrams, 3 vols. large 8vo. in 1 (pp. 922), handsomely bound in *hf. pigskin*, cl. sides, uncut, t. e. g., 10s 6d (p. F. 17.50 nett) 1902
- 16446 ——— ANOTHER COPY, with the SUPPLEMENT (Vol. I 6^e Édition), 3 vols. large 8vo. in 1, handsomely bound in *hf. pigskin*, cl. sides, 11s 1902-8
- 16447 ——— COURS de GÉOMÉTRIE ANALYTIQUE; with several hundred diagrams, 3 vols. roy. 8vo. in 2, handsomely bound in *hf. pigskin*, cl. sides, uncut, t. e. g., 17s 6d (p. F. 32 nett sewn) 1894-6
CONTENU:—I. Sections Coniques: II. Construction des Courbes planes. Compléments relatifs aux Coniques: III. Géométrie dans l'Espace, avec Note sur les Transformations en Géométrie par ÉMILE BOREL.
- 16448 ——— DEUXIÈME [DERNIÈRE] ÉDITION; with numerous diagrams, 3 vols. roy. 8vo. in 2, handsomely bound in *hf. pigskin*, cl. sides, uncut, t. e. g., £1. 4s (p. F. 33 nett sewn) 1911-14
- 16449 **NIXON (R. C. J., Peterhouse)** EUCLID REVISED: the Essentials of the Elements as given in the first Six Books, with numerous Additional Propositions and Exercises; 3rd [latest] Edition, with numerous diagrams: GEOMETRICAL EXERCISES from NIXON'S 'EUCLID REVISED,' with Solutions, by ALEXANDER LARMOR, Fellow of Clare—2 vols. cr. 8vo. in 1, handsomely bound in *hf. black morocco*, cl. sides (as good as new), 6s 6d (p. 9s 6d in cl.)
Clarendon Press, Oxford, 1899-1901
- 16450 ——— ANOTHER COPY, 2 vols. in 1, *hf. pigskin neat*, cl. sides, 5s 6d
- 16451 ——— GEOMETRY in SPACE: containing Parts of Euclid's 11th and 12th Books, and some Properties of Polyhedra and Solids of Revolution, with diagrams, post 8vo. cl., 2s
apud eandem, ibidem, 1888
A supplement to the foregoing work.
- 16452 **NOTH (Hermann)** ARITHMETIK der LAGE: ein neues Hilfsmittel zur analytischen Behandlung der Raumlehre, mit Berücksichtigung ebener geometrischer Gebilde erster und zweiter Ordnung; with 20 diagrams, 8vo. cl., 2s
Leipzig, 1882
- 16453 **OCAGNE (Philbert Maurice d', École Polytechnique)** CALCUL GRAPHIQUE et NOMOGRAPHIE; with 146 illustrations, post 8vo. buckram, 3s 1908
- 16454 ——— COURS de GÉOMÉTRIE DESCRIPTIVE et INFINITÉSIMALE; with 340 illustrations, large 8vo. *hf. black morocco neat*, cl. sides (as good as new), 8s 6d (p. F. 12 nett sewn) 1896
- 16455 ——— TRAITÉ de NOMOGRAPHIE: Théorie des Abaques. Applications pratiques; with folding plate (linen-mounted) and 177 illustrations, large 8vo. handsomely bound in *hf. black morocco*, cl. sides, uncut, t. e. g. (as good as new), 10s (p. F. 14 nett sewn) 1899
- 16456 **OLBRICHT (Richard)** LEHRBUCH der SCHLUSS- und KETTENRECHNUNG (der einfachen und zusammengesetzten Regeldreite und des Reesischen Satzes), nebst Anwendungen, large 8vo. buckram, 2s 6d (p. M. 4.50 sewn)
Bremerhaven [1891]
- 16457 ——— ANOTHER COPY; also: **KLEYER (Adolph)** LEHRBUCH der ZINSESZINS- und RENTENRECHNUNG, nebst Sammlung von Aufgaben—2 vols. large 8vo. in 1, buckram, 6s (p. M. 10.50 *ibidem* [1893-85])
- 16458 **OLIVIER (Théodore)** COURS de GÉOMÉTRIE DESCRIPTIVE, 7 v.; with Atlases, comprising 238 plates (many finely LINEN-MOUNTED), 6 v.—13 vols. 4to. and roy. 4to. in 5, handsomely bound in *hf. black morocco*, cl. sides, uncut, t. e. g. (AS GOOD AS NEW), £2. 2s (p. F. 100 sewn) 1843-70
CONTENU:—Cours de Géométrie descriptive, 3^e [dernière] Edition par E. ROUCHÉ, avec Additions, 3 v.: Développements de Géométrie descriptive, avec Chapitre par M. SERRET: Compléments de Géométrie descriptive: Mémoires de Géométrie: Applications aux Ombres, à la Perspective.
- 16459 **OSGOOD (William Fogg, Harvard Univ.)** LEHRBUCH der FUNKTIONENTHEORIE, I. [einziger] Band; with 150 illustrations, large 8vo. cl., 8s 6d (p. M. 15.60)
Leipzig, 1907
- 16460 **OSORIO (Antonio)** THÉORIE MATHÉMATIQUE de l'ÉCHANGE, avec Introduction par VILFREDO PARETO, traduit par JOSÉ d'ALMADA; with diagrams, 8vo. buckram, 5s 1913
- 16461 **PAPELLIER (G.)** LEÇONS sur les COORDONNÉES TANGENTIELLES, avec Préface de P. APPELL; with diagrams, 2 vols. 8vo. in 1, *hf. black morocco neat*, cl. sides, t. e. g. (as good as new), 7s (p. F. 10 nett sewn) 1894-5
- 16462 ——— PRÉCIS d'ALGÈBRE, d'ANALYSE et de TRIGONOMÉTRIE; 2^e Édition, mise en Harmonie avec le Nouveau Programme; with diagrams, 8vo. *hf. black morocco neat*, cl. sides, uncut, t. e. g., 4s 6d (p. F. 7.50 sewn) s. d.
- 16463 ——— TROISIÈME [DERNIÈRE] ÉDITION; with diagrams, 8vo. *hf. black morocco neat*, cl. sides, t. e. g., 5s s. d.
- 16464 ——— PRÉCIS de GÉOMÉTRIE ANALYTIQUE; with numerous diagrams, 8vo. *hf. black morocco neat*, cl. sides, t. e. g. (as good as new), 7s (p. F. 10 nett sewn) 1907
- 16465 **PASCH (Moritz; Prof. Mathematics, Giessen)** GRUNDLAGEN der ANALYSIS, ausgearbeitet unter Mitwirkung von CLEMENS THAER, 8vo. buckram, t. e. g., 3s
Leipzig, 1909
- 16466 ——— VORLESUNGEN über NEUERE GEOMETRIE; with diagrams, 8vo. buckram, 2s 6d (p. M. 4.50 sewn) *ibidem*, 1882

MATHEMATICS, continued :—

- 16468 **PASCAL** (Ernesto ; *Univ. Naples*) Die DETERMINANTEN : eine Darstellung ihrer Theorie und Anwendungen mit Rücksicht auf die neueren Forschungen, berechtigte deutsche Ausgabe von HERMANN LEITZMANN, 8vo. *cl.*, 6s 6d (p. M. 10) *Leipzig*, 1900
- 16469 ——— REPERTORIUM der HÖHEREN MATHEMATIK (Definitionen, Formeln, Theoreme, Literatur), autorisirte deutsche Ausgabe nach einer neuen Bearbeitung des Originals von A. SCHEPP, 2 vols. post 8vo. *cl.*, 12s (p. M. 22) *ibidem*, 1900-2
This edition contains portions not republished with the second.
- 16470 ——— ZWEITE [NEUESTE] VÖLLIG UMGEARBEITETE AUFLAGE der deutschen Ausgabe, unter Mitwirkung zahlreicher Mathematiker herausgegeben von P. EPSTEIN und H. E. TIMERDING ; *with diagrams*, 2 vols. post 8vo. *cl.*, 13s 6d (p. M. 20) *ib.*, 1910
INHALT :—I. i. Algebra, Differential- und Integralrechnung ; II. i. Grundlagen der ebenen Geometrie.
- 16471 ——— Die VARIATIONSRECHNUNG, autorisirte deutsche Ausgabe von ADOLF SCHEPP, 8vo. *cl.*, 2s 6d *ib.*, 1899
- 16472 **PAULY** (Jean) NOTIONS ÉLÉMENTAIRES du CALCUL DIFFÉRENTIEL et INTÉGRAL, 2^e [dernière] Edition ; *with diagrams*, large 8vo. *buckram*, t. e. g., 5s (p. F. 8 nett sewn) 1909
- 16473 **PEANO** (Giuseppe ; *Univ. Turin*) Die GRUNDZÜGE des GEOMETRISCHEN CALCULS, autorisirte deutsche Ausgabe von ADOLF SCHEPP, 8vo. *buckram*, 1s 6d *Leipzig*, 1891
- 16474 **PERRON** (Oskar ; *Prof. Mathematics, Tübingen*) Die LEHRE von den KETTENBRÜCHEN, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 15s (p. M. 20 sewn) *Leipzig*, 1913
- 16475 **PERRY** (John, F.R.S. ; *Roy. College of Science*) The CALCULUS for ENGINEERS, 5th Impression [revised, with Appendix], *with 106 diagrams*, cr. 8vo. *cl.*, 4s (p. 7s 6d) c. 1900
An excellent manual for those who have only an elementary knowledge of algebra and trigonometry.
- 16476 **PESCHKA** (Gustav Adolf V., *Technische Hochschule, Brünn*) FREIE PERSPECTIVE (CENTRALE PROJEKTION) in ihrer Begründung und Anwendung ; 2. [neueste] vollständig umgearbeitete Auflage ; *with 29 plates and 30 diagrams*, 2 vols. large 8vo. *original hf. morocco gilt (nice copy)*, 16s (p. M. 32) *Leipzig*, 1888-9
- 16477 **PETERSEN** (Peter Christian Julius ; *Univ. Copenhagen*) MÉTHODES et THÉORIES pour la RÉSOLUTION des PROBLÈMES de CONSTRUCTIONS GÉOMÉTRIQUES à plus de 400 Problèmes, traduit par O. CHEMIN, 2^e Edition, large cr. 8vo. *buckram*, 2s 6d *Copenhagen*, 1892
- 16478 ——— METHODEN und THEORIEN zur AUFLÖSUNG GEOMETRISCHER CONSTRUCTIONS-AUFGABEN, angewandt auf etwa 400 Aufgaben, ins Deutsche übertragen von R. v. FISCHER-BENZON ; *with diagrams*, sq. post 8vo. *red buckram*, 2s 6d (p. M. 3.50 sewn) *ibidem*, 1879
- 16479 ——— THÉORIE des ÉQUATIONS ALGÈBRIQUES, Traduction par H. LAURENT ; *with diagrams*, 8vo. *half black morocco neat, cl. sides, t. e. g. (as good as new)*, 7s (p. F. 10 nett sewn) *ib.*, 1897
- 16480 ——— THEORIE der ALGEBRAISCHEN GLEICHUNGEN ; *with diagrams*, post 8vo. *red buckram*, 7s 6d (p. M. 10 sewn) *ib.*, 1873
- 16481 **PETIT BOIS** (G.) TABLES d'INTÉGRALES INDÉFINIES, 4to. *buckram*, 6s 6d (p. F. 10 nett sewn) 1906
- 16482 **PFLIEGER** (Wilhelm) ELEMENTARE PLANIMETRIE ; *with 248 diagrams*, large cr. 8vo. *cl.*, or, *buckram*, 3s (p. M. 4.80) *Leipzig*, 1901
The author was Direktor der Realschule zu Münster in Elsass, which may be expected to suffer a sea-change for the better before long.
- 16483 **PICARD** (Charles Émile, *de l'Institut*) TRAITÉ d'ANALYSE (Tome I^{er} 2^e [dernière] Edition), 3 vols. roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, £1. 12s 6d (p. F. 49 nett sewn) 1901-1893-6
- 16484 ———, et Georges SIMART : THÉORIE des FONCTIONS ALGÈBRIQUES de DEUX VARIABLES INDÉPENDANTES, 2 vols. roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, 18s 6d (p. F. 27 nett sewn) 1897-1900
- 16485 **PICQUET** (H., *Capitaine du Génie*) TRAITÉ de GÉOMÉTRIE ANALYTIQUE à DEUX DIMENSIONS ; *with 127 diagrams*, 8vo. (pp. 612), *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 10s (p. F. 15 nett sewn) 1852
- 16486 **PIERPONT** (James, *Prof. Mathematics, Yale Univ.*) LECTURES on the THEORY of FUNCTIONS of REAL VARIABLES, *with diagrams*, 2 vols. large 8vo. *hf. black morocco neat, cl. sides (as good as new)*, £1. 10s (p. £2. nett in cl.) *Boston [Mass., 1905-12]*
- 16487 **PILLET** (Jules Jean) TRAITÉ de PERSPECTIVE LINÉAIRE, précédé du TRACÉ des OMBRES USUELLES (Rayon à 45°) et du Rendu dans le Dessin d'Architecture et de Machines ; 3^e [dernière] Edition, considérablement augmentée ; *with 449 illustrations*, roy. 4to. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, 11s (p. F. 15 nett sewn) 1901
- 16488 **PIONCHON** (J., *Univ. Grenoble*) PRINCIPES et FORMULES de TRIGONOMÉTRIE RECTILIGNE et SPHÉRIQUE, avec Appendice sur des Minima et Maxima des Figures géométriques ; *with 63 diagrams*, roy. 8vo. *buckram*, t. e. g., 3s 6d *Grenoble*, 1904
- 16489 **POINCARÉ** (Jules Henri, *de l'Institut ; F.R.S., cousin of the President of the French Republic*) CALCUL des PROBABILITÉS : Leçons professées pendant 1893-4, rédigées par A. QUIQUET ; *with 19 diagrams*, roy. 8vo. *hf. maroon morocco neat, cl. sides (fine copy)*, 6s (p. F. 9 nett sewn) 1896

MATHEMATICS, continued:—

- 16491 **PLÜCKER (Julius; Univ. Bonn; F.R.S.)** NEUE GEOMETRIE des RAUMES gegründet auf die Betrachtung der geraden Linie als Raumelement, mit Vorwort von A. CLEBSCH (herausgegeben von FELIX KLEIN); with diagrams, 2 parts 4to. in 1, *handsomely bound in hf. black morocco, cl. sides, t. e. g. (as good as new)*, 11s (p. M. 15 sewn) Leipzig, 1868-9
 'By considering space as made up of lines he created 'a new geometry of space'. Regarding a right line as a curve involving four arbitrary parameters, one has the whole system of lines in space. By connecting them by a single relation, he got a 'complex' of lines; by connecting them with a twofold relation, a 'congruency' of lines'.—*Prof. Cajori.*
- 16492 **POISSON (Siméon Denis, de l'Institut; F.R.S.)** RECHERCHES sur la PROBABILITÉ des JUGEMENTS en MATIÈRE CRIMINELLE et en MATIÈRE CIVILE, précédées des Règles générales du CALCUL des PROBABILITÉS, 4to. *hf. black calf neat, cl. sides, uncut, t. e. g. (as good as new)*, 8s 1837
 The author develops in this work his 'law of great numbers.'
- 16493 **PONCELET (Général Jean Victor, de l'Institut; F.R.S.)** APPLICATIONS d'ANALYSE et de GÉOMÉTRIE, qui ont servi de principal Fondement au Traité des Propriétés projectives des Figures, avec Additions par MM. MANNHEIM et MOUTARD; with folding tables and numerous diagrams, 2 vols. 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, 13s (p. F. 20 nett sewn) 1862-4
- 16494 ——— TRAITÉ des PROPRIÉTÉS PROJECTIVES des FIGURES, 2^e [dernière] Édition, corrigée et augmentée d'Annotations nouvelles; with 18 folding plates (linen-mounted), 2 vols. large 4to. in 1, *handsomely bound in hf. purple morocco neat, cl. sides, uncut, t. e. g. (FINE COPY)*, £1. 7s 6d (p. F. 40 nett sewn) 1865-6
 'Long one of the best-known text-books on modern geometry. By means of projection, reciprocation, and homologous figures he established all the chief properties of conics and quadrics. He also treated the theory of polygons.'—*W. W. R. Ball.*
 'He investigated in it the property of figures which remain unaltered by projection, which is not effected here by parallel rays of prescribed direction, as with Monge, but by centre projection. . . . To him we owe the Law of Duality as a consequence of reciprocal polars.'—*Prof. Cajori.*
 The work was written in 1813 while the author was a prisoner of war in Saratoff, with no other help than his memory.
- 16495 **PORTIER (B.)** Le CARRÉ DIABOLIQUE de 9 et son Dérivé le CARRÉ SATANIQUE de 9: Le CARRÉ CABALISTIQUE de 8—2 vols. roy. 8vo. in 1, *cl.*, 3s Alger, 1902
- 16496 **POULAIN (Auguste, S.J.)** PRINCIPES de la NOUVELLE GÉOMÉTRIE du TRIANGLE; with diagrams, roy. 8vo. *sewn*, 2s 1892
- 16497 **PRACTICAL MATHEMATICS**, new Edition, revised under the Supervision of C. G. KNOTT, F.R.S.E., and J. S. MACKAY, *illustrated*, thick cr. 8vo. *buckram*, 2s 6d 1903
- 16498 **PREDIGER (C., Bergakademie, Clausthal)** Die ELEMENTE der ANALYTISCHEN GEOMETRIE des RAUMES, zum Gebrauche bei Vorlesungen und zum Selbststudium; with 26 folding plates (all neatly linen-mounted), 8vo. *hf. black morocco neat, cl. sides, t. e. g. (fine copy)*, 4s 6d (p. M. 12 sewn) Clausthal, 1878
- 16499 ——— ANOTHER COPY, *hf. roan*, 3s
- 16500 **PRICE (Bartholomew, pr., F.R.S., Master of Pembroke Coll., Oxon.)** TREATISE on INFINITESIMAL CALCULUS, 2nd [last] Edition [with many Additions], with folding plates, 4 thick vols. 8vo. *cl.*, uncut (SCARCE), £2. 10s Univ. Press., Oxford, 1857-89
- 16501 ——— ANOTHER COPY, 4 vols. *hf. black morocco neat, cl. sides, uncut, t. e. g. (NICE COPY)*, £2. 15s
- A standard work on the subject, containing Differential and Integral Calculus, Calculus of Variations, Applications to Algebra and Geometry, and Analytical Mechanics. Vols. 1 and 2 are out of print and SCARCE.
- 16502 **PROCTOR (Richard Anthony, F.R.A.S.)** TREATISE on the CYCLOID and all Forms of CYCLOIDAL CURVES, and on the Use of such Curves in dealing with the Motion of Planets, Comets, etc., and of Matter projected from the Sun, with 161 diagrams, post 8vo. *cl. (o. p.)*, 3s 6d (p. 10s 6d) 1873
- 16503 **PRUVOST (E.)** LEÇONS de GÉOMÉTRIE ANALYTIQUE à l'Usage de la Classe des Mathématiciens spéciales, 6^e et 4^e Éditions; with numerous diagrams, 2 vols. 8vo. *hf. black morocco neat, cl. sides (nice copy)*, 14s (p. F. 21.50 nett sewn) s. d.
- 16504 ———, et D. PIÉRON: LEÇONS d'ALGÈBRE (Tome I 2^e Édition), 2 vols. thick 8vo. in 1, *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 9s (p. F. 15 nett sewn) s. d.—1893
- 16505 **PUCKLE (G. Hale, St. John's Coll., Cantab.; Windermere Coll.)** ELEMENTARY TREATISE on CONIC SECTIONS and ALGEBRAIC GEOMETRY, 4th Edition [revised, with a few Additions], with diagrams, post 8vo. *buckram (o. p.)*, 3s 6d (p. 7s 6d) 1870
- 16506 **PUND (Otto)** ALGEBRA, mit Einschluss der ELEMENTAREN ZAHLENTHEORIE, large cr. 8vo. *cl.*, or, *buckram*, 3s (p. M. 4.40) Leipzig, 1899
- 16507 **RAFFY (Louis, de la Sorbonne)** LEÇONS sur les APPLICATIONS GÉOMÉTRIQUES de l'ANALYSE (Éléments de la Théorie des Courbes et des Surfaces); with diagrams, roy. 8vo. *buckram, uncut, t. e. g.*, 5s (p. F. 7.50 nett sewn) 1897
- 16508 **RAUSENBERGER (Otto)** LEHRBUCH der THEORIE der PERIODISCHEN FUNCTIONEN einer VARIABLEN mit endlicher Anzahl wesentlicher Discontinuitätspunkte, nebst Einleitung in die allgemeine Functionentheorie; with diagrams, 8vo. *hf. cl.*, 6s (p. M. 10.80 sewn) Leipzig 1884
- 16509 **REID (Legh Wilber, Haverford Coll.)** The ELEMENTS of the THEORY of ALGEBRAIC NUMBERS, with Introduction by DAVID HILBERT, Prof. Mathematics, Göttingen, 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 11s (p. 15s nett) New York, 1910
 'It has been my endeavor to lead by easy stages a reader, entirely unacquainted with the subject, to an appreciation of some of the fundamental conceptions in the general theory of algebraic numbers.'—*Preface.*

MATHEMATICS, continued:—

- 16511 **REIDT** (Friedrich) SAMMLUNG von AUFGABEN und BEISPIELEN aus der TRIGONOMETRIE und STEREOMETRIE, mit den *Auflösungen*, 4. Auflage, neu bearbeitet von A. MUCH, 4 parts in 1 vol. 8vo. *handsomely bound in hf. pigskin, cl. sides, 6s 6d* (p. M. 9.80 sewn) Leipzig, 1894-7
- 16512 ——— ANOTHER COPY, 4 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (as good as new), 7s*
- 16513 ——— VORSCHULE der THEORIE der DETERMINANTEN, 8vo. *cl. (scarce), 2s 6d* *ibidem*, 1874
- 16514 **RÉMOND** (A.) EXERCICES ÉLÉMENTAIRES de GÉOMÉTRIE ANALYTIQUE à DEUX et TROIS DIMENSIONS, avec Exposé des Méthodes de Résolution, 2^e [dernière] Édition; *with numerous diagrams*, 2 vols. 8vo. *buckram, 9s* (p. F. 14 nett sewn) 1891-3
- 16515 **RÉSAL** (Amé Henri, *de l'Institut*) EXPOSITION de la THÉORIE des SURFACES; *with diagrams*, 8vo. *hf. maroon morocco neat, cl. sides (nice copy), 4s* 1891
- 16516 **REYE** (Karl Theodor; *Univ. Strasbourg*) Die GEOMETRIE der LAGE, 2. vermehrte Auflage; *with 6 folding plates*, 2 vols. large 8vo. in 1, *hf. calf, 5s* (p. M. 12 sewn) Hannover, 1877-80
- 16517 ——— DRITTE VERMEHRTE AUFLAGE; *with numerous diagrams*, 3 vols. large 8vo. in 1, *hf. polished maroon morocco neat, cl. sides (fine copy), 12s 6d* (p. M. 22 sewn) Leipzig, 1886-92
- 16518 ——— NEUESTE VERBESSERTE UND VERMEHRTE AUFLAGE (Bd. I 5. und Bd. II—III 4. Auflage); *with 125 diagrams*, 3 vols large 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (nice copy), £1. 1s* (p. M. 26 sewn) Stuttgart, 1907—Leipzig, 1910
One of the best text-books on synthetic geometry.
- 16519 **RHEIMS** (J. F. H. de) FIRST PRACTICAL LINES in GEOMETRICAL DRAWING, *with 68 plates*, 8vo. *cl. 3s* (p. 9s) 1865
- 16520 **RICE** (John Minot, *Prof. Math., U.S.N.*), and William Woolsey **JOHNSON**, *U.S. Naval Academy*: ELEMENTARY TREATISE on the DIFFERENTIAL CALCULUS, founded on the Method of Rates or Fluxions; fourth Edition, *with 80 diagrams*, thick 8vo. *buckram, 8s* (p. 18s) 1888
Discarding Lagrange's method of derived functions as objectionable, the authors improved on Newton's conception of rates and fluxions 'by deriving the differentials of the functions by an analytical method founded on the notion of rates, and entirely independent of the difficult conceptions of infinitesimal increments and of limiting ratios . . . resulting in a satisfactory method of obtaining the differentials of the simple functions' (*Preface*).
- 16521 **RICHARD** (Jules Antoine) LEÇONS sur les MÉTHODES de la GÉOMÉTRIE MODERNE, nouvelle Édition, augmentée; *with diagrams*, large 8vo. *buckram, uncut, t. e. g. (o. p.), 6s* 1900
- 16522 **RICHARD** (P. J.), et Émile **PETIT**, *actuaire*: THÉORIE MATHÉMATIQUE des ASSURANCES, cr. 8vo. *buckram, 2s 6d* 1908
- 16523 **RICHTER** (Otto) KREIS und KUGEL in SENKRECHTER PROJEKTION; *with 147 diagrams*, 8vo. *buckram, uncut, t. e. g., 3s 6d* Leipzig, 1908
- 16524 **RIEMANN** (Georg Friedrich Bernhard, *Univ. Göttingen*) GESAMMELETE MATHEMATISCHE WERKE und wissenschaftlicher Nachlass, herausgegeben, unter Mitwirkung von R. DEDEKIND, von HEINRICH WEBER; 2. [neueste] Auflage [mit Lebenslauf], bearbeitet von H. WEBER; *with fine steel portrait and illustrations*, large 8vo. *hf. maroon morocco neat, cl. sides (fine copy), 14s* (p. M. 18 sewn) Leipzig, 1892
'Like all of Riemann's researches, those on functions were profound and far-reaching. He laid the foundation for a general theory of functions of a complex variable. The theory of potential, which up to that time had been used only in mathematical physics, was applied by him to pure mathematics.'—*Prof. Cajori*. The above contains also his celebrated thesis, *Grundlagen für eine allgemeine Theorie der Functionen einer veränderlichen complexen Grösse*, 'which excited the admiration of Gauss to a very unusual degree', and his famous memoir on the hypotheses on which geometry is founded.
- 16525 ——— PARTIELLE DIFFERENTIALGLEICHUNGEN und deren Anwendung auf physikalische Fragen, bearbeitet und herausgegeben von KARL HATTENDORF; 3. Ausgabe; *with 46 diagrams*, 8vo. *red buckram, 4s 6d* (p. M. 8 sewn) Braunschweig, 1882
- 16526 ——— VIERTE AUFLAGE, neu bearbeitet von HEINRICH WEBER; *with numerous diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy), 13s 6d* (p. M. 20 sewn) *ibidem*, 1900-1
- 16527 **RIQUIER** (Charles Edmond Alfred, *Univ. Caen*) Les SYSTÈMES d'ÉQUATIONS aux DÉRIVÉES PARTIELLES; *with diagrams*, roy. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 14s* (p. F. 20 nett sewn) 1901
- 16528 **RITT** (Georges, *Inspecteur général de l'Instruction publique*) PROBLÈMES d'ALGÈBRE et EXERCICES de CALCUL ALGÈBRE, avec les Solutions, 4^e Édition, 8vo. *hf. calf, 3s* 1856
- 16529 ——— PROBLÈMES d'APPLICATION de l'ALGÈBRE à la GÉOMÉTRIE, avec les Solutions développées; 2^e Édition; *with 7 folding plates*, 8vo. *buckram (o. p.), 3s* 1857
- 16530 ——— PROBLÈMES de GÉOMÉTRIE et de TRIGONOMETRIE, avec la Méthode à suivre pour la Résolution des Problèmes de Géométrie et les Solutions, 6^e [dernière] Édition; *with 6 folding plates (linen-mounted)*, 8vo. *buckram (o. p.), 3s 6d* 1873
- 16531 ——— PROBLÈMES de GÉOMÉTRIE ANALYTIQUE, avec les Solutions développées, 2^e Édition; *with 9 plates*, 8vo. *cl., 3s* 1859
- 16532 **ROBERTS** (Ralph Augustus, T.C.D.) TREATISE on the INTEGRAL CALCULUS, PART I (all pub.): Elementary Account of ELLIPTIC INTEGRALS and APPLICATIONS to PLANE CURVES, *with 34 diagrams*, post 8vo. *buckram, uncut, t. e. g. (o. p.), 4s 6d* (p. 10s 6d) Dublin, 1887

MATHEMATICS, continued:—

- 16534 **ROHN** (Karl; *Prof. Mathematics, Dresden*), und **Erwin PAPPERITZ**; *Prof. Mathematics, Freiberg*: LEHRBUCH der DARSTELLENDE GEOMETRIE, 3. umgearbeitete Auflage (Bd. I 2. Auflage); with 592 illustrations, 3 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides (fine copy), 14s (p. M. 27 sewn) Leipzig, 1901-6
- 16535 **ROUCHÉ** (Eugène; *de l'Institut*), et **Charles de COMBEROUSSE**: TRAITÉ de GÉOMÉTRIE; 6^e Édition, augmentée; with numerous diagrams, 2 vols. 8vo. hf. maroon morocco neat, cl. sides, 7s (p. F. 17 nett sewn) 1891
- 16536 ——— SEPTIÈME ÉDITION, revue et augmentée par **EUGÈNE ROUCHÉ**; with numerous diagrams, 2 thick vols. 8vo. in 1 (pp. 1272), handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 10s (p. F. 17 nett sewn) 1900
- 16537 ——— ANOTHER COPY, 2 vols., hf. morocco neat, 9s
- 16538 ———, et **Lucien LÉVY**: ANALYSE INFINITÉSIMALE à l'Usage des INGÉNIEURS; with 95 diagrams, 2 thick vols. roy. 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), £1. 1s (p. F. 30 nett sewn) 1900-2
- 16539 **RUCHONNET** (Charles, *de Lausanne*) EXPOSITION GÉOMÉTRIQUE des PROPRIÉTÉS GÉNÉRALES des COURBES, 6^e [dernière] Édition, augmentée; with 7 folding plates (linen-mounted), 8vo. buckram, 2s 6d Lausanne, 1901
- 16540 **RUNGE** (Carl David Tolmé, *Univ. Göttingen*) ANALYTISCHE GEOMETRIE der EBENE; with 75 diagrams, 8vo. buckram, 4s (p. M. 6) Leipzig, 1908
- 16541 ——— PRAXIS der GLEICHUNGEN; with folding plate, large cr. 8vo. cl., 3s 6d (p. M. 5.20) ibidem, 1900
- 16542 ——— THEORIE und PRAXIS der REIHEN; with 8 diagrams, large cr. 8vo. cl., or, buckram, 4s 6d (p. M. 7) ib., 1904
- 16543 **RUSSELL** (Hon. Bertrand Arthur William; *late Fellow of Trinity, F.R.S.*) ESSAY on the FOUNDATIONS of GEOMETRY, 8vo. cl., uncut (o. p.), 7s 6d Univ. Press, Cambridge, 1897
This is by the person who has said that all the peoples allied or enemy giving up their lives in the War, while he lives at ease in Cambridge, are like dogs who fight one another because they dislike each other's smell.
- 16544 ——— ESSAI sur les FONDEMENTS de la GÉOMÉTRIE, Traduction par **ALBERT CADENAT**, revue et annotée par **LOUIS COUTURAT**; with 11 diagrams, roy. 8vo. buckram, uncut, t. e. g., 5s 6d (p. F. 9 nett sewn) 1901
- 16545 ——— THE PRINCIPLES of MATHEMATICS, Vol. I (all published), roy. 8vo. cl., uncut (o. p.), 12s 6d Univ. Press, Cambridge, 1903
This important work was continued by WHITEHEAD and RUSSELL's PRINCIPIA MATHEMATICA (q. v. post).
- 16546 **RUSSELL** (John Wellesley, *Balliol Coll.*) ELEMENTARY TREATISE on PURE GEOMETRY, with numerous Examples, numerous diagrams, cr. 8vo. cl., 4s (p. 10s 6d) Clarendon Press, Oxford, 1893
- 16547 ——— NEW AND REVISED EDITION, with folding plate and diagram; with the Sequel and Solutions, 3 vols. cr. 8vo. cl., 14s (p. £1. 5s 6d nett) apud eandem, ibidem, 1905-8
* Attempting to bring together all the well-known theorems and examples connected with Harmonics, Anharmonics, Involution, Projection (including Homology), and Reciprocation.—*Preface.*
- 16548 **SACHS** (J.) LEHRBUCH der PROJEKTIVISCHEN (NEUEREN) GEOMETRIE (synthetische neuere Geometrie, Geometrie der Lage), nebst Sammlung von Aufgaben und deren Ergebnisse; with numerous diagrams, 3 vols. sq. 8vo. in 1, hf. black morocco neat, cl. sides, 10s 6d (p. M. 19 sewn) Bremerhaven [1900]-7
- 16549 ——— ANOTHER COPY, 3 vols. roy. 8vo. in 2, buckram, 9s
——— v. KLEYER, ante.
- 16550 **SALMON** (George, *pr.*; F.R.S., *Provost T. C. D.*) LESSONS INTRODUCTORY to the MODERN HIGHER ALGEBRA, 4th [last] Edition [enlarged and rewritten], 8vo. cl. (FRESH COPY); VERY SCARCE, £1. 10s Dublin, 1885
* The investigations of Cayley and Sylvester [to whom the work is dedicated] into the invariants of quantities were beginning to attract attention; and Salmon proceeded to apply their results to geometrical theory, the result being *Lessons Introductory to the Modern Higher Algebra*, in which he incorporated much original matter.—*Abp. Bernard.*
* No account of contemporary writings on higher algebra would be complete without a reference to the admirable textbooks by G. Salmon, in his *Higher Algebra*, and by J. A. Serret, in his *Cours d'algèbre supérieure* [q. v. post], in which the chief discoveries of their respective authors are embodied.—*W. W. R. Ball.*
- 16551 ——— TREATISE on the ANALYTIC GEOMETRY of THREE DIMENSIONS, 4th Edition [enlarged and rewritten], thick 8vo. hf. black morocco, cl. sides, t. e. g. (fine copy), 7s 6d (p. 15s in cl.) ibidem, 1882
- 16552 ——— FIFTH [LATEST] EDITION, revised by **REGINALD A. P. ROGERS**, T.C.D., 2 vols. 8vo. hf. black morocco neat, cl. sides (as good as new), 12s (p. 16s 6d in cl.) 1912-15
* The sections on the general theory of surfaces are specially remarkable.—*Abp. Bernard.*
- 16553 ——— TREATISE on CONIC SECTIONS, with Account of some of the most important Modern Algebraic and Geometric Methods, 5th Edition, with diagrams, 8vo. cl., 4s (p. 12s) 1869
- 16554 ——— SIXTH [FINAL] EDITION, with diagrams, 8vo. buckram, t. e. g., 6s (p. 12s) 1879
* Admirably arranged, and constructed with an unerring sense of the distinction between important principles and mere details, it exhibited more fully than any other book of the time at once the power of the Cartesian co-ordinates and the beauty of geometrical method; and for half a century it was the leading text-book on its subject.—*Abp. Bernard.*

MATHEMATICS, *continued* :—

- 16556 **SALMON** (George, *pr.*; F.R.S., *Provost T. C. D.*) TRAITÉ de GÉOMÉTRIE ANALYTIQUE (SECTIONS CONIQUES), contenant un Exposé des Méthodes les plus importantes de la Géométrie et de l'Algèbre modernes, traduit par H. RÉSAL et V. VAUCHERET; with 124 diagrams, 8vo. *hf. morocco*, 2s 6d 1870
'Nous espérons que cet ouvrage ne tardera pas à devenir classique en France, comme il l'est déjà en Angleterre.'—*Traducteurs.*
- 16557 ——— ANALYTISCHE GEOMETRIE der KEGELSCHNITTE, mit besonderer Berücksichtigung der neueren Methoden, frei bearbeitet von WILHELM FIEDLER, 5. umgearbeitete Auflage; with numerous diagrams, 2 vols. 8vo. in 1, *hf. maroon morocco neat, cl. sides (nice copy)*, 9s (p. M. 16.80 sewn) Leipzig, 1887-8
- 16558 ——— TREATISE on the HIGHER PLANE CURVES: a Sequel to 'Conic Sections', 3rd [last] Edition, with diagrams, 8vo. *buckram, t. e. g.* (VERY SCARCE), £2. 10s Dublin, 1879
'Embodying the chief discoveries of its author.'—*W. W. R. Ball.*
'A subject of which little was then known, and which was introduced to the ordinary student by Salmon's labours.'—*Abp. Bernard.*
'Salmon helped powerfully towards the spreading of a knowledge of the new algebraic and geometric methods by the publication of an excellent series of text-books.'—*Prof. Cajort.*
'Upon these four treatises his fame as a mathematician rests. . . . Salmon's methods made little use of the calculus, or of the quaternion analysis invented by his contemporary, Sir W. R. Hamilton; nor, again, did he ever handle the non-Euclidean geometry. His strength lay in his complete mastery of geometric and algebraic processes, and this, coupled with his indefatigable industry as a calculator, enabled him to produce original work of permanent value.'—*Abp. Bernard.*
The always striking fellowship of theology and mathematics has seldom had a greater example than in Dr. Salmon, and the weight it lent him was a source of strength to the Irish Church throughout the throes of disestablishment and reconstruction, as well as to Christian evidence.
- 16559 **SANDEN** (Horst v., *Univ. Göttingen*) PRAKTISCHE ANALYSIS; with 30 diagrams, post 8vo. *buckram*, 3s Leipzig, 1914
- 16560 **SANTERRE** (S.) PSYCHOLOGIE du NOMBRE et les OPÉRATIONS ÉLÉMENTAIRES de l'ARITHMÉTIQUE, avec Préface par PIERRE JANET, roy. 8vo. *cl.*, 3s 1907
- 16561 **SAUERBECK** (Paul) EINLEITUNG in die ANALYTISCHE GEOMETRIE der HÖHEREN ALGEBRAISCHEN KURVEN nach der Methode von JEAN PAUL DE GUA DE MALVES: ein Beitrag zur Kurvendiskussion; with 76 diagrams, large 8vo. *buckram*, 6s (p. M. 8 sewn) Leipzig, 1902
- 16562 **SAUVAGE** (P.) Les LIEUX GÉOMÉTRIQUES en GÉOMÉTRIE ÉLÉMENTAIRE; with 47 diagrams, large post 8vo. *buckram*, 2s 6d 1893
- 16563 **SCHAFHEITLIN** (Paul) DIE THEORIE der BESSELSCHEN FUNKTIONEN; with folding plate, post 8vo. *stiff wrapper*, 2s Leipzig, 1908
- 16564 **SCHEFFERS** (Georg Wilhelm; *Prof. Projective Geometry, Charlottenburg*) ANWENDUNG der DIFFERENTIAL- und INTEGRALRECHNUNG auf GEOMETRIE; with numerous illustrations, 2 vols. large 8vo. in 1, *handsomely bound in hf. crushed blue Levant morocco, cl. sides, uncut, t. e. g. (fine copy)*, 15s (p. M. 23 sewn) Leipzig, 1901-2
INHALT:—I. Einführung in die Theorie der Curven in der Ebene und im Raume: II. Einführung in die Theorie der Flächen.
- 16565 ——— LEHRBUCH der MATHEMATIK für Studierende der Naturwissenschaften und Technik: Einführung in die Differential- und Integralrechnung und in die analytische Geometrie, 2. [neueste] verbesserte Auflage; with 413 illustrations, 8vo. (pp. 740), *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 14s (p. M. 18 sewn) *ibidem*, 1911
- 16566 ——— ANOTHER COPY, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 13s 6d
- 16567 **SCHEFFLER** (Hermann) Die MAGISCHEN FIGUREN: allgemeine Lösung und Erweiterung eines aus dem Alterthum stammenden Problems; with 2 plates, 8vo. *sewn*, 2s Leipzig, 1882
- 16568 ——— Die POLYDIMENSIONALEN GRÖSSEN und die VOLLKOMMENEN PRIMZAHLEN; with 42 diagrams, 8vo. *buckram*, 3s (p. M. 5.60 sewn) Braunschweig, 1880
A German should have been above such a barbarism as 'polydimensional'.
- 16569 **SHELL** (Wilhelm, *Technische Hochschule, Karlsruhe*) ALLGEMEINE THEORIE der CURVEN DOPPELTER KRÜMMUNG in rein geometrischer Darstellung, 2. [neueste] erweiterte Auflage; with 58 diagrams, 8vo. *buckram*, 4s (p. M. 5 sewn) Leipzig, 1898
- 16570 **SCHENDEL** (Leopold) ELEMENTE der ANALYTISCHEN GEOMETRIE der EBENE in TRILLINEAREN COORDINATEN, large post 8vo. *cl.*, 2s 6d (p. M. 6 sewn) Jena, 1874
- 16571 ——— GRUNDZÜGE der ALGEBRA nach GRASSMANN'SCHEN PRINZIPIEN, 8vo. *buckram*, 2s Halle, 1885
- 16572 **SCHLEGEL** (Victor) SYSTEM der RAUMLEHRE, nach den Principien der GRASSMANN'SCHEN AUSDEHNUNGSLEHRE und als Einleitung in dieselbe; with diagrams, 2 vols. 8vo. in 1, *buckram*, 4s (p. M. 11 sewn) Leipzig, 1872-5
- 16573 ——— ANOTHER COPY, 2 vols. in 1, *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 5s
- 16574 ——— THEORIE der HOMOGENEN ZUSAMMENGESETZTEN RAUMGEBILDE; with 9 plates, roy. 4to. *buckram, uncut, t. e. g.*, 6s (p. M. 12.50 sewn) Halle, 1883

MATHEMATICS, continued:—

- 16576 **SCHLESINGER** (Ludwig; *Univ. Klausenburg*) EINFÜHRUNG in die THEORIE der DIFFERENTIALGLEICHUNGEN mit einer unabhängigen Variablen, large cr. 8vo. buckram, 4s 6d (p. M. 8) Leipzig, 1900
- 16577 ——— ZWEITE [NEUESTE] REVIDIERTE AUFLAGE, large cr. 8vo. cl., 5s 6d (p. M. 8) *ibidem*, 1904
- 16578 ——— HANDBUCH der THEORIE der LINEAREN DIFFERENTIALGLEICHUNGEN; *with numerous diagrams*, 3 vols. roy. 8vo. in one (pp. 1516), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 15s (p. M. 50 sewn) *ib.*, 1895-8
- 16579 **SCHLIMBACH** (August) POLITISCHE ARITHMETIK, insbesondere Zinseszins-, Sparkassen-, Renten-, Anleihe-, Kurs- und Rentabilitäts-Rechnung, nebst Faktoren-Zusammenstellung, roy. 8vo. *handsomely bound in hf. pigskin, cl. sides (fine copy)*, 8s (p. M. 10 sewn) Frankfurt a. M., 1902
- Before the war is over Imperial 'Political Arithmetic' will be proving to an at last doubting but still docile people that thousands of women and children have been murdered by Zeppelins, and that the exchange value of the mark is at a premium.
- 16580 **SCHLÖMILCH** (Oskar) COMPENDIUM der HÖHEREN ANALYSIS, 5. and 3. Auflage; *with numerous diagrams*, 2 vols. 8vo. *hf. calf neat*, 10s (p. M. 18 sewn) Braunschweig, 1881-79
- 16581 ——— LATEST EDITION (Bd. I 5. und Bd. II 4. Auflage); *with numerous diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 14s (p. M. 18 sewn) *ibidem*, 1881-95
- 16582 ——— HANDBUCH der ALGEBRAISCHEN ANALYSIS, 6. [neueste] Auflage, 8vo. *hf. cl.*, 6s 6d (p. M. 9 sewn) Jena, 1881
- 16583 ——— ANOTHER COPY, *hf. black calf neat, cl. sides*, 7s 6d Stuttgart, 1889
- 16584 ——— GRUNDZÜGE der WISSENSCHAFTLICHEN DARSTELLUNG der GEOMETRIE des MASSES, Heft 1-2 (Planimetrie und ebene Trigonometrie), 7. und 6. [neueste] Auflage; *with diagrams*, 2 vols. 8vo. in 1, buckram, 3s Leipzig, 1888-3
- 16585 ——— HANDBUCH der MATHEMATIK, herausgegeben unter Mitwirkung von F. REIDT und RICHARD HEGGER; *with 12 folding plates and numerous diagrams*, 2 thick vols. roy. 8vo. *hf. maroon morocco, cl. sides*, 16s 6d (p. M. 43.80 sewn) Breslau, 1879-81
- 16586 ——— ZWEITE [NEUESTE] AUFLAGE, herausgegeben von R. HENKE und R. HEGGER; *with 32 folding plates (linen-mounted), and 696 diagrams*, 3 vols. roy. 8vo. *handsomely bound in hf. pigskin, cl. sides (FINE COPY)*, £2. 5s (p. M. 60 sewn) Leipzig, 1904
- 16587 ——— ÜBUNGSBUCH zum Studium der HÖHEREN ANALYSIS, 4. und 3. Auflage; *with diagrams*, 2 vols. 8vo. in 1, *hf. maroon morocco neat*, 7s 6d (p. M. 13.60 sewn) *ibidem*, 1888-2
- 16588 ——— NEUESTE AUFLAGE von E. NAETSCH und R. HENKE (Bd. I 5. und Bd. II 4. A.); *with diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides (nice copy)*, 13s (p. M. 18 in cl.) *ib.*, 1900-4
- 16589 ——— ANOTHER COPY, 2 vols. in 1, *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 14s
- 16590 **SCHLOTKE** (J.) ANALYTISCHE GEOMETRIE der EBENE; *with 97 diagrams*, large 8vo. buckram, 3s 6d (p. M. 6.80 sewn) Dresden, 1891
- 16591 ——— Die KEGELSCHNITTE und ihre wichtigsten Eigenschaften in elementar-geometrischer Behandlung; *with 129 diagrams*, 8vo. buckram, 2s 6d *ibidem*, 1903
- 16592 ——— LEHRBUCH der DARSTELLENDE GEOMETRIE (Bd. I 6. A., II 3. A. und III 2. A.); *with 2 plates and 634 text-illustrations*, 4 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides, t. e. g. (as good as new)*, 10s (p. M. 14.80 sewn) Leipzig, 1896-1905
- 16593 ——— LEHRBUCH der DIFFERENTIAL- und INTEGRALRECHNUNG; *with 106 diagrams*, large 8vo. buckram, 6s (p. M. 7.80 sewn) Dresden, 1903
- 16594 **SCHMEHL** (Chr.) Die ELEMENTE der DARSTELLENDE GEOMETRIE; *with numerous diagrams*, 2 vols. roy. 8vo. in 1, buckram, 2s 6d (p. M. 5 sewn) Giessen, 1899
- 16595 **SCHMIDT** (E.) HANDBUCH zur DISCUSSION von CURVEN EINFACHER und DOPPELTER KRÜMMUNG, 8vo. buckram, 2s 6d Hamburg, 1881
- 16596 **SCHOENFLIES** (Artur Moritz; *Prof. Mathematics, Königsberg*) EINFÜHRUNG in die HAUPTGESATZE der ZEICHNERISCHEN DARSTELLUNGSMETHODEN; *with 98 diagrams*, 8vo. buckram, t. e. g., 2s Leipzig, 1908
- 16597 ——— ENTWICKELUNG der MENGENLEHRE und ihrer Anwendungen: Umarbeitung des im VIII. Bande der Jahresberichte der deutschen Mathematiker-Vereinigung erstatteten Berichts, gemeinsam mit HANS HAHN herausgegeben, 2 vols. roy. 8vo. buckram, uncut, t. e. g., £1. 2s 6d (p. M. 28 sewn) *ibidem*, 1913-8
- Part I is in the 2nd, and Part II in the first and only edition, entitled 'Entwicklung der Lehre von den Punktmannigfaltigkeiten,' which is now out of print and scarce.
- 16598 ——— Die ENTWICKELUNG der LEHRE von den PUNKTMANNIGFALTIGKEITEN: Bericht erstattet der deutschen Mathematiker-Vereinigung, 8vo. buckram (o. p.), 8s *ib.*, 1910
- 16599 ——— La GÉOMÉTRIE du MOUVEMENT: Exposé synthétique, traduit par CH. SPECKEL; Edition revue et augmentée par l'Auteur, suivie de Notions géométriques sur les Complexes et les Congruences de Droites par G. FOURET; *with diagrams*, large post 8vo. red buckram, 4s (p. F. 6.50 nett sewn) 1893

MATHEMATICS, continued:—

- 16601 **SCHNUSE (C. H.)** Die GRUNDLEHREN der NEUERN GEOMETRIE, I. [einziger] Theil: Theorie des anharmonischen Verhältnisses, der homographischen Theilung und Involution u. s. w., nach CHASLES frei bearbeitet; *with diagrams*, 8vo. buckram, 2s 6d Braunschweig, 1856
- 16602 **SCHOUTE (Pieter Hendrik, Univ. Groningen)** MEHRDIMENSIONALE GEOMETRIE; *with 155 diagrams*, 2 vols. large cr. 8vo. cl., 12s 6d (p. M. 20) Leipzig, 1902-5
- 16603 **SCHREIBER (Guido)** LEHRBUCH der PERSPEKTIVE, mit Anhang über den Gebrauch geometrischer Grundrisse; 3. [letzte] Auflage von A. F. VIEHWEGER und LUDWIG NIEPER; *with 13 plates and 180 woodcuts*, impl. 8vo. hf. black calf neat, cl. sides, uncut, t. e. g., 6s (p. M. 10 sewn) Leipzig [1886]
- 16604 **SCHRÖDER (Ernst; Prof. Mathematics, Karlsruhe)** LEHRBUCH der ARITHMETIK und ALGEBRA, I. [einziger] Band: die SIEBEN ALGEBRAISCHEN OPERATIONEN, 8vo. buckram, 4s (p. M. 8 sewn) Leipzig, 1873
- 16605 ——— VORLESUNGEN über die ALGEBRA der LOGIK (EXAKTE LOGIK), Band I and II. I. Abteilung; *with numerous diagrams*, 2 vols. 8vo. in 1, hf. maroon morocco neat, cl. sides (fine copy), 15s (p. M. 28 sewn) *ibidem*, 1890-1
- 16606 **SCHRÖDER (J.)** DARSTELLEND E GEOMETRIE, I. [einziger] Teil: ELEMENTE; *with 326 diagrams*, large cr. 8vo. cl., 4s (p. M. 7) Leipzig, 1901
- 16607 **SCHRÖN (Ludwig; Jena Observatory)** SIEBENSTELLIGE GEMEINE LOGARITHMEN der Zahlen von 1 bis 108000 und der Sinus, Cosinus, Tangenten und Cotangenten aller Winkel des Quadrates von 10 zu 10," 14. revidirte Stereotyp-Ausgabe, roy. 8vo. hf. morocco neat, 4s Braunschweig, 1875
- 16608 ——— VIERUNDZWANZIGSTE REVIDIRTE STEREOTYP-AUSGABE, roy. 8vo. hf. black morocco neat, cl. sides, 5s (p. M. 7.30) *ibidem*, 1900
- 16609 ——— ANOTHER COPY, hf. morocco, r. e., 4s 6d
'The most powerful and best printed ten-second-tables which I have seen.'—*Professor de Morgan.*
- 16610 **SCHRÖTER (Heinrich Eduard; Prof. Mathematics, Breslau)** THEORIE der OBERFLÄCHEN ZWEITER ORDNUNG und der RAUMKURVEN DRITTER ORDNUNG als Erzeugnisse projektivischer Gebilde, nach JACOB STEINER's Prinzipien auf synthetischem Wege abgeleitet; *with 45 diagrams*, 8vo. handsomely bound in hf. black morocco, cl. sides (fine copy), 12s (p. M. 16 sewn) Leipzig, 1880
- 16611 **SCHRUTKA Eder v. Rechtenstamm (Lothar, Brünn)** ELEMENTE der HÖHEREN MATHEMATIK für Studierende der technischen und Naturwissenschaften; *with 136 illustrations*, 8vo. hf. black morocco neat, cl. sides (as good as new), 8s (p. M. 10 sewn) Wien, 1912
- 16612 **SCHUBERT (Franz)** Die DARSTELLEND E GEOMETRIE, Band I—II; *with numerous illustrations*, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 6s (p. M. 9.50 in cl.)
Mittweida [1899]
- 16613 **SCHUBERT (Hermann Cäsar Hannibal)** KALKÜL der ABZÄHLEND E GEOMETRIE, 8vo. buckram, 5s 6d (p. M. 9.60 sewn) Leipzig, 1879
- 16614 ——— MATHEMATISCHE MUSESTUNDEN: eine Sammlung von Geduldspielen, Kunststücken und Unterhaltungsaufgaben mathematischer Natur, GROSSE AUSGABE, 3. [neueste] Auflage, 3 vols. post 8vo. buckram, 7s 6d (p. M. 12) *ibidem*, 1907-9
- 16615 ——— KLEINE AUSGABE, 3. [neueste] Auflage, 12mo. buckram, 3s (p. M. 5) *ib.*, 1907
- 16616 ——— NIEDERE ANALYSIS, 2 vols. large cr. 8vo., cl., 4s (p. M. 7.40) *ib.*, 1902
- 16617 **SCHULZE (Edmund)**, und **Franz PFAHL**: MATHEMATISCHE AUFGABEN: Ausgabe für Realgymnasien u. s. w., 2 vols. 8vo. in 1, buckram, 4s (p. M. 7) Leipzig, 1908
- 16618 **SCHUR (Friedrich; Univ. Strasbourg)** GRUNDLAGEN der GEOMETRIE; *with 63 illustrations*, large 8vo. buckram, 4s 6d (p. M. 6 sewn) Leipzig, 1909
- 16619 ——— LEHRBUCH der ANALYTISCHEN GEOMETRIE, 2. [letzte] vermehrte Auflage; *with 81 diagrams*, large 8vo. buckram, 5s (p. M. 6.50 sewn) *ibidem*, 1912
- 16620 **SCHURIG (B. E. Richard)** LEHRBUCH der ARITHMETIK, 3 vols. 8vo. hf. cl. (v. III buckram), 8s (p. M. 19) Leipzig, 1883-5
- 16621 ——— ANOTHER COPY, 3 vols. in 1, handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy), 9s
INHALT:—I. Spezielle Zahlenlehre (Zifferrechnen): II. Allgemeine Zahlenlehre (Buchstabenrechnung): III. Algebra, nebst Anwendung auf die Analysis.
- 16622 **SCHURIG (Friedrich; Prof. Geometry, Karlsruhe)** LEHRBUCH der ANALYTISCHEN GEOMETRIE; *with 76 diagrams*, 8vo. buckram, 3s 6d (p. M. 7) Leipzig, 1898
- 16623 **SCHÜSSLER (Rudolf, Technische Hochschule, Graz)** ORTHOGONALE AXONOMETRIE: ein Lehrbuch zum Selbststudium, large 8vo. cl.; *with Atlas, containing 29 plates*, oblong 4to. buckram—2 vols., 4s 6d (p. M. 7) Leipzig, 1905
- 16624 **SCHWARZ (Hermann)** ELEMENTE der ZAHLENTHEORIE, allgemein fasslich dargestellt, 8vo. cl., 3s 6d Halle. 1855
- 16625 **SCHWERING (Karl Maria Johann Gerhard)** LEHRBUCH der KLEINSTEN QUADRATE; *with 3 diagrams*, 8vo. buckram, t. e. g., 2s Freiburg i. B., 1909
- 16626 ——— THEORIE und ANWENDUNG der LINIENCOORDINATEN in der ANALYTISCHEN GEOMETRIE der EBENE; *with 2 plates and diagrams*, 8vo. buckram, 2s Leipzig, 1884

MATHEMATICS, continued:—

- 16628 **SCOTT** (Charlotte Angas, *Girton Coll.*; *Prof. Mathematics, Bryn Mawr Coll., Pa.*) INTRODUCTORY ACCOUNT OF CERTAIN MODERN IDEAS AND METHODS IN PLANE ANALYTICAL GEOMETRY, with 64 diagrams, 8vo. cl. (o. p.), 1894
- 16629 **SCOTT** (Robert Forsyth; *Master of St. John's Coll., Cantab.*) TREATISE ON THE THEORY OF DETERMINANTS and their APPLICATIONS in ANALYSIS and GEOMETRY, 8vo. cl., 4s (p. 12s) *Univ. Press, Cambridge, 1880*
- 16630 ——— SECOND [LATEST] EDITION, revised by GEORGE BALLARD MATHEWS, F.R.S., 8vo. cl., 6s (p. 9s nett) *apud eandem, ibidem, 1904*
- 'The principal novelty of the treatise lies in the systematic use of Grassmann's alternate units, by means of which the study of determinants is, I believe, much simplified.'*—*Preface.*
- 16631 **SEEGER** (H.) Die FUNDAMENTALTHEORIEEN der NEUEREN GEOMETRIE und die Elemente der Lehre von den Kegelschnitten; with diagrams, large post 8vo. buckram, 2s *Braunschweig, 1880*
- 16632 **SÉGUIER** (Jean Armand de) THÉORIE des GROUPEs FINIS: ÉLÉMENTS de la THÉORIE des GROUPEs ABSTRAITS, roy. 8vo. buckram, uncut, t. e. g., 3s 6d (p. F. 5 nett sewn) 1904
- 16633 ——— ANOTHER COPY, also: THÉORIE des GROUPEs de SUBSTITUTIONS—2 vols. 8vo. in one, handsomely bound in hf. black morocco, cl. sides, t. e. g. (as good as new), 9s (p. F. 15 nett sewn) 1904-12
- 16634 **SEIPP** (H.) LEHRBUCH der RÄUMLICHEN ELEMENTAR-GEOMETRIE (STEREOMETRIE), I. [einziger] THEIL: Die Lage von geraden Linien und Ebenen im Raum, nebst Sammlung von Aufgaben; with illustrations, large 8vo. buckram, 3s 6d (p. M. 6 sewn) *Bremerhaven [1892]*
- 16635 **SELIVANOV** (Dmitrij Fedorovitch; *Univ. Petrograd*) LEHRBUCH der DIFFERENZENRECHNUNG, large 8vo. cl., 3s *Leipzig, 1904*
- 16636 **SERRET** (Joseph Alfred, *de la Sorbonne; de l'Institut*) COURS d'ALGÈBRE SUPÉRIEURE, 3^e Édition [refondue et augmentée]; with diagrams, 2 vols. prize calf extra, 7s 6d 1866
- 16637 ——— CINQUIÈME ÉDITION, augmentée; with diagrams, 2 vols. 8vo. hf. maroon morocco neat, uncut, t. e. g. (fine copy), 16s (p. F. 25 nett sewn) 1885
- One of the best text-books on the subject, 'embodying the chief discoveries of the author.'*—*W. R. Ball.*
- 16638 ——— COURS de CALCUL DIFFÉRENTIEL et INTÉGRAL, 3^e Édition; with diagrams, 2 vols. 8vo. hf. maroon morocco neat, uncut, t. e. g. (fine copy; uniform with the above), 15s (p. F. 24 nett sewn) 1886
- FINAL EDITION of this invaluable work, containing the author's improvement of Cauchy's method of solving partial differential equations of the first order having any number of variables.*
- 16639 ——— LEHRBUCH der DIFFERENTIAL- und INTEGRALRECHNUNG, nach AXEL HARNACKS Übersetzung, 3. Auflage, neu bearbeitet von GEORG SCHEFFERS; with 238 diagrams, 3 vols. 8vo. hf. black morocco neat, cl. sides (nice copy), £1. 1s (p. M. 36 nett sewn) *Leipzig, 1906-9*
- 16640 ——— TRAITÉ de TRIGONOMÉTRIE, 7^e Édition; with diagrams, 8vo. hf. maroon morocco neat, cl. sides (fine copy), 3s 6d 1888
- 16641 ——— HUITIÈME ÉDITION; with diagrams, 8vo. hf. black calf neat, cl. sides (nice copy), 3s 6d 1900
- 16642 ——— NEUVIÈME [DERNIÈRE] ÉDITION; with diagrams, 8vo. buckram, 3s 1908
- 16643 **SERRET** (Paul, *Collège Ste. Barbe*) GÉOMÉTRIE de DIRECTION: Application des Coordonnées polyédriques. Propriété de 10 Points de l'Ellipsoïde, de 9 Points d'une Courbe gauche du 4^e Ordre, de 8 Points d'une Cubique gauche; with diagrams, 8vo. hf. maroon morocco neat, cl. sides (as good as new), 6s 6d (p. F. 10 nett sewn) 1869
- 16644 ——— Des MÉTHODES en GÉOMÉTRIE; with numerous diagrams, 8vo. hf. morocco neat (scarce), 8s 6d 1855
- 'J'ai cherché à réunir . . . la plupart des doctrines acquises à la géométrie infinitésimale pendant la première période de son histoire.'*—*Preface.*
- 16645 **SIMON** (Max; *Univ. Strasbourg*) ANALYTISCHE GEOMETRIE der EBENE; with 96 illustrations, large cr. 8vo. cl., 4s (p. M. 6) *Leipzig, 1900*
- 16646 ——— ANALYTISCHE GEOMETRIE des RAUMES; with 64 illustrations, 2 vols. large cr. 8vo. cl., 5s (p. M. 8.40) *ibidem, 1900-1*
- 16647 **SIMONY** (Oscar; *Univ. Vienna*) GEMEINFÄSSLICHE, leicht controlirbare LÖSUNG der Aufgabe: 'In ein RINGFÖRMIG GESCHLOSSENES BAND einen KNOTEN zu machen' und verwandter merkwürdiger Probleme, 3. erweiterte Auflage; with 4 plates and 42 woodcuts, 8vo. buckram, t. e. g., 4s *Wien, 1881*
- 16648 **SMITH** (Charles, *Master of Sidney Sussex Coll., Cantab.*) ELEMENTARY TREATISE ON CONIC SECTIONS, with diagrams, with the SOLUTIONS, 2 vols. cr. 8vo. in 1, buckram, 8s 6d (p. 18s) 1904-1898
- 16649 ——— NEW EDITION, revised and enlarged, with diagrams; with the SOLUTIONS, 2 vols. cr. 8vo. hf. black morocco neat, cl. sides (fine copy), 12s 6d 1912-10
- 16650 ——— GEOMETRICAL CONICS, with diagrams, with the SOLUTIONS, 2 vols. cr. 8vo. in 1, buckram, 7s (p. 12s) 1904
- 16651 ——— TREATISE on ALGEBRA [5th Edition], with the SOLUTIONS, 2 vols. cr. 8vo. cl., 9s (p. 18s) 1900-1889

MATHEMATICS, continued:—

- 16654 **SMITH** (William Benjamin, *Univ. Mo.*) INTRODUCTORY MODERN GEOMETRY OF POINT, RAY, and CIRCLE, with 200 diagrams, cr. 8vo. buckram, 3s (p. 6s) *New York*, 1893
- 16655 **SNOWBALL** (John Charles, *St. John's Coll., Cantab.*) THE ELEMENTS OF PLANE and SPHERICAL TRIGONOMETRY, with the Construction and Use of LOGARITHMIC TABLES [final Edition], with diagrams, large 12mo. buckram, 3s 6d (p. 7s 6d) 1885
- 16656 **SOHNCKE** (Ludwig Adolf, *Univ. Halle*) SAMMLUNG VON AUFGABEN aus der DIFFERENTIAL- und INTEGRALRECHNUNG, herausgegeben von HERMANN AMSTEIN; 5. Auflage; with 32 plates, 2 vols. 8vo. in one, red buckram, 5s *Halle*, 1885
- 16657 — SECHSTE [NEUESTE] VERBESSERTER AUFLAGE, bearbeitet von MARTIN LINDOW; with numerous diagrams, 3 vols. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides, 10s 6d (p. M. 13 sewn) *ibidem*, 1903-6
Bound up with the above is: Die hyperbolischen Funktionen von E. HEIS; with 19 plates, *Halle*, 1875.
- 16658 — ANOTHER COPY, 3 v., with its SUPPLEMENT (Formeln aus der Differential und Integralrechnung von MARTIN LINDOW), 4 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 10s 6d *ib.*, 1903-8
- 16659 **SOMMER** (Julius; *Prof. Mathematics, Danzig*) VORLESUNGEN ÜBER ZAHLENTHEORIE: Einführung in die Theorie der algebraischen Zahlkörper; with 4 diagrams, 8vo. buckram, 7s (p. M. 11) *Leipzig*, 1907
- 16660 **SOMMERVILLE** (Duncan McLaren Young, *Univ. St. Andrews*) THE ELEMENTS OF NON-EUCLIDEAN GEOMETRY, with 129 diagrams, fcap. 8vo. cl., 3s 1914
- 16661 **SONNDORFER** (Rudolf), und Hermann **ANTON**: LEHRBUCH DER GEOMETRIE, 3. und 2. Auflage; with numerous diagrams, 3 vols. large 8vo. in 1, hf. black morocco neat, cl. sides (as good as new), 5s (p. M. 8 sewn) *Wien*, 1877-83
- 16662 **SONNET** (Hippolyte) DICTIONNAIRE DES MATHÉMATIQUES APPLIQUÉES, comprenant les principales Applications des Mathématiques, et l'Explication d'un grand Nombre de Termes techniques usités dans les Applications; with 1900 woodcuts and diagrams, thick roy. 8vo. (pp. 1475), hf. morocco neat (nice copy), 12s (p. F. 30 nett sewn) 1867
- 16663 —, et G. **FRONTERA**: ÉLÉMENTS DE GÉOMÉTRIE ANALYTIQUE, 7^e Édition; with 2 plates and numerous diagrams, 8vo. hf. maroon morocco neat, cl. sides (nice copy), 4s 1889
- 16664 — DIXIÈME ÉDITION; with 2 folding plates and 237 diagrams, 8vo. hf. black morocco, cl. sides (nice copy), 5s 1904
- 16665 — ONZIÈME [DERNIÈRE] ÉDITION; with numerous diagrams, thick 8vo. hf. black morocco neat, cl. sides (nice copy), 5s 6d (p. F. 8 nett sewn) 1908
- 16666 **SPANTON** (J. Humphrey, *Instructor, H.M.S. Britannia*) SCIENCE AND ART DRAWING: COMPLETE GEOMETRICAL COURSE, consisting of Plane and Solid Geometry, Orthographic and Isometric Projection, Projection of Shadows, the Principles of Map Projection, Graphic Arithmetic, and Graphic Statics, with 366 illustrations, 8vo. hf. black morocco neat, cl. sides, t. e. g. 7s 6d (p. 10s nett in cl.) 1895
- 16667 **SPEHR** (Friedrich Wilhelm) VOLLSTÄNDIGER LEHRBEGRIFF DER REINEN COMBINATIONSLEHRE, mit Anwendungen derselben auf Analysis und Wahrscheinlichkeitsrechnung, 2. Ausgabe, cr. 4to. buckram, 3s 6d *Braunschweig*, 1840
- 16668 **SPITZ** (Carl, *Polytechnikum, Karlsruhe*) LEHRBUCH DER ALLGEMEINEN ARITHMETIK; 3. und 2. vermehrte Auflage, mit ANHANG (Auflösungen); with diagrams, 4 vols. 8vo. in 2, hf. bound, 4s 6d (p. M. 13.60 sewn) *Leipzig*, 1874-3
- 16669 — VIERTE UND DRITTE [LETZTE] VERMEHRTE AUFLAGE, mit Anhang, 3 vols. 8vo. in 1, hf. black calf neat, cl. sides (fine copy), 7s (p. M. 14.40 sewn) *ibidem*, 1881-2
- 16670 — LEHRBUCH DER EBENEN GEOMETRIE, nebst 800 Übungsaufgaben, 10. Auflage; with 25 plates and 256 diagrams: Die ERSTEN SÄTZE VOM DRIECKE und die PARALLELEN, nach Bolyar's Grundsätzen; with 43 illustrations—2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 4s *ib.*, 1899-75
- 16671 — LEHRBUCH DER STEREOMETRIE, nebst 350 Übungsaufgaben, mit Anhang, 6. vermehrte Auflage; with numerous diagrams, 2 vols. 8vo. in 1, buckram, 2s 6d *ib.*, 1890
- 16672 — LEHRBUCH DER EBENEN TRIGONOMETRIE, nebst 630 Beispielen und Übungsaufgaben, mit Anhang, 6. Auflage; with diagrams: LEHRBUCH DER SPHÄRISCHEN TRIGONOMETRIE, 3. Auflage; with diagrams—3 vols. 8vo. in 2, hf. black calf neat, cl. sides (as good as new), 4s 6d *ib.*, 1888-6
- 16673 **STAUDACHER** (Hans) LEHRBUCH DER GRUNDBERECHNUNGSARTEN MIT BUCHSTABENGRÖSSEN (Elemente der Buchstabenrechnung) der Verhältnisse und Proportionen, mit Sammlung von Aufgaben, 2 vols. large 8vo. in 1, buckram, 5s 6d (p. M. 10 sewn) *Bremerhaven* [1890-1]
- 16674 — LEHRBUCH DER KOMBINATORIK: ausführliche Darstellung der Lehre von den kombinatorischen Operationen, roy. 8vo. buckram, 4s (p. M. 6 sewn) *ibidem* [1893]
- 16675 **STEGGALL** (John Edward Aloysius; *Prof. Mathematics, Dundee*) QUESTIONS IN PURE MATHEMATICS, proposed at the B.A. and B.Sc. Pass and Honours Examinations of the University of London, with COMPLETE SOLUTIONS, post 8vo. cl., 3s 6d 1882

MATHEMATICS, continued:—

- 16677 **STAUDE (Ernst Otto; Prof. Mathematics, Rostock)** ANALYTISCHE GEOMETRIE des PUNKTES, der GERADEN LINIE und der EBENE: ein Handbuch zu den Vorlesungen und Übungen über analytische Geometrie; with 337 illustrations, large 8vo. cl., 9s (p. M. 14) Leipzig, 1905
- 16678 ——— ANALYTISCHE GEOMETRIE des PUNKTEPAARES, des KEGELSCHNITTES und der FLÄCHE ZWEITER ORDNUNG; with 228 diagrams, 2 vols. large 8vo. in 1 (pp. 1014), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 8s (p. M. 36 sewn) *ibidem*, 1910
- 16679 **STAUDT (Karl Georg Christian v., Univ. Erlangen)** BEITRÄGE zur GEOMETRIE der LAGE, 3 parts 8vo. in 1, *hf. black calf neat, cl. sides (nice copy)*; SCARCE, 10s 6d
Nürnberg, [1856]-7-[60]
- 16680 ——— GEOMETRIE der LAGE, **Original-Ausgabe**, large post 8vo. *half black calf neat, cl. sides (nice copy)*; SCARCE, 10s 6d *ibidem*, 1847
'In his *Geometrie der Lage* (1847) he constructed a system of geometry built up without any reference to number or magnitude, but, in spite of its abstract form, he succeeded by means of it alone in establishing the non-metrical projective properties of figures, discussing imaginary points, lines, and plans, and even obtained a geometrical definition of a number: these views were further elaborated in his *Beiträge zur Geometrie der Lage*. This geometry is curious and brilliant, and has been used by Cullmann as the basis of his graphical statics.—*W. W. R. Ball*.
- 16681 **STEINER (Jacob)** VORLESUNGEN über SYNTHETISCHE GEOMETRIE, 2. Auflage; with 248 diagrams, 2 vols. 8vo. in 1, *hf. German morocco, 6s 6d* (p. M. 20 sewn) Leipzig, 1875-6
- 16682 ——— DRITTE [LETZTE] AUFLAGE; with 244 diagrams, 2 vols. 8vo. in 1, *hf. morocco neat, cl. sides (nice copy)*, 15s (p. M. 20 sewn) *ibidem*, 1887-98
INHALT:—I. Theorie der Kegelschnitte in elementarer Darstellung, bearbeitet von C. F. GEISER: II. Theorie der Kegelschnitte gestützt auf projective Eigenschaften, bearbeitet von HEINRICH SCHRÖTER.
——— v. SCHRÖTER (H.), *ante*.
- 16683 **STERN (Moritz Abraham; Univ. Göttingen)** RÉOLUTION des ÉQUATIONS TRANSCENDANTES, traduit par E. LÉVY; with diagrams, 8vo. *hf. cl.*, 2s 6d 1858
- 16684 **STOFFAES (Abbé Eugène, Institut Catholique, Lille)** COURS de MATHÉMATIQUES SUPÉRIEURES; 2^e Édition, entièrement refondue; with 191 diagrams, 8vo. *handsomely bound in hf. black morocco, cloth sides, uncut, t. e. g. (as good as new)*, 6s 6d 1904
- 16685 **STOLZ (Otto, Univ. Innsbruck)** GRUNDZÜGE der DIFFERENTIAL- und INTEGRALRECHNUNG; with 78 diagrams, 3 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, 17s 6d* (p. M. 24 sewn) Leipzig, 1893-9
- 16686 ——— ANOTHER COPY, 3 vols. in 1, *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 18s 6d
INHALT:—I. Reelle Veränderliche und Functionen: II. Complexe Veränderliche und Functionen: III. Lehre von den Doppelintegralen.
- 16687 ——— DASSELBE, Band I und II; with diagrams, 2 vols. 8vo. in 1, *cl.*, uncut, 10s 6d (p. M. 16 sewn) *ibidem*, 1893-6
- 16688 ——— VORLESUNGEN über ALLGEMEINE ARITHMETIK, nach den neueren Ansichten; with diagrams, 2 vols. 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides (fine copy)*; SCARCE, 16s *ib.*, 1895-6
- 16689 ———, und Josef Anton GMEINER; *German Univ., Prague*: EINLEITUNG in die FUNKTIONENTHEORIE; 2. [neueste] umgearbeitete Auflage der von den Verfassern in der 'Theoretischen Arithmetik' nicht berücksichtigten Abschnitte der 'Vorlesungen über allgemeine Arithmetik'; with 21 diagrams, large 8vo. cl., 10s (p. M. 15) *ib.*, 1905
- 16690 ——— : THEORETISCHE ARITHMETIK (Bd. I. 2. umgearbeitete Auflage); with 25 diagrams. 2 vols. 8vo. in 1, *handsomely bound in hf. morocco, cl. sides, 8s* (p. M. 11.60 sewn) *ib.*, 1911-2
INHALT:—I. Allgemeines. Lehre von den rationalen Zahlen: II. Lehren von den reellen und complexen Zahlen.
- 16691 **STUDY (Eduard; Univ. Bonn)** METHODEN zur THEORIE der TERNAEREN FORMEN, im Zusammenhang mit Untersuchungen Anderer dargestellt, large 8vo. *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 5s (p. M. 6 sewn) Leipzig, 1889
- 16692 ——— Die REALISTISCHE WELTANSICHT und die LEHRE vom RAUME; Geometrie, Anschauung und Erfahrung, large post 8vo. *buckram, 3s 6d* (p. M. 4.50 sewn) Braunschweig, 1914
- 16693 ——— SPHÄRISCHE TRIGONOMETRIE, ORTHOGONALE SUBSTITUTIONEN und ELLIPTISCHE FUNCTIONEN: eine analytisch-geometrische Untersuchung; with 16 diagrams, impl. 8vo. *buckram, 3s 6d* Leipzig, 1893
- 16694 **STURM (Jacques Charles François, de l'Institut)** COURS d'ANALYSE de l'École Polytechnique, 4^e Édition, revue et corrigée par E. PROUHET; with diagrams, 2 vols. 8vo. cl., 6s 1873
- 16695 ——— ONZIÈME ÉDITION, augmentée de la Théorie élémentaire des Fonctions elliptiques par H. LAURENT, revue par A. DE ST.-GERMAIN, 2 vols. 8vo. *buckram (nice copy)* 8s 6d (p. F. 15 nett sewn) 1897
- 16696 ——— QUATORZIÈME [DERNIÈRE] ÉDITION, revue et mise au Courant du nouveau Programme de la Licence par A. DE ST.-GERMAIN; with numerous diagrams, 2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 10s 6d (p. F. 15 nett sewn) 1909

MATHEMATICS, continued :—

- 16698 **STURM (O. Fr. Rudolf, Univ. Breslau)** ELEMENTE der DARSTELLENDE GEOMETRIE, 2. [neueste] umgearbeitete Auflage; with 7 folding plates and 61 diagrams, large 8vo. *cl.*, or, *buckram*, 3s 6d (p. M. 5.60) Leipzig, 1900
- 16699 — Die GEBILDE ERSTEN und ZWEITEN GRADES der LINIENGEOMETRIE in synthetischer Behandlung, 3 vols. roy. 8vo. in 2, *handsomely bound in hf. black morocco, cl. sides (fine copy)*, £1. 12s 6d (p. M. 42 sewn) *ibidem*, 1892-6
 INHALT:—I. Der lineare Complex oder das Strahlengewinde und der tetraedrale Complex; II. Die Strahlencongruenzen 1. und 2. Ordnung; III. Die Strahlencomplexe 2. Grades.
- 16700 — Die LEHRE von den GEOMETRISCHEN VERWANDTSCHAFTEN, 4 vols. large 8vo. *cl.*, £2. 10s (p. M. 72) *ib.*, 1908-9
 INHALT:—I. Verwandtschaften zwischen Gebilden erster Stufe; II. Eindeutige lineare Verwandtschaften zwischen Gebilden zweiter Stufe; III. — zwischen Gebilden dritter Stufe; IV. Nichtlineare und mehrdeutige Verwandtschaften zweiter und dritter Stufe.
- 16701 **SWINDEN (Jan Hendrick van; Univ. Franeker)** ELEMENTE der GEOMETRIE im AUSZUGE, übersetzt von MAJOR DE NIEM; with 8 plates: BEWEISE und AUFLÖSUNGEN sämtlicher LEHRSATZE und AUFGABEN von C. F. A. JACOBI zu den sieben ersten Büchern, bearbeitet von MAJOR DE NIEM; with 74 plates, 2v.—3 vols. 8vo. in 1, *hf. black calf neat, cl. sides*, 6s Halle, 1868
- 16702 **TAIT (Peter Guthrie, F.R.S.E., Prof. Natural Philosophy, Edin.)** ELEMENTARY TREATISE ON QUATERNIONS, 2nd Edition, enlarged, with diagrams, 8vo. *cl.*, uncut, 5s (p. 14s) *Univ. Press, Cambridge* [1873] *apud eandem, ibidem*, 1890
- 16703 — THIRD [LATEST] EDITION, much enlarged, with diagrams, 8vo. *hf. black calf neat, cl. sides, uncut, t. e. g. (fine copy); o. p.*, 10s 6d
 Still the best working book on the subject for the student.
- 16704 **TANNENBERG (W. de, Univ. Bordeaux)** LEÇONS NOUVELLES sur les APPLICATIONS GÉOMÉTRIQUES du CALCUL DIFFÉRENTIEL; with diagrams, roy. 8vo. *buckram, t. e. g.*, 4s (p. F. 6 nett sewn) 1899
- 16705 **TANNERY (Jules; de l'Institut)** INTRODUCTION à l'ÉTUDE de la THÉORIE des NOMBRES et de l'ALGÈBRE SUPÉRIEURE par ÉMILE BOREL et JULES DRACH, d'après des Conférences faites à l'École Normale supérieure; with diagrams, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 7s (p. F. 10 nett sewn) 1895
- 16706 — INTRODUCTION à la THÉORIE des FONCTIONS d'une VARIABLE; 2^e [dernière] Édition, entièrement refondue, avec une Note de M. HADAMARD; with diagrams, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, £1. (p. F. 29 nett sewn) 1904-11
- 16707 —, et Jules MOLK, *Univ. Nancy*: ÉLÉMENTS de la THÉORIE des FONCTIONS ELLIPTIQUES, 4 vols. roy. 8vo. in 2, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, £1. 5s (p. F. 34 nett sewn) 1893-1902
 The standard work on its subject.
- 16708 **TARN (Edward Wyndham)** PRACTICAL GEOMETRY for the Architect, Engineer, Surveyor, and Mechanic, with 164 illustrations, 8vo. *cl.*, 2s 6d 1871
- 16709 — SECOND EDITION, with Appendixes on Diagrams of Strains and Isometrical Projection, with 172 woodcuts, 8vo. *cl.*, 4s (p. 9s) 1832
- 16710 **TARNIER (E. A.)** THÉORIE des LOGARITHMES, 8vo. *hf. calf, uncut*, 2s 6d 1853
- 16711 **TARTINVILLE (A.)** THÉORIE des ÉQUATIONS et des INÉQUATIONS du Premier et Second Degré à une Inconnue, roy. 8vo. *cl.*, 2s 1886
- 16712 — TROISIÈME [DERNIÈRE] ÉDITION; with diagrams, roy. 8vo. *buckram*, 3s 6d (p. F. 6 nett) 1902
- 16713 **TAYLOR (Charles)** CURVES formed by the Action of the SINGLE and COMPOUND GEOMETRIC CHUCK, with 82 finely engraved figures on INDIA PAPER: — of THREE GEOMETRIC CHUCKS, with 96 finely engraved figures on India Paper, 2 vols. impl. 8vo. *calf gilt, g. e. (SCARCE)*, £2. 10s [privately printed], 1874-5
- 16714 **TAYLOR (Charles, D.D., Master St. John's Coll., Cantab.)** The ELEMENTARY GEOMETRY of CONICS; 8th [latest] Edition, revised, with Chapter on Inventio Orbium, with diagrams, post 8vo. *buckram*, 3s (p. 5s) *Cambridge*, 1903
- 16715 — INTRODUCTION to the ANCIENT and MODERN GEOMETRY of CONICS: a Geometrical Treatise on the Conic Sections, with Collection of Problems, and Historical Notes and Prolegomena, with plate and numerous diagrams, 8vo. *cl.* (SCARCE), 15s *ibidem*, 1881
 'Including a brief but masterly sketch of the early history of geometry. Here he lays special stress on the principle of geometrical continuity, usually associated with the name of Poncelet, and traces this principle back to Kepler.'—D. N. B.
- 16716 **THIEME (Hermann)** Die ELEMENTE der GEOMETRIE; with 323 diagrams, 8vo. *buckram*, 6s 6d (p. M. 9 sewn) Leipzig, 1909
- 16717 **THOMPSON (A. W. H., Trinity Coll., Cantab.)** NEW ANALYSIS of PLANE GEOMETRY, FINITE and DIFFERENTIAL, with numerous Examples, 8vo. *cl.*, 4s 6d (p. 7s nett) *Univ. Press, Cambridge*, 1914

'We may look upon Plane Co-ordinate Geometry as having points and lines for its fundamental elements; in relations of which geometrical theorems are going to be expressed. Thus the equation $y = mx + c$ may be looked upon as a line of co-ordinates (m, c). It is this view that we shall adopt.'—Preface.

MATHEMATICS, continued:—

- 16719 **THOMAE** (Johannes; *Prof. Mathematics, Jena*) ABRISSE einer THEORIE der FUNCTIONEN einer COMPLEXEN VERÄNDERLICHEN und der THETAFUNCTIONEN, 3. [letzte] erheblich vermehrte Auflage: *with plate and diagrams*, 4to. *red buckram*, 7s 6d (p. M. 10 sewn) Halle, 1890
- 16720 ——— ELEMENTARE THEORIE der ANALYTISCHEN FUNCTIONEN einer COMPLEXEN VERÄNDERLICHEN, 2. umgearbeitete Auflage; *with diagrams*, large 4to. *buckram, uncut, t. e. g., 7s* (p. M. 9 sewn) *ibidem*, 1898
- 16721 ——— Die KEGELSCHNITTE in REIN PROJECTIVER BEHANDLUNG; *with 16 folding plates (linen-mounted), besides diagrams*, 8vo. *buckram*, 4s (p. M. 6 sewn) *ib.*, 1894
- 16722 **THOMAN** (Féodor, *du 'Crédit Mobilier'*) TABLES des LOGARITHMES à 27 DÉCIMALES pour les Calculs de Précision, roy. 8vo. *cl.* (SCARCE), 10s 6d *Imprimerie Impériale*, 1867.
‘Le but de ces tables est de trouver par un procédé facile et simple, sans division, sans multiplication et sans formule le logarithme d'un nombre donné ou le nombre correspondant à un logarithme donné.—Introduction.
- 16723 ——— THEORY of COMPOUND INTEREST and ANNUITIES, with Logarithmic Tables, 4th Edition, *feap.* 8vo. *boards*, 2s 1891
- 16724 **THORNTON** (A. G., *manufacturer to Govt.*) MATHEMATICAL DRAWING INSTRUMENTS and MATERIALS, etc., *with plate and numerous illustrations*, post 8vo. *cl.*, 2s 6d [1906]
- 16725 **TISSERAND** (Félix; *de l'Institut*) RECUEIL COMPLÉMENTAIRE d'EXERCICES sur le CALCUL INFINITÉSIMAL; 2^e [dernière] édition, augmentée des nouveaux Exercices sur les Variables Imaginaires, par P. PAINLEVÉ; *with 83 diagrams*, 8vo. *hf. black calf neat, cl. sides (as good as new)*, 6s (p. F. 9.00 nett sewn) 1896
- 16726 **TODHUNTER** (Isaac, *St. John's Coll., Cantab.*; F.R.S.) ALGEBRA, with numerous Examples, new Edition, with **Key**, 2 vols. post 8vo. *hf. pigskin*, 7s 6d (p. 18s in *cl.*) 1859-94
- 16727 ——— HISTORY of the MATHEMATICAL THEORY of PROBABILITY, from the Time of PASCAL to that of LAPLACE, thick 8vo. *cl.*, *uncut* (VERY SCARCE), £2. 15s Cambridge, 1865
The only important history of the theory of probability extant, and like Dr. Todhunter's other historical works, of great value also from a bibliographical point of view.
- 16728 ——— PLANE TRIGONOMETRY, with numerous Examples, 6th Edition, *with diagrams*; with **Key**, 2 vols. *cr.* 8vo. in 1, *buckram*, 6s (p. 15s 6d) 1876-93
- 16729 ——— NEW [FINAL] EDITION, revised by R. W. HOGG, *with diagrams*; with **Key**, 2 vols. *cr.* 8vo. in 1, *handsomely bound in half pigskin, cl. sides*, 9s (p. 15s 6d in *cl.*) 1893-5
- 16730 ——— NEW ISSUE (without the **Key**), *cr.* 8vo. *cl.*, 3s (p. 5s) 1905
- 16731 ——— SPHERICAL TRIGONOMETRY [final Edition], revised by J. G. LEATHEM, *with numerous diagrams*, *cr.* 8vo. *cl.*, 4s (p. 7s 6d) 1901
- 16732 ——— TREATISE on the DIFFERENTIAL CALCULUS, with numerous Examples, 6th [final] Edition, *with diagrams*, post 8vo. *cl.*, 4s 6d (p. 10s 6d) 1873
- 16733 ——— NEW EDITION [unaltered], *with diagrams*; **Key** by H. ST. J. HUNTER, *with diagrams* —2 vols. post 8vo. in 1, *buckram*, 10s 6d (p. £1. 1s) 1907-1888
- 16734 ——— TREATISE on the INTEGRAL CALCULUS and its Applications, with numerous Examples, 4th Edition, revised and enlarged, *with diagrams*, post 8vo. *cl.*, 4s (p. 10s 6d) 1874
- 16735 ——— FINAL EDITION [enlarged], *with diagrams*; with **Key** by H. ST. J. HUNTER, *with diagrams*, 2 vols. post 8vo. in 1, *buckram*, 10s 6d (p. £1. 1s) 1895-89
- 16736 ——— TREATISE on PLANE CO-ORDINATE GEOMETRY as applied to the STRAIGHT LINE and the CONIC SECTIONS, with numerous Examples; 5th Edition, *with diagrams*, post 8vo. *buckram*, 3s (p. 7s 6d) 1874
- 16737 **TOWNSEND** (Richard; *pr.*, F.R.S., *Prof. Natural Philosophy, T.C.D.*) CHAPTERS on the MODERN GEOMETRY of the POINT, LINE, and CIRCLE, *with diagrams*, 2 vols. 8vo. in 1, *cl.*, *uncut*, 10s 6d Dublin, 1863-5
- 16738 ——— ANOTHER COPY, 2 vols. in 1, *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 12s
‘A treatise of great importance in the history of pure geometry.’—D. N. B.
- 16739 **TRESSE** (A.), et **A. THYBAULT**: COURS de GÉOMÉTRIE ANALYTIQUE; *with 267 diagrams*, roy. 8vo. (pp. 552), *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, 8s 6d (p. F. 12 nett sewn) 1904
- 16740 **TSCHEBYSCHOFF** (Pafnutij Lvovitch; *Prof. Mathematics, Petrograd*) ELEMENTE der ZAHLENTHEORIE (THEORIE der CONGRUENZEN), deutsch mit Autorisation des Verfassers herausgegeben von HERMANN SCHAPIRA; neue Ausgabe, large post 8vo. *buckram*, 3s 6d Berlin, 1902
- 16741 **VACQUANT** (Charles), et **A. MACÉ de LÉPINAY**: COURS de GÉOMÉTRIE ÉLÉMENTAIRE, avec des Compléments; 7^e Edition; *with numerous illustrations*, 8vo. (pp. 915), *handsomely bound in hf. black morocco, cl. sides (as good as new)*, 6s 6d (p. F. 10 nett sewn) 1904
- 16742 ——— : LEÇONS d'ALGÈBRE ÉLÉMENTAIRE; 15^e [dernière] Edition, avec Complément sur les Déterminants; *with diagrams*, 8vo. (pp. 789), *handsomely bound in hf. black morocco, cl. sides*, 5s (p. F. 6 50 nett sewn) *s. d.*
- 16743 ——— ANOTHER COPY; also : COMPLÉMENTS d'ALGÈBRE et NOTIONS de GÉOMÉTRIE ANALYTIQUE, par A. MACÉ DE LÉPINAY, 5^e [dernière] édition; *with 224 diagrams*, 2 vols. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides*, 8s (p. F. 11 nett sewn) *s. d.*

MATHEMATICS, continued.—

- 16745 **VAHLEN** (Karl Theodor; *Prof. Mathematics, Greifswald*) ABSTRAKTE GEOMETRIE: Untersuchungen über die Grundlagen der euklidischen und nicht-euklidischen Geometrie; *with numerous diagrams*, large 8vo. cl., 8s (p. M. 12) Leipzig, 1905
- 16746 ——— KONSTRUKTIONEN und APPROXIMATIONEN in systematischer Darstellung: eine Ergänzung der niederen, eine Vorstufe zur höheren Geometrie; *with 127 diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)* 9s (p. M. 11 sewn) *ibidem*, 1911
- 16747 **VALLÈS** (F., *Inspecteur Général des Ponts et Chaussées*) Des FORMES IMAGINAIRES en ALGÈBRE; *v. II neatly autographed on 507 pp., with 3 folding plates (linen-mounted)*, 3 vols. 8vo. and roy. 8vo. in 2, *buckram*, 10s 6d (p. F. 16 nett sewn) 1869-70
- CONTENU.—I. Interprétation en abstrait et en concret: II. Intervention dans les Équations des cinq premiers Degrés: III. Représentation algébrique des Directions dans l'Espace.
- 16748 **VALLOIS** (Edmond, *architecte*) COURS DE GÉOMÉTRIE DESCRIPTIVE; *with 410 diagrams*, 8vo. *buckram, t. e. g., 5s* (p. F. 7.50 nett sewn) 1909
- 16749 **VEGA** (Georg Freiherr v.) LOGARITHMISCH-TRIGONOMETRISCHES HANDBUCH [7 stellig]; neue vollständig durchgesehene und erweiterte Stereotyp-Ausgabe von C. BREMIKER, 70. Auflage von F. TIETJEN, 8vo. *original hf. morocco*, 3s (p. M. 5.50) Berlin, 1888
- 16750 **VENN** (John, *Caius Coll.*; F.R.S.) The LOGIC of CHANCE: an Essay on the Foundations and Province of the THEORY of PROBABILITY, with the especial Reference to its Logical Bearings and its Application to Moral and Social Science; 3rd [latest] Edition, re-written and greatly enlarged, large cr. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 7s (p. 10s 6d in cl.) 1888
- 16751 ——— SYMBOLIC LOGIC, *with diagrams*, large cr. 8vo. *buckram*, 4s (p. 10s 6d) 1881
- 16752 ——— SECOND [LATEST] EDITION, revised and re-written, *with diagrams*, cr. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 7s (p. 10s 6d in cl.) 1894
- 16753 **VIVANTI** (Giulio, *Univ. Pavia*) Les FONCTIONS POLYÉDRIQUES et MODULAIRES: Ouvrage traduit par ARMAND CAHEN; *with 52 diagrams*, large 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 8s 6d (p. F. 12 nett sewn) 1910
- 16754 ——— LEÇONS ÉLÉMENTAIRES sur la THÉORIE des GROUPES de TRANSFORMATIONS, traduites par A. BOULANGER, 8vo. *buckram, t. e. g., 5s* (p. F. 8 nett sewn) 1904
- 16755 **VOGLER** (Christian August; *Univ. Bonn*) GRUNDZÜGE der AUSGLEICHUNGSRECHNUNG, elementar entwickelt; *with diagrams and folding tables*, 8vo. *buckram*, 3s (p. M. 6 sewn) Braunschweig, 1883
- 16756 **VOGT** (Henry; *Prof. Mathematics, Nancy*) ÉLÉMENTS de MATHÉMATIQUES SUPÉRIEURES à l'Usage des PHYSICIENS, CHIMISTES et INGÉNIEURS, etc., 2^e Edition; *with numerous diagrams*, large 8vo. *handsomely bound in hf. black morocco, cl. sides, 5s 6d* (p. F. 10 nett sewn) 1904
- 16757 ——— CINQUIÈME ÉDITION, large 8vo. (pp. 716), *hf. black morocco neat, cl. sides, t. e. g., 7s 6d* (p. F. 12 nett sewn) 1909
- 16758 ——— LEÇONS sur la RÉOLUTION ALGÈBRIQUE des ÉQUATIONS, avec Préface par JULES TANNERY, roy. 8vo. *buckram, t. e. g., 3s 6d* (p. F. 5 nett sewn) 1895
- 16759 **VOIGT** (Andreas) THEORIE der ZAHLENREIHEN und der REIHENGLEICHUNGEN, 8vo. *buckram*, 3s 6d Leipzig, 1911
- 16760 **VONDERLINN** (J.) LEHRBUCH des PROJEKTIONSZEICHNENS, Band I—III. 2; *with numerous diagrams*, 4 parts in 1 vol. large 8vo. *handsomely bound in hf. black morocco, cl. sides, 9s* (p. M. 15.50 sewn) Bremerhaven [1888-91]
- 16761 **WALLENBERG** (Georg; *Technische Hochschule, Charlottenburg*), und Alf GULDBERG, *Univ. Christiania*: THEORIE der LINEAREN DIFFERENZGLEICHUNGEN; *with 5 diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g., 8s* (p. M. 10 sewn) Leipzig, 1911
- 16762 **WALLENTIN** (Franz) MATURITÄTSFRAGEN aus der MATHEMATIK, 9. Auflage; mit *Auflösungen*, 5. Auflage; *with diagrams*, 2 vols. 8vo. in 1, *buckram*, 5s (p. M. 8) Wien, 1908-6
- 16763 **WALTON** (William, *Trinity Coll., Cantab.*) PROBLEMS in Illustration of the Principles of PLANE CO-ORDINATE GEOMETRY, *with diagrams*, 8vo. cl. (*damaged*), 3s 6d Cambridge, 1851
- 16764 **WEBER** (Heinrich; *Prof. Mathematics, Strasbourg*) ELLIPTISCHE FUNCTIONEN und ALGEBRAISCHE ZAHLEN: akademische Vorlesungen, 8vo. *buckram*, 7s (p. M. 13 sewn) Braunschweig, 1891
- 16765 ——— LEHRBUCH der ALGEBRA, 2. [neueste] Auflage; *with diagrams*, 3 vols. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, £1. 15s (p. M. 42 sewn) *ibidem*, 1898-1903
Vol. III has as sub-title: Elliptische Funktionen und algebraische Zahlen.
- 16766 ——— KLEINE AUSGABE; *with diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 11s (p. M. 14 sewn) *ib.*, 1912
- 16767 ———, und Josef WELLSTEIN; *Prof. Mathematics, Giessen*: ENCYKLOPÄDIE der ELEMENTAR-MATHEMATIK: ein Handbuch für Lehrer und Studierende; *with numerous diagrams*, 3 vols. 8vo. *buckram*, 12s 6d (p. M. 35.60) Leipzig, 1903-7
INHALT.—I. Encyklopädie der elementaren Algebra und Analysis, von H. WEBER: II. — der elementaren Geometrie, von H. WEBER, J. WELLSTEIN und W. JACOBSTHAL: III. Angewandte Elementar-Mathematik, von H. und R. H. WEBER und J. WELLSTEIN.
- 16768 ——— ZWEITE [VERMEHRTE] AUFLAGE; *with numerous diagrams*, 3 vols. 8vo. in 4, *buckram*, £1. 10s (p. M. 48) *ibidem*, 1906-12

MATHEMATICS, *continued* .—

- 16769 **WEICHHOLD (G.)** LEHRBUCH DER DETERMINANTEN und deren Anwendungen, I. [einziger] Teil, roy. 8vo. *buckram*, 5s 6d (p. M. 10 sewn) *Bremerhaven* [1893]
- 16770 ——— ANOTHER COPY, *hf. cl.*, 5s *Stuttgart*, 1893
- 16771 **WEITZEL (C. G.)** UNTERRICHTSBRIEFE für die BUCHSTABENRECHNUNG und ALGEBRA, sowie für EBENE GEOMETRIE (Planimetrie) und Anwendung der Algebra auf Geometrie, in Gesprächsform zum SELBSTUNTERRICHTE, 2 vols. roy. 8vo. in 1, *hf. black morocco neat, cl. sides*, 10s 6d (p. M. 15 sewn) *Wien* [1910]
- 16772 ——— für die HÖHERE MATHEMATIK (Analysis, analytische Geometrie, Differential- und Integralrechnung) in Gesprächsform zum SELBSTUNTERRICHTE; *with diagrams*, roy. 8vo. *hf. black morocco neat, cl. sides*, 6s (p. M. 7.50 sewn) *ibidem* [1914]
- 16773 **WEITZENBÖCK (Roland)** KOMPLEX-SYMBOLIK: eine Einführung in die analytische Geometrie mehrdimensionaler Räume, cr. 8vo. *cl.*, 3s (p. M. 4.80) *Leipzig*, 1908
- 16774 **WELD (Laenas Gifford, Univ. Iowa)** SHORT COURSE OF THE THEORY OF DETERMINANTS, 3rd Edition, post 8vo. *buckram*, 5s (p. 8s nett) *New York*, 1903
- 16775 **WENCK (Julius)** Die GRUNDLEHREN DER HÖHEREN ANALYSIS; *with 140 diagrams*, 8vo. *buckram (tulle soiled)*, 3s 6d (p. M. 6 sewn) *Leipzig*, 1872
- 16776 **WERTHEIM (Gustav)** ANFANGSGRÜNDE DER ZAHLENLEHRE; *with portraits of Fermat, Lagrange, Euler, and Gauss*, 8vo. *buckram*, 6s 6d (p. M. 9 sewn) *Braunschweig*, 1902
- 16777 ——— ANOTHER COPY, *hf. black morocco neat, cl. sides (fine copy)*, 7s 6d
- 16778 ——— ELEMENTE DER ZAHLENTHEORIE, 8vo. *buckram*, 5s (p. M. 8.40 sewn) *Leipzig*, 1887
- 16779 ——— ANOTHER COPY, *hf. calf*, 5s 6d
- 16780 **WHITEHEAD (Alfred North, F.R.S.; Prof. Applied Mathematics, Impl. Coll. Science)** THE AXIOMS OF PROJECTIVE AND DESCRIPTIVE GEOMETRY, *with diagrams*, 2 vols. 8vo. *sewn*, 3s 6d (p. 5s nett) *Univ. Press, Cambridge*, 1906-7
- 16781 ——— TREATISE ON UNIVERSAL ALGEBRA, with Applications, Vol. I (all published), *with diagrams*, large roy. 8vo. *cl., uncut*, 14s (p. £1. 1s nett) *apud eandem, ibidem*, 1898
An important work on the foundations of mathematics, containing *i. a.* an extension of non-Euclidean geometry.
- 16782 ———, and the Hon. Bertrand Arthur William RUSSELL, F.R.S.: PRINCIPIA MATHEMATICA, 3 vols. large roy. 8vo. *cl.*, £2. 15s (p. £3. 16s nett) *a. e., ib.*, 1910-13
——— *v. RUSSELL, ante.*
- 16783 **WHITTAKER (Edmund Taylor; F.R.S.; Prof. Mathematics, Edin.)** COURSE OF MODERN ANALYSIS: an Introduction to the General Theory of Infinite Series and of Analytic Functions; with Account of the principal Transcendental Functions, large roy. 8vo. *buckram, uncut, t. e. g.*, 6s 6d (p. 12s 6d nett) *Univ. Press, Cambridge*, 1902
- 16784 **WHITWORTH (William Allen, Vicar of All Saints', Margaret St.)** CHOICE AND CHANCE: an elementary Treatise on Permutations, Combinations, and Probability, with 640 Exercises; 4th Edition, enlarged, cr. 8vo. *cl.*, 3s (p. 7s 6d) *Cambridge*, 1886
- 16785 ——— FIFTH [LATEST] EDITION, much enlarged, with 1000 Exercises, cr. 8vo. *buckram, t. e. g.*, 4s (p. 7s 6d) *ibidem*, 1901
- 16786 ——— DCC EXERCISES, including Hints for the Solution of all the Questions in 'CHOICE AND CHANCE,' post 8vo. *red buckram*, 3s 6d (p. 6s) *ib.*, 1897
- 16787 ——— TRILINEAR COORDINATES, and other Methods of Modern Analytical Geometry of Two Dimensions, *with diagrams*, 8vo. *cl.*, or, *buckram*, 5s (p. 16s) *ib.*, 1866
Though Catholic-minded people are intellectually wretched crétiens, Prebendary Allen Whitworth must have had some brains once upon a time.
- 16788 **WIELEITNER (Heinrich)** GESCHICHTE DER MATHEMATIK, von CARTESIUS bis zur Wende des 18. Jahrhunderts, I. Hälfte (soweit erschienen): Arithmetik, Algebra, Analysis, bearbeitet unter Benutzung des Nachlasses von ANTON V. BRAUMÜHL; *with 6 diagrams*, large cr. 8vo. *cl.*, 4s (p. M. 6.50) *Leipzig*, 1911
——— *v. GÜNTHER, ante.*
- 16789 ——— SPEZIELLE EBENE KURVEN; *with 189 diagrams*, large cr. 8vo. *cl.*, 7s 6d (p. M. 12) *ibidem*, 1908
- 16790 ——— THEORIE DER EBENEN ALGEBRAISCHEN KURVEN HÖHERER ORDNUNG; *with 82 illustrations*, large cr. 8vo. *cl.*, 6s (p. M. 10) *ib.*, 1905
- 16791 **WIENER (Christian, Technische Hochschule, Karlsruhe)** LEHRBUCH DER DARSTELLENDE GEOMETRIE; *with numerous illustrations*, 2 vols. large 8vo. *original hf. morocco (as good as new)*, £1. 1s (p. M. 34) *Leipzig*, 1884 [fs. 1906]-1887
- 16792 **WILCZYNSKI (Ernest Julius; Univ. Chicago)** PROJECTIVE DIFFERENTIAL GEOMETRY OF CURVES and RULED SURFACES, large 8vo. *cl.*, 6s 6d (p. M. 10) *Leipzig*, 1906
- 16793 **WILLIAMSON (Benjamin, T.C.D., F.R.S.)** ELEMENTARY TREATISE ON THE DIFFERENTIAL CALCULUS, containing the Theory of Plane Curves, with numerous Examples, 9th Edition, revised, *with diagrams*: ——— on the INTEGRAL CALCULUS, containing Applications to Plane Curves and Surfaces, and Chapters on the CALCULUS OF VARIATIONS, with numerous Examples, 8th Edition, enlarged, *with diagrams*—2 vols. cr. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, t. e. g. (nice copies)*, 13s (p. £1. 1s in cl.) 1899-1906
- 16794 ——— ELEMENTARY TREATISE ON THE INTEGRAL CALCULUS, with numerous Examples; 8th Edition, enlarged, *with diagrams*, post 8vo. *buckram*, 6s (p. 10s 6d) 1906

MATHEMATICS, continued:—

- 16796 **WILSON** (Victor Tyson, *Mich. Agricultural Coll.*) DESCRIPTIVE GEOMETRY: a Treatise from a Mathematical Standpoint, with Exercises and Practical Applications, with 149 diagrams, large 8vo. buckram, 4s (p. 6s 6d nett) *New York*, 1909
- 16797 **WILSON** (W. N., *Rugby School*) GEOMETRICAL DRAWING, with numerous diagrams, 2 vols. post 8vo. cl., 4s 6d (p. 9s) 1903
- 16798 **WITHERS** (John William) EUCLID'S PARALLEL POSTULATE: its Nature, Validity, and Place in Geometrical Systems, cr. 8vo. cl., 4s (p. 6s 6d nett) *Chicago*, 1905
- 16799 **WOLSTENHOLME** (Joseph, *Math. Prof., Cooper's Hill*) MATHEMATICAL PROBLEMS on Subjects for the Cambridge Mathematical Tripos Examination, 3rd [last] Edition, revised and corrected, 8vo. cl., 10s 6d (p. 18s) 1891
 'His fame rests chiefly on the wonderful series of original mathematical problems which he constructed upon practically all the subjects that entered into the course of training of students. They form a curious and almost unique monument of ability and industry.'—*A. R. Forsyth, F.R.S.*
- 16800 **WOODWARD** (Robert Simpson, *Pres., Carnegie Inst., Washington*) PROBABILITY and THEORY OF ERRORS, with diagrams, 8vo. cl., 3s (p. 4s 6d nett) *New York*, 1906
- 16801 **WOOLHOUSE** (Wesley S. B., F.R.A.S.) ELEMENTS of the DIFFERENTIAL CALCULUS; 6th Edition, '74: RUDIMENTARY TREATISE on the INTEGRAL CALCULUS, by Homersham Cox, '52: EXAMPLES of the INTEGRAL CALCULUS, by James Hann, '50—3 vols. fcap. 8vo. in 1, buckram, 3s 6d 1850-74
- 16802 **WORMS de ROMILLY** (P.) Sur les PREMIERS PRINCIPES des SCIENCES MATHÉMATIQUES, roy. 8vo. buckram, t. e. g., 2s 1903
- 16803 **WRIGHT** (R. H., *pr., Trinity Coll., Cantab.*) COLLECTION of PROBLEMS and THEOREMS, with Hints, Results, and occasional Solutions, forming Examples in the Methods of MODERN GEOMETRY, especially TRILINEAR COORDINATES, with diagrams, fcap. 8vo. cl., 3s 6d 1865
- 16804 **WRIGLEY** (Alfred, *pr.; Prof. Mathematics, Addiscombe; F.R.A.S.*) COLLECTION of EXAMPLES and PROBLEMS in PURE and MIXED MATHEMATICS, with Answers and Occasional Hints, 10th [last] Edition, with the Key, with 4 plates (linen-mounted), and diagrams, 2 vols. 8vo. in 1, hf. black morocco gilt, cl. sides (as good as new), 7s 6d (p. 19s in cl.) *Cambridge*, 1889-8
- 16805 **WRONSKI** (Hoëné de, *Officier d'Artillerie russe*) INTRODUCTION à la PHILOSOPHIE des MATHÉMATIQUES, et TECHNIQUE d'ALGÈBRE, 4to. hf. purple calf neat (nice copy), with auto. and MS. notes of Prince Salm, and some pp. underlined (VERY SCARCE), £1. 15s 1811
 Dedicated to the Tsar Alexander the First.
 'Novateur en religion, en politique et en mathématiques, il se disait à la fois le Messie et le Newton des temps nouveaux, et annonçait la création d'une théorie définitive des nombres, de la solution d'une théorie de la matière dans ses trois états.'—*Biogr. Gén.*
- 16806 **XAVIER** (Agliberto) THÉORIE des APPROXIMATIONS NUMÉRIQUES et du CALCUL ABRÉGÉ; with diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 7s (p. F. 10 nett sewn) 1909
- 16807 **YOUNG** (William Henry, F.R.S.; *Univ. Liverpool*) The FUNDAMENTAL THEOREMS of the DIFFERENTIAL CALCULUS, 8vo. sewn, 2s *Univ. Press, Cambridge*, 1910
- 16808 ———, and Grace CHISHOLM, *Girton Coll.*: The THEORY of SETS of POINTS [with Bibliography (pp. 14)], 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 9s (p. 12s nett) *apud eandem, ibidem*, 1906
 'An attempt at a simple representation of one of the most recent branches of mathematical science.'—*Preface.*
- 16809 **ZEUNER** (Gustav Anton, *Polytechnikum, Zürich*) ABHANDLUNGEN aus der MATHEMATISCHEN STATISTIK; with 27 illustrations, large 8vo. hf. brown morocco neat, uncut, t. e. g. (nice copy), 5s (p. M. 7 sewn) *Leipzig*, 1869
- 16810 **ZINDLER** (Konrad, *Univ. Innsbruck*) LINIENGEOMETRIE mit ANWENDUNGEN; with 111 diagrams, 2 vols. large cr. 8vo. cl., 12s 6d (p. M. 20) *Leipzig*, 1902-6
- 16811 **ZORETTI** (Ludovic, *Univ. Caen*) LEÇONS de MATHÉMATIQUES GÉNÉRALES, avec Préface de PAUL APPELL; with 206 diagrams, 8vo. (pp. 769), hf. black morocco neat, cl. sides (fine copy), 13s 6d (p. F. 20 nett in cl.) 1914
- 16812 ——— LEÇONS sur le PROLONGEMENT ANALYTIQUE, large 8vo. buckram, t. e. g., 3s 1911

ASTRONOMY and GEODESY:

- 16813 **ADAMS** (John Couch, F.R.S.; *discoverer of Neptune*) LECTURES on the LUNAR THEORY, edited by RALPH ALLEN SAMPSON, F.R.S., cr. 8vo. cl., 2s 6d (p. 5s) *Univ. Press, Cambridge*, 1900
- 16814 **AIRY** (Sir George Biddell, F.R.S., *Astronomer Royal*) GRAVITATION: an Elementary Explanation of the principal Perturbations of the Solar System, 2nd [latest] Edition, with 50 diagrams, post 8vo. cl. (o. p.), 5s 1884
 First published in 1834.
- 16815 **ALLIAUME** (Maurice; *Belgian Navy*) ÉLÉMENTS d'ASTRONOMIE; with diagrams, 8vo. buckram, uncut, t. e. g., 3s 6d *LOUVAIN*, 1913

ASTRONOMY and GEODESY, *continued*:—

- 16817 **AMBRONN (Leopold; Prof. Astronomy, Göttingen)** HANDBUCH der ASTRONOMISCHEN INSTRUMENTENKUNDE: eine Beschreibung der bei astronomischen Beobachtungen benutzten Instrumente, sowie Erläuterung der ihrem Bau, ihrer Anwendung und Aufstellung zu Grunde liegenden Principien; with 1185 *illustrations*, 2 vols. roy. 8vo. in 1 (pp. 1286), *handsomely bound in hf. pigskin, cl. sides*, £2. (p. M. 60 in cl.) Berlin, 1899
The most important and copious work ever written on astronomical instruments. Pp. 1221-76 treat of the erection of observatories.
- 16818 **ANDRÉ (Charles, Directeur de l'Observatoire de Lyon)** Les PLANÈTES et leur ORIGINE; with 3 plates and 94 *text-illustrations*, roy. 8vo. buckram, t. e. g., 6s (p. F. 10 nett sewn) 1909
- 16819 ——— TRAITÉ d'ASTRONOMIE STELLAIRE; with 5 *folding plates (linen-mounted)*, and 103 *text-illustrations*, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (nice copy)*, 14s (p. F. 23 nett sewn) 1899-1900
- 16820 **ARRHENIUS (Svante August; Director, Physico-Chemical Dept., Nobel Inst., Stockholm; F.R.S.)** LEHRBUCH der KOSMISCHEN PHYSIK; with 3 plates (2 *folding and linen-mounted*), and 304 *text-illustrations*, 2 vols. large 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 8s 6d (p. M. 38 sewn) Leipzig, 1903
- 16821 ——— Das WERDEN der WELTEN, mit Unterstützung des Verfassers übersetzt von L. BAMBERGER; with 60 *illustrations*, large 8vo. buckram, 4s
- 16822 **BAILLAUD (Benjamin, de l'Observatoire de Toulouse)** COURS d'ASTRONOMIE; with 130 *diagrams*, 2 vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, 15s (p. F. 23 nett sewn) 1893-6
- 16823 **BALL (Sir Robert Stawell, F.R.S.; Royal Astronomer, Ireland)** ELEMENTS of ASTRONOMY [enlarged Edition], with 130 *illustrations*, cr. 8vo. buckram, 3s 6d (p. 6s 6d) 1903
An admirable elementary treatise, containing much useful bibliographical information.
- 16824 ——— POPULAR GUIDE to the HEAVENS, 83 *plates (mostly coloured or tinted)*, with explanatory Text and Index, cr. 4to. *cl. gilt, t. e. g.*, 9s (p. 15s nett) 1905
- 16825 ——— THIRD [LATEST] EDITION, with 83 *plates*, cr. 4to. *hf. black morocco neat, cl. sides, t. e. g.*, 11s 6d 1910
- 16826 ——— TREATISE on SPHERICAL ASTRONOMY, with 122 *illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 9s (p. 12s nett in cl.) Univ. Press, Cambridge, 1908
- 16827 **BARLOW (C. W. C.) and George Hartley BRYAN, F.R.S.:** ELEMENTARY MATHEMATICAL ASTRONOMY, with Examples and Examination Papers, 2nd [last] Edition [enlarged], with numerous *diagrams*, cr. 8vo. buckram, 4s (p. 8s 6d) [1892] or 1903
'Probably no better description of the methods by which the marvellous structure of scientific astronomy has been built up could have been given.'—*Athenæum*.
- 16828 **BLACK (Frederick A., F.R.S.E.)** PROBLEMS in TIME and SPACE: Essays relating to the Earth, physically and astronomically, and cognate Matters, with 10 *plates and 55 text-illustrations*, large cr. 8vo. *cl.*, 3s 6d (p. 6s nett) [1910]
- 16829 **BRINKLEY (John, Bp. of Cloyne; F.R.S.)** [ELEMENTS of PLANE] ASTRONOMY, revised and partly re-written, with additional Chapters, by JOHN WILLIAM STUBBS, D.D., T.C.D., and FRANCIS BRÜNNOW; with Examination Questions; 3rd [last] Edition, enlarged, with 48 *woodcuts*, post 8vo. buckram, 3s (p. 6s) 1886
- 16830 **BRÜNNOW (Franz Friedrich Ernst; Director, Dublin Observatory)** TRAITÉ d'ASTRONOMIE SPHÉRIQUE et d'ASTRONOMIE PRATIQUE: Edition française par E. LUCAS et C. ANDRÉ, avec Préface de C. WOLF; with *woodcuts and diagrams*, 2 vols. 8vo. *hf. brown morocco neat (nice copy)*; SCARCE, £1. 1s 1869-72
'La théorie des instruments, qui ne se trouve exposée dans aucun autre ouvrage didactique, forme ici une partie importante.'—*Préface*.
- 16831 **BÜRGELE (Bruno H.)** ASTRONOMY for ALL, translated by STELLA BLOCH, with over 300 *plates and other illustrations*, thick 8vo. *cl.*, t. e. g., 5s 6d (p. 10s 6d) 1911
- 16832 **CAMPBELL (William Wallace, Director Lick Observatory)** STELLAR MOTIONS, with special Reference to Motions determined by Means of the SPECTROGRAPH, with numerous *portraits, plates, and other illustrations*, 8vo. *cl.*, 12s 6d (p. 17s nett) Yale Univ. Press, New Haven, 1913
- 16833 **CLERKE (Agnes Mary; Hon. M.R.A.S.)** PROBLEMS in ASTROPHYSICS, with 31 *plates of star photographs*, and 50 *text-illustrations*, thick 8vo. *hf. black calf neat, cl. sides, uncut, t. e. g. (fine copy)*, 12s (p. £1. nett in cl.) 1903
'Representing a sort of reconnaissance, and embodying the information collected by scouts and skirmishers regarding practicable lines of advance and accessible points of attack, with a view to annexing for the realm of knowledge some further strips and corners from the territory of ignorance.'—*Preface*.
- 16834 ——— The SYSTEM of the STARS; 2nd [latest] Edition, with 20 *plates and 37 woodcuts*, thick 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 14s (p. £1. nett in cl.) 1905
An excellent treatise on Sidereal Astronomy.
- 16835 ———, Alfred FOWLER; F.R.S., and John Ellard GORE, F.R.A.S.: The CONCISE KNOWLEDGE ASTRONOMY, with 102 *plates and other illustrations, many from photographs by Loewy, Pruisex, G. E. Hale, etc.*, thick large cr. 8vo. *hf. black morocco neat, cl. sides, g. e.*, 3s 1898
Miss Agnes M. Clerke was the only honorary woman member of the Royal Astronomical Society besides Mrs. Somerville, Caroline Herschel, Ann Sheepshanks, and Lady Huggins.

ASTRONOMY and GEODESY, continued:—

- 16837 **CHAUVENET** (William, *Washington Univ., St. Louis*) MANUAL OF SPHERICAL and PRACTICAL ASTRONOMY, with Appendix on the METHOD OF LEAST SQUARES; 5th [latest] Edition, revised and corrected, with 15 plates and numerous illustrations, 2 vols. roy. 8vo. cl., uncut (fresh copy), 17s 6d (p. £1. 11s 6d) Philadelphia, 1889
 'The most complete and exhaustive treatise on the subject which has yet appeared.'—*Prof. Simon Newcomb.*
- 16838 **CHEYNE** (Charles Hartwell Horne, *pr., Westminster School*) ELEMENTARY TREATISE ON THE PLANETARY THEORY, 3rd [last] Edition, edited by A. FREEMAN, *FR.A.S.*, with diagrams, post 8vo. cl., uncut (o. p.), 5s 1883
- 16839 **DIEN** (Charles) ATLAS CÉLESTE, rectifié et augmenté de Cartes nouvelles: Étoiles doubles, multiples, colorées, nébuleuses, et Groupes stellaires, Mouvements propres des Étoiles, etc. par CAMILLE FLAMMARION, 10^e Edition; with 29 plates (some folding), atlas folio, handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy), £1. 5s (p. F. 40 nett sewn) 1897
- 16840 **FAYE** (Hervé, *de l'Institut*) COURS D'ASTRONOMIE DE L'ÉCOLE Polytechnique; with numerous woodcuts and diagrams, and map, 2 vols. large 8vo. in 1, hf. red morocco neat, cl. sides (FINE COPY); SCARCE, £1. 5s 1881-3
 CONTENT:—I. Astronomie sphérique; Description des Instruments; Théorie des Erreurs; Géodésie et Géographie Mathématique; II. Astronomie Solaire; Théorie de la Lune; Navigation.
- 16841 ——— LEÇONS DE COSMOGRAPHIE; with 15 folding plates, 8vo. cl., 4s 1854
- 16842 **FLOTOW** (Albrecht v., *Geodätischer Institut, Potsdam*) EINLEITUNG in die ASTRONOMIE, large cr. 8vo. cl., 4s 6d (p. M. 7) Leipzig, 1911
- 16843 **FRISCHAUF** (Johannes; *Prof. Mathematics, Graz*) GRUNDRISS DER THEORETISCHEN ASTRONOMIE und der Geschichte der Planetentheorien, 2. [letzte] vermehrte Auflage; with 22 illustrations, 8vo. buckram, uncut, t. e. g., 4s (p. M. 5 sewn) Leipzig, 1903
- 16844 **GARCET** (H.) LEÇONS DE COSMOGRAPHIE, nouvelle Édition par CH. SIMON; with 3 plates and 98 text-illustrations, 8vo. buckram, 3s 1896
- 16845 **GAUSS** (Johann Karl Friedrich; F.R.S.) THEORIE DER BEWEGUNG DER HIMMELSKÖRPER welche in Kegelschnitten die Sonne umlaufen, ins Deutsche übertragen von CARL HAASE, mit Anhang; with photographic frontispiece of the Gauss Medal, view and fs., 4to. hf. black calf neat, cl. sides, 13s Hannover, 1865
 The German translation of the Latin original of this classic work, which introduced the principle of curvilinear triangulation.
- 16846 **GODFRAY** (Hugh, *St. John's Coll., Cantab.*) ELEMENTARY TREATISE ON THE LUNAR THEORY, with brief Sketch of the History of the Problem before Newton, 3rd [last] Edition, with diagrams. cr. 8vo. cl., 3s (p. 5s 6d) 1871
- 16847 ——— TREATISE ON ASTRONOMY, for Colleges and Schools; 2nd Edition [enlarged], with plates and numerous illustrations, 8vo. buckram, 4s 6d (p. 12s 6d) 1874
- 16848 ——— FIFTH [LAST] EDITION, with numerous illustrations, 8vo. buckram, uncut, 7s (p. 12s 6d) 1894
- 16849 **GORE** (John Ellard, M.R.I.A., F.R.A.S.) ASTRONOMICAL ESSAYS, historical and descriptive, with 6 plates, cr. 8vo. cl., 3s (p. 6s) 1907
- 16850 ——— THE VISIBLE UNIVERSE: Chapters on the Origin and Construction of the Heavens, with 16 plates (many folding) of stellar photographs, etc., and other illustrations, 8vo. cl., uncut, t. e. g., 7s 6d (p. 16s) 1893
 'A very good and lucid summary and discussion of the recent theory regarding the construction of the heavens.'—*Sonnenschein.*
- 16851 **GRETSCHEL** (Heinrich) LEXIKON DER ASTRONOMIE, mit Berücksichtigung der astronomischen Instrumente, der Zeitrechnung und der hervorragendsten Astronomen; with 133 illustrations, cr. 8vo. buckram, 2s 6d (p. M. 6) Leipzig, 1882
- 16852 **GÜNTHER** (Siegmond, *Technische Hochschule, München*) VERGLEICHENDE MOND- und ERDKUNDE; with 4 folding plates (linen-mounted), and 23 text-illustrations, 8vo. buckram, t. e. g., 4s (p. M. 5 sewn) Braunschweig, 1911
- 16853 **HALE** (Georg Ellery, *Director, Mt. Wilson Solar Observatory*) THE STUDY OF STELLAR EVOLUTION: an Account of some recent Methods of Astrophysical Research, with 104 fine plates of star photographs, astronomical instruments, etc., and views, 8vo. hf. black morocco neat, cl. sides (as good as new), 12s 6d (p. 16s 6d nett in cl.) Chicago, 1909
 'Describing a connected series of investigations, laying special stress on the observational methods employed, in the hope of explaining clearly how the problem of stellar evolution is studied.'—*Preface.*
- 16854 **HEIS** (Eduard, *Univ. Münster*) ATLAS COELESTIS ECLIPTICUS, continens VIII Tabulas ad delineandum LUMEN ZODIACALES; with 8 plates, oblong folio, buckram, 6s Colonie, 1878
- 16855 ——— ATLAS CŒLESTIS NOVUS: Stellæ per Mediam Europam solis Oculis conspicuæ secundum veras Lucis Magnitudines e Coelo ipso descriptæ, post 8vo., with Atlas, containing 12 large star-maps, oblong folio—2 vols. original hf. binding (rubbed); SCARCE, £1. 1s *ibidem*, 1872
 'Besonders berühmt ist sein Atlas coelestis novus, in welchem alle mit blossen Auge sichtbaren Sterne aufgenommen sind.'—*Broekhaus's Konv.-Lex.* 'While engaged on his great atlas, he attentively determined the change of magnitude of stars visible to the naked eye; and by means of the naked eye, the opera glass, and a small telescope, he amassed a large number of observations.'—*H. Macpherson.*

ASTRONOMY and GEODESY, continued:—

- 16857 **HELMERT** (Friedrich Robert; *Director, Geodetic Inst., Potsdam*) Die MATHEMATISCHEN und PHYSIKALISCHEN THEORIEN der HÖHEREN GEODÄSIE, mit Untersuchungen über die mathematische Erdgestalt auf Grund der Beobachtungen; original impression, with 2 folding plates (linen-mounted), and numerous text-illustrations, 2 vols. roy. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides (fine copy), £1. 15s
Leipzig, 1880-4
The original impression of this important work is becoming scarce, only an inferior anastatic reprint having been obtainable before the War.
- 16858 **HERPIN** (A.) DICTIONNAIRE ASTRONOMIQUE, ou Exposé, par Ordre alphabétique, des Principes fondamentaux et des Lois générales de la Mécanique Universelle, avec leurs diverses Applications aux Calculs des Phénomènes qui se produisent dans le Domaine du Monde physique; with 7 folding plates (linen-mounted), large 8vo. hf. black morocco neat, cl. sides (as good as new), 6s 6d (p. F. 12 nett sewn) 1875
- 16859 **HERSCHEL** (Sir John Frederick William, F.R.S.) OUTLINES of ASTRONOMY; 11th [LAST] EDITION, with 9 plates, woodcuts, and diagrams, sq. 8vo. cl., 6s (p. 12s) 1871
- 16860 ——— ANOTHER COPY, hf. brown morocco neat, cl. sides, t. e. g. (fine copy), 8s 1874
- 16861 ——— THE SAME, hf. black morocco neat, cl. sides, uncut, t. e. g. (nice copy), 7s 6d 1871
'Perhaps the most completely satisfactory general exposition of a science ever penned.'—Miss Agnes M. Clerke.
- 16862 **HIMMEL und ERDE**: unser WISSEN von der STERNENWELT und dem ERDBALL, herausgegeben unter Mitwirkung von Fachgenossen von J. PLASSMANN, J. POHLE, P. KREICHGAUER und L. WAAGEN; with 123 plates and maps (many folding and linen-mounted, or coloured), and 1215 text-illustrations, 2 vols. 4to. hf. black morocco neat, cl. sides, uncut, t. e. g. (fine copy), £1. 5s (p. M. 36 in cl.) München [1908-9]
A splendidly illustrated work, many of the illustrations being reproductions from contemporary prints, and others from photographs specially taken for the work.
INHALT:—I. Der Sternenhimmel: die Bewegungen und Eigenschaften der Himmelskörper: II. Unsere Erde: der Werdegang des Erdballs und seine Lebewelt, seine Beschaffenheit und Hüllen.
- 16863 **HINKS** (Arthur Robert, *Cambridge Observatory*; F.R.S.) MAP PROJECTIONS, with colour-frontispiece and 19 diagrams, 8vo. cl., 3s 6d (p. 5s nett) Univ. Press, Cambridge, 1911
- 16864 ——— MAPS and SURVEY, with 24 plates, besides diagrams, 8vo. cl., 4s (p. 6s nett) apud eandem, ibidem, 1913
- 16865 **HOUZEAU** (Jean Charles, *Directeur de l'Observatoire de BRUXELLES*) Le CIEL mis à la portée de TOUT LE MONDE; with 4 folding plates (linen-mounted) and text-illustrations, post 8vo. cl., 5s Bruxelles, 1882
- 16866 **IDELER** (Christian Ludwig) HANDBUCH der MATHEMATISCHEN und TECHNISCHEN CHRONOLOGIE, aus den Quellen bearbeitet, 2 thick vols. post 8vo. hf. buckram (nice copy); SCARCE, £1. 10s Berlin, 1825-6
THE SCARCE ORIGINAL EDITION of the author's most important work. 'An exhaustive and commendable work on the measures of time adopted in various countries, especially in ancient times.'—Prof. Simon Newcomb.
- 16867 **JEANS** (H. W., F.R.A.S.; *R. N. Coll., Portsmouth*) NAUTICAL ASTRONOMY and NAVIGATION; LATEST (Pt. I 3rd and Pt. II 5th) EDITION, with numerous diagrams, 2 parts in 1 vol. roy. 8vo. cl. (o. p.), 8s (p. 14s) 1876-84
- 16868 **KLEIN** (Hermann Josef, *Ritter des kgl. Serb. San-Sava Ordens*) ASTRONOMISCHE ABENDE :: allgemein verständliche Unterhaltungen über Geschichte und Ergebnisse der Himmelserscheinungen, 5. völlig umgearbeitete Auflage; with 13 plates, large cr. 8vo. handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g., 4s (p. M. 5.50 sewn) Leipzig, 1905
- 16869 ——— FÜHRER am STERNENHIMMEL für Freunde astronomischer Beobachtungen; with 7 plates (some coloured), and numerous woodcuts, post 8vo. hf. black calf neat, cl. sides, 4s (p. M. 8 sewn) ibidem [1892]
The author here announces himself as a Knight of the Royal Serbian Order of St. Sava, in the days before his country set out for the game of nationmurder.
- 16870 ——— HANDBUCH der ALLGEMEINEN HIMMELSBESCHREIBUNG nach dem Standpunkte der astronomischen Wissenschaft am Schlusse des 19. Jahrhunderts, 3. [neueste] völlig umgearbeitete Auflage; with 10 plates (one coloured), and numerous woodcuts, 8vo. original hf. morocco gilt, r. e. (nice copy), 7s (p. M. 12.50) Braunschweig, 1901
- 16871 ——— STERN-ATLAS für Freunde der Himmelsbeobachtung, enthaltend: Sämtliche Sterne 1. bis 6.5. Grösse zwischen dem Nordpol und 34° südlicher Dekl., alle Nebelflecken und Sternhaufen, welche in Ferngläsern mittlerer Grösse sichtbar sind, sowie Spezialkarten besonders interessanter Objecte; with 18 maps, sm. folio, original hf. morocco (nice copy), 5s (p. M. 16) Leipzig, 1888
- 16872 **KLINKERFUES** (Ernst Friedrich Wilhelm, *Göttingen*) THEORETISCHE ASTRONOMIE, 2. neu bearbeitete und vermehrte Auflage von H. BUCHHOLZ; with bad portrait and 67 diagrams, thick 4to. handsomely bound in hf. purple morocco, cl. sides, uncut, t. e. g. (as good as new), £1. 1s (p. M. 34 sewn) Braunschweig, 1899
Including a valuable collection of Tables (pp. 829-928) as Appendix.
- 16873 **KOBOLD** (Hermann, *Kieler Sternwarte*) Der BAU des FIXSTERNSYSTEMS, mit besonderer Berücksichtigung der PHOTOMETRISCHEN RESULTATE; with 3 folding plates (linen-mounted), and 19 smaller illustrations, 8vo. buckram, uncut, t. e. g., 5s (p. M. 6.50 sewn) Braunschweig, 1906

ASTRONOMY and GEODESY, *continued* :—

- 16876 **KRISCH** (August) ASTRONOMISCHES LEXIKON, auf Grundlage der neuesten Forschungen, besonders der Ergebnisse der Spectralanalyse und der Himmelsphotographie zusammengestellt und bearbeitet; *with 327 illustrations*, roy. 8vo. *original hf. morocco (rubbed)*, 6s 6d (p. M. 12.50) *Wien* [1902]
- 16877 **LAPLACE** (Pierre Simon Marquis de; F.R.S.) ŒUVRES; *handsomely printed in large type*, 7 vols. 4to. *handsomely bound in hf. olive morocco, cl. sides, uncut, t. e. g. (FINE SET)*, £3. 10s *Imprimerie Royale*, 1843-7
CONTENU:—I—V. Mécanique Céleste: VI. Système du Monde: VII. Théorie analytique des Probabilités. It is a handsome edition, printed at the instance of King Louis Philippe.
- 16878 **LÁSKA** (Václav; *Bohemian Univ., Prague*) LEHRBUCH der SPHÄRISCHEN und THEORETISCHEN ASTRONOMIE und MATHEMATISCHEN GEOGRAPHIE, nebst Aufgaben und Resultaten; *with folding plate, and numerous diagrams*, large 8vo. *cl.*, or *buckram*, 3s (p. M. 6 sewn) *Bremerhaven*, [1889]
- 16879 — LEHRBUCH der VERMESSUNGSKUNDE (GEODÄSIE), mit Sammlung von Aufgaben; *with numerous illustrations*, 2 vols. large 8vo. in 1, *buckram*, 6s (p. M. 10 sewn) *ib.* [1894]
- 16880 **LIAIS** (Emmanuel, *Observatoire Impérial de Paris*) TRAITÉ d'ASTRONOMIE appliquée à la GÉOGRAPHIE et à la NAVIGATION, suivi de la GÉODÉSIE PRATIQUE; *with 59 illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 5s 1867
- 16881 **McKREADY** (Kelvin) A BEGINNER'S STAR-BOOK: an Easy Guide to the Stars and to the Astronomical Uses of the Opera-Glass, the Field Glass and the Telescope, *with 70 plates and smaller illustrations*, 4to. *cl.*, 6s (p. 9s nett) *New York*, 1912
- 16882 **MAIN** (Philip Thomas, *St. John's Coll., Cantab.*) INTRODUCTION to PLANE ASTRONOMY; 6th [last] Edition, *with illustrations*, fcap. 8vo. *cl. (o. p.)*, 3s *Cambridge*, 1893
- 16883 **MAIN** (Robert, *pr.*, F.R.S.; *Radcliffe Observer [and Philip Thomas]*) PRACTICAL and SPHERICAL ASTRONOMY, *with diagrams*, 8vo. *cl.*, or, *buckram*, 3s 6d (p. 14s) *Cambridge*, 1863
'Including all the mathematical processes which will enable the reader to understand the operations of a modern Observatory furnished with the ordinary meridional and extrameridional instruments.'—*Preface*.
- 16884 **MARTUS** (Hermann C. E.) ASTRONOMISCHE ERDKUNDE: ein Lehrbuch angewandter M mathematik, GROSSE AUSGABE, 3. neu durchgearbeitete Auflage; *with 100 illustrations*, 8vo. *handsomely bound hf. black morocco, cl. sides (nice copy)*, 7s 6d *Dresden*, 1904
- 16885 — VIERTE [NEUESTE] AUFLAGE, mit vielen Zusätzen; *with 2 plates and 100 illustrations*, large post 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 10s (p. M. 12.50) *ibidem*, 1912
- 16886 **MAUNDER** (Edward Walter, F.R.A.S.) ASTRONOMY WITHOUT a TELESCOPE: a Guide to the Constellations, with Introduction to the Study of the Heavens with the Unassisted Sight, *with 12 star-maps and 44 text-illustrations*, 8vo. *cl.*, *with Sir Edward Clarke's bookplate*, 3s (p. 5s nett) 1904
- 16887 **MESSER** (Jacob) STERN-ATLAS für HIMMELSBEOBSACHTUNGEN; 2. verbesserte und ergänzte Auflage; *with 2 hemispheres (linen-mounted), 26 star-maps, and 45 other illustrations*, oblong cr. 4to. *cl.*, 6s 6d (p. M. 10) *St. Petersburg [Petrograd]*, 1902
- 16888 **MILHAM** (Willis Isbister, *Williams Coll.*) HOW to IDENTIFY the STARS, *with 16 plates and charts*, post 8vo. *cl.*, 2s 6d *New York*, 1909
- 16889 **MOULTON** (Forest Ray, *Univ. Chicago*) INTRODUCTION to ASTRONOMY, *with 201 illustrations*, large cr. 8vo. *hf. leather*, 3s 6d (p. 7s nett) *New York*, 1906
- 16890 — INTRODUCTION to CELESTIAL MECHANICS; *with diagrams*, 8vo. *buckram, t. e. g.*, 7s 6d (p. 14s nett) *ibidem*, 1902
- 16891 — SECOND [LATEST] EDITION, revised, *with 62 diagrams*, 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 11s (p. 15s nett) *ib.*, 1914
- 16892 **MÜLLER** (Aloys) ELEMENTARE THEORIE der ENTSTEHUNG der GEZEITEN; *with 21 illustrations*, large 8vo. *buckram, t. e. g.*, 2s *Leipzig*, 1906
- 16893 **MÜLLER** (Johann Heinrich Jacob; *Univ. Freiburg i. B.*) LEHRBUCH der KOSMISCHEN PHYSIK; 5. [neueste] umgearbeitete und vermehrte Auflage von C. F. W. PETERS; *with 25 plates (a few coloured), and 447 woodcuts*, 8vo. (pp. 932); *with Atlas, containing 60 plates (MANY COLOURED, and the folding ones neatly linen-mounted)*, cr. 4to.—2 vols., *handsomely bound in hf. pigskin, cl. sides*, £1. (p. M. 26 sewn) *Braunschweig*, 1894
Forming a supplement to Müller-Pouillet's 'Lehrbuch der Physik' (v. Nos. 17147-8 post).
- 16894 **NEISSER** (Karl, *Wien*) PROLEMÄUS oder KOPERNIKUS? eine Studie über die Bewegung der Erde und über den Begriff der Bewegung, 8vo. *buckram, uncut, t. e. g.*, 2s 6d *Leipzig*, 1907
- 16895 **NEWCOMB** (Simon; *U.S. Naval Observatory, F.R.S.*) COMPENDIUM of SPHERICAL ASTRONOMY, with its Applications to the Determination and Reduction of Positions of the Fixed Stars, *with 36 diagrams*, 8vo. *buckram, t. e. g.*, 8s (p. 12s 6d nett) *New York*, 1906
'Having the double purpose of developing the elements of Practical and Theoretical Astronomy for the student, and of serving as a handbook of convenient reference for the use of the working astronomer in applying methods and formulæ.'—*Preface*.
- 16896 — The STARS: a Study of the Universe, *with frontispiece and numerous text-illustrations*, 8vo. *buckram*, 4s (p. 6s nett) 1904

ASTRONOMY and GEODESY, *continued*.—

- 16898 **PARKER** (George W., T.C.D.) ELEMENTS of ASTRONOMY, with numerous Examples and Examination Papers, 2nd [latest] Edition, with 84 diagrams, 8vo. cl., 3s 6d (p. 5s 6d nett) 1900
- 16899 **PECK** (William, F.R.S.E., Director City Observatory, Edin.) POPULAR HANDBOOK and ATLAS of ASTRONOMY, with 44 plates, and numerous text-illustrations, 4to. cl., t. e. g., 10s (p. £1. 1s) 1890
- 16900 **PLASSMAN** (Joseph Eduard Clemens Franz; Univ. Münster) HIMMELSKUNDE: Versuch einer methodischen Einführung in die Hauptlehren der Astronomie, 2. und 3. [neueste] Auflage; with coloured frontispiece, 282 illustrations, and 3 folding maps (linen-mounted), 8vo. hf. black morocco neat, cl. sides (as good as new), 8s 6d (p. M. 11 sewn) Freiburg i. B., 1913
- 16901 **POINCARÉ** (Henri Jules, de l'Institut; F.R.S.; cousin of the President of the French Republic) LEÇONS de MÉCANIQUE CÉLESTE professées à la Sorbonne; with 2 folding maps (linen-mounted), and numerous diagrams, 3 vols. roy. 8vo. in 2, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 7s 6d (p. F. 39 nett sewn) 1905-10
A well-known standard work.
CONTENTS.—I. Théorie générale des Perturbations planétaires; II. 1. Développement de la Fonction perturbatrice; II. 2. Théorie de la Lune; III. Théorie des Marées, rédigée par E. FICHOI.
- 16902 **PORCHON** (Paul) COURS de COSMOGRAPHIE, 5^e [dernière] Édition, revue; with 4 plates (linen-mounted) and 188 text-illustrations, 8vo. buckram, 3s 6d 1899
- 16903 **PROCTOR** (Richard Anthony, F.R.A.S.) STAR ATLAS for Library, School, and Observatory, showing all the Stars visible to the Naked Eye, and 1500 Objects of Interest, 14 double maps (including 2 coloured index-maps), with Introduction, folio, cl., with Adml. Sir Erasmus Ommanney's bookplate, 4s 6d (p. 15s) 1870
- 16904 ——— THIRD EDITION, with 14 plates (as above), folio, cl., 5s 1874
- 16905 **RESAL** (Amé Henri, de l'Institut) TRAITÉ ÉLÉMENTAIRE de MÉCANIQUE CÉLESTE; with folding plate, 8vo. hf. French morocco neat, 4s 1865
- 16906 ——— DEUXIÈME [DERNIÈRE] ÉDITION [entièrement refondue]; with 26 diagrams, 4to. hf. maroon morocco neat, cl. sides, t. e. g. (fine copy), 15s (p. F. 25 nett sewn) 1884
'Among valuable text-books on mathematical astronomy ranks *Traité de Mécanique Céleste* of H. Resal.'—Prof. Cajori.
- 16907 **RUDAUX** (L.) HOW to STUDY the STARS: Astronomy with small Telescopes and the naked Eye, and Notes on Celestial Photography, translated by A. H. KEANE, with 69 plates and text-illustrations, large cr. 8vo. cl., 3s (p. 5s nett) 1909
- 16908 **SCHNEIDER** (Julius; Prof. Astrophysics, Berlin) POPULÄRE ASTROPHYSIK; with 30 plates and 210 text-illustrations, 8vo. cl., 7s 6d (p. M. 12) Leipzig, 1908
- 16909 ——— ZWEITE [NEUESTE] AUFLAGE, ergänzt durch einige Nachträge; with 30 plates and 210 text-illustrations, 8vo. cl., 10s (p. M. 14) *ibidem*, 1912
An excellent semi-popular work on the subject.
- 16910 **SCHWAHN** (Paul, Direktor der Urania, Berlin) MATHEMATISCHE THEORIE der ASTRONOMISCHEN FINSTERNISSE; with 20 diagrams, post 8vo. stiff wrapper, 2s 6d Leipzig, 1910
- 16911 **SCHWALBE** (Bernhard Georg), and **H. BÖTTGER**: GRUNDRISSE der ASTRONOMIE, mit Lebensbild B. Schwalbes von E. SCHWALBE; with 13 plates (mostly folding and linen-mounted), 8vo. buckram, 4s (p. M. 7) Braunschweig, 1904
- 16912 **SECCHI** (Angelo, s.j.; Prof. Physics, Washington; Director, Osservatorio del Collegio Romano) Die STERNE: Grundzüge der Astronomie der Fixsterne; with 9 plates (some coloured), and 78 woodcuts, post 8vo. hf. black calf neat, 4s 6d (p. M. 8 sewn) Leipzig, 1878
- 16913 **SEELIGER** (Hugo v.; Director, Munich Observatory) BETRACHTUNGEN über die RÄUMLICHE VERTHEILUNG der FIXSTERNE, 2 parts 4to. in 1, buckram, t. e. g., 4s München, 1898-1909
- 16914 **VALENTINER** (Wilhelm; Prof. Astronomy, Heidelberg) HANDWÖRTERBUCH der ASTRONOMIE, unter Mitwirkung von E. BECKER, E. GERLAND, M. HAID, N. HERZ, H. KOBOLD, N. V. KONKOLY, C. W. PETERS, E. V. REBEUR-PASCHWITZ, FR. RISTENPART, W. SCHUR, H. SEELIGER, C. STECHERT, W. WISLICENUS und K. ZELLER; with 11 plates and 489 text-illustrations, 4 vols. roy. 8vo. handsomely bound in hf. maroon morocco, cl. sides (FINE COPY), £2. 10s (p. M. 100 sewn) Breslau, 1897-1902
Forming part of the 'Encyklopädie der Naturwissenschaften.'
- 16915 **WATSON** (James C., Univ. Michigan) THEORETICAL ASTRONOMY, relating to the Motions of the Heavenly Bodies revolving around the Sun in Accordance with the Law of Universal Gravitation, roy. 8vo. cl., £1. 1s (p. £2. 5s) Philadelphia, 1869
'A systematic derivation of the formulæ for the calculation of the geocentric and heliocentric places, for the determination of the orbits of planets and comets, for the correction of approximate elements, and for the computation of spherical perturbations, with the theory of the combination of observations and the method of least squares.' It is one of the most valuable textbooks on mathematical astronomy.
The author believed he had discovered the spurious intramercurian planet 'Vulcan' as the result of his observations during the total solar eclipse of July 29, 1878.
- 16916 **WEBB** (Thomas William, pr., F.R.A.S.) CELESTIAL OBJECTS for COMMON TELESCOPES, 5th Edition, revised and greatly enlarged, by THOMAS HENRY ESPINELL COMPTON ESPIN, Vicar of Tow Law, F.R.A.S., with fine portrait, plates, and woodcuts, 2 vols. post 8vo. cl., 6s 6d (p. 13s) 1893 4
'A work which has done more than any other to advance the cause of amateur observation.'—D. N. B. It is one of the best books for the amateur astronomer.

ASTRONOMY and GEODESY, *continued*:—

- 16918 **WEISS** (Edmund; *Prof. Astronomy, Vienna*) BILDER-ATLAS der STERNENWELT, 2. vermehrte Auflage; with 39 plates (many coloured), besides text-illustrations, folio, original *hf. cl.*, 7s (p. M. 12) *Esslingen, 1892*
- 16919 **WHITE** (Charles Joyce, *Harvard Univ.*) THE ELEMENTS of THEORETICAL and DESCRIPTIVE ASTRONOMY; 7th Edition, revised, with 84 illustrations, post 8vo. *cl.*, 4s 6d (p. 8s 6d nett) *New York, 1905*
- 16920 **WOLF** (Maximilian Franz Josef Cornelius; *Prof. Astronomy, Heidelberg*) Die MILCHSTRASSE: Vortrag in der 79. Versammlung Deutscher Naturforscher und Ärzte; with 10 plates and 53 text-illustrations, large 8vo. *cl. boards*, 2s 6d (p. M. 4) *Leipzig, 1908*
- 16921 ——— STEREOSKOPBILDER vom STERNHIMMEL, I. SERIE; with 12 fine stereoscopic views, narrow 8vo. in *hf. cl. portfolio*, 3s (p. M. 5) *ibidem, 1908*
- 16922 **WOLF** (Rudolf, *Univ. Zürich*) HANDBUCH der ASTRONOMIE, ihrer GESCHICHTE und LITTERATUR; with very numerous illustrations, 2 vols. large 8vo. in 1 (pp. 1360), handsomely bound in *hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 2s 6d (p. M. 32 sewn) *Zürich, 1890-3*
Invaluable as a work of reference from the copious bibliographies of historical works added to each chapter, division, and sub-division.
- 16923 **YOUNG** (Charles Augustus, *Prof. Astronomy, Princeton Univ.*) TEXT-BOOK of GENERAL ASTRONOMY for Colleges and Scientific Schools, revised [latest] Edition, with frontispiece of the Lick telescope and 246 illustrations, 8vo. original *hf. roan (as fresh as new)*, 7s 6d (p. 12s 6d) *Boston [Mass.], 1900*

PHYSICS:

- 16924 **AIRY** (Sir George Biddell, F.R.S., *Astronomer Royal*) On SOUND and ATMOSPHERIC VIBRATIONS, with the Mathematical Elements of Music; 2nd [last] Edition, with 2 plates, post 8vo. *cl.*, uncut (o. p.), 5s (p. 9s) *1871*
- 16925 ——— On the UNDULATORY THEORY of OPTICS; new [last] Edition, with 2 folding plates, post 8vo. *cl. (o. p.)*, 5s *1877*
- 16926 **AIRY** (Osmund; LL.D.) GEOMETRICAL OPTICS, illustrated, large 12mo. *cl. (o. p.)*, 3s *1870*
- 16927 **ALDIS** (William Steadman, *Prof. Mathematics, Univ. Coll., Auckland, N.Z.*) A CHAPTER on FRESNEL'S THEORY of DOUBLE REFRACTION, with diagrams, 8vo. *cl. cover*, 1s 6d *Cambridge, 1870*
- 16928 **ANDRADE** (Jules, *Univ. Rennes*) LEÇONS de MÉCANIQUE PHYSIQUE; with diagrams, roy. 8vo. buckram, uncut, 6s (p. F. 10 nett sewn) *1898*
- 16929 ——— Le MOUVEMENT: Mesures de l'Étendue et Mesures du Temps; with 46 illustrations, 8vo. *cl.*, or, buckram, 3s (p. F. 6 nett) *1911*
- 16930 **ANGLAS** (J.) PRÉCIS d'ACOUSTIQUE physique, musicale, physiologique; with 122 illustrations, large 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 8s 6d (p. F. 12 nett sewn) *1910*
- 16931 **ANTOMARI** (Xavier) LEÇONS de CINÉMATIQUE et de DYNAMIQUE, suivies de la Détermination des Centres de Gravité; with diagrams: LEÇONS de STATIQUE; with diagrams—2 vols. 8vo. in 1, *hf. black morocco neat, cl. sides (nice copy)*, 5s *1902-1897*
- 16932 **APPELL** (Paul Emile, *de l'Institut*) COURS de MÉCANIQUE, 2^e Édition, entièrement refondue; with numerous illustrations, 8vo. handsomely bound in *hf. black morocco, cl. sides, t. e. g.*, 7s (p. F. 12 nett sewn) *1905*
- 16933 ——— TROISIÈME [DERNIÈRE] ÉDITION, entièrement refondue; with 191 illustrations, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 8s 6d (p. F. 12 nett sewn) *1912*
- 16934 ——— LEÇONS sur l'ATTRACTION et la FONCTION POTENTIELLE, rédigées par M. CHARLIAT; with 24 diagrams, roy. 8vo. red buckram (scarce), 4s 6d *1892*
- 16935 ——— TRAITÉ de MÉCANIQUE RATIONNELLE; 2^e Édition, entièrement refondue, avec Note par E. et F. COSSERAT sur l'Action Euclidienne; with numerous diagrams, 3 vols. roy. 8vo. handsomely bound in *hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, £1. 10s (p. F. 60 nett sewn) *1902-9*
- CONTENU:—I. Statique. Dynamique du Point: II. Dynamique des Systèmes. Mécanique Analytique: III. Équilibre et Mouvement des Milieux continus.
- 16936 ———, et T. DAUTHEVILLE, *Univ. Montpellier*: PRÉCIS de MÉCANIQUE RATIONNELLE: Introduction à l'Étude de la Physique et de la Mécanique appliquée; with 222 diagrams, roy. 8vo. (pp. 729), handsomely bound in *hf. pigskin, cl. sides, uncut, t. e. g.*, 16s (p. F. 25 nett sewn) *1910*
- 16937 **BALL** (Sir Robert Stawell, F.R.S., *Lowndean Prof. Astronomy and Geometry, Cantab.*) TREATISE on the THEORY of SCREWS, with frontispiece and numerous diagrams, large roy. 8vo. *cl.*, uncut, 12s 6d (p. 18s nett) *Univ. Press, Cambridge, 1900*

PHYSICS, continued:—

- 16939 **BALY** (Edward Cecil Cyril, F.R.S., *Prof. Inorganic Chemistry, Liverpool*) SPECTROSCOPY, with 163 illustrations, including 5 folding plates (linen-mounted), post 8vo. buckram, 5s (p. 10s 6d) 1905
- 16940 **BARNARD** (Major-Gen. John Gross, U.S. Army) PROBLEMS of ROTARY MOTION, presented by the GYROSCOPE, the PRECESSION of the EQUINOXES, and the PENDULUM, with diagrams, large 4to. red buckram, 4s
No. 240 of Smithsonian Contributions to Knowledge.
- 16941 **BARNETT** (S. J., *Leland Stanford Jr. Univ.*) ELEMENTS of ELECTROMAGNETIC THEORY, with 145 illustrations, 8vo. handsomely bound in hf. black morocco, cl. sides (nice copy), 9s (p. 12s 6d nett) New York, 1903
* Trying to present in systematic and definite form a simple, rigorous, and thoroughly modern introduction to the fundamental principles of electro-magnetic theory, with some of the simpler of their more interesting and important non-technical applications.—*Preface.*
- 16942 **BARTON** (Edwin Henry, F.R.S.E., *Prof. Experimental Physics, Nottingham*) ANALYTICAL MECHANICS, comprising Kinetics and Statics of Solids and Fluids, with 241 diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g., 8s (p. 10s 6d nett in cl.) 1911
- 16943 **BASSET** (Alfred Barnard, F.R.S.) ELEMENTARY TREATISE on HYDRODYNAMICS and SOUND, 2nd [latest] Edition, with diagrams, 8vo. cl., 4s 6d (p. 8s) Cambridge, 1900
- 16944 **BATEMAN** (Harry, *Fellow of Trinity; Johns Hopkins Univ.*) The MATHEMATICAL ANALYSIS of ELECTRICAL and OPTICAL WAVE-MOTION on the Basis of MAXWELL'S EQUATIONS, 8vo. cl., 5s (p. 7s 6d nett) Univ. Press, Cambridge, 1915
* An introduction to some recent developments of Maxwell's electromagnetic theory which are directly connected with the solution of partial differential equations of wave motion.—*Preface.*
- 16945 **BAYMA** (Joseph, s.j., *Stonyhurst*) The ELEMENTS of MOLECULAR MECHANICS, with 3 folding plates, 8vo. cl. (o. p.), 6s 1866
* A first endeavour towards ascertaining the laws of molecular action.—*Introduction.*
- 16946 **BAYNES** (Robert Edward, *Dr. Lee's Reader in Physics, Oxon.*) LESSONS on THERMODYNAMICS, with 52 illustrations and table, cr. 8vo. cl. (o. p.), 5s Clarendon Press, Oxford, 1878
* A complete English mathematical introduction to the dynamical theory of heat. No such treatise exists at present.—*Intro*
- 16947 **BEER** (August; *Univ. Bonn*) EINLEITUNG in die ELEKTROSTATIK, die Lehre vom MAGNETISMUS und die ELEKTRODYNAMIK, nach dem Tode des Verfassers herausgegeben von JULIUS PLÜCKER, large post 8vo. hf. black calf neat (nice copy); o. p., 3s 6d Braunschweig, 1865
- 16948 ——— EINLEITUNG in die HÖHERE OPTIK, 2. [letzte] umgearbeitete Auflage von VIKTOR v. LANG; with plate (inked), and 201 woodcuts, 8vo. hf. cl., 4s (p. M. 9 sewn) *ibidem*, 1882
- 16949 ——— ANOTHER COPY, hf. maroon morocco neat, cl. sides (nice copy), 5s 6d
- 16950 ——— EINLEITUNG in die MATHEMATISCHE THEORIE der ELASTICITÄT und CAPILLARITÄT, herausgegeben von A. GIESEN; with 4 plates, 8vo. buckram, 2s 6d (p. M. 4 sewn) Leipzig, 1869
——— v. CLEBSCH, post.
- 16951 **BÉLANGER** (Jean Baptiste) TRAITÉ de CINÉMATIQUE; with 5 folding plates, large post 8vo. buckram (o. p.), 6s 1864
- 16952 ——— TRAITÉ de la DYNAMIQUE des SYSTÈMES MATÉRIELS; with 12 folding plates, 8vo. buckram, 5s (p. F. 10 nett sewn) 1866
- 16953 ——— TRAITÉ de DYNAMIQUE d'un POINT MATÉRIEL; with folding plate, 8vo. buckram, 2s (p. F. 4 nett sewn) 1864
- 16954 **BERTRAND** (Joseph Louis François, *de l'Institut*) THERMODYNAMIQUE; with diagrams, roy. 8vo. hf. maroon morocco neat, cl. sides (fine copy), 6s 6d (p. F. 10 nett sewn) 1887
- 16955 **BESANT** (William Henry, F.R.S.; *brother of Sir Walter*) ELEMENTARY HYDROSTATICS, with Chapters on the Motion of Fluids and of Sound, with diagrams; with the SOLUTIONS, 2 vols. cr. 8vo. in 1, buckram, 5s 6d (p. 9s 6d nett) 1900-1899
- 16956 ——— NOTES on ROULETTES and GLISSETTES, 2nd [last] Edition, with 5 folding plates, cr. 8vo. cl., 2s 6d (p. 5s) Cambridge, 1890
- 16957 ——— TREATISE on DYNAMICS, 3rd Edition, with numerous diagrams, post 8vo. buckram, 4s (p. 10s 6d) 1902
- 16958 ——— FIFTH [LATEST] EDITION, revised and enlarged by A. S. RAMSEY, Fellow of Magdalene Coll., Cantab., with numerous diagrams, 8vo. buckram, 7s 6d (p. 12s) 1914
- 16959 ———, and Arthur Stanley RAMSEY, *Magdalene Coll., Cantab.*: TREATISE on HYDRO-MECHANICS, 7th [latest] Edition, with numerous diagrams, 2 vols. 8vo. cl., 13s (p. 18s nett) 1911-13
- 16960 **BJERKNES** (Vilhelm; *Prof. Geophysics, Leipzig*) Die KRAFTFELDER; with 28 illustrations, 8vo. buckram, uncut, t. e. g., 5s 6d (p. M. 7 sewn) Braunschweig, 1909
- 16961 **BLAKESLEY** (Thomas Holmes, M.I.C.E.) PAPERS on ALTERNATING CURRENTS of ELECTRICITY, 2nd Edition, enlarged, with 29 woodcuts, post 8vo. cl., 2s (p. 4s 6d) 1889
- 16962 **BOEDDICKER** (Otto) ERWEITERUNG der GAUSS'schen THEORIE der VERSCHLINGUNGEN, mit Anwendungen in der ELEKTRODYNAMIK; with illustrations, roy. 8vo. sewn, 3s (p. M. 5.50) Stuttgart, 1876
- 16963 **BOLTZMANN** (Ludwig; *Prof. Theoretical Physics, Vienna*) VORLESUNGEN über die PRINCIPE der MECHANIK; with 26 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides (fine copy), 11s (p. M. 15 sewn) Leipzig, 1897-1904

PHYSICS, continued:—

- 16965 **BOUSSASSE** (Henri, *Univ. Toulouse*) COURS DE MÉCANIQUE PHYSIQUE, 2^e [dernière] Édition, complètement transformée et considérablement augmentée; with 307 illustrations, roy. 8vo. (pp. 695), *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 13s 6d (p. F. 20 nett sewn) [1912]
- 16966 ——— COURS DE PHYSIQUE, conforme aux Programmes des Certificats et de l'Agrégation de Physique; with numerous illustrations, 6 vols. roy. 8vo. in 5, buckram, £2. 2s (p. F. 66.50 nett sewn) [1907-9]
- CONTENU:—I. Mécanique physique; II. Thermodynamique. Théorie des Ions; III. Electricité et Magnétisme; IV. Optique. Étude des Instruments; V. Electroptique. Ondes hertziennes; VI. Étude des Symétries.
- 16967 **BOUCHARLAT** (Jean Louis) ÉLÉMENTS DE MÉCANIQUE, 4^e [dernière] Édition: with 10 folding plates, large post 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 4s 6d 1861
- 16968 **BOURLET** (Carlo) ÉLÉMENTS DE STATIQUE GRAPHIQUE; with 90 illustrations, 8vo. cl., 4s (p. F. 7.50 nett) 1910
- 16969 **BOUSSINESQ** (Joseph, *de l'Institut*) LEÇONS SYNTHÉTIQUES DE MÉCANIQUE GÉNÉRALE, publiées par MM. LEGAY et VIGNERON, roy. 8vo. buckram, uncut, t. e. g. (o. p.), 4s 1889
- 16970 **BOWSER** (Edward Albert, *Rutgers Coll.*) ELEMENTARY TREATISE ON ANALYTIC MECHANICS, with numerous Examples, 18th Edition, with diagrams, cr. 8vo. *hf. black morocco, cl. sides (as good as new)*, 5s New York, 1905
- 16971 **BRIOT** (Charles Auguste Albert) ESSAIS SUR LA THÉORIE MATHÉMATIQUE DE LA LUMIÈRE; with diagrams, 8vo. *hf. French olive morocco neat (nice copy); scarce*, 6s 6d 1864
- 16972 ——— LEÇONS DE MÉCANIQUE; with numerous diagrams, 8vo. *hf. French morocco neat*, 4s 1861
- 16973 **BRISSE** (Charles), et Charles **ANDRÉ**: COURS DE PHYSIQUE à l'Usage de la Classe de Mathématiques spéciales, 3^e [dernière] Édition par CH. BRISSE et CH. RIVIÈRE; with coloured spectrum plate and 562 woodcuts, 8vo. *hf. pigskin neat, cl. sides*, 7s 6d (p. F. 15 nett sewn) 1894
- 16974 **BROOKS** (E. E.), and A. W. **POYSER**, T.C.D.: MAGNETISM AND ELECTRICITY: a Manual for Students of Advanced Classes, with 413 illustrations, large cr. 8vo. *hf. black morocco neat, cl. sides (as good as new)*, 5s 6d (p. 7s 6d nett in cl.) 1912
- 16975 **BURMESTER** (Ludwig; *Technische Hochschule, München*) LEHRBUCH DER KINEMATIK, geometrisch dargestellt, I. Band: die EBENE BEWEGUNG, large 8vo. (pp. 962), handsomely bound in *hf. pigskin, cl. sides*; with Atlas, containing 57 plates, 3 vols. oblong folio, *hf. cl.*, £1. 18s 6d (p. M. 57 sewn) Leipzig, 1888
- 16976 **BYK** (Alfred, *Univ. Berlin*) EINFÜHRUNG IN DIE KINETISCHE THEORIE DER GASE, I. [einziges] Bändchen: die IDEALEN GASE; with 14 illustrations, post 8vo. stiff wrapper, 2s Leipzig, 1910
- 16977 **CAMPBELL** (Norman Robert, *Univ. Leeds*) MODERN ELECTRICAL THEORY, 2nd [latest] Edition, 8vo. cl., 6s 6d (p. 9s nett) Univ. Press, Cambridge, 1913
'This volume, nominally a second edition, is really a new book.'—Preface.
- 16978 **CARMICHAEL** (Robert Daniel, *Indiana Univ.*) THE THEORY OF RELATIVITY, large 8vo. cl., 3s (p. 4s 6d nett) New York, 1913
- 16979 **CARONNET** (Th.) PROBLÈMES DE MÉCANIQUE; with numerous diagrams, 8vo. buckram, 3s (p. F. 5 nett sewn) 1898
- 16980 **CARPENTER** (William Benjamin, F.R.S.) THE MICROSCOPE and its REVELATIONS; 8th [latest] Edition, in which the first seven and the 23rd Chapters have been wholly rewritten, and the Text reconstructed, enlarged, and revised by W. H. DALLINGER, F.R.S. [Principal of Wesley College, Sheffield], with 22 fine plates (some coloured), and nearly 900 woodcuts, 8vo. (pp. 1201), handsomely bound in *hf. crushed purple morocco, cl. sides (fine copy)*, 17s 6d (p. £1. 8s in cl.) 1901
The fullest and best English work on microscopy, edited by one of its greatest authorities. The plates include many micro-photographs taken by the editor, some with a Zeiss $\frac{1}{6}$ inch N.A. 1.60 objective. The work also includes a very interesting and fully illustrated history of the microscope.
- 16981 **CELLÉRIER** (Charles; *Univ. Geneva*) COURS DE MÉCANIQUE; with numerous diagrams, roy. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 8s 6d (p. F. 12 nett sewn) 1892
- 16982 **CHARBONNIER** (Lt.-Col. P.) BALLISTIQUE EXTÉRIEURE RATIONNELLE (Problèmes principal et secondaires): BALLISTIQUE INTÉRIEURE; with numerous illustrations, 3 vols. 8vo. buckram, 8s (p. F. 15 nett) 1907-8
- 16983 **CHEVALLIER** (A. F.), et Achille **MÜNTZ**: PROBLÈMES DE PHYSIQUE, avec leurs Solutions développées; 2^e [dernière] Édition, augmentée par CH. DE VILLEDEUIL; with illustrations, 8vo. buckram, 3s 6d (p. F. 6 nett sewn) 1885
- 16984 **CHRISTIANSEN** (Christian, *Univ. Copenhagen*) ELEMENTS OF THEORETICAL PHYSICS, translated by WILLIAM FRANCIS MAGIE, Princeton University, with 143 illustrations, 8vo. cl., 8s (p. 12s 6d nett) 1897
- 16985 ———, und Johannes J. C. **MÜLLER**: ELEMENTE DER THEORETISCHEN PHYSIK, mit Vorwort von E. WIEDEMANN, 3. [neueste] verbesserte Auflage; with 164 illustrations, 8vo. handsomely bound in *hf. black morocco, cl. sides, t. e. g. (as good as new)*, 10s 6d (p. M. 13.50 sewn) Leipzig, 1910
- 16986 **COMBETTE** (Eugène) COURS DE MÉCANIQUE ÉLÉMENTAIRE, suivi de Notions de Statique graphique, 6^e édition; with 250 diagrams, 8vo. buckram, 3s (p. F. 5 sewn) 1899

PHYSICS, continued:—

- 16988 **CHWOLSON** (Orest D., *Univ. Petrograd*) LEHRBUCH der PHYSIK, übersetzt von H. PFLUM and E. BERG, Band I—III; with 1329 illustrations, 3 thick vols. 8vo. *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (nice copy)*, £1. 12s 6d (p. M. 46 sewn) *Braunschweig*, 1902-5
INHALT:—I. Einleitung. Mechanik. Einige Messinstrumente und Messmethoden. Lehre von den Gasen, Flüssigkeiten und festen Körpern: II. Lehre vom Schall (Akustik). Lehre von der strahlenden Energie: III. Lehre von der Wärme.
- 16989 **CLASSEN** (Johannes Wilhelm, *physik. Staatslaboratorium, Hamburg*) MATHEMATISCHE OPTIK; with 52 diagrams, large cr. 8vo. *cl.*, 4s (p. M. 6) *Leipzig*, 1901
- 16990 ——— THEORIE der ELEKTRIZITÄT und des MAGNETISMUS; with 74 illustrations, 2 vols. large cr. 8vo. *cl.*, 7s 6d (p. M. 12) *ibidem*, 1903-4
- 16991 **CLAUDE** (Georges) L'ÉLECTRICITÉ à la PORTÉE de TOUT LE MONDE: Courants continu, variables, alternatifs simples et polyphasés. Le Radium et les nouvelles Radiations; 7^e Édition, augmentée; with 236 illustrations, large 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g.*, 6s 1911
- 16992 **CLAUSIUS** (Rudolf Julius Emanuel; F.R.S.) Die MECHANISCHE WÄRMETHEORIE; NEUESTE UMGARBEITETE AUFLAGE (Bd. I 3 A. and Bd. II—III 2. A.); with numerous woodcuts, 3 vols. 8vo. in 1, *hf. maroon morocco neat, cl. sides (nice copy)*, 16s 6d (p. M. 22.40 sewn) *Braunschweig*, 1879-91
The author's great work, which first placed thermodynamics on a scientific basis. It contains: I. Entwicklung der Theorie, soweit sie sich aus den beiden Hauptsätzen ableiten lässt, nebst Anwendungen, 3. A., '87: II. Die mechanische Behandlung der Electricität, 2. A., '79: III. Die kinetische Theorie der Gase, herausgegeben von MAX PLANCK und CARL PULFRICH, 2. A., '89-91.
- 16993 **CLAUZEL** (G.) EFFETS GYROSCOPIQUES, GYROSCOPE: Théorie simplifiée; with 46 diagrams, roy. 4to. (pp. 51), *buckram*, 2s 6d 1912
Gyroscopic monorail railways seem to have been postponed for the duration of the war!
- 16994 **CLEBSCH** (Rudolf Friedrich Alfred; *Univ. Göttingen*) THEORIE der ELASTICITÄT FESTER KÖRPER, 8vo. *hf. calf (SCARCE)*, 15s *Leipzig*, 1862
Bound up with the above is: Einleitung in die mathematische Theorie der Elasticität und Capillarität von AUGUST BEER, herausgegeben von A. GIESEN; with 4 plates, *Leipzig*, 1869.
- 16995 **CLIFFORD** (William Kingdon, F.R.S., *Univ. Coll., London*) ELEMENTS of DYNAMIC: an Introduction to the Study of Motion and Rest in Solid and Fluid Bodies, Part I: KINEMATIC [Books I—III], *illustrated*, cr. 8vo. *cl.*, 4s (p. 7s 6d) 1878
In this work, which was never completed, Professor Clifford first introduced the graphical and geometrical methods of Möbius, Culmann, etc., as applicable to elementary mathematics.
- 16996 **COLLIGNON** (Édouard, *Ingénieur en chef des Ponts et Chaussées*) TRAITÉ de MÉCANIQUE, DERNIÈRE ÉDITION (T. I et III 3^e, II 4^e, et IV—V 2^e Éditions); with 1154 woodcuts, 5 vols. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (FINE SET)*, £1. 7s 6d (p. F. 37.50 nett sewn) 1835-1903
CONTENU:—I. Cinématique: II. Statique: III—IV. Dynamique: V. Questions diverses, Compléments, Table générale.
- 16997 ——— TOME I à III; with numerous woodcuts, 3 vols. 8vo. *hf. green morocco neat, cl. sides, uncut, t. e. g. (nice copy)*, 10s 6d (p. F. 22.50 nett sewn) 1873-4
- 16998 **COTTERILL** (James Henry, F.R.S.) APPLIED MECHANICS: an Elementary General Introduction to the Theory of Structures and Machines, 4th Edition, enlarged, with 11 plates and 213 other illustrations, 8vo. *cl.*, 6s 6d (p. 18s) 1895
- 16999 ———, and John Henry SLADE, R.N.: LESSONS in APPLIED MECHANICS, with 377 illustrations, 12mo. *cl.*, 2s 6d (p. 5s 6d) 1894 or 1902
- 17000 **CRABTREE** (Harold, *Charterhouse School*) ELEMENTARY TREATMENT of the THEORY of SPINNING TOPS and GYROSCOPIC MOTION, with 3 plates, and 77 text-illustrations, 8vo. *cl.*, 3s (p. 5s 6d nett) 1909
- 17001 ——— SECOND [LATEST] EDITION, with 5 plates and 100 text-illustrations, 8vo. *buckram*, 5s (p. 7s 6d nett) 1914
The second edition contains articles on the gyro-compass and the monorail cars of Brennan and Schilowsky.
- 17002 **CUMMING** (Linnæus, *Rugby School*) INTRODUCTION to the THEORY of ELECTRICITY, with numerous Examples; 4th [last] Edition, with Additions, with diagrams, post 8vo. *cl.*, 4s (p. 8s 6d) 1894
- 17003 **CUNNINGHAM** (Ebenezer, *St. John's Coll., Cantab.*) The PRINCIPLE of RELATIVITY, with diagrams, 8vo. *cl.*, 6s 6d (p. 9s nett) *Univ. Press, Cambridge*, 1914
No attempt has been made to present the highly speculative attempt of Einstein at a generalisation of the principle in connexion with a physical theory of gravitation.—*Preface.*
- 17004 **DARIES** (Georges, *Ingénieur de la Ville de Paris*) MÉCANIQUE, HYDRAULIQUE, THERMODYNAMIQUE; 2^e [dernière] Édition, entièrement remaniée et très-augmentée, cr. 8vo. (pp. 840), *hf. black morocco neat, cl. sides, t. e. g.*, 6s (p. F. 12 nett) 1906
- 17005 **DAVIS** (George E., F.R.M.S.) PRACTICAL MICROSCOPY; new [last] revised Edition, with coloured frontispiece, and 310 woodcuts, 8vo. *cl.*, 3s 6d (p. 7s 6d) 1839
- 17006 **DELAUNAY** (Charles Eugène) TRAITÉ de MÉCANIQUE RATIONNELLE, 5^e Édition; with 121 woodcuts and diagrams, 8vo. *hf. French morocco neat (nice copy)*; o. p., 6s 1873
- 17007 **DESSAU** (Bernhard; *Prof. Physics, Perugia*) Die PHYSIKALISCH-CHEMISCHEN EIGENSCHAFTEN der LEGIERUNGEN; with 3 plates and 82 text-illustrations, 8vo. *buckram*, 5s (p. M. 7 sewn) *Braunschweig*, 1910

PHYSICS, continued:—

- 17009 **DONKIN** (William Fishburn, F.R.S., *Savilian Prof. Astronomy, Oxon.*) ACOUSTICS; Theoretical, Part I (all published), *with diagrams*, cr. 8vo. *cl.*, 3s 6d (p. 7s 6d)
Clarendon Press, Oxford, 1870
'Devoted to an enquiry into the vibrations of strings and rods, and giving evidence on every page of the combined musical and mathematical talents of the author.'—*Prof. W. J. Harrison.*
- 17010 **DRINCOURT** (E.) COURS de PHYSIQUE à l'Usage de l'École centrale des Arts et Manufactures; *with 367 illustrations*, 8vo. *handsomely bound in hf. black morocco, cl. sides (nice copy)*, 6s 6d (p. F. 12 nett sewn)
1896
- 17011 **DRUDE** (Paul; *Prof. Physics, Berlin*) LEHRBUCH der OPTIK, 2. erweiterte Auflage; *with 110 woodcuts and diagrams*, 8vo. *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new)*, 9s (p. M. 12 sewn)
Leipzig, 1906
'No one who desires to gain an insight into the most modern aspects of optical research can afford to be unfamiliar with this remarkably original and consecutive presentation of the subject of optics.'—*Prof. A. A. Michelson.*
- 17012 **DUHAMEL** (Jean Marie Constant, *de l'Institut*) COURS de MÉCANIQUE; 3^e [dernière] Édition [revue et augmentée]; *with 3 plates*, 2 vols. 8vo. *hf. French morocco neat (nice copy)*, 18s 2d
SCARCE, 15s
'The influence of temperature on stress was first investigated mathematically by Duhamel, who, assuming Poisson's theory of elasticity, examined the alterations of form which the formulae undergo when we allow for changes of temperature.'
Prof. Cajori.
- 17013 **DUHEM** (Pierre; *de l'Institut; Univ. Bordeaux*) Sur la CONTINUITÉ entre l'ÉTAT LIQUIDE et l'ÉTAT GAZEUX, et sur la Théorie générale des Vapeurs; *with 39 diagrams*, roy. 8vo. *buckram (scarce)*, 6s
Lille, 1891
Published by order of the Conseil Général of a town now under the paw of the savages.
- 17014 ——— Les SOURCES des THÉORIES PHYSIQUES: Les ORIGINES de la STATIQUE; *with numerous diagrams*, 2 vols. roy. 8vo. in 1, *hf. maroon morocco, cl. sides, uncut, t. e. g. (fine copy)*, 14s (p. F. 20 nett sewn)
1905-6
- 17015 ——— La THÉORIE PHYSIQUE: son Objet et sa Structure, 8vo. *buckram, uncut, t. e. g.*, 5s (p. F. 8 nett sewn)
1906
'Une simple analyse logique de la méthode par laquelle progresse la science physique.'—*Introduction.*
- 17016 ——— TRAITÉ d'ÉNERGÉTIQUE ou de THERMODYNAMIQUE GÉNÉRALE, 2 thick vols. roy. 8vo. in 1, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, £1. 4s (p. F. 36 nett sewn)
1911
CONTENU:—I. Conservation de l'Énergie. Mécanique rationnelle. Statique générale. Déplacement de l'Équilibre: II. Dynamique générale. Conductibilité de la Chaleur. Stabilité de l'Équilibre.
- 17017 **EARNSHAW** (Samuel; *pr., St. John's Coll., Cantab.*) DYNAMICS, or a Treatise on Motion, with short TREATISE on ATTRACTIONS; 3rd [last] Edition, revised, *with diagrams*: TREATISE on STATICS, containing the Theory of the Equilibrium of Forces; 3rd Edition, enlarged, *with 5 folding plates*—2 vols. 8vo. in 1, *hf. calf*, 5s
Cambridge, 1844-5
Professor Earnshaw was the first to take up the treatment of solitary waves.
- 17018 **EMTAGE** (William Thomas Alder; *Director Public Instruction, Mauritius*) INTRODUCTION to the MATHEMATICAL THEORY of ELECTRICITY and MAGNETISM, 2nd [latest] Edition, *with diagrams*, cr. 8vo. *cl.*, 4s (p. 7s 6d)
Clarendon Press, Oxford, 1894
- 17019 ——— LIGHT; new Impression, *with 231 illustrations*, cr. 8vo. *cl.*, 3s (p. 6s)
1903
- 17020 **ENGEL** (F.), und K. SCHELLBACH: DARSTELLEND E OPTIK, 2. [letzte] Auflage, 8vo. *buckram, with Atlas, containing 21 fine copperplates (all neatly linen-mounted)*, oblong impl. folio, *hf. brown morocco neat, buckram sides (FINE COPY)*; SCARCE, £3. 3s
Halle, 1861
One of the finest works published on projective optics.
- 17021 **EVERETT** (James David, F.R.S.; *Queen's Coll., Belfast*) VIBRATORY MOTION and SOUND, *with 4 plates and 48 woodcuts*, 8vo. *cl. (scarce)*, 6s
1882
'The first English treatise dealing with vibratory motion as a special and separate subject.'—*Athenæum.*
- 17022 **EWERDING** (Georg) LEHRBUCH der GRAPHOSTATIK, 2. [neueste] Auflage; *with 350 diagrams*, sq. 8vo. *buckram*, 3s 6d (p. M. 4.40 sewn)
Stuttgart, 1912
- 17023 **FERNET** (Émile), et Charles Jules FAIVRE-DUPAIGRE: COURS de PHYSIQUE pour les Classes des Mathématiques spéciales, 4^e Édition: Rédaction entièrement nouvelle; *with 758 illustrations*, roy. 8vo. (pp. 969), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 11s (p. F. 20 nett sewn)
1904
- 17024 ——— CINQUIÈME [DERNIÈRE] ÉDITION: Rédaction entièrement nouvelle; *with 951 illustrations*, thick roy. 8vo. (pp. 970), *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g.*, 14s (p. F. 20 nett sewn)
1911
- 17025 **FINGER** (Josef, *Technische Hochschule, Wien*) ELEMENTE der REINEN MECHANIK als Vorstudium für die analytische und angewandte Mechanik und für die mathematische Physik, 2. [neueste] Auflage; *with 210 diagrams*, roy. 8vo. (pp. 810), *handsomely bound in hf. pigskin, cl. sides*, 15s (p. M. 20 sewn)
Wien, 1901
- 17026 **FLEMING** (John Ambrose, F.R.S.) WAVES and RIPPLES in WATER, AIR, and ÆTHER, *with frontispiece and 85 illustrations*, post 8vo. *cl.*, 3s (p. 5s nett)
1902
An excellent elementary work on wave-motion.
- 17027 **FÖPPL** (August, *Technische Hochschule, München*) VORLESUNGEN ueber TECHNISCHE MECHANIK, 2. Auflage; *with numerous diagrams*, 4 vols. large cr. 8vo. *cl.*, £1. 1s (p. M. 44)
Leipzig, 1900-3

PHYSICS, continued:—

- 17029 **FOURIER** (Jean Baptiste Joseph Baron, *de l'Institut* ; F.R.S.) *THE ANALYTICAL THEORY OF HEAT*, translated with Notes by ALEXANDER FREEMAN, 8vo. cl. (SCARCE), 15s
Univ. Press, Cambridge, 1878
 The author's most important work, containing the celebrated theorem named after him, here applied to solve the transmission of heat.
 'In this work he shows that any function of a variable, whether continuous or discontinuous, can be expanded in a series of sines of multiples of the variable; a result which is constantly used in modern analysis.'—*W. W. R. Ball.*
- 17030 **FRANKLIN** (William Suddards, *Lehigh Univ.*) *ELECTRIC WAVES: an Advanced Treatise on Alternating-Current Theory, with numerous illustrations*, 8vo. cl., 8s (p. 12s 6d nett)
New York, 1909
- 17031 ———, and Barry **MACNUTT**: *THE ELEMENTS OF ELECTRICITY and MAGNETISM, with portrait of Faraday and numerous illustrations*, 8vo. cl., 4s 6d (p. 7s nett)
ib., 1909
- 17032 ———: *THE ELEMENTS OF MECHANICS; with frontispiece and numerous illustrations*, 8vo. cl., 4s (p. 6s 6d nett)
ib., 1907
- 17033 ———: *LIGHT and SOUND, with numerous illustrations*, 8vo. cl., 4s 6d (p. 7s nett)
ib., 1909
- 17034 ———, and R. B. **WILLIAMSON**: *THE ELEMENTS OF ALTERNATING CURRENTS*, 2nd Edition, rewritten and enlarged, with 250 illustrations, 8vo. cl., 6s 6d (p. 10s 6d nett)
ib., 1909
FROST (Percival, *pr.*, F.R.S.)—*v. NEWTON, post.*
- 17035 **FUHRMANN** (Arwed, *Dresden*) *AUFGABEN aus der ANALYTISCHEN MECHANIK: Übungsbuch und Literaturnachweis, 3. und 2. [neueste] vermehrte Auflage; with diagrams*, 2 vols. 8vo. cl., 4s 6d (p. M. 7.80)
Leipzig, 1904-1882
- 17036 **GANOT** (Adolphe), et Georges **MANEUVRIER**: *TRAITÉ ÉLÉMENTAIRE de PHYSIQUE; 21^e Édition, entièrement refondue; with 2 coloured plates and 1025 text-illustrations*, post 8vo. (pp. 1211), *hf. pigskin neat, cl. sides*, 3s 6d
 1894
- 17037 ——— *VINGT-TROISIÈME ÉDITION*, entièrement refondue; with coloured plate and 882 text-illustrations, post 8vo. (pp. 1031), *hf. pigskin, cl. sides*, 4s 6d
 1905
- 17038 **GARCET** (H.) *ÉLÉMENTS de MÉCANIQUE, 2^e Édition, augmentée; with 128 illustrations*, 8vo. buckram, 3s
 1861
- 17039 **GARNETT** (William, *Durham Coll., Newcastle-on-Tyne*) *TREATISE ON ELEMENTARY DYNAMICS; 5th [last] Edition, revised, with diagrams*, post 8vo. buckram, 3s (p. 6s) *Cambridge*, 1889
- 17040 **GAUSS** (Johann Karl Friedrich; F.R.S.) *DIOPTRISCHE UNTERSUCHUNGEN* (pp. 35): **Knochenhauer** (K. W.) *DIE UNDULATIONSTHEORIE des LICHTES; with 5 plates* (pp. 206)—2 vols. 4to. in 1, cl., 5s
Berlin, 1841—Göttingen, '39
 Gauss's memoir contains a simplified solution of the dioptries of spherical surfaces.
- 17041 **GEHRCKE** (Ernst, *Univ. Berlin*) *DIE ANWENDUNG der INTERFERENZEN in der SPEKTROSKOPIE und METROLOGIE; with 73 illustrations*, 8vo. buckram, uncut, t. e. g., 4s (p. M. 5.50 sewn)
Braunschweig, 1906
- 17042 **GIBSON** (Charles R.) *SCIENTIFIC IDEAS OF TO-DAY: a popular Account of the Nature of Matter, Electricity, Light, Heat, etc. etc. in non-technical Language; 3rd Edition, with 24 plates, besides diagrams*, thick large post 8vo. cl., 3s (p. 5s nett)
 1909
- 17043 **GILBERT** (Philippe, *Univ. LOUVAIN*) *COURS de MÉCANIQUE ANALYTIQUE, PARTIE ÉLÉMENTAIRE, 3^e [dernière] Édition; with 129 diagrams*, 8vo. handsomely bound in *hf. black morocco, cl. sides (as good as new); scarce*, 15s
 1891
- 17044 **GLAZEBROOK** (Richard Tetley, F.R.S., *Director Nat. Physical Laboratory*) *ELECTRICITY and MAGNETISM, with 270 woodcuts*, cr. 8vo. buckram, 3s (p. 7s 6d) *Univ. Press, Cambridge*, 1903
- 17045 ——— *LAWS and PROPERTIES of MATTER, with 37 illustrations*, post 8vo. cl., 1s 6d
 1893
- 17046 ——— *PHYSICAL OPTICS*, 4th Edition, with 183 woodcuts, cr. 8vo. buckram, 3s (p. 6s) 1898 or 1907
- 17047 ———, and Sir William Napier **SHAW**, F.R.S., *Director, Meteorological Office: PRACTICAL PHYSICS*, 4th Edition [greatly enlarged], with 134 woodcuts, thick post 8vo. cl., 3s 6d (p. 7s 6d)
 1893
- 17048 **GLEICHEN** (Alexander) *LEHRBUCH der GEOMETRISCHEN OPTIK; with 251 diagrams*, 8vo. cl., 12s 6d (p. M. 20)
Leipzig, 1902
- 17049 **GOODEVE** (Thomas Minchin) *THE ELEMENTS OF MECHANISM; new Edition, rewritten, with 342 woodcuts*, cr. 8vo. buckram, 2s 6d
 1883
- 17050 **GRAETZ** (Leo; *Prof. Physics, Munich*) *DIE ELEKTRIZITÄT und ihre Anwendungen*, 10. vermehrte Auflage; with 540 illustrations, large 8vo. *hf. black calf, cl. sides*, 4s (p. M. 7 sewn)
Stuttgart, 1903
- 17051 **GRAHAM** (Robert Hudson, C.E.) *GRAPHIC and ANALYTIC STATICS in their Practical Application to STRESSES in ROOFS, Solid Girders, Lattice, Bowstring and Suspension Bridges, Braced Iron Arches and Piers, etc.; 2nd Edition, enlarged, with numerous plates (3 folding and linen-mounted), and diagrams*, 8vo. buckram, uncut, 7s 6d (p. 16s)
 1887
- 17052 **GRAY** (Andrew, F.R.S., *Prof. Natural Philosophy, Glasgow*) *TREATISE ON PHYSICS*, Vol. I (all pub.): *DYNAMICS and PROPERTIES of MATTER, with 350 woodcuts*, 8vo. handsomely bound in *hf. black morocco, cl. sides, t. e. g. (fine copy)*, 8s 6d (p. 15s in cl.)
 1901
 'Providing a treatise which may serve for those who wish to have in one book an account of theoretical and experimental physics sufficient for most practical purposes of scientific and technical education.'—*Preface*. It supposes, however, a knowledge of the calculus.

PHYSICS, *continued* :—

- 17054 **GREICHACHER** (Heinrich; *Univ. Zürich*) Die NEUEREN STRAHLEN: Radium (α - β - γ -) Strahlen, Kathoden-, Kanal-, Anoden-, Röntgenstrahlen, in leichtfasslichen Einzeldarstellungen; *with 66 illustrations*, roy. 8vo. *buckram*, 3s (p. M. 4 sewn) *Stuttgart*, 1909
- 17055 **GRIMSEHL** (E.) LEHRBUCH der PHYSIK, mit Anhang, enthaltend Tabellen physikalischer Konstanten und Zahlentabellen; *with 2 coloured spectrum-plates, and 1091 text-illustrations*, thick 8vo. (pp. 1052), *hf. black morocco neat, cl. sides (as good as new)*, 10s 6d (p. M. 16 in cl.) *Leipzig*, 1909
- One of the best shorter German treatises on physics.
- 17056 **GROTH** (Hugo) PHYSIKALISCHE PRINZIPIEN der NATURLEHRE und ISAAK NEWTON'S mathematische Prinzipien, cr. 8vo. *buckram*, 3s (p. M. 4 sewn) *Kiel*, 1912
- 17057 **GUICHARD** (C., *de la Sorbonne*) PROBLÈMES de MÉCANIQUE et Cours de CINÉMATIQUE, Rédaction de MM. DAUTRY et DESCHAMPS; *with diagrams*, large 8vo. *buckram*, 4s (p. F. 6 nett sewn) 1913
- 17058 **GUILLET** (Amédée) PROPRIÉTÉS CINÉMATIQUES fondamentales des VIBRATIONS, Notes de M. AUBERT; *with 103 diagrams*, roy. 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 11s (p. F. 16 nett sewn) 1913
- 17059 **GUILLOT** (L.) COURS de MÉCANIQUE, Tome I^{er}: Principes et Théorèmes généraux; Statique graphique; Résistance des Matériaux; *with 280 illustrations*, sq. 8vo. *cl.*, 5s (p. F. 10 nett) 1911
- 17060 **HANDBUCH** der PHYSIK, unter Mitwirkung von F. AUERBACH, E. BRÖDHUHN, F. BRAUN, S. CZAPSKI, K. EXNER, W. FEUSSNER, L. GRÄTZ, H. KAYSER, F. MELDE, O. OBERBECK, J. PERNET, FR. STENGER und K. WAITZ herausgegeben von A. WINKELMANN; *with plate and 929 woodcuts*, 3 vols. roy. 8vo. in 5, *handsomely bound in hf. crushed brown morocco, cl. sides (FINE SET)*, £2. 2s (p. M. 105 sewn) *Breslau*, 1891-6
- INHALT:—I. Mechanik und Akustik: II. 1. Optik: II. 2. Wärme: III. 1-2. Elektrizität und Magnetismus.
- 17061 ——— ZWEITE [NEUESTE] AUFLAGE, herausgegeben von A. WINKELMANN, *Univ. Jena*; *with 2118 illustrations*, 5 thick vols. roy. 8vo. in 6, *uniformly and handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (FINE SET)*, £8. 8s (p. M. 221 sewn) *Leipzig*, 1905-9
- INHALT:—I. Allgemeine Physik; II. Akustik; III. Wärme; IV. Elektrizität und Magnetismus, 2 v.: V. Optik.
It is the most complete and up-to-date treatise on physics in any language.
- 17062 **HAUCK** (W. Ph.) Die GRUNDLEHREN der ELEKTRICITÄT, mit besonderer Rücksicht auf ihre Anwendungen in der Praxis, 3. [neueste] Auflage; *with portrait of Volta and 85 illustrations*, cr. 8vo. *cl.*, or, *buckram*, 2s 6d (p. M. 4) *Wien*, 1896
- 17063 **HAUGHTON** (Samuel, *pr.*, T.C.D., M.D., F.R.S.) PRINCIPLES of ANIMAL MECHANICS, 2nd [last] Edition, *with 110 woodcuts and diagrams*, 8vo. *cl. (o. p.)*, 10s 6d (p. £1. 1s) 1873
- ‘The object of this volume is to show that the muscular mechanism is so arranged that the work required of it is done with a less expenditure of muscular contraction than would result from any other configuration. This he calls ‘the principle of least action.’—D.N.D.
- 17064 **HAVELOCK** (Thomas Henry, F.R.S., *Armstrong Coll.*) The PROPAGATION of DISTURBANCES in DISPERSIVE MEDIA [with Bibliography], *with 27 diagrams*, 8vo. *sewn*, 2s 6d (p. 3s 6d nett) 1914
- 17065 **HEATH** (Robert Samuel; *V.-P. Univ. Birmingham*) ELEMENTARY TREATISE on GEOMETRICAL OPTICS; 2nd [latest] Edition, *with diagrams*, cr. 8vo. *cl.*, 3s *Univ. Press, Cambridge*, 1897
- 17066 ——— TREATISE on GEOMETRICAL OPTICS; 2nd [latest] Edition, enlarged, *with numerous diagrams*, 8vo. *buckram, t. e. g. (o. p.)*, 12s 6d *apud eandem, ibidem*, 1895
- The standard work on the subject.
- 17067 **HELM** (Georg; *Technische Hochschule, Dresden*) Die ELEMENTE der MECHANIK und MATHEMATISCHEN PHYSIK; *with illustrations*, 8vo. *buckram*, 3s *Leipzig*, 1884
- 17068 **HELMHOLTZ** (Hermann Ludwig Ferdinand v.; *Univ. Berlin, F.R.S.*) HANDBUCH der PHYSIOLOGISCHEN OPTIK, 2. umgearbeitete Auflage; *with 8 plates and 254 woodcuts*, roy. 8vo. (pp. 1353), *handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy)*, £1. 8s 6d (p. M. 53 sewn) *Hamburg*, 1896
- The author's most important work, the first systematic treatise applying physical laws to the study of the physiology of the eye, and equally valuable for the original discoveries and the historical investigations it contains.
- 17069 ——— Die LEHRE von den TONEMPFFINDUNGEN als PHYSIOLOGISCHE GRUNDLAGE für die THEORIE der MUSIK; 5. [letzte] Auflage [herausgegeben von R. WACHSMUTH]; *with fine photogravure portrait, and 66 text-illustrations*, 8vo. *handsomely bound in hf. crushed maroon morocco, cl. sides, uncut, t. e. g. (as good as new)*, 10s (p. M. 12 sewn) *Braunschweig*, 1896
- Latest edition of this great work, containing the author's numerous discoveries in physical and physiological acoustics.
- 17070 ——— WISSENSCHAFTLICHE ABHANDLUNGEN [mit Nachruf (pp. 26) von G. WIEDEMANN]; *with 2 fine portraits, 8 plates, and text-illustrations*, 3 thick vols. 8vo. *handsomely bound in hf. brown morocco, cl. sides (fine copy)*, £2. (p. M. 53 sewn) *Leipzig*, 1882-95
- 17071 **HENNEBERG** (Lebrecht; *Prof. Mechanics, Darmstadt*) Die GRAPHISCHE STATIK der STARREN SYSTEME; *with 394 diagrams*, 8vo. (pp. 747), *handsomely bound in hf. pigskin, cl. sides, t. e. g.*, 17s 6d (p. M. 24 in cl.) *Leipzig*, 1911
- 17072 **HERRMANN** (Gustav) The GRAPHICAL STATICS of MECHANISM, translated and annotated by A. P. SMITH; 5th Edition, *with 8 folding plates*, cr. 8vo. *cl.*, 5s (p. \$2) *New York*, 1904
- 17073 **HEUN** (Karl, *Karlsruhe*) KINEMATIK (Lehrbuch der Mechanik I. Teil), mit Einleitung in die elementare VEKTORRECHNUNG; *with 94 diagrams*, large cr. 8vo. *cl.*, 5s (p. M. 8) *Leipzig*, 1906

PHYSICS, continued:—

- 17074 **HIRN** (Gustave Adolphe; *Colmar*) EXPOSITION ANALYTIQUE et EXPÉRIMENTALE de la THÉORIE MÉCANIQUE de la CHALEUR; 3^e [dernière] Édition, entièrement refondue; with woodcuts and diagrams, 2 vols. roy. 8vo. olive morocco gilt, uncut, t. e. g., 14s (p. F. 24 nett sewn) 1875-6
The author first produced superheated steam, and laid the foundation of the theory of the mechanical equivalent of heat.
- 17075 **HÖFLER** (Alois; *German Univ., Prague*), **Eduard MAISS**, und **Friedrich POSKE**: PHYSIK, mit Zusätzen aus der angewandten Mathematik, Logik und Psychologie, mit 230 physikalischen Leitangaben; with 12 plates (some coloured or linen-mounted), and 981 other illustrations, 8vo. (pp. 997), handsomely bound in hf. black morocco, cl. sides (as good as new), 10s 6d (p. M. 15 sewn) Braunschweig, 1904
- 17076 **HOGG** (Jabez; *ophthalmic surgeon, F.R.M.S.*) The MICROSCOPE: its History, Construction, and Application; 15th [latest] Edition, rewritten, with 21 plates (some coloured), and 446 text-illustrations, 8vo. cl., 5s (p. 10s 6d) 1911
- 17077 **HOPPE** (Fritz) LEXIKON der ELEKTRIZITÄT und ELEKTROTECHNIK, unter Mitwirkung von Fachgenossen herausgegeben und redigiert; with 747 illustrations, roy. 8vo. (pp. 966), original hf. morocco, 7s (p. M. 12.50) Wien [1905]
- 17078 **HORT** (Wilhelm) TECHNISCHE SCHWINGUNGSLEHRE: Einführung in die Untersuchung der für den Ingenieur wichtigsten periodischen Vorgänge aus der Mechanik starrer, elastischer, flüssiger und gasförmiger Körper, sowie aus der Elektrizitätslehre; with 87 illustrations, post 8vo. buckram, 4s (p. M. 5.60 sewn) Berlin, 1910
- 17079 **HOSKINS** (Leander Miller, *Leland Stanford Jr. Univ.*) The ELEMENTS of GRAPHIC STATICS; revised Edition, with 8 plates and 77 diagrams, 8vo. cl., 6s 6d (p. 10s nett) New York, 1899
- 17080 **HOUSTOUN** (R. A., *Univ. Glasgow*) INTRODUCTION to MATHEMATICAL PHYSICS; with 75 diagrams, 8vo. buckram, 4s (p. 6s nett) 1912
- 17081 **HOVESTADT** (H.) LEHRBUCH der ANGEWANDTEN POTENTIALTHEORIE, mit Übungsaufgaben; with diagrams, large 8vo. buckram, 4s (p. M. 7 sewn) Bremerhaven [1890]
- 17082 **IBBETSON** (William John, *F.R.A.S.*) ELEMENTARY TREATISE on the MATHEMATICAL THEORY of PERFECTLY ELASTIC SOLIDS, with short Account of VISCOUS FLUIDS, with 65 illustrations, 8vo. cl., 10s (p. £1. 1s) 1887
- 17083 **JAMIESON** (Andrew, *M.I.C.E.*) TEXT-BOOK of APPLIED MECHANICS and MECHANICAL ENGINEERING; 4th Edition, enlarged, with plates, and numerous text-illustrations, 2 thick vols. large cr. 8vo. cl., 10s (p. £1. 1s) 1903-5
- 17084 **JAMIN** (Jules Célestin, *de l'Institut*) COURS de PHYSIQUE de l'École Polytechnique; 4^e [dernière] Édition, augmentée et entièrement refondue par EDMOND BOUTY; with 14 folding plates (2 coloured), and 1587 woodcuts, 4 vols. in 5: Suppléments I^{er} à III^e, par E. BOUTY; with 2 plates and 193 woodcuts, 3 vols. in 2—8 vols. 8vo. in 7, hf. maroon morocco neat, cl. sides (FINE SET), £3. (p. F. 87 nett sewn) 1885-1906
The standard French work on physics.
- 17085 **JAUMANN** (Gustav, *Brünn*) Die GRUNDLAGEN der BEWEGUNGSLEHRE, von einem modernen Standpunkte aus; with 124 woodcuts, 8vo. buckram, uncut, t. e. g., 7s 6d (p. M. 11 sewn) Leipzig, 1905
- 17086 **JELLETT** (John Hewitt, *D.D., Provost, T.C.D., P.R.I.A.*) Die THEORIE der REIBUNG, deutsch bearbeitet von J. LÜROTH und A. SCHEPP; with 30 illustrations, 8vo. buckram, 4s (p. M. 6 sewn) Leipzig, 1890
'Some of the principles contained in the present treatise are believed to be here enunciated for the first time.'—*Preface to English Edition.* These include the theory of spinning tops, afterwards completed by Lord Kelvin.
- 17087 **JOHNSON** (William Woolsey, *U.S.N. Academy, Annapolis, Md.*) THEORETICAL MECHANICS; an Elementary Treatise, with 115 diagrams, cr. 8vo. buckram, 8s (p. 12s 6d nett) New York, 1910
- 17088 **JULLIEN** (Michel Marie, *S.J.*) PROBLÈMES de MÉCANIQUE RATIONNELLE, disposés pour servir d'Applications aux Principes enseignés dans les Cours; 2^e [dernière] Édition [augmentée]; with numerous woodcuts, 2 vols. 8vo. red buckram (SCARCE), 18s 1866-7
- 17089 **KAHL** (Emil) MATHEMATISCHE AUFGABEN aus der PHYSIK, nebst Auflösungen; 2. [letzte] gänzlich umgearbeitete Auflage; with diagrams, 8vo. buckram, 3s (p. M. 5) Leipzig, 1874
- 17090 **KAYSER** (Heinrich; *Prof. Physics, Univ. Bonn*) HANDBUCH DER SPECTROSCOPIE; with plates and numerous text-illustrations, 6 vols. roy. 8vo. handsomely bound in hf. crushed black morocco, cl. sides, uncut, t. e. g. (FINE SET), £11. (p. M. 298 sewn) Leipzig, 1900-12
The standard and most complete work on spectroscopy by one of its greatest living authorities.
- 17091 ——— LEHRBUCH der PHYSIK, 3. vermehrte Auflage; with 336 illustrations, large 8vo. buckram, t. e. g., 5s 6d (p. M. 11 sewn) Stuttgart, 1900
- 17092 ——— VIERTE [neueste] verbesserte AUFLAGE; with 344 illustrations, large 8vo. handsomely bound in hf. black morocco, cl. sides, 8s 6d (p. M. 10 sewn) ibidem, 1908
'Eins der am meisten benutzten kürzeren wissenschaftlichen Handbücher der Physik.'—*F. Dammann.*

PHYSICS, continued:—

- 17094 **KALÄHNE** (Alfred, *Technische Hochschule, Danzig*) GRUNDZÜGE der MATHEMATISCH-PHYSIKALISCHEN AKUSTIK; *with 76 illustrations*, 2 vols. large post 8vo. in 1, *hf. black morocco neat, cl. sides (nice copy)*, 7s (p. M. 8.60 sewn) Leipzig, 1910-13
- 17095 **KELVIN** (Sir William Thomson, Lord; P.R.S.) and Peter Guthrie **TAIT**, F.R.S.E.: ELEMENTS of NATURAL PHILOSOPHY, PART I (all published), *with numerous diagrams*, 8vo. *cl.*, 3s (p. 9s) Clarendon Press, Oxford, 1873
- 17096 **KIELHAUSER** (Ernst A.) Die STIMMGABEL, ihre Schwingungsgesetze und Anwendungen auf die Physik: eine auf fremden Untersuchungen fussende Monographie; *with 94 illustrations*, 8vo. *cl.*, 4s (p. M. 6) Leipzig, 1907
- 17097 **KLIMPERT** (Richard) LEHRBUCH der AKUSTIK, mit Sammlung von Aufgaben und deren Resultaten; *with many hundred illustrations*, 3 vols. large 8vo. in 1, *handsomely bound in hf. black morocco, cl. sides*, 17s 6d (p. M. 26 sewn) Bremerhaven, 1904-[7]
- INHALT:—I. Periodische Bewegungen, insbesondere Schallwellen: II. Die verschiedenen Tonerreger: III. 1. Die Fortpflanzungserscheinungen und die zusammengesetzten Schwingungsbewegungen: III. 2. Praktische Akustik.
- 17098 **KOHLRAUSCH** (Friedrich; F.R.S.) LEHRBUCH der PRAKTISCHEN PHYSIK; 10. vermehrte Auflage des Leitfadens der praktischen Physik; *with numerous illustrations*, 8vo. *buckram*, 4s 6d (p. M. 9) Leipzig, 1905
- A standard work. It was translated into English as 'Introduction to Physical Measurements.'
- 17099 **KOLBE** (Bruno, *Prof. Physics, St. Anne's School, Petrograd*) AN INTRODUCTION to ELECTRICITY: a Translation of the 2nd German Edition, with Corrections and Additions by the AUTHOR, by JOSEPH SKELLON, *with 160 illustrations*, 8vo. *buckram*, 5s (p. 10s 6d nett) 1903
- 17100 **KENIGS** (Gabriel, *de la Sorbonne*) LEÇONS de CINÉMATIQUE professées à la Sorbonne, avec des Notes par G. DARBOUX, et E. et F. COSSERAT; CINÉMATIQUE THÉORIQUE; *with numerous diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 10s (p. F. 15 nett sewn) 1897
- 17101 **LAGRANGE** (Joseph Louis Comte; *de l'Institut*; F.R.S.) MÉCANIQUE ANALYTIQUE, 4^e [dernière] Édition, contenant les Notes de l'Édition de JOSEPH BERTRAND, publiée par GASTON DARBOUX, 2 vols. 4to. in 1, *handsomely bound in hf. crushed purple Levant morocco, uncut, t. e. g. (FINE COPY)*, £1. 7s 6d (p. F. 40 nett sewn) 1888-9
- 'His great work in which he lays down the law of virtual work, and from that one fundamental principle, by the aid of the calculus of variations, deduces the whole of mechanics, both of solids and liquids.'—*W. W. R. Ball*.
'A kind of scientific poem.'—*Sir W. R. Hamilton*.
- 17102 **LAMB** (Horace, F.R.S., *Prof. Mathematics, Manchester*) DYNAMICS, *with numerous diagrams*, 8vo. *cl.*, 7s (p. 10s 6d nett) Univ. Press, Cambridge, 1914
'This book is a sequel to a treatise on Statics (*infra*), and has a similar scope.'—*Preface*.
- 17103 ——— HYDRODYNAMICS, *with diagrams*, thick 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy)*, 10s (p. £1. in *cl.*) *apud eandem, ibidem*, 1895
- 17104 ——— THIRD [LAST] EDITION [enlarged and partly rewritten]; *with numerous diagrams*, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy)*, 16s (p. £1. nett) *a. e., ib.*, 1906
- 17105 ——— STATICS, including HYDROSTATICS, and the Elements of the Theory of ELASTICITY, *with numerous diagrams*, 8vo. *cl.*, 7s (p. 10s 6d nett) *a. e., ib.*, 1912
'Differing from many academic manuals in the prominence given to geometrical methods, and in particular to those of graphical statics.'—*Preface*.
- 17106 **LAMONT** (Johann v.; F.R.S.; *Director, Munich Observatory*) HANDBUCH des MAGNETISMUS; *with 281 woodcuts*, roy. 8vo. *hf. brown morocco neat, cl. sides (nice copy)*; scarce, 6s 6d Leipzig, 1867
- The author, a Scotsman, discovered the decennial magnetic period, and the 'earth-current.'
- 17107 **LAUE** (Max v.; *Univ. Zürich*) Das RELATIVITÄTSPRINZIP; *with 14 illustrations*, 8vo. *buckram*, 4s (p. M. 6.50 sewn) Braunschweig, 1911
- 17108 **LAUENSTEIN** (R.) Die GRAPHISCHE STATIK: elementares Lehrbuch, 8. Auflage; *with 285 illustrations*, roy. 8vo. *buckram*, 3s 6d (p. M. 6) Stuttgart, 1904
- 17109 **LAURENT** (Hermann) TRAITÉ de MÉCANIQUE RATIONNELLE, 3^e [dernière] Édition; *with diagrams*, 2 vols. 8vo. *hf. maroon morocco neat, cl. sides (as good as new)*, 10s 1889
- 17110 **LECORNU** (Léon) DYNAMIQUE APPLIQUÉE; *with 113 diagrams*, post 8vo. *buckram*, 2s 6d 1908
- 17111 **LEHMANN** (Otto; *Prof. Electrotechnics, Dresden*) MOLEKULARPHYSIK, mit Berücksichtigung mikroskopischer Untersuchungen und Anleitung zu solchen, sowie Anhang über MIKROSKOPISCHE ANALYSE; *with 10 plates (6 coloured), and 624 woodcuts*, 2 thick vols. large 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, £1. 10s (p. M. 42 sewn) Leipzig, 1888-
Still a standard work on molecular physics by one who first introduced the microscope in its service.
- 17112 **LÉVY** (Maurice, *de l'Institut*) La STATIQUE GRAPHIQUE et ses APPLICATIONS aux CONSTRUCTIONS, 2^e Édition; *with numerous diagrams*, 4 v., and Atlas, containing 44 folding plates (all neatly linen-mounted), 8 vols. roy. 8vo. in 3, *handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy)*, £2. (p. F. 69 nett sewn) 1886-8
- The standard work on its subject.
- CONTENU:—I. Principes et Applications de Statique graphique pure: II. Flexion plane. Lignes d'Influence. Pontres droites: III. Arcs. Ponts suspendus. Corps de Révolution: IV. Ouvrages de Maçonnerie. Systèmes réticulaires à Lignes surabondantes. Index alphabétique.

PHYSICS, continued:—

- 17114 **LONEY** (Sidney Luxton, *Roy. Holloway Coll.*) ELEMENTARY TREATISE on the DYNAMICS of a PARTICLE and of RIGID BODIES, with numerous diagrams, 8vo. cl., 7s (p. 12s)
Univ. Press, Cambridge, 1909
- 17115 ——— ELEMENTARY TREATISE on STATICS, with numerous diagrams, 8vo. cl., 7s (p. 12s)
apud eandem, ibidem, 1912
- 17116 ——— The ELEMENTS of HYDROSTATICS, with illustrations; with the SOLUTIONS, 2 vols. large 12mo. in 1, buckram, 5s (p. 9s 6d)
a. e., ib., 1904-2
- 17117 ——— The ELEMENTS of STATICS and DYNAMICS, with numerous diagrams; with the SOLUTIONS, 3rd Edition—2 vols. cr. 8vo. in 1, buckram, 7s 6d (p. 15s)
a. e., ib., 1904-2
- 17118 ——— TREATISE on ELEMENTARY DYNAMICS, with diagrams; with the SOLUTIONS, 2 vols. cr. 8vo. in 1, buckram, 7s 6d (p. 15s)
a. e., ib., 1904-1892
- 17119 **LORENTZ** (Hendrik Antoon, *Univ. Leyden*) LEHRBUCH der PHYSIK, zum Gebrauche bei akademischen Vorlesungen, nach der 4. von H. A. LORENTZ und L. H. SIERTSEMA bearbeiteten Auflage und unter Mitwirkung des Verfassers übersetzt von G. SIEBERT; with 493 illustrations, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 13s (p. M. 18 sewn) *Leipzig, 1906-7*
One of the best modern text-books by the founder of the Electron Theory.
- 17120 ——— SICHTBARE und UNSICHTBARE BEWEGUNGEN, unter Mitwirkung des Verfassers aus dem Holländischen übersetzt von G. SIEBERT; with 40 illustrations, 8vo. cl., 2s 6d
Braunschweig, 1902
- 17121 ———, **A. EINSTEIN**; Zürich, und **Hermann MINKOWSKI**; Göttingen: Das RELATIVITÄTSPRINZIP: eine Sammlung von Abhandlungen, mit Anmerkungen von A. SOMMERFELD und Vorwort von O. BLUMENTHAL; with portrait of Minkowski, roy. 8vo. sewn, 2s (p. M. 3)
Leipzig, 1913
- 17122 ——— ANOTHER COPY, buckram, 3s
The three original articles on which the Principle of Relativity was based.
- 17123 **LOVE** (Augustus Edward Hough, F.R.S.; *Sedleian Prof. Nat. Phil., Oxon.*) SOME PROBLEMS of GEODYNAMICS (Adams Prize Essay, 1911), impl. 8vo. cl., 8s (p. 12s nett)
Univ. Press, Cambridge, 1911
- 17124 ——— THEORETICAL MECHANICS: an Introductory Treatise on the Principles of Dynamics, with Applications and numerous Examples; 2nd [latest] Edition, with 87 diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 8s (p. 12s in cl.)
apud eandem, ibidem, 1906
- 17125 ——— TREATISE on the MATHEMATICAL THEORY of ELASTICITY, 2nd [latest] Edition, with diagrams, large roy. 8vo. handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy), 14s (p. 18s nett in cl.)
a. e., ib., 1906
- 17126 **LÜBSEN** (H. B.) EINLEITUNG in die MECHANIK, zum Selbstunterricht mit Rücksicht auf die Zwecke des practischen Lebens, 4. [letzte] Auflage; with 163 illustrations, 8vo. buckram, 4s (p. M. 7.60 sewn)
Leipzig, 1876
- 17127 **MACH** (Ernst; *Univ. Vienna*) Die MECHANIK in ihrer ENTWICKELUNG, historisch-kritisch dargestellt; with 257 illustrations, post 8vo. hf. black calf neat, cl. sides (nice copy), 5s 6d (p. M. 8 sewn)
Leipzig, 1901
The well-known classic of the history of mechanics.
- 17128 **MACLEAN** (Magnus, F.R.S.E.) EXERCISES in NATURAL PHILOSOPHY, with Indications how to answer them, with diagrams, post 8vo. cl., 2s 6d (p. 4s 6d)
1900
- 17129 **MAKOWER** (Walter, *Univ. Manchester*) THE RADIOACTIVE SUBSTANCES: their Properties and Behaviour, with 34 illustrations, cr. 8vo. 2s 6d (p. 5s)
1908
- 17130 **MANVILLE** (O.) Les DÉCOUVERTES MODERNES en PHYSIQUE: leur Théorie et leur Rôle dans l'Hypothèse de la Constitution électrique de la Matière; with illustrations, 8vo. buckram, 3s 6d (p. F. 5 nett sewn)
1908
- 17131 **MASCART** (Éleuthère, *de l'Institut*) TRAITÉ d'OPTIQUE; with 2 plates and 395 woodcuts, 3 vols. roy. 8vo. in 4, handsomely bound in hf. maroon morocco, cl. sides, uncut, t. e. g., with ATLAS, containing 3 copperplates (1 coloured), oblong folio, sewn (FINE COPY), £2. 7s 6d 1889-93
- 17132 ———, et **J. JOUBERT**: LEÇONS sur l'ELECTRICITÉ et le MAGNÉTISME, 2^e [dernière] Édition, entièrement refondue par E. MASCART; with 286 illustrations, 2 thick vols. roy. 8vo. handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 7s 6d (p. F. 45 nett sewn)
1896-7
- 17133 **MATHIEU** (Émile, *Univ. Nancy*) DYNAMIQUE ANALYTIQUE; with diagrams, 4to. hf. maroon morocco neat, cl. sides, t. e. g. (fine copy), 9s (p. F. 15 nett sewn)
1878
- 17134 ——— TRAITÉ de PHYSIQUE MATHÉMATIQUE; finely printed with wide margins, with numerous illustrations, complete in 7 vols. 4to. in 4, hf. maroon morocco neat, cl. sides, uncut, t. e. g. (FINE SET), £2. 17s 6d (p. F. 81 nett sewn)
1873-90
CONTENU:—I. Cours de Physique mathématique [avec les Méthodes d'Intégration], '73: II. Théorie de la Capillarité, '83: III—IV. Théorie du Potentiel, et ses Applications à l'Electrostatique et au Magnétisme, 2 v., '85-6: V. Théorie de l'Electrodynamique, '88: VI—VII. Théorie de l'Elasticité des Corps solides, 2 v., '90.
- 17135 **MICHAELIS** (Leonor, *Univ. Berlin*) DYNAMIK der OBERFLÄCHEN: eine Einführung in biologische Oberflächen-Studien; with illustrations, roy. 8vo. buckram, t. e. g., 3s 6d
Stuttgart, 1909

PHYSICS, continued:—

- 17137 **MAXWELL** (James Clerk, F.R.S., *first Cavendish Prof. Experimental Physics, Cantab.*) THEORY OF HEAT, tenth [Final] Edition, with Corrections and Additions by LORD RAYLEIGH, F.R.S., with 41 diagrams, 12mo. cl., 2s (p. 4s 6d) 1891
Pp. 296-9 contain an addition on Superficial Viscosity by the Editor.
- 17138 ——— NEW IMPRESSION [with INDEX], with 41 diagrams, cr. 8vo. buckram, 2s 6d 1902
- 17139 ——— TREATISE ON ELECTRICITY and MAGNETISM, 3rd [last] Edition [revised and enlarged by SIR J. J. THOMSON, F.R.S.], with 20 plates and 107 diagrams, 2 vols. 8vo. cl., £1. 1s (p. £1. 12s) 1892
Clarendon Press, Oxford
- 'The great modern classic on the subject.'—*Prof. Knott*. This edition contains Maxwell's method of determining the self-induction of a coil, reprinted from his paper on the 'Dynamical Theory of the Electromagnetic Field.'
- 17140 **MICHIE** (Peter Smith, *U.S. Military Academy, West Point*) ELEMENTS of ANALYTICAL MECHANICS, 4th [last] Edition, with 109 illustrations, 8vo. hf. black morocco neat, cl. sides (o. p.), 10s 6d *New York, 1905*
- 17141 ——— ELEMENTS of WAVE MOTION relating to SOUND and LIGHT, 3rd Edition, revised, with 104 illustrations, large 8vo. cl., 10s 6d (p. 17 nett) *ibidem*, 1901
- 17142 **MIE** (Gustav; *Prof. Physics, Greifswald*) LEHRBUCH der ELEKTRIZITÄT und des MAGNETISMUS: eine Experimentalphysik des Weltäthers für Physiker, Chemiker und Elektrotechniker; with 361 illustrations, roy. 8vo. hf. black morocco neat, cl. sides, uncut, t. e. g. (*fine copy*), 14s (p. M. 18.60 sewn) *Stuttgart*, 1910
'Ich habe in dem vorliegenden Buch den Versuch gemacht, das ganze Lehrgebäude des Elektromagnetismus aus den Tatsachen, Stein für Stein, aufzubauen.'—*Vorwort*.
- 17143 **MILLER** (William Hallowes, F.R.S., *Prof. Mineralogy, Cantab.*) THE ELEMENTS of HYDROSTATICS and HYDRODYNAMICS; 4th [last] Edition, with diagrams, 8vo. cl., 2s 6d *Cambridge*, 1850
- 17144 **MINCHIN** (George Minchin, F.R.S.; *R. I. E. Coll., Cooper's Hill*) TREATISE ON STATICS, with Applications to Physics (Vol. I 5th and v. II 4th Edition), with numerous diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 15s (p. £1. 12s in cl.) *Clarendon Press, Oxford*, 1896-89
- 17145 **MONCKHOVEN** (Désiré van) PHOTOGRAPHIC OPTICS, including the DESCRIPTION of LENSES and ENLARGING APPARATUS, with 5 plates and 87 woodcuts and diagrams, cr. 8vo. cl. (*scarce*), with *Baron de Reuter's auto. and bookplate*, 5s 1867
- 17146 **MÜLLER** (Johann Heinrich Jacob; *Univ. Freiburg i. B.*) MATHEMATISCHER SUPPLEMENTBAND zum GRUNDRISS der PHYSIK und METEOROLOGIE, 3. vermehrte Auflage; with 8 plates and 240 woodcuts: AUFLÖSUNGEN der AUFGABEN; with diagrams—2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 4s 6d (p. M. 7.60 sewn) *Braunschweig*, 1875
- 17147 ———, und Claude Servais Mathias POUILLET; de l'Institut: LEHRBUCH der PHYSIK und METEOROLOGIE; 9. umgearbeitete und vermehrte Auflage von LEOPOLD PFAUNDLER und OTTO LUMMER; with 12 plates (6 coloured), and many hundred woodcuts, 2 thick vols. 8vo. in 3, handsomely bound in hf. pigskin; cl. sides (NICE SET), £1. 5s (p. M. 40 unbound) *ibidem*, 1902-1897-8
- INHALT:—I. Mechanik. Akustik, neue verbesserte und ergänzte Ausgabe: II. 1. Optik; II. 2. Von der Wärme.
- 17148 ——— ZEHNTE [NEUESTE] UMGEARBEITETE und VERMEHRTE AUFLAGE, herausgegeben von LEOPOLD PFAUNDLER, unter Mitwirkung von O. LUMMER, A. WASSMUTH, J. M. PERTER, KARL DRUCKER, W. KAUFMANN und A. NIPPOLDT, Band I—III; with plates (mostly coloured), and over 3000 text-illustrations, 3 thick vols. roy. 8vo. in 4, handsomely bound in hf. pigskin, cl. sides (FINE COPY), £2. (p. M. 50.50 sewn) *ib.*, 1906-9
- INHALT:—I. Mechanik und Akustik von LEOPOLD PFAUNDLER, 1906; II. Die Lehre von der strahlenden Energie (Optik) von OTTO LUMMER, 2 v., '07-9; III. Wärmelehre, chemische Physik, Thermodynamik und Meteorologie von L. PFAUNDLER, K. DRUCKER, A. WASSMUTH und J. HANN, '07.
- Latest edition of this well-known standard work, especially valuable for its copious description and illustration of physical apparatus and experiments.
- 17149 **NEESSEN** (Friedrich; *Prof. Physics, Berlin*) KATHODEN- und RÖNTGENSTRAHLEN, sowie die Strahlung aktiver Körper; with 50 illustrations, cr. 8vo. buckram, 2s 6d (p. M. 4) *Wien*, 1904
- 17150 **NEWTON** (Sir Isaac, P.R.S.) [PRINCIPIA:] MATHEMATICAL PRINCIPLES of NATURAL PHILOSOPHY, BOOK I [Motion of Bodies], translated, and illustrated with a Commentary, by ROBERT THORP, D.D., Archdn. of Northumberland, with 22 plates, large 4to. hf. parchment, 8s 1777
- 17151 ——— SECOND EDITION, with 22 plates, roy. 4to. hf. calf extra, with *Baron de Reuter's bookplate (fine and large copy)*, 10s 6d 1802
This translator was a member of Peterhouse, and Senior Wrangler in 1758. His Son CHARLES, pr., was the first Warden of Durham University. The above translation includes Newton's Prefaces, and Cotes's to the second Edition, and an Introduction (pp. 18) by himself.
- 17152 ——— [COMPLETE], new Edition, with Newton's SYSTEM of the WORLD; a short Comment on, and Defence of, the Principia, by W. EMERSON; and LIFE, carefully revised and corrected by WILLIAM DAVIS, with fine bust portrait by Scriven, and 54 folding plates, besides diagrams, 3 vols. 8vo. hf. calf antique (NICE COPY); RARE, £1. 7s 6d 1803
This edition contains for the first time the translation of the *De Mundi Systemate*, which was not contained in that of 1729.
- 'The inconvenience arising from the great scarcity of former editions of the Principia, and System of the World, added to the exorbitant prices charged for them when to be met with, determined the Editor to undertake a New Edition of those Works.'—*Preface*.

PHYSICS, continued:—

- 17154 **NEWTON** (Sir Isaac, P.R.S.) **PRINCIPIA**: the MATHEMATICAL PRINCIPLES OF NATURAL PHILOSOPHY, translated by ANDREW MOTTE, with Newton's SYSTEM of the WORLD, and LIFE by N. W. CHITTENDEN, with bust portrait, and numerous illustrations, 8vo. cl., uncut (SCARCE), £1. 1s
New York, G. P. Putnam, 1850
The latest edition of Motte's translation of the complete work, with an interesting new Life.
- 17155 ——— The FIRST THREE SECTIONS of the PRINCIPIA, with Appendix, and the IX. and XI. SECTIONS, edited by JOHN H. EVANS, Master of Sedbergh School; 5th Edition, by P. T. MAIN, with diagrams, 12mo. cl., 2s
Cambridge, 1871
- 17156 ——— : SECTIONS I. II. III., with Notes and Illustrations, also Problems, principally intended as Examples of Newton's Methods, by PERCIVAL FROST; pr., F.R.S., 5th [last] Edition, with diagrams, 8vo. cl., 7s (p. 12s)
ibidem, 1900
- 17157 ——— : MATHEMATISCHE PRINCIPIEN der NATURLEHRE, mit Bemerkungen und Erläuterungen herausgegeben von J. PH. WOLFFERS; with numerous diagrams, 8vo. hf. red morocco neat, cl. sides (nice copy), 7s 6d (p. M. 12 sewn)
Berlin, 1872
- 17158 ——— : BROUGHAM AND VAUX (Henry Peter Lord, Lord Chancellor; F.R.S.), and Edward JOHN ROUTH, Fellow of Peterhouse, F.R.S.: ANALYTICAL VIEW of SIR ISAAC NEWTON'S PRINCIPIA, with diagrams, 8vo. cl. (scarce), 6s 6d 1855
* Explaining the connexion of the various parts of the *Principia* with each other, and with the preceding and subsequent progress of the science.—Preface.
- 17159 ——— : WRIGHT (John Martin Frederick, Trin. Coll., Cantab.) COMMENTARY on NEWTON'S PRINCIPIA; with a SUPPLEMENTARY VOLUME, diagrams, 2 vols. roy. 8vo. hf. calf neat (nice copy), 7s 6d 1833
- 17160 **NICHOLS** (Edward Leamington, Cornell Univ.) and William Suddards **FRANKLIN**: The ELEMENTS of PHYSICS: Mechanics and Heat; Electricity and Magnetism; Light and Sound, with portrait of Faraday and numerous illustrations, 3 vols. 8vo. cl., 14s (p. £1. 2s 6d nett)
New York, 1896-1908
—— v. FRANKLIN, ante.
- 17161 **OETTINGEN** (Arthur v.; Prof. Physics, Dorpat [Jurjew]) Die SCHULE der PHYSIK, besonders für das Selbststudium; with coloured spectrum-plate, and 454 illustrations, 8vo. hf. black morocco gilt, cl. sides, t. e. g. (nice copy), 8s (p. M. 10 in cl.)
Braunschweig, 1910
The counterpart of Professor Ostwald's 'Schule der Chemie.'
- 17162 **OLSHAUSEN** (Johannes) GESCHWINDIGKEITEN in der ORGANISCHEN und ANORGANISCHEN WELT bei Menschen, Tieren, Pflanzen, Maschinen, Fahrzeugen, Geschossen, Gasen, Flüssigkeiten u. s. w., post 8vo. cl., 4s (p. M. 10)
Hamburg, 1903
- 17163 **OTT** (Karl v., deutsches Polytechnicum, Prag) Das GRAPHISCHE RECHNEN und die GRAPHISCHE STATIK; 4. [neueste] gänzlich umgearbeitete Auflage; with 3 folding plates (linen-mounted), and 282 text-illustrations, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides (nice copy), 15s (p. M. 20 sewn)
Prag, 1879-85
- 17164 **PAINLEVÉ** (Paul, de l'Institut) LEÇONS sur le FROTTEMENT, et Applications; neatly autographed on 111 pp., with diagrams, 4to. buckram (? title missing), 4s (p. F. 6 nett sewn) [1895]
- 17165 **PARINAUD** (Henri) STÉRÉOSCOPIE et PROJECTION VISUELLE; with 26 illustrations, roy. 8vo. buckram, t. e. g., 2s 6d 1904
- 17166 **PARKINSON** (Stephen, D.D.; St. John's Coll., Cantab.; F.R.S.) TREATISE on OPTICS, 3rd Edition, revised, with diagrams, post 8vo. cl., 3s 6d (p. 10s 6d) 1870
- 17167 ——— FOURTH [LAST] EDITION, revised, with diagrams, post 8vo. buckram. 4s 6d (p. 10s 6d) 1884
Professor Parkinson was Senior Wrangler in 1845 when Lord Kelvin was second. 'In the 18 years of his tutorship nearly a thousand pupils passed under his care, and 'Parkinson's side' was an important factor in the prosperity of St. John's College.—D. N. B. The retable in the new Chapel is in his memory.
- 17168 **PARTINGTON** (James Riddick) TEXT-BOOK of THERMODYNAMICS, with special Reference to CHEMISTRY, with 91 diagrams, 8vo. hf. black morocco neat, cl. sides (nice copy) 10s (p. 14s nett in cl.) 1913
- 17169 **PEIRCE** (Benjamin Osgood, Harvard Univ.) ELEMENTS of the THEORY of the NEWTONIAN POTENTIAL FUNCTION; 3rd Edition, enlarged, with 134 illustrations, 8vo. buckram, 7s (p. 12s)
Boston [Mass.], 1902
- 17170 **PELLAT** (Henri, de la Sorbonne) COURS d'ÉLECTRICITÉ; with 443 illustrations, 3 vols. roy. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 4s (p. F. 38 nett sewn) 1901-8
CONTENTS:—I. Électrostatique. Lois d'Ohm. Thermo-Électricité: II. Électrodynamique. Magnétisme. Induction. Mesures magnéto-électriques: III. Électrolyse. Électrocapillarité. Ions et Electrons.
- 17171 **PENDLEBURY** (Charles, F.R.A.S.; St. Paul's School) LENSES and SYSTEMS of LENSES, treated after the Manner of GAUSS, with 24 diagrams, 8vo. cl., 2s 6d (p. 5s) Cambridge, 1884
- 17172 **PETERSEN** (Julius; Univ. Copenhagen) LEHRBUCH der STATIK FESTER KÖRPER, deutsch von R. V. FISCHER-BENZON; with diagrams, post 8vo. cl., 2s Kopenhagen, 1882
- 17173 ——— LEHRBUCH der DYNAMIK FESTER KÖRPER, deutsch von R. V. FISCHER-BENZON; with diagrams, post 8vo. cl., 3s ibidem, 1887
- 17174 ——— BOTH THE ABOVE WORKS: also, KINEMATIK, deutsch von R. V. FISCHER-BENZON; with diagrams, '84—3 vols. post 8vo. in 1, hf. black morocco neat, cl. sides (as good as new), 8s ib., 1882-7

PHYSICS, continued.—

- 17176 **PLANCK (Max, Univ. Berlin)** ACHT VORLESUNGEN über THEORETISCHE PHYSIK an der Columbia University, New York, in 1909; *with diagrams*, 8vo. buckram, 3s Leipzig, 1910
- 17177 **POINCARÉ (Jules Henri, de l'Institut; F.R.S.; cousin of the President of the French Republic)** CINÉMATIQUE et MÉCANISMES POTENTIEL et MÉCANIQUE des FLUIDES: Cours professé à la Sorbonne, rédigé par A. GUILLÉ; *with 279 illustrations*: FIGURES D'ÉQUILIBRE d'une MASSE FLUIDE: Leçons rédigés par L. DREYFUS; *with 36 illustrations*—2 vols. roy. 8vo. in 1, *handsomely bound in hf. maroon morocco, cl. sides (fine copy)*, 15s (p. F. 22 nett sewn) 1899-1902
- 17178 ——— ÉLECTRICITÉ et OPTIQUE: la Lumière et les Théories électrodynamiques; 2^e [dernière] Édition, revue et complétée par JULES BLONDIN et EUGÈNE NÉCULCÉA; *with 62 diagrams*, roy. 8vo. (pp. 651), *handsomely bound in hf. maroon morocco, cl. sides (fine copy)*, 16s (p. F. 22 nett sewn) 1901
- 17179 ——— LEÇONS sur la THÉORIE MATHÉMATIQUE de la LUMIÈRE, rédigées par J. BLONDIN, M. LAMOTTE et D. HURMUZESCU; *with 88 diagrams*, 2 vols. roy. 8vo. in 1, *hf. maroon morocco neat, cl. sides (fine copy)*; SCARCE, £2. 5s 1859-92
- 17180 ——— LEÇONS sur la THÉORIE de l'ÉLASTICITÉ, rédigées par ÉMILE BOREL et JULES DRACH; *with diagrams*: THÉORIE des TOURBILLONS: Leçons rédigées par M. LAMOTTE; *with 44 diagrams*—2 vols. roy. 8vo. in 1, *hf. maroon morocco neat, cl. sides (nice copy)*, 9s 1892-3
- 17181 ——— Les OSCILLATIONS ÉLECTRIQUES: Leçons rédigées par CHARLES MAURAIN; *with 81 diagrams*: THÉORIE ANALYTIQUE de la PROPAGATION de la CHALEUR: Leçons rédigées par MM. ROUYER et BAIRE; *with 33 diagrams*—2 vols. roy. 8vo. *handsomely bound in hf. maroon morocco, cl. sides (fine copy)*, 15s (p. F. 22 nett sewn) 1894-5
- 17182 ——— THERMODYNAMIQUE: Leçons rédigées par J. BLONDIN; *with 41 illustrations*, 8vo. *hf. maroon morocco neat, cl. sides (nice copy)*, 10s 6d (p. F. 16 nett sewn) 1892
- 17183 ——— THÉORIE du POTENTIEL NEWTONIEN: Leçons rédigées par ÉDOUARD LE ROY et GEORGES VINCENT; *with 88 diagrams*: CAPILLARITÉ: Leçons rédigées par J. BLONDIN; *with 68 diagrams*—2 vols. roy. 8vo. in 1, *handsomely bound in hf. maroon morocco, cl. sides (fine copy)*, 12s 6d (p. F. 19 nett sewn) 1899-5
- 17184 ——— ANALYSE de ses TRAVAUX SCIENTIFIQUES [faite par lui-même]; *with fine portrait*, 4to. *finely bound in crushed crimson Levant morocco gilt, uncut, t. c. g. (CHOICE COPY)*, *with inscr. from Prof. Mittag-Leffler to Baron de Reuter*, £1. 5s Uppsala, 1913
- 17185 **POISSON (Siméon Denis, de l'Institut; F.R.S.)** RECHERCHES sur le MOUVEMENT des PROJECTILES dans l'AIR, en ayant Égard à leur Figure et leur Rotation, et à l'Influence du Mouvement Diurne de la Terre, 4to. *hf. black calf neat, cl. sides, uncut (nice copy)*, 6s 1839
- 17186 ——— TRAITÉ de MÉCANIQUE, 2^e [dernière] Édition, considérablement augmentée; *with 7 folding plates*, 2 vols. 8vo. *hf. calf gilt*, 6s 6d 1833
- The best known of the author's works, and long the standard work on the subject.
'The knowledge of mathematical mechanics of solids attained by the great mathematicians of the XVIII. century may be said to be summed up in Lagrange's *Mécanique analytique* [q. v. ante] and Poisson's *Traité de Mécanique*.'—*W. W. R. Ball.*
- 17187 **PONCELET (Général Jean Victor, de l'Institut; F.R.S.)** COURS de MÉCANIQUE appliquée aux MACHINES, publié par X. KREFTZ; *with 2 folding plates and 228 text-illustrations*, 2 vols. 8vo. *hf. brown morocco neat, cl. sides (nice copy)* 15s (p. F. 24 nett sewn) 1874-6
- 'Production remarquable par la rigueur de l'esprit qui en a tracé la marche et par les simplifications opérées pour rendre moins difficilement applicables à la pratique des calculs réservés, pour la plupart, à des spéculations transcendantes.'—*Charles Dupin,*
- 17188 **POTTER (Richard, Prof. Astronomy, Univ. Coll., Lond.)** ELEMENTARY TREATISE on HYDROSTATICS, *illustrated*, 8vo. cl., 2s 6d Cambridge, 1859
- 17189 **POYNTING (John Henry, F.R.S., Prof. Physics, Birmingham), and Sir Joseph John THOMSON, F.R.S.:** TEXT-BOOK of PHYSICS [VOL. I]: PROPERTIES of MATTER, 4th Edition, *with 168 illustrations*, sq. 8vo. cl., 5s 6d (p. 10s 6d) 1902
- 17190 ——— ——— [VOL. II]: SOUND, 4th Edition, revised, *with 85 illustrations*, sq. 8vo., cl., 4s (p. 8s 6d) 1907
- 17191 ——— ——— [VOL. III]: HEAT, 2nd Edition, revised, *with 193 illustrations*, sq. 8vo. cl., 7s 6d (p. 15s) 1904
- A text-book of well-known excellence, 'intended chiefly for the use of students who lay most stress on the experimental part of physics, and who have not yet reached the stage at which the reading of advanced treatises on special subjects is desirable.'—*Preface.*
- 17192 **POYSER (Arthur William, T.C.D.)** [ADVANCED] MAGNETISM and ELECTRICITY [with Examination Papers and Answers]; new Édition, *with 321 illustrations*, cr. 8vo. cl., 2s 6d 1904
- 17193 **PRATT (John Henry, Fellow of Caius; F.R.S.; Archdn. of Calcutta)** The MATHEMATICAL PRINCIPLES of MECHANICAL PHILOSOPHY, and their Application to the THEORY of UNIVERSAL GRAVITATION, 2nd [last] Edition, revised and improved, *with 5 folding plates*, thick 8vo. *hf. cl.*, 6s Cambridge, Macmillan, Barclay, and Macmillan, 1845

This work was largely made use of by Prof. Todhunter in his 'Analytical Statics.' This *verbatim* reprint of the second edition was one of the first books issued by Daniel Macmillan, after he began publishing at Cambridge.

PHYSICS, *continued*:—

- 17195 **PRESTON** (S. Tolver) PHYSICS OF the ETHER, with 8 diagrams, 8vo. cl. (SCARCE), 10s 6d
1875
Interesting as an early work on molecular physics.
'The first part contains an argument designed to prove that the allied theories of 'action at a distance' and 'potential energy' are inadmissible.—*Preface*.
- 17196 **PRESTON** (Thomas; T.C.D.; R.U.I.; F.R.S.) THE THEORY OF LIGHT, 3rd Edition by CHARLES JASPER JOLY, with 251 diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (fine copy), 9s (p. 15s nett in cl.)
1901
'An accurate and connected account of the most important optical researches from the earliest times up to the most recent date.'
- 17197 **RAIBAUD** (Jules, *Capitaine d'Artillerie*) INSTRUMENTS OPTIQUES d'Observation et de Mesure; with 144 illustrations, cr. 8vo. cl., 2s 6d (p. F. 5 nett)
1910
- 17198 **RANKINE** (William John Macquorn, F.R.S.), and Edward Fisher **BAMBER**, C.E.: MECHANICAL TEXT-BOOK; or Introduction to the STUDY OF MECHANICS, 3rd Edition, revised, with 158 diagrams, cr. 8vo. buckram, t. e. g., 4s (p. 9s)
[1884]
'Rankine was one of the little group of thinkers to whom, after the wondrous Sadi Carnot, the world is indebted for the pure science of modern thermodynamics. But his services to applied science were relatively even greater. By his admirable teaching, his excellent text-books, and his original memoirs, he has done more than any other man of recent times for the advancement of British Scientific Engineering.'—*Prof. Tait*.
- 17199 **RAUSENBERGER** (Otto) LEHRBUCH DER ANALYTISCHEN MECHANIK, 2. [letzte] Ausgabe, 2 vols. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides (fine copy); o. p., 8s
Leipzig, 1893
- 17200 **RAYLEIGH** (John William Strutt, 3rd Lord, F.R.S.; Nobel Laureate) THE THEORY OF SOUND; 2nd [latest] Edition, revised and enlarged, with diagrams, 2 vols. 8vo. cl., 17s 6d (p. £1. 4s nett)
1894-6
The best treatise on mathematical acoustics in any language, including a novel treatment of vibrations of systems.
- 17201 **RESAL** (Amé Henri, *de l'Institut*) TRAITÉ CINÉMATIQUE PURE; with diagrams, 8vo. red buckram (o. p.), 4s
1862
- 17202 ——— TRAITÉ DE MÉCANIQUE GÉNÉRALE, comprenant les Leçons professées à l'École Polytechnique; with chromolithographs, and hundreds of woodcuts and diagrams, 7 vols. 8vo. hf. black calf neat, cl. sides (NICE SET), £2. 2s (p. F. 84.50 nett sewn)
1873-89
- 17203 ——— TOME I et II: Cinématique. Théorèmes généraux de la Mécanique. De l'Équilibre et du Mouvement des Corps solides; du Mouvement des Systèmes matériels et de ses Causes. Thermodynamique; with diagrams, 2 vols. 8vo. hf. calf, 5s
1873-4
- 17204 ——— LES MÊMES, 2^e [dernière] Édition, entièrement refondue; with numerous diagrams, 2 vols. 8vo. in 1, hf. black calf neat, cl. sides (fine copy), 6s 6d (p. F. 9.50 nett sewn)
1895
The only two volumes published of a new and greatly shortened edition.
- 17205 ——— TRAITÉ DE PHYSIQUE MATHÉMATIQUE, 2^e [dernière] Édition, augmentée et entièrement refondue; with 65 diagrams, 2 vols. 4to. in 1, hf. maroon morocco neat, cl. sides, t. e. g. (fine copy), 17s 6d (p. F. 27 nett sewn)
1887-8
CONTENU:—I. Capillarité, Élasticité, Lumière. II. Chaleur, Thermodynamique, Électrostatique, Courants électriques, Électrodynamique, Magnétisme statique, Mouvement des aimants et des courants.
- 17206 **RICHARDSON** (Owen Willans, *Prof. Physics, King's Coll., London*) THE ELECTRON THEORY OF MATTER, with 58 diagrams, 8vo. hf. black morocco neat, cl. sides (nice copy), 14s (p. 18s nett in cl.)
Univ. Press, Cambridge, 1914
- 17207 **RIECKE** (Eduard; *Prof. Physics, Göttingen*) LEHRBUCH DER PHYSIK zu eigenem Studium und zum Gebrauche bei Vorlesungen, 3. vermehrte Auflage; with 789 illustrations, 2 thick vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, 14s (p. M. 24 sewn)
Leipzig, 1905
- 17208 ——— FÜNFTE [NEUESTE] VERBESSERTERTE UND VERMEHRTE AUFLAGE; with 808 illustrations, 2 thick vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides (fine copy), £1. 2s 6d (p. M. 26 sewn)
ibidem, 1912
- 17209 **RIEMANN** (Georg Friedrich Bernhard; *Univ. Göttingen*) SCHWERE, ELEKTRICITÄT und MAGNETISMUS, nach den Vorlesungen bearbeitet von KARL HATTENDORFF; with 50 woodcuts, 8vo. hf. German morocco, 3s (p. M. 7.50 sewn)
Hannover, 1876
- 17210 **RIEMANN** (Ludwig, *Essen*) POPULÄRE DARSTELLUNG DER AKUSTIK in Beziehung zur Musik; with illustrations, 8vo. buckram, 2s 6d
Braunschweig, 1896
- 211 **RITTER** (August; *Aix-la-Chapelle*) LEHRBUCH DER ANALYTISCHEN MECHANIK, 3. [neueste] Auflage; with 224 diagrams, 8vo. buckram, 5s (p. M. 8 sewn)
Leipzig, 1899
- 17212 **ROUTH** (Edward John, F.R.S., *Fellow of Peterhouse*) THE ELEMENTARY and ADVANCED PART OF A TREATISE ON THE DYNAMICS OF RIGID BODIES; 6th (v. II 5th) Edition, enlarged, with numerous diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, t. e. g., 15s (p. £1. 8s in cl.)
1897-2
'A masterly elementary treatise.'—*D. N. B.* It was translated into German, with a preface by Prof. Klein.
'His dynamical treatises constitute an encyclopedia and bibliography on the subject which have no equal either here or abroad.'—*D. N. B.* A distant kinsman of Dr. Martin Joseph Routh, he was the chief mathematical coach at Cambridge for thirty years, and produced twenty-eight Senior Wranglers and forty-two Smith's Prizemen.
- 17213 **RÜSSNER** (Johannes, *Chemnitz*) LEHRBUCH DER PHYSIK; with coloured spectrum-plate and 776 illustrations, large 8vo. buckram, 3s 6d (p. M. 5.60)
Hannover, 1903

PHYSICS, continued:—

- 17216 **RITTER** (W., *Polytechnikum, Zürich*) ANWENDUNGEN DER GRAPHISCHEN STATIK, nach PROF. C. CULMANN bearbeitet; with 16 folding plates (linen-mounted), and 368 text-illustrations, 3 vols. 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g., 18s 6d (p. M. 26.60 sewn) Zürich, 1888-1900
- INHALT:—I. Die im Inneren eines Balkens wirkenden Kräfte: II. Das Fachwerk: III. Der kontinuierliche Balken.
- 17217 **ST.-GERMAIN** (A. de, *Univ. Caen*) RECUEIL d'EXERCICES sur la MÉCANIQUE RATIONNELLE; with diagrams, 8vo. hf. morocco neat, 4s 1877
- 17218 ——— DEUXIÈME [DERNIÈRE] ÉDITION, entièrement refondue; with diagrams, 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 6s 6d (p. F. 9.50 nett sewn) 1889
- 17219 **SARAZIN** (César) COURS d'ÉLECTRICITÉ aux Écoles d'Arts et Métiers, 4^e Édition, augmentée; with 751 full-page and other illustrations, impl. 8vo. (pp. 850), cl., 12s (p. F. 20 nett sewn) 1910
- 17220 **SAUSSURE** (René de) THÉORIE GÉOMÉTRIQUE DU MOUVEMENT DES CORPS (Solides et Fluides); with 2 folding plates (linen-mounted), and 43 diagrams, 3 parts roy. 8vo. in 1, buckram, t. e. g., 8s (p. F. 13 nett sewn) Genève, 1902-10
- 17221 **SCHAIK** (W. C. L. van) WELLENLEHRE und SCHALL: autorisierte deutsche Ausgabe, bearbeitet von HUGO FENKNER; with 176 illustrations, 8vo. buckram, uncut, t. e. g., 6s (p. M. 8 sewn) Braunschweig, 1902
- 17222 **SCHLOTKE** (J.) LEHRBUCH DER GRAPHISCHEN STATIK, 2. [ncuete] vermehrte Auflage; with 156 illustrations, large 8vo. buckram, 3s 6d (p. M. 4.80 sewn) Dresden, 1902
- 17223 **SCHMIDT** (Gerhard Karl; *Prof. Physics, Münster*) Die KATHODENSTRAHLEN; with 50 illustrations, 8vo. cl., 2s 6d Braunschweig, 1904
- 17224 **SILBERSTEIN** (Ludwig; *Univ. Berlin and Rome*) The THEORY of RELATIVITY, with diagrams, 8vo. buckram, 6s 6d (p. 10s nett) 1914
- 17225 ——— VECTORIAL MECHANICS, with diagrams, 8vo. buckram, 5s (p. 7s 6d nett) 1913
- 17226 **SLOANE** (Thomas O'Connor) The STANDARD ELECTRICAL DICTIONARY: a popular Encyclopædia of Words and Terms used in the Practice of Electrical Engineering; 2nd Edition, with Appendix to date, frontispiece and 393 illustrations, cr. 8vo. (pp. 681), cl., 3s (p. 7s 6d) 1898
- 17227 **SOUTHALL** (James Powell Cocke, *Alabama Polytechnic Inst.*) The PRINCIPLES and METHODS of GEOMETRICAL OPTICS, especially as applied to the THEORY of OPTICAL INSTRUMENTS, with 170 diagrams, thick sq. 8vo. hf. black morocco neat, cl. sides, t. e. g. (as good as new), 18s (p. £1. 5s nett in cl.) New York, 191
- One of the few treatises in English on practical geometrical optics.
- 17228 **SPITTA** (Edmund Johnson, F.R.M.S., F.R.A.S.) MICROSCOPY: the Construction, Theory and Use of the Microscope, with 17 fine plates of micro-photographs taken by the author as test-objects, and 241 text-illustrations, thick 8vo. cl., 7s (p. 12s 6d nett) 1907
- 17229 ——— [SECOND AND LATEST EDITION, enlarged], with 17 plates and 243 text-illustrations, thick 8vo. hf. black morocco neat, cl. sides, t. e. g. (nice copy), 10s 1909
- An excellent treatise, especially valuable for its full descriptions of the modern microscope and its parts, and giving valuable hints on the choice of objectives.
- 17230 **STARKE** (Hermann, *Univ. Greifswald*) PHYSIKALISCHE MUSIKLEHRE: eine Einführung in das Wesen und die Bildung der Töne in Instrumentalmusik und Gesang; with 82 illustrations, large post 8vo. buckram, 3s Leipzig, 1908
- 17231 **STEWART** (R. Wallace) The HIGHER TEXT-BOOK of MAGNETISM and ELECTRICITY, 2nd Edition, with 395 illustrations, cr. 8vo. (pp. 750), buckram, 3s 6d (p. 6s 6d) 1909
- 17232 **STURM** (Jacques Charles François, *de l'Institut*) COURS de MÉCANIQUE, revu et corrigé par E. PROUHET; 5^e [dernière] Édition, suivie de Notes et Énoncés de Problèmes, par A. DE ST.-GERMAIN; with 189 diagrams, 2 vols. 8vo. in 1, handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy), 10s (p. F. 14 nett sewn) 1905
- 17233 **SWINBURNE** (James; F.R.S., M.I.C.E.) ENTROPY; or Thermodynamics from an Engineer's Standpoint, and the Reversibility of Thermodynamics, with illustrations, cr. 8vo. cl., 3s (p. 4s 6d nett) 1904
- 17234 **TAIT** (Peter Guthrie, F.R.S.E., *Prof. Natural Philosophy, Edin.*) DYNAMICS, with 70 diagrams, cr. 8vo. buckram, 4s (p. 7s 6d) 1895
- 17235 ——— LIGHT; 3rd [last] Edition, further revised, with 54 illustrations, cr. 8vo. buckram, 4s (p. 7s 6d) 1900
- 17236 ——— PROPERTIES of MATTER; 2nd [latest] Edition, enlarged, with diagrams, post 8vo. cl., 3s 6d (p. 7s 6d) Edin., 1885
- These [above three works] are written in a forcible style and with a masterly touch which characterises all his productions. Tait has a great power of treating abstruse questions in a simple, direct manner.
- 17237 ——— SKETCH of THERMODYNAMICS, 2nd Edition, extended, large post 8vo. cl., 3s Edin., 1877
- 17238 ———, and William John STEELE, *Fellow of Peterhouse*: TREATISE on the DYNAMICS of a PARTICLE, with numerous Examples; 4th Edition, carefully revised, with diagrams, post 8vo. cl., 5s (p. 12s) 1878
- v. KELVIN, ante.

PHYSICS, continued:—

- 17241 **TESAR** (Ludwig; *Vienna*) Die MECHANIK: eine Einführung mit einem metaphysischen Nachwort; with 111 illustrations, 8vo. buckram, uncut, t. e. g., 3s Leipzig, 1909
- 17242 **THOMPSON** (The late Silvanus Phillips, F.R.S., *Principal, Finsbury Technical Coll.*) ELEMENTARY LESSONS IN ELECTRICITY AND MAGNETISM [new and final Edition, rewritten], with 2 charts, and 291 woodcuts, 12mo. cl., 2s (p. 4s 6d) 1900
- 17243 ——— POLYPHASE ELECTRIC CURRENTS, and ALTERNATE-CURRENT MOTORS; 2nd [latest] Edition, enlarged, with 8 folding plates and 358 woodcuts, large 8vo. cl. (scarce), 12s (p. £1. 1s) 1900
With Appendix containing a schedule of British patents on polyphase and alternating current motors, 1878-99.
- 17244 ——— The ROSE of the WINDS: the Origin and Development of the COMPASS-CARD, with 6 plates (5 coloured), and 3 text-illustrations, roy. 8vo. sewn, 2s 6d (p. 4s nett) [1913]
- 17245 **THOMSON** (Sir Joseph John, F.R.S.; *Cavendish Prof. Experimental Physics, Cantab.*; *Nobel Laureate*) APPLICATIONS OF DYNAMICS TO PHYSICS AND CHEMISTRY, cr. 8vo. cl., 3s 6d (p. 7s 6d) 1888
- 17246 ——— ELEMENTS of the MATHEMATICAL THEORY of ELECTRICITY and MAGNETISM; 3rd Edition [enlarged], with 133 diagrams, post 8vo. cl., 5s (p. 10s) Univ. Press, Cambridge, 1904
- 17247 ——— NOTES on RECENT RESEARCHES in ELECTRICITY and MAGNETISM, intended as a Sequel to PROF. CLERK-MAXWELL'S TREATISE on Electricity and Magnetism, with 144 illustrations, 8vo. cl. (VERY FRESH COPY); VERY SCARCE, £2. 15s Clarendon Press, Oxford, 1893
Containing: I. Electric Displacement and Faraday Tubes of Force (pp. 1-52). II. Passage of Electricity through Gases (pp. 53-207). III. Conjugate Functions (pp. 208-50). IV. Electric Waves and Oscillations (pp. 251-387). V. Electromagnetic Waves [including Hertz's Experiments] (pp. 388-508). VI. Distribution of Rapidly Alternating Currents (pp. 510-52). VII. Electromotive Intensity in Moving Bodies (pp. 534-58). VIII. Electrolysis of Steam (pp. 559-70).
- 17248 ——— TREATISE on the MOTION of VORTEX RINGS, with 8 diagrams, 8vo. cl. (VERY SCARCE), 17s 6d 1883
* In this essay, in addition to the set subject: 'a general investigation of the action on each other of two closed vortices in a perfect incompressible fluid', I have discussed some points which are intimately connected with it, and I have endeavoured to apply some of the results to the vortex atom theory of matter.—*Preface*. It was awarded the Adams Prize of Cambridge University.
Written under the aegis of the Helmholtz-Kelvin Vortex Theory, when the indestructible ether vortex, moving in an absolutely frictionless medium, was supposed to be the last word in the question of the constitution of matter, it yet bids fair to contribute towards its explanation even under the spell of the Electron Theory.
- v. POYNTING, ante.
- 17249 **THORNTON** (Arthur, F.R.A.S.) THEORETICAL MECHANICS: SOLIDS, including Kinematics, Statics, and Kinetics, 4th Edition, with 220 diagrams, cr. 8vo. cl., 2s 6d 1905
- 17250 **TIMERDING** (Heinrich E., *Braunschweig*) Die THEORIE der KRÄFTEPLÄNE: eine Einführung in die graphische Statik; with 46 diagrams, 8vo. stiff ura pper, 2s Leipzig, 1910
- 17251 **TODHUNTER** (Isaac, *St. John's Coll., Cantab.*, F.R.S.) HISTORY of the THEORY of ELASTICITY and of the STRENGTH of MATERIALS, from Galilei to the present Time; edited and completed by KARL PEARSON, F.R.S., with plates and woodcuts, 2 thick vols. 8vo. in 3, cl., uncut, £1. 10s (p. £2. 15s) Univ. Press, Cambridge, 1886-93
The only great history of its subject published in any language.
This book was issued by the Cambridge University Press with the absurd lettering on its cloth binding, 'A History of the Elasticity and Strength of Materials'.
- 17252 ——— MECHANICS for BEGINNERS, with numerous Examples [final Edition], with diagrams, 12mo. buckram; Key, cr. 8vo. cl.—2 vols., 4s (p. 11) 1890
- 17253 ——— TREATISE on ANALYTICAL STATICS, with numerous Examples; 5th [last] Edition, edited by J. D. EVERETT, F.R.S., with diagrams, cr. 8vo. cl. (o. p.), 6s (p. 10s 6d) 1887
- 17254 **TUMLIRZ** (Ottokar; *Univ. Innsbruck*) Das POTENTIAL und seine Anwendung zur Erklärung der ELEKTRISCHEN ERSCHEINUNGEN; with 108 illustrations, cr. 8vo. cl., 2s 6d (p. M. 4) Wien, 1884
- 17255 ——— POTENTIAL and its Application to the Explanation of Electrical Phenomena popularly treated, translated by D. ROBERTSON, with 108 illustrations, post 8vo. buckram, 3s 6d 1889
- 17256 **TUNZELMANN** (George William de, M.I.E.E.; *Prof. Physics, H.M.S. Britannia*) TREATISE on ELECTRICAL THEORY and the PROBLEM of the UNIVERSE, considered from the Physical Point of View, with Mathematical Appendixes, with illustrations, large crown 8vo. (pp. xxxi + 654), hf. black morocco neat, cl. sides, t. e. g. (as good as new), 11s (p. 15s nett in cl.) 1910
One of the fullest works applying the Electron Theory to the Phenomena of the Universe. Pp. 506-632 contain Mathematical and other Appendixes. It is dedicated to the memory of Professor Clifford.
- 17257 **TURPAIN** (Albert, *Univ. Poitiers*) La LUMIÈRE; with 130 illustrations, large impl. 8vo. cl. extra, g. e., 5s 6d (p. F. 10 nett) [1913]
- 17258 **VILLIÉ** (E., *Univ. Lille*) TRAITÉ de CINÉMATIQUE; with 134 illustrations, 8vo. hf. black morocco neat, cl. sides, t. e. g. (fine copy), 5s (p. F. 7.50 nett sewn) 1888
- 17259 **VIOLE** (Louis Jules Gabriel; *de l'Institut*) COURS de PHYSIQUE; with 1005 illustrations, 4 vols. large 8vo. buckram, t. e. g., £1. 5s (p. F. 47 nett sewn) 1883-92
CONTENU:—I. Physique moléculaire, 2 v.: II. I. Acoustique; II. 2. Optique.
- 17260 **VOIGT** (Woldemar; *Prof. Physics, Göttingen*) ELEMENTARE MECHANIK als Einleitung in das Studium der theoretischen Physik; 2. umgearbeitete [neueste] Auflage; with 56 illustrations, roy. 8vo. handsomely bound in hf. pigskin, cl. sides, t. e. g. (fine copy), 12s Leipzig, 1901
- 17261 ——— THERMODYNAMIK; with folding plates and 87 diagrams, 2 vols. large cr. 8vo. cl., 12s 6d (p. M. 20) *ibidem*, 1903-4
——— v. MINERALOGY and CRYSTALLOGRAPHY, post.

PHYSICS, continued:—

- 17263 **VOLKMANN** (Paul, *Univ. Königsberg*) EINFÜHRUNG in das STUDIUM der THEORETISCHEN PHYSIK, insbesondere in das der ANALYTISCHEN MECHANIK, mit Einleitung in die Theorie der physikalischen Erkenntnis: Vorlesungen; *with diagrams*, roy. 8vo. *handsomely bound in hf. black morocco, cl. sides, 6s 6d* (p. M. 14 sewn) *Leipzig, 1900*
- 17264 — ZWEITE [NEUESTE] MEHRFACH UMGEARBEITETE AUFLAGE; *with 23 diagrams*, large 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy), 10s 6d* (p. M. 13 sewn) *ibidem, 1913*
- 17265 **WALKER** (Gilbert Thomas, F.R.S., *Director-Gen. of Observatories, India*) OUTLINES of the THEORY of ELECTROMAGNETISM: Lectures before the Calcutta University, *with diagrams*, 8vo. *cl., 2s* (p. 3s nett) *Univ. Press, Cambridge, 1910*
- 17266 **WALLON** (Étienne) LEÇONS d'OPTIQUE GÉOMÉTRIQUE; *with 169 illustrations*, roy. 8vo. *hf. black calf neat, cl. sides, uncut, t. e. g. (fine copy), 6s 6d* (p. F. 9 nett sewn) 1900
- 17267 **WALTON** (William, *Trinity Coll., Cantab*) COLLECTION of PROBLEMS in Illustration of the Principles of THEORETICAL HYDROSTATICS and HYDRODYNAMICS, *with 3 folding plates*, 8vo. *buckram, t. e. g., 3s* *Cambridge, 1847*
- 17268 — COLLECTION of PROBLEMS in Illustration of the Principles of THEORETICAL MECHANICS; 3rd [last] Edition [with numerous additional Problems], *with 7 folding plates*, thick 8vo. *buckram, t. e. g., 7s* (p. 16s) *ibidem, 1876*
- 17269 **WAND** (Theodor) Die PRINZIPIEN der MATHEMATISCHEN PHYSIK und die POTENTIAL-THEORIE, nebst ihren vorzüglichsten Anwendungen; *with 8 diagrams*, 8vo. *cl., 2s* *Leipzig, 1871*
- 17270 **WANGERIN** (Albert, *Univ. Halle*) THEORIE des POTENTIALS und der KUGELFUNKTIONEN, I. [einziger] Band; *with 36 diagrams*, large cr. 8vo. *cl., 4s* (p. M. 6.60) *Leipzig, 1909*
- 17271 **WATSON** (Henry William; *pr., F.R.S.*) TREATISE on the KINETIC THEORY of GASES, 2nd [last] Edition, post 8vo. *cl., 2s 6d* (p. 4s 6d) *Clarendon Press, Oxford, 1893*
- 17272 **WATSON** (William, F.R.S., *Roy. College of Science*) TEXT-BOOK of PHYSICS, including a Collection of Examples and Questions; 4th Edition, *with 579 illustrations*, thick large post 8vo. *handsomely bound in hf. black morocco, cl. sides, t. e. g. (as good as new), 7s* (p. 10s 6d in cl.) 1905
- 17273 **WEBER** (Ernst Heinrich; *Prof. Physiology, Leipzig, and Wilhelm Eduard; Prof. Physics, Göttingen*) WELLENLEHRE auf EXPERIMENTE GEGRÜNDET, oder über die Wellen tropfbarer Flüssigkeiten, mit Anwendung auf die SCHALL- und LICHTWELLEN; *with 18 fine folding plates on copper, and 2 folding tables*, thick post 8vo. *cl. (nice copy); RARE, £1. 1s* *Leipzig, 1825*
This classic on wave-motion, which is dedicated to Ohlradl, first demonstrated the interference of sound-waves by the tuning-fork, the existence of transverse waves in fluids, interference and reflexion of waves, and the formation of stationary waves.
*The subject of stationary waves was first experimentally treated by the Messrs. Weber, in their excellent researches on Wave-motion.—Prof. Tyndall.
- 17274 **WEBSTER** (Arthur Gordon, *Clark Univ., Worcester, Mass.*) The THEORY of ELECTRICITY and MAGNETISM, being Lectures on Mathematical Physics, *with 101 illustrations*, 8vo. *cl., 7s 6d* (p. 15s nett) 1897
- 17275 **WEILER** (W.) ELEKTRICITÄT und MAGNETISMUS, 2. verbesserte Auflage; *with 445 TINTED ILLUSTRATIONS*, 8vo. *cl., 5s* *Esslingen [1905]*
To tint the illustrations in a treatise on electricity is a helpful idea which seems to have occurred to the author of the above book alone.
- 17276 — WÖRTERBUCH der ELEKTRICITÄT und des MAGNETISMUS: ein Hand- und Nachschlagebuch zur Erklärung, Erläuterung und Beschreibung der elektrischen und magnetischen Ausdrücke, Gesetze, Vorgänge, Apparate, Instrumente und Maschinen nebst Hilfswissenschaften und Anwendungen; *with 816 illustrations*, large roy. 8vo. *hf. pigskin, cl. sides (back worn), 7s* (p. M. 12 sewn) *Leipzig [1898]*
- 17277 **WEINSTEIN** (Bernhard; *Univ. Berlin*) THERMODYNAMIK und KINETIK der KÖRPER; *with diagrams*, 3 vols. 8vo. *hf. black morocco neat, cl. sides, uncut, t. e. g. (fine copy), £2. 10s* (p. M. 64 sewn) *Braunschweig, 1901-8*
INHALT:—I. Allgemeine Thermodynamik und Kinetik und Theorie der idealen und wirklichen Gase und Dämpfe: II. Absolute Temperatur der Flüssigkeiten; die Flüssigkeiten; die festen Körper; thermodynamische Statik und Kinetik der (nicht verdünnten) Lösungen; III. Die verdünnten Lösungen; die Dissociation; Thermodynamik der Elektrizität und des Magnetismus: Elektrochemie.
- 17278 **WEISBACH** (Julius, *Bergakademie, Freiberg*) LEHRBUCH der THEORETISCHEN MECHANIK, mit den nöthigen Hilfslehren aus der Analysis; 5. [letzte] vervollständigte Auflage, bearbeitet von GUSTAV HERMANN; *with over 1000 woodcuts*, 8vo. (pp. 1340), *handsomely bound in hf. pigskin, cl. sides, 17s 6d* (p. M. 26 sewn) *Braunschweig, 1896*
- 17279 — MANUAL of the MECHANICS of ENGINEERING, and of the Construction of Machines, with Introduction to the Calculus, Vol. I: THEORETICAL MECHANICS, translated from the 4th German Edition by ECKLEY B. COXE, *with 902 woodcuts*, thick 8vo. *hf. maroon morocco neat, cl. sides (nice copy), 8s 6d* (p. £1. 5s in cl.) 1877
- 17280 **WHETHAM** (William Cecil Dampier, *Fellow of Trinity, F.R.S.; eugenist*) The RECENT DEVELOPMENT of PHYSICAL SCIENCE, *with portraits, plates, and woodcuts*, large post 8vo. *cl., 3s 6d* (p. 7s 6d nett) 1904
- 17281 **WHITTAKER** (Edmund Taylor, F.R.S.; *Prof. Mathematics, Edin.*) The THEORY of OPTICAL INSTRUMENTS, *with diagrams*, 8vo. *sewn, 2s* *Univ. Press, Cambridge, 1907*

PHYSICS, *continued* :—

- 17283 **WERNICKE (Adolf)** LEHRBUCH der MECHANIK in elementarer Darstellung, mit Anwendungen und Übungen aus den Gebieten der Physik und Technik, I. Teil: MECHANIK FESTER KÖRPER von ALEXANDER WERNICKE, 4. [neueste] völlig umgearbeitete Auflage; *with very numerous illustrations*, 3 vols. 8vo. in 2 (pp. 1635), *hf. black morocco neat, cl. sides (nice copy)*, 15s (p. M. 20 sewn) Braunschweig, 1900-3
- 17284 ——— DASSELBE, I. TEIL, ABTEILUNG 1-2 (Einleitung, Phoronomie, Lehre vom materiellen Punkte; Statik und Kinetik des starren Körpers), 4. [neueste] Auflage und II. TEIL (Flüssigkeiten und Gase); *with very numerous illustrations*, 3 vols. 8vo. in 1 (pp. 1210), *hf. maroon morocco neat, cl. sides, 10s 6d* (p. M. 15 sewn) *ibidem*, 1900-1
- 17285 **WILLIS (Robert, pr., F.R.S., Jacksonian Professor, Cantab.)** PRINCIPLES OF MECHANISM, 2nd [last] Edition [enlarged and rewritten], *with 374 woodcuts and diagrams*, 8vo. *cl.* (SCARCE), 12s 1870
 'In this work he reduced the study of what he called pure mechanics to a system. It is the earliest attempt to develop, with anything like completeness, the science of machines considered from the kinematic point of view, without reference to the forces which are at work or to the energy which is transmitted.'—*D. N. B.*
 Professor Willis, like Dr. Whewell, was one of the rare examples of a mathematician who cared for Poincé Architecture, however natural, on its constructional side, such an interest might seem. His study however went far beyond Dr. Whewell's, and he was, with Mr. Freeman, one of the ablest amateur authorities on English architecture, and his advice was of much value in the restoration of many of the Cathedrals.
- WINKELMANN (A., Univ. Jena)** HANDBUCH der PHYSIK—v. HANDBUCH, *ante*.
- 17286 **WOOD (De Volson, C.E.)** The ELEMENTS of ANALYTICAL MECHANICS: Solids and Fluids, 7th Edition, *illustrated*, 8vo. *hf. black morocco neat, cl. sides (nice copy)*, 8s 6d (p. 12s 6d nett in cl.) New York, 1900
- 17287 **WOOD (Robert Williams, Prof. Experimental Physics, Johns Hopkins Univ.)** PHYSICAL OPTICS; new [2nd and latest] and revised Edition, *with 11 plates (some coloured), and 399 text-illustrations*, 8vo. *hf. black morocco neat, cl. sides, t. e. g.*, 16s 6d (p. £1. 2s nett in cl.) New York, 1911
 'In the present volume especial stress has been laid on the experimental side.'—*Præf.* It includes accounts of numerous original experiments by the author, and is the most up-to-date text-book on its subject. The last chapter deals with the Principle of Relativity.
- 17288 **WOODS (Arthur T., Washington Univ.), and Albert W. STAHL, Constructor, U.S.N.:** ELEMENTARY MECHANISM; 15th Edition, *with 198 illustrations*, cr. 8vo. *cl.*, 4s 6d (p. \$2.) New York, 1905
- 17289 **WORTHINGTON (Arthur Mason, F.R.S.)** DYNAMICS of ROTATION: an elementary Introduction to Rigid Dynamics, 6th Edition, *with numerous illustrations*, cr. 8vo. *buckram*, 2s 6d (p. 4s 6d) 1906
- 17290 **WÜLLNER (Adolph)** LEHRBUCH der EXPERIMENTALPHYSIK, 5. vielfach umgearbeitete und verbesserte Auflage; *with hundreds of woodcuts*, 4 vols. 8vo. *hf. maroon morocco neat, cl. sides (fine copy)*, £1. 10s (p. M. 56 sewn) Leipzig, 1895-9
 The most extensive work on experimental physics extant, but containing much speculative matter. Vols. II—IV are in the latest edition.
- 17291 **ZECH (P. v.)** AUFGABEN aus der THEORETISCHEN MECHANIK, nebst Auflösungun, 2. [letzte] Auflage, unter Mitwirkung von C. CRANZ; *with diagrams*, 8vo. *buckram*, 2s 6d (p. 4.20 sewn) Stuttgart, 1891
- 17292 **ZEUNER (Gustav Anton; Polytechnikum, Zürich)** GRUNDZÜGE der MECHANISCHEN WÄRMETHEORIE, mit Anwendungen auf die der Wärmelehre angehörigen Theile der Maschinenlehre, insbesondere auf die THEORIE der calorischen Maschinen und DAMPFMASCHINEN, 2. [neueste Auflage]; *with 56 woodcuts*, 8vo. *hf. black calf neat, cl. sides*, 5s (p. M. 13 sewn) Leipzig, 1877
- 17293 **ZIWET (Alexander, Univ. Michigan)** ELEMENTS of THEORETICAL MECHANICS: revised Edition of 'Elementary Treatise on Theoretical Mechanics', *with 191 diagrams*, 8vo. *hf. black morocco neat, cl. sides, t. e. g. (as good as new)*, 12s 6d (p. 17s nett in cl.) New York, 1908
- 17294 ———, and **Peter FIELD, ejusdem Univ.:** INTRODUCTION to ANALYTICAL MECHANICS, *with numerous diagrams*, cr. 8vo. *buckram*, 4s 6d (p. 7s nett) *ibidem*, 1912

CHEMISTRY:

- 17295 **ARRHENIUS (Svante August; Director, Physico-Chemical Dept., Nobel Inst.)** LEHRBUCH der ELEKTROCHEMIE, vom Verfasser durchgesehene und vermehrte deutsche Ausgabe, übersetzt von HANS EULER; *with 57 illustrations*, 8vo. *buckram*, 4s 6d (p. M. 8 sewn) Leipzig, 1901
- 17296 **BAUR (Emil; Prof. Physical Chemistry, Zürich)** CHEMISCHE KOSMOGRAPHIE: Vorlesungen an der Technischen Hochschule zu München, 1902-3; *with 21 illustrations*, 8vo. *buckram*, 3s 6d (p. M. 4.50 sewn) München, 1903
- 17297 **BISCHOFF (Carl A.; Prof. Chemistry, RIGA)** HANDBUCH der STEREOCHEMIE, unter Mitwirkung von PAUL WALDEN herausgegeben; *with portraits of Pasteur, Le Bel, and van t'Hoff, and 250 illustrations*, 8vo. (pp. 1076), *hf. maroon morocco neat, cl. sides (fine copy)*, £1. 5s (p. M. 34 sewn) Frankfurt a. M., 1894
 Still the standard work on the subject. It must have been a great disappointment to German professors not to have Louvain'd the University of Riga.

CHEMISTRY, continued:—

- 17299 **BIEHRINGER** (Joachim, *Technische Hochschule, Braunschweig*) EINFÜHRUNG in die STÖCHIOMETRIE, oder die Lehre von der quantitativen Zusammensetzung der Körper und ihren mit dieser zusammenhängenden Eigenschaften, mit Rechenbeispielen; with *folding plate* and 18 *woodcuts*, Svo. *buckram*, 6s 6d (p. M. 9. sewn) Braunschweig, 1900
- 17300 **CARNEGIE** (Douglas, *Caius Coll., Cantab.*) LAW and THEORY in CHEMISTRY: a Companion Book for Students, with *illustrations*, post Svo. *cl.* (o. p.), 3s (p. 6s) 1894
- 17301 **FREMY** (Edmond, *de l'Institut, Directeur du Muséum d'Histoire naturelle*) **ENCYCLOPÉDIE CHIMIQUE**, publiée par une Réunion d'anciens Elèves de l'École polytechnique, de Professeurs et Industriels, et notamment de MM. H. BECQUEREL, M. BERTHELOT, BOURGOIN, AD. CARNOT, CLOEZ, DEBIZE, DEBRAY, DITTE, DUCLAUX, DUQUESNEST, GAUDIN, L. GRUNER, JOLY, JUNGFLEISCH, LEMOINE, LODIN, MALLARD, MARGOTTE, MOUTIER, NIVOIT, ROLLAND, SCHLAGENHAUFEN, SCHLÖSING, TERQUEM, TERREIL, URBAIN, VIEILLE, etc. etc.; with *many hundred plates* (some coloured), and *thousands of text-illustrations*, 85 vols. 8vo. in 44; *handsomely and uniformly bound in hf. maroon morocco, cl. sides* (FINE SET), £16. 16s (p. F. 1680 nett sewn) 1882-99
- CONTENU:—Tome I. INTRODUCTION. CONNAISSANCES PHYSIQUES applicables à la Chimie; *complete*, 4 v. in 3: Tome II: MÉTALLOIDES; *complete*, 7 v. in 4: Tome III: MÉTAUX; *wanting* 'Osmitum et Ruthénium', and 'Palladium, Iridium, Rhodium'; 19 v. in 6: Tome IV: ANALYSE CHIMIQUE; *complete*, 5 v. in 3: Tome V: PRODUITS et INDUSTRIES CHIMIQUES; *wanting* 'Métallurgie du Zinc'; 'Exploitation et Traitement des Minerais arsifères'; 'Traitement des Minerais auro-argentifères'; 'Métallurgie du Nickel et du Cobalt', 13 v. in 5: Tomes VI—VIII: CHIMIE ORGANIQUE; *complete*, 16 v. in 14: Tome IX: CHIMIE PHYSIOLOGIQUE; *complete*, 8 v. in 3: Tome X: APPLICATIONS de CHIMIE ORGANIQUES; *wanting* 'Conservation des Substances alimentaires'; 'Teinture et Appréts des Tissus de Coton'; 'Fabrication des Couleurs', 12 v. in 5: TABLE ALPHABÉTIQUE.
- The missing volumes can be supplied new for £4. nett sewn.
- 17302 **GARRETT** (Albert Edward, F.R.S.) THE PERIODIC LAW, with *diagrams* and *folding tables* (linen-mounted), cr. 8vo. *buckram*, t. e. g., 3s (p. 5s) 1909
- With interesting historical account of early attempts at classification, and of the work of Newlands, de Chancourtois, Mendelejeff, Lothar Meyer, and Carnelley.
- 17303 **GORE** (George, F.R.S.) THE ART of ELECTRO-METALLURGY, including all known Processes of Electro-Deposition [with History, Bibliography, List of Patents, etc.], 7th Impression, *illustrated*, large 12mo. *buckram*, 3s (p. 6s) 1900
- 17304 **HALLIBURTON** (William Dobinson, F.R.S., *Prof. Physiology, King's Coll., London*) THE ESSENTIALS of CHEMICAL ANALYSIS, 5th Edition, with *coloured plate* and 83 *other illustrations*, 8vo. *cl.*, 3s (p. 5s nett) 1904
- 17305 **HAY** (William Jay, *Univ. Michigan*) THE CALCULATIONS of GENERAL CHEMISTRY, with Definitions, Explanations, and Problems; 2nd [latest] Edition, revised, post Svo. *cl.*, 2s 6d (p. 4s 6d) 1910
- 17306 **HOFF** (Jacobus Hendrik van't; *Prof. Physical Chemistry, Berlin*; F.R.S.) ÉTUDES de DYNAMIQUE CHIMIQUE; with *illustrations*, roy. 8vo. *red buckram*, 5s Amsterdam, 1884
- In this work the author is 'striving to found a theory of equilibrium and chemical kinetics.'—*Prof. E. v. Meyer.*
- 17307 ——— STEREOCHEMIE, nach 'Dix Années dans l'Histoire d'une Théorie,' unter Mitwirkung des Verfassers neu bearbeitet von W. MEYERHOFFER: with *diagrams*, 8vo. *red buckram*, 3s (p. M. 5) Leipzig, 1892
- 17308 ——— VORLESUNGEN über THEORETISCHE und PHYSIKALISCHE CHEMIE (Bd. I 2. Auflage); with *numerous illustrations*, 3 parts in 1 vol. 8vo. *handsomely bound in hf. crushed dark purple Levant morocco, cl. sides, uncut, t. e. g. (as good as new)*, 10s 6d (p. M. 14 sewn) Braunschweig, 1899-1901
- INHALT:—I. Chemische Dynamik; II. — Statik; III. Beziehungen zwischen Eigenschaften und Zusammensetzung.
- 17309 **JOHNSTON** (James Finlay Weir, F.R.S.) ELEMENTS of AGRICULTURAL CHEMISTRY and GEOLOGY; 17th [latest] Edition, from the Edition by SIR CHARLES ALEXANDER CAMERON, M.D., revised and in great part rewritten by C. M. AIKMAN, with *woodcuts*, post Svo. *cl.*, 3s 6d Edin., 1894
- 'Johnston successfully sought to give recent scientific discovery a practical application to agriculture and manufactures. Most of his numerous writings attained great popularity.'—*D.N.B.*
- 17310 **KEANE** (Charles Alexander, *Princ., Sir John Cass Technical Inst.*) MODERN ORGANIC CHEMISTRY, with 29 *illustrations*, cr. 8vo. *buckram*, 3s 6d (p. 6s) 1909
- 17311 **KÖNIG** (Josef, *Univ. Münster*) CHEMIE der MENSCHLICHEN NAHRUNGS- und GENUSSMITTEL, 4. [neueste] verbesserte [und stark vermehrte] Auflage, Band I. II. III. I; with *numerous illustrations*, 3 very thick vols. 8vo. *original hf. morocco gilt*, £3. (p. M. 94) Berlin, 1903-10
- The standard work on the chemistry of food and drink.
- INHALT:—I. Chemische Zusammensetzung der menschlichen Nahrungs- und Genussmittel, 1903; II. Die menschlich en Nahrungs- und Genussmittel, ihre Herstellung, Zusammensetzung und Beschaffenheit, nebst Abriss über die Ernährungslehre, '04; III. I. Untersuchung von Nahrungs-, Genussmitteln und Gebrauchsgegenständen, '10.
- 17312 **LAAR** (J. J. van, *Univ. Amsterdam*) LEHRBUCH der MATHEMATISCHEN CHEMIE, mit Einleitung von H. W. BAKHUIS-ROOZEBOOM; with 28 *diagrams*, 8vo. *buckram*, 5s (p. M. 7 sewn) Leipzig, 1901
- 17313 **MAMLOCK** (L.) STEREOCHEMIE (die Lehre von der räumlichen Anordnung der Atome im Molekül); with 58 *illustrations*, Svo. *cl.*, 3s (p. M. 5) Leipzig, 1907
- 17314 **MELLOR** (Joseph William, D. SC.) CHEMICAL STATICS and DYNAMICS, including the Theories of Chemical Change, Catalysis, and Explosions, with 50 *diagrams*, cr. 8vo. *buckram*, 3s 6d (p. 7s 6d) 1904

CHEMISTRY, *continued*.—

- 17317 **MENDELÉEFF** (Dmitri Ivanovitch; *Prof. Chemistry, Petrograd*; F.R.S.) The PRINCIPLES of CHEMISTRY, translated from the Russian (5th Edition) by GEORGE KAMENSKY, edited by A. J. GREENAWAY, F.I.C., with 97 woodcuts, 2 vols. large 8vo. cl., 10s 6d (p. £1. 16s) 1891
- 17318 ——— THIRD [LATEST] ENGLISH EDITION, translated from the Russian (7th Edition) by GEORGE KAMENSKY, and edited by THOMAS H. POPE, F.I.C., with 110 woodcuts, 2 vols. large 8vo. cl., £1. 2s 6d (p. £1. 12s nett) 1905
- A well-known standard work by the founder of the Periodic System.
- 17319 **MEYER** (Lothar Julius, *Univ. Tübingen*) GRUNDZÜGE der THEORETISCHEN CHEMIE, 4. [neueste] Auflage, neu bearbeitet von E. REINBACH; with folding plate (linen-mounted), and diagrams, 8vo. buckram, uncut, t. e. g., 4s (p. M. 5 sewn) Leipzig, 1907
- Latest edition of this classic of physical chemistry.
- 17320 **MEYER** (Oskar Emil, *Univ. Breslau*) Die KINETISCHE THEORIE der GASE, in elementarer Darstellung mit mathematischen Grundsätzen, 2. umgearbeitete [neueste] Auflage, 8vo. handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy), 9s (p. M. 12 unbound) Breslau, 1899
- Latest edition of one of the best modern text-books on the subject.
- 17321 **NERNST** (Walther, *Univ. Berlin*) The THEORY of the SOLID STATE, illustrated, post 8vo. cl., 1s 6d 1914
- Perhaps the author's national 'solid state' will prove to have more or less liquescent tendencies before the war is over.
- 17322 **OSTWALD** (Wilhelm; *Prof. Chemistry, Leipzig; Monist and jingo*) GRUNDRISS der ALLGEMEINEN CHEMIE, 4. [neueste] völlig umgearbeitete Auflage; with 67 illustrations, 8vo. handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy), 15s (p. M. 20 sewn) Leipzig, 1909
- 17323 ——— LEITLINIEN der CHEMIE: sieben gemeinverständliche Vorträge aus der GESCHICHTE der CHEMIE, cr. 8vo. buckram, uncut, t. e. g., 4s 6d (p. M. 6.60 sewn) *ibidem*, 1906
- Professor Ostwald with his country's punishment in sight must now remember with fury the never to be realised boasting he gave way to in Sweden *invenite bello*. Cf. Lord Grey's speech on October 21st, 1916.
- 17324 **REYCHLER** (Albert; *Univ. Libre de BRUXELLES*) Les THÉORIES PHYSICO-CHIMIQUES, 3^e [dernière] Edition, entièrement refondue et complétée; with numerous illustrations and folding table, 8vo. handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (fine copy); o. p., 12s 6d Bruxelles, 1903
- 17325 **RÖTTGER** (H.) LEHRBUCH der NAHRUNGSMITTEL-CHEMIE, 3. vermehrte Auflage; with plate and 22 illustrations, thick 8vo. (pp. 915), handsomely bound in hf. pigskin, cl. sides, 10s 6d (p. M.^o 16 sewn) Leipzig, 1907
- 17326 **STEWART** (Alfred Walter, *Univ. London*) STEREOCHEMISTRY, with 87 illustrations, thick post 8vo. buckram, 5s 6d (p. 10s 6d) 1907
- 17327 **TILDEN** (Sir William Augustus, F.R.S., *Prof. Chemistry, Roy. Coll. Science*) INTRODUCTION to the STUDY of CHEMICAL PHILOSOPHY: the Principles of Theoretical and Systematic Chemistry; 10th Edition, completely revised and rearranged, with 5 illustrations; with ANSWERS to the PROBLEMS, cr. 8vo. buckram, 3s (p. 5s 6d) 1901
- 17328 **WALKER** (James, *Prof. Chemistry, Edin.*, F.R.S.) INTRODUCTION to PHYSICAL CHEMISTRY, 4th Edition [enlarged], with 53 illustrations, 8vo. hf. black morocco neat, cl. sides, t. e. g. (nice copy), 6s (p. 10s nett in cl.) 1907
- 17329 ——— EINFÜHRUNG in die PHYSIKALISCHE CHEMIE, nach der 2. Auflage des Originals unter Mitwirkung des Verfassers übersetzt und herausgegeben von H. v. STEINWEHR; with 48 illustrations, 8vo. buckram, 3s 6d (p. M. 7) Braunschweig, 1904
- 17330 **WERNER** (Alfred; *Prof. Chemistry, Zürich; Nobel Laureate*) NEUERE ANSCHAUNGEN auf dem Gebiete der ANORGANISCHEN CHEMIE, 2. vermehrte Auflage; with folding table (linen-mounted), 8vo. buckram, 6s (p. M. 9 sewn) Braunschweig, 1909
- 17331 **WURTZ** (Charles Adolphe, *de l'Institut*) DICTIONNAIRE de CHIMIE PURE et APPLIQUÉE, avec Discours préliminaire: Histoire des Doctrines chimiques depuis LAVOISIER, 5 v.: Supplément, 2 v.: Deuxième Supplément, par CH. FRIEDEL et C. CHABRIÉ, 7 v.—in all 14 vols. roy. 8vo., with numerous illustrations; handsomely bound in hf. crushed brown morocco, cl. sides (FINE SET), £6. 6s (p. F. 250 nett unbound) 1874-1908
- The *magnum opus* in chemistry of French Natural Science, containing contributions by the foremost French chemists of the day.

ENGINEERING:

- 17332 **BACH** (Karl v., *Technische Hochschule, Stuttgart*) Die MASCHINEN-ELEMENTE: ihre Berechnung und Konstruktion, mit Rücksicht auf die neueren Versuche, 9. vermehrte Auflage; with 3 plates and 799 text-illustrations, and ATLAS, containing 59 folding plates, 2 vols. impl. 8vo. original hf. morocco gilt, 18s (p. M. 38) Stuttgart, 1903
- A well-known standard work on the subject.
- 17333 **BLÜCHER** (H.) MODERNE TECHNIK: die wichtigsten Gebiete der Maschinentechnik und Verkehrstechnik, allgemeinverständlich dargestellt und erläutert durch ZERLEGBARE MODELLE, herausgegeben unter Mitwirkung von B. ALBRECHT, H. HAGMANN, C. KLUG, M. PRÜSSING, P. REINIGER, E. SCHEWE, W. STRECKER, G. WISLICENUS und A. WITT; with 1391 illustrations; with Atlas, with 15 fine COLOURED PLATES with SUPERPOSED SLIPS, 2 vols. folio, original buckram, £1. 6s 6d (p. M. 40) Leipzig, 1912
- An excellent work, showing the composition and working of various machines by means of superposed and movable slips. They include a Krupp submarine, a Rumpler-Taube aeroplane, and a Parseval airship.

ENGINEERING, *continued*.—

- 17335 **CORBIN (Thomas W.)** ENGINEERING of TO-DAY: a popular Account of its present State in non-technical Language, with 39 plates and diagrams, thick cr. 8vo. *cl.*, 3s (p. 5s nett) 1911
- 17336 **DAVEY (Henry, M.I.C.E.)** The PRINCIPLES, CONSTRUCTION, and APPLICATION of PUMPING MACHINERY (Steam and Water Pressure), with practical Illustrations of Engines and Pumps applied to Mining, Town Water Supply, Drainage of Lands, etc.; also Economy and Efficiency Trials, with 6 plates and 253 other illustrations, large 8vo. *cl.*, 8s (p. £1. 1s) 1900
- 17337 **DREIHARDT (C.)** Der SCHRAUBENPROPELLER (Schiffschraube): Konstruktion und Berechnung desselben; with 6 folding plates (linen-mounted), and 59 text-illustrations, large 8vo. buckram, uncut, *t. e. g.*, 3s Berlin, 1906
- 17338 **EWING (Sir James Alfred, K.C.B., F.R.S.; Director of Naval Education)** The STEAM-ENGINE, and other HEAT-ENGINES, 3rd [latest] Edition, with 2 large folding plates (linen-mounted and in pocket), and 274 text-illustrations, thick 8vo. *hf. black morocco neat, cl. sides, t. e. g. (nice copy)*, 10s (p. 15s in *cl.*) Univ. Press, Cambridge, 1910
- 17339 **FLEMING (John Ambrose, F.R.S.)** The WONDERS of WIRELESS TELEGRAPHY explained in simple Terms for the non-Technical Reader, with 55 illustrations, post 8vo. *cl.*, 2s 6d 1913
- 17340 **GOODEVE (Thomas Minchin, Roy. School of Mines)** TEXT-BOOK on the STEAM ENGINE; with Supplement on GAS ENGINES, and Part II on HEAT ENGINES; 11th Edition, enlarged, with numerous illustrations, post 8vo. *cl.*, 2s 6d (p. 6s) 1891
- 17341 **GORDON (H. A.)** REPORT of the DEPARTMENT of MINES on the GOLDFIELDS of NEW ZEALAND for 1893-4, with numerous plates and coloured folding maps, folio, half roan, 7s 6d Wellington, 1894
- 17342 **GRIFFITHS (William)** TRUSSES of WOOD and IRON, with complete Working Drawings, 12 plates, oblong 12mo. *cl.*, 2s 6d 1886
- 17343 **HISCOX (Gardner D.)** MECHANICAL MOVEMENTS, POWERS, DEVICES, and APPLIANCES, comprising illustrated Description of Mechanical Movements and Devices used in Constructive and Operative Machinery and the Mechanical Arts, being practically a MECHANICAL DICTIONARY; 10th Edition, enlarged, with 1800 illustrations: MECHANICAL APPLIANCES, MECHANICAL MOVEMENTS, and NOVELTIES of CONSTRUCTION: an Encyclopædia, with numerous illustrations—2 vols. roy. 8vo. in 1, *hf. black morocco neat, cl. sides (fine copy)*, 12s 6d (p. £1. 5s nett in *cl.*) 1905
- 17344 **HOCHBAUKUNDE (ALGEMEINE)** des HANDBUCHES der ARCHITEKTUR, I. Teil, 3. Auflage; with 1 plate and 490 illustrations, 2 vols. impl. 8vo. in 1, handsomely bound in *hf. black morocco, cl. sides (fine copy)*, 18s 6d (p. M. 30 sewn) Stuttgart, 1905-1899
INHALT:—I. E nleitung (theoretische und geschichtliche Übersichts) von A. v. ESSENWEIN. Die Technik der wichtigeren Baustoffe von W. F. EXNER, H. HAUENSCHILD, G. LAUBOECK, H. KOCH und E. SCHMITT: II. Die Statik der Hochbau-Constructionen von THEODOR LANDSBERG.
- 17345 **HOLMES (Sir Charles Vincent, K.C.B.; Crewe Works; Sec. Inst. Naval Architects)** The STEAM ENGINE, with frontispiece and 212 woodcuts, thick cr. 8vo. *cl.*, or, buckram, 3s (p. 6s) 1894 or 1902
- 17346 **KNIGHT (Edward Henry)** PRACTICAL DICTIONARY of MECHANICS, including the History of Inventions, Technological Vocabulary, etc.; and Supplement, with Index References to Technical Journals, 1876-80, with 131 plates and 9,944 woodcuts, 4 thick vols. impl. 8vo. *hf. roan (backs rubbed)*, and *Suppt. in cl.*, 15s (p. £4. 4s) [1877-84]
- 17347 **LONGRIDGE (Capt. Cecil Clement, M.I.M.E.)** HYDRAULIC MINING, Parts I (3rd enlarged Edition) and III: Ditches, Flumes, Tunnels; Reservoirs, Monitors, Elevators, Sluices, Classification, Test and Valuation of Alluvials, Water Power, etc., with plates and other illustrations, 2 vols. 8vo. *cl.*, 4s (p. 8s 6d) 1901-2
- 17348 **LOW (David Allan), and Alfred William BEVIS, M.M.I.M.E.:** MANUAL of MACHINE DRAWING and DESIGN, new Edition, enlarged, with 804 woodcuts, 8vo. *cl.*, 4s (p. 7s 6d) 1903
- 17349 **LOUDIN (Maurice A., M.Am.I.E.E.)** STANDARD POLYPHASE APPARATUS and SYSTEMS; with 159 illustrations, large cr. 8vo. *cl.*, 6s (p. 15s) 1900
- 17350 **PREECE (Sir William Henry, F.R.S.; G.P.O.; inventor, on the Flat Holm, of wireless telegraphy), and Sir James SIVEWRIGHT, G.P.O.:** TELEGRAPHY, new Edition [greatly enlarged], with 285 woodcuts, post 8vo. buckram, 3s 6d (p. 7s 6d) 1905
'An excellent manual.'—Prof. Sylvanus Thompson.
- 17351 **RANKINE (William John Macquorn, F.R.S.)** MANUAL of CIVIL ENGINEERING; 20th Edition, thoroughly revised by W. G. MILLAR, C.E., with 302 illustrations, thick cr. 8vo. *cl.*, 6s 6d (p. 16s) 1898
- 17352 ——— MANUAL of the STEAM ENGINE, and other PRIME MOVERS; 14th Edition, revised by W. J. MILLAR, C.E., with 2 folding plates, and nearly 200 woodcuts and diagrams, thick cr. 8vo. *cl.*, 5s (p. 12s 6d) 1897
The first treatise on the steam-engine which was based on the mechanical theory of heat, and still one of the best textbooks on the subject.
- 17353 **REULEAUX (Franz, Gewerbe-Akademie, Berlin)** The KINEMATICS of MACHINERY: Outlines of a Theory of Machines, translated and edited by SIR ALEXANDER B. W. KENNEDY, C.E., F.R.S., with 451 woodcuts, thick 8vo. *cl.* (SCARCE), £1. 1s 1876
A well-known classic on kinematics, which was translated into nearly every European language, and in which the author introduced a new treatment of the theory of machinery.
- 17354 ——— Der KONSTRUKTEUR: ein Handbuch zum Gebrauch beim MASCHINEN-ENTWERFEN, 4. [neueste] ungearbeitete Auflage; with 2 folding tables (linen-mounted), and over 1200 woodcuts, roy. 8vo. (pp. lxxi + 1197), handsomely bound in *hf. pigskin, cl. sides (nice copy)*, 17s 6d (p. M. 25 sewn) Braunschweig, 1899

ENGINEERING, continued:—

- 17356 **TAYLOR** (David Watson, *Naval Constructor, U.S. Navy*) RESISTANCE OF SHIPS AND SCREW PROPULSION, with diagrams, 8vo. cl., 6s 6d (p. 10s nett) New York, 1907
A standard work on the subject, 'containing a good deal of original matter' (Preface).
- 17357 **UNWIN** (William Cawthorne, F.R.S.) THE ELEMENTS OF MACHINE DESIGN, new Edition, revised and enlarged, with 614 illustrations, 2 vols. large 12mo. buckram, 6s (p. 13s 6d) 1903-2
- 17358 **VOLKERT** (Christophe) LA MACHINE à VAPEUR, Distribution avec Tiroir à Détente, Système Meyer: LA LOCOMOTIVE: MOTEUR à GAZ: LA DYNAMO: Modèles démontrables, avec Descriptions; with 4 large coloured plates, with superposed and movable slips, and numerous text-illustrations, 4 vols. oblong folio in 1, buckram, 8s (p. F. 12 nett sewn) 1898-1900
Excellent models for self-instruction or school use.
- 17359 **WELLS** (Sidney Herbert; *Director-General of Technical Education, Egypt*) TEXT-BOOK OF ENGINEERING DRAWING AND DESIGN, including Practical Geometry, Plane and Solid, and Machine and Engine Drawing and Design; 4th Edition, with numerous illustrations, 2 vols. cr. 8vo. cl., 4s 6d (p. 9s) 1905
- 17360 **WHITE** (Sir William Henry, F.R.S., *Chief Constructor, R.N.*) MANUAL OF NAVAL ARCHITECTURE, for Officers of the Royal Navy, Officers of the Mercantile Marine, Shipbuilders, Ship-owners, and Yachtsmen, 3rd Edition, enlarged, with 176 woodcuts, thick roy. 8vo. cl., 7s 6d (p. £1. 4s) 1894
- 17361 **WILLIAMS** (Archibald) LET ME EXPLAIN, with coloured frontispiece, and over 150 illustrations, 8vo. cl., 3s (p. 6s) [1913]
A popular account of modern engineering.

MINERALOGY and CRYSTALLOGRAPHY:

see also BIBLIOTHECA REUTERIANA, Part IV, Nos. 646-685.

- 17362 **BAUERMANN** (Hilary, F.G.S.) TEXT-BOOK OF SYSTEMATIC MINERALOGY, with 373 woodcuts, cr. 8vo. buckram, 3s (p. 6s) 1903
- 17363 ——— TEXT-BOOK OF DESCRIPTIVE MINERALOGY, with 237 woodcuts, cr. 8vo. buckram, 3s (p. 6s) 1902
- 17364 **BAUMHAUER** (Heinrich; *Prof. Mineralogy, Freiburg i. Ue.*) DARSTELLUNG der 32 MÖGLICHEN KRISTALLKLASSEN auf Grund der Deck- und Spiegelachsen, nebst Beschreibung von Achsenmodellen zur Demonstration der Symmetrieverhältnisse der Krystalle; with folding plate and 32 illustrations, large 8vo. cl., 2s Leipzig, 1899
- 17365 ——— Die NEUERE ENTWICKELUNG der KRISTALLOGRAPHIE; with 46 illustrations, 8vo. buckram, 3s (p. M. 4 sewn) Braunschweig, 1905
- 17366 **GOSSNER** (Balthasar; *Univ. Munich*) KRISTALLBERECHNUNG und KRISTALLZEICHNUNG, mit Betonung der graphischen Verfahren, sowie der analytischen und zonalen Beziehungen; with plate and 109 diagrams, roy. 8vo. buckram, t. e. g., 6s 6d (p. M. 8 sewn) Leipzig, 1914
- 17367 **GROTH** (Paul v.; *Prof. Mineralogy, Munich*) PHYSIKALISCHE KRISTALLOGRAPHIE und Einleitung in die kristallographische Kenntniss der wichtigsten Substanzen, 3. neubearbeitete Auflage; with 3 coloured plates and 702 woodcuts, large 8vo. (pp. 801), handsomely bound in hf. dark purple morocco, cl. sides, uncut, t. e. g. (fine copy), 12s (p. M. 18 sewn) Leipzig, 1895
A well-known standard work.
- 17368 **KARSTEN** (Hermann, *Univ. Rostock*) LEHRBUCH der KRISTALLOGRAPHIE; with 113 woodcuts, 8vo. hf. brown morocco neat, cl. sides (nice copy), 3s 6d Leipzig, 1861
- 17369 **KIRCHMAYR** (Heinrich) Die ANALYTISCHE BERECHNUNG REGULÄRER KRISTALLE; with 31 illustrations, large 8vo. cl., 1s 6d Berlin, 1908
- 17370 **LINCK** (Gottlob; *Prof. Mineralogy, Jena*) GRUNDRISS der KRISTALLOGRAPHIE, 2. umgearbeitete Auflage; with 3 coloured plates, and 604 illustrations, roy. 8vo. buckram, 6s 6d (p. M. 11 sewn) Jena, 1908
- 17371 **LION** (G.) TRAITÉ ÉLÉMENTAIRE de CRISTALLOGRAPHIE GÉOMÉTRIQUE; with 131 diagrams, roy. 8vo. buckram, t. e. g., 3s 6d (p. F. 5 nett sewn) 1891
- 17372 **MILLER** (William Hallowes, F.R.S., *Prof. Mineralogy, Cantab.*) TRACT ON CRYSTALLOGRAPHY, with diagrams, 8vo. cl., 3s 6d Cambridge, 1863
An enlargement of the author's contributions to Phillips's Mineralogy, with new theorems from the *Philosophical Magazine*, 1857-9.
- 17373 ——— TREATISE ON CRYSTALLOGRAPHY, first edition, with 10 plates, 8vo. hf. cl., uncut (scarce), 6s 6d *ibidem*, 1839
'Miller developed a system of crystallography which was far more simple, symmetrical, and adapted to mathematical calculations than any which has yet been devised. Miller's system was published in 1839; it quickly obtained favour, and has more than maintained its ground with mineralogists.'—*Prof. Bonney, pr., F.R.S.*
'His system gave expressions adapted for working all the problems that a crystal can present, and it gave them in a form that appealed at once to the sense of symmetry and appropriateness of the mathematician . . . He thus placed the keystone into the arch of the science of crystallography.'—*Prof. Story-Maskelyne, F.R.S.*
- 17374 **RUTLEY** (Frank, F.G.S.) THE STUDY OF ROCKS: an Elementary Text-Book of Petrology, 9th Impression, with 90 woodcuts, 12mo. buckram, 2s 6d 1904
- 17375 **SAUER** (Adolf; *Prof. Mineralogy, Stuttgart*) MINERALKUNDE als EINFÜHRUNG in die LEHRE vom STOFF der ERDRINDE: ein Abriss der reinen und angewandten Mineralogie; with 26 beautiful COLOURED PLATES, containing several hundred specimens, and 281 text-illustrations, roy. 4to. handsomely bound in hf. black morocco, cl. sides, t. e. g. (fine copy), 11s (p. M. 13.60 in Stuttgart) [1908]
- 17376 **SCHENCK** (Rudolf; *Prof. Physical Chemistry, Breslau*) KRISTALLINISCHE FLÜSSIGKEITEN und FLÜSSIGE KRISTALLE; with 86 illustrations, 8vo. buckram, 3s Leipzig, 1905

MINERALOGY and CRYSTALLOGRAPHY, continued.—

- 17378 **SCHOENFLIES** (Arthur; *Univ. Königsberg*) KRISTALLSYSTEME und KRISTALLSTRUCTUR; with 73 diagrams, 8vo. handsomely bound in hf. black morocco, cl. sides (nice copy), 8s (p. M. 12 sewn) Leipzig, 1891
- 17379 **SOMMERFELDT** (Ernst; *Prof. Mineralogy, Tübingen*) GEOMETRISCHE KRISTALLOGRAPHIE; with 31 plates and 69 text-illustrations, roy. 8vo. cl., 5s 6d (p. M. 7 sewn) Leipzig, 1906
- 17380 — Die KRISTALLGRUPPEN, nebst ihren Beziehungen zu den Raumgittern; with 14 stereoscopic and 50 other illustrations, 8vo. buckram, 2s 6d Dresden, 1911
- 17381 **STORY-MASKELYNE** (Mervyn Herbert Nevil, F.R.S., *Prof. Mineralogy, Oxon.*) CRYSTALLOGRAPHY: a Treatise on the Morphology of Crystals; with 8 plates and 398 woodcuts, thick post 8vo. cl., 6s 6d (p. 12s 6d) Clarendon Press, Oxford, 1895
- 17382 **TUTTON** (Alfred Edward Howard, F.R.S., *Pres. Mineralogical Soc.*) CRYSTALLOGRAPHY and PRACTICAL CRYSTAL MEASUREMENT, with 720 illustrations, 8vo. (pp. 960), handsomely bound in hf. black morocco, cl. sides, uncut, t. e. g. (as good as new), £1. 2s 6d (p. £1. 10s nett in cl.) 1911
'In this book an endeavour has been made to present at the same time both a guide to practical work in crystallography and all the essential theory on the subject, not only as regards crystal morphology but also with respect to the physical properties of crystals.—*Preface.*
- 17383 — CRYSTALS, with 24 plates (1 coloured), and text-illustrations, cr. 8vo. cl., 2s 6d (p. 5s) 1911
- 17384 **VOIGT** (Woldemar, *Univ. Göttingen*) Die FUNDAMENTALALEN PHYSIKALISCHEN EIGENSCHAFTEN der KRISTALLE in elementarer Darstellung; with 52 illustrations, large post 8vo. cl., 3s 6d (p. M. 5.60) Leipzig, 1898
- 17385 — LEHRBUCH der KRISTALLPHYSIK (mit Ausschluss der Kristalloptik); with 213 illustrations and folding table, thick 8vo. handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 2s 6d (p. M. 30 sewn) *ibidem*, 1910
- 17386 **WILLIAMS** (George Huntington, *Johns Hopkins Univ.*) ELEMENTS OF CRYSTALLOGRAPHY; 3rd Edition, enlarged, with folding plate and 383 illustrations, cr. 8vo. cl., 3s (p. 6s) 1899

METEOROLOGY and PHYSICAL GEOGRAPHY:

see also BIBLIOTHECA REUTERIANA, Part IV, Nos. 686-706.

- 17387 **BÖRNSTEIN** (Richard; *Prof. Meteorology, Berlin*) LEITFADEN der WETTERKUNDE, gemeinverständlich bearbeitet, 2. umgearbeitete Auflage; with 22 charts and maps (mostly coloured and linen-mounted), and 61 text-illustrations, 8vo. buckram, 3s 6d (p. M. 6 sewn) Braunschweig, 1906
- Luke Howard's classification of clouds as used by the above author will now have to be verboten in Germany.
- 17388 **DAVIS** (William Morris, *Harvard Univ.*) ELEMENTARY METEOROLOGY, with 106 illustrations, 8vo. cl., 4s (p. 10s 6d) Boston [Mass.], 1894
- 17389 — Die ERKLÄRENDE BESCHREIBUNG der LANDFORMEN, deutsch bearbeitet von A. RÜHL; with 13 plates and 212 text-illustrations, thick 8vo. hf. black morocco neat, cl. sides, t. e. g. (nice copy), 8s 6d (p. M. 11 sewn) Leipzig, 1912
- 17390 **GÜNTHER** (Siegmond, *Technische Hochschule, München*) HANDBUCH der MATHEMATISCHEN GEOGRAPHIE; with 155 illustrations, large cr. 8vo. (pp. 810), original hf. morocco gilt, 10s 6d (p. M. 18) Stuttgart, 1890
- 17391 **HANN** (Julius; *Univ. Vienna*) LEHRBUCH der METEOROLOGIE; with 8 plates, 111 text-illustrations, and 15 maps (mostly folding and linen-mounted), roy. 8vo. (pp. 819), handsomely bound in hf. crushed black morocco, cl. sides, uncut, t. e. g. (fine copy), 17s 6d (p. M. 30 sewn) Leipzig, 1911

The best modern German work on meteorology.

- 17392 **HILDEBRANDSSON** (H.), Albert RIGGENBACH; *Univ. Basel*, and Léon TEISERENC de BORT: INTERNATIONAL CLOUD-ATLAS, published by Order of the [International Meteorological] Committee (in French, English, and German), with 14 fine coloured plates, impl. 4to. buckram, t. e. g., 8s (p. F. 14 nett sewn) Paris, 1896

Illustrating from nature all the typical combinations of Luke Howard's Cirrus, Cumulus, and Stratus.

- 17393 **KAYSER** (J.) PHYSIK des MEERES; 2. [neueste] Auflage, neubearbeitet von CARL FORCH, mit Beitrag über die leuchtenden Meeresorganismen von PAUL ZENETTI; with 39 illustrations, 8vo. buckram, t. e. g., 5s (p. M. 6.60 sewn) Paderborn, 1911
- 17394 **MOORE** (Willis Luther; *Chief of U.S. Weather Bureau*) DESCRIPTIVE METEOROLOGY, with 45 charts (many coloured), and 81 text-illustrations, sq. roy. 8vo. cl., 8s (p. 12s 6d nett) New York, 1910

A valuable text-book, including the latest researches.

- 17395 **PENCK** (Albrecht; *Prof. Geography, Vienna*) MORPHOLOGIE der ERDOBERFLÄCHE; with 67 illustrations, 2 vols. large post 8vo. in 1, handsomely bound in hf. pigskin, cl. sides, uncut, t. e. g. (fine copy), £1. 1s (p. M. 32 sewn) Stuttgart, 1894
- 17396 **PESCHEL** (Oscar) PHYSISCHE ERDKUNDE, nach hinterlassenen Manuskripten selbständig bearbeitet und herausgegeben von GUSTAV LEIPOLDT, 2. [neueste] vielfach verbesserte Auflage; with 193 illustrations, 2 vols. large 8vo. hf. maroon morocco neat, cl. sides, £1. (p. M. 30 sewn) Leipzig, 1884-5
- 17397 **RUDZKI** (Maurycy Th. P. v.; *Univ. Cracow*) PHYSIK der ERDE; with 5 plates and 60 text-illustrations, large 8vo. hf. black morocco neat, cl. sides, uncut, t. e. g. (as good as new), 10s 6d (p. M. 14 sewn) Leipzig, 1911

For the sake of completeness, such works, translations, or editions in Messrs. Sotheran's Catalogue of Science and Technology, Nos. I and II, as are not contained in the Bibliotheca Chémico-Mathematica, have been added to the Index. They are distinguished by having S and SS prefixed to the numbers.

The numbers within brackets are the running numbers of the catalogue.

- ABACUS: [1413] Frend. 1806. [12780] Ocagne. 1891. [16455] Ocagne. 1899.
- (LOGARITHMIC): [12866] Ott. 1874.
- ABEL'S THEOREM: [6-7. 5611-12] Abel. 1839-81. [5943] Baker. 1897. [14532] Rowe. 1881.
- ABERRATION (ASTRONOMICAL): [1358] Fontaine des Crutes. 1744. [2798] Manfredi. 1729. [5580] Zach. 1812. [10215] Klinkerfues. 1867. [10948] Loewy et Puisieux. 1891. [12760-1] Nyrén. 1883-8. [14367] Robison. 1778. [S1493] Hooke. 1674. [S 2394] Walker. 1900.
- (CHROMATIC)—*v. Achromatism.*
- (SPHERICAL): [8157] Fresnel. 1866-70. [8502] Gompertz. 1824. [10980] Logan. 1739-41. [S 1677-8] Bacon. 1614. [SS 1061] Divini. 1666.
- ABIOTENESIS (CHEMICAL): [6622] Burke. 1906. [10666] Leduc. 1910. [13268] Phipson. 1861. [13327] Pilla. 1817.
- ABSORPTION, LAWS OF: [8926] Harper's Scientific Memoirs. 1901.
- ACCOUNTING: [1591] Gordon. 1763-5. [1828-9] Hayes. 1733-64. [3429-32] Pacioli. 1494-1523. [3434] Pagani. 1591. [3486] Passerini. 1875. [3546] Peri. 1697. [3632] Pietra. 1586. [4720] Taddei. 1839. [4722-3. 4725] Tagliente. 1525-33. [5013] Unicorn. 1598. [5048-9] Venturoli. 1662-6. [5734] Aloardi. 1817. [6007] Barnes. 1877. [6353] Bornaccini. 1838. [7028] Cory. 1840. [7291] Dicksee. 1892. [7982] Flori. 1677. [8268] Garatti. 1686-8. [8378] Ghebelino. 1568. [8545] Graaf. c. 1730. [8589] Grattaroli. 1680. [9013-14] Hatton. 1726-34. [9650] Imhooff. 1786. [9292] Jackson. 1901. [9857] Jones. 1796. [10515] La Porte. 1799. [10613] Lawn. 1904. [11304] Mainardi. 1646. [11342] Manelli. 1659. [11994] Mondini. 1894. [12912-14] Pacioli. 1494-1523. [13020] Pathway of Knowledge. 1596. [13174] Petri. 1591. [14754] Schuere Meenenær. 1643. [15494] Webster. 1752. [S 3878] Tap. c. 1620. [SS791] Rocha de Geroná. 1564-5.
- , HISTORY OF: [612] Brown. 1905.
- ACCUMULATORS (ELECTRICAL): [4196] Salomons. 1893. [5278] Webb. 1862. [7326] Dolezalek. 1904. [9470] Hospitalier. *v. y.* [11142] Lyndon. 1903. [12186] Morse. 1911. [13388-90] Planté. 1879-83.
- ACETYLENE: [2578] Lewes. 1899. [9476] Hospitalier. *v. y.* [10673] Leeds and Butterfield. 1910. [14122] Reuter. 1892. [S 3076] Lewes. 1900. [SS 3271] Jahrbuch für Acetylen und Carbíd. 1900-2.
- *v. Calcium Carbide.*
- ACHROMATITE: [11314] Mallet. 1875.
- ACHROMATISM: [1073] Dollond. 1834. [1655] Gregory. 1735. [7333-4] Dollond. 1762-1808. [8656] Gregory. 1713. [8725] Grunert. 1846-51. [13564-5] Powell. 1834-5. [14712] Scherffer. 1764. [S 1949] Gregory. 1715. [SS 1661] Euler. 1762. [SS 1664] Euler. 1750. [SS 1739] Gregory. 1695. [SS 2060] Scherffer. 1762.
- ACIDS: [531] Boyle. 1676. [2304] Kirwan. 1787. [3796] Priestley. 1788. [10199. 10202] Kirwan. 1787-9. [10589] Lavoisier. 1783. [12789] Odling. 1860. [14188] Richards. 1898. [14223] Richardson. 1863-7. [SS 1583-4] Boyle. 1675.
- ACOUSTIC FIGURES: [786] Chladni. 1787. [1288] Faraday. 1859. [6872] Chladni. 1787. [7769] Faraday. 1859.
- INSTRUMENTS—*v. Ear Trumpet. Megaphone. Musical I. Phonograph. Speaking Trumpet. Speaking Tube. Telephone. Tuning Fork.*
- PROBLEMS: [9031] Hautefeuille. 1788. [13945] Rayleigh. 1884.
- ACOUSTICS (ELEMENTARY): [54] Airy. 1868. [292] Basset. 1888. [2932] Mayer. 1879-81. [3868] Radau. 1867. [5698] Airy. 1871. [6041] Basset. 1890. [11872] Millikan and Mills. 1908. [16924] Airy. 1871. [16930] Anglas. 1910. [16943] Basset. 1900. [17033] Franklin and Macnutt. 1909.
- (EXPERIMENTAL): [785-6. 6871-2] Chladni. 1787-1802. [S 1800] Chladni. 1817. [SS 1613. 1616-17] Chladni. 1809-21.
- *v. Flames (Singing).*
- (GENERAL): [723] Catchpool. 1900. [1075] Donkin. 1870. [5005-8] Tyndall. 1867-8. [7328] Donkin. 1870. [9220. 9231. 9237] Herschel. 1830. [13472] Poisson. 1808. [13587-8] Poynting and Thomson. 1899-1909. [15403] Vielle. 1886. [17009] Donkin. 1870. [17021] Everett. 1882. [17097] Klimpert. 1904-7. [17190] Poynting and Thomson. 1907. [S 1687] Barton. 1908.
- *v. Music. Sound.*
- (HYPER-): [S 1858] Dunk. 1916.
- (PHYSIOLOGICAL): [1853] Helmholtz. 1885. [5186-7] Wallis. 1674-1727. [9111-12] Helmholtz. 1870-5. [9720] Jago. 1856. [17069] Helmholtz. 1896. [SS 1953] Ott. 1670-1.
- (POPULAR): [11665] Mayer. 1879. [17210] Riemann. 1896.
- (THEORETICAL): [13951] Rayleigh. 1877-8. [17094] Kalähne. 1910-13. [17200] Rayleigh. 1894-6. [17221] Schaik. 1902. [S 2058] Lamb. 1910.
- *v. Sound. Vibration of Rods.*
- , EARLY WORKS ON: [2300-1] Kircher 1650-73. [11782] Mersenne. 1644-7. [14742] Schott. 1657.
- ACTING RAYS: [4231*] Schaeberle. 1893. [6087] Becquerel. 1840. [8110] Frankland. 1853. [9211] Herschel. 1840. [14444. 14447] Roscoe. 1860-74. [14817] Senebier. 1783. [SS 2811] Melloni. 1839-40.
- ACTION (LEAST), PRINCIPLE OF—*v. Least A.*
- AT A DISTANCE: [3256] Newton. 1713. [7352] Dove. 1845. [12442] Neumann. 1896. [12503-5] Newton. 1713. [12842] Ostwald. 1891. [SS 1485-6] Aepinus. 1759.

- ADDRESSES TO LEARNED SOCIETIES: [1881] Herschel. 1827. [4971-2] Tyndall. 1868-74. [7204] Davy. 1827. [11109] Lyell. 1864. [11300] Main. 1875. [13061] Pedler. 1896. [13428] Playfair. 1885. [13610] Preece. 1898. [13949] Rayleigh. 1884. [13974] Reddie. 1867. [14333] Roberts-Austin. 1900. [14846] Siemens (C. W.). 1869. [14855] Siemens (E. W.). 1892.
- ÆOLIAN HARP: [2300, 10168] Kircher. 1650.
- AERATION: [1739] Hales. 1756.
— *v. 'Soda' Water.*
- AERIAL NAVIGATION: [2394] La Landelle. 1863. [5154] Walker. 1902. [11958] Moederbeck. 1895. [13178] Pettigrew. 1874. [15429-30] Walker. 1902-10. [S 3784] Maxim. 1908. [S 3789] Moederbeck, etc. 1907. [S 3836] Zahm. 1911.
— *v. Ballooning.*
—, HISTORY OF: [5033] Valentine. 1902. [8026] Fonvielle. 1910.
- AERODYNAMICS: [5914] Baden-Powell. 1909. [9471] Hospitalier. *v. y.* [10459] Lanchester. 1907. [15631] Eiffel. 1914. [S 3752] Greenhill. 1912.
— *v. Birdflight. Pneumatics.*
- AEROLITES—*v. Meteors.*
- AEROMETRY: [5457] Wolf. 1709.
- AEROPLANES: [2394] La Landelle. 1863. [5914] Baden-Powell. 1909. [9280] Hildebrandt. 1908. [9524] Hubbard, etc. 1911. [9756] Jane. 1909. [12413] Neilson. 1910. [13173] Petit. 1911. [S 3733] Duchêne. 1910. [S 3763-4] Lanchester. 1915-16.
- AEROSTATION: [2421] Lana. 1670. [4670] Sturm. 1685-1701. [5413-18] Wilkins. 1648-91. [5505-6] Worcester. 1663-1825. [6792] Cavallo. 1803. [10457] Lana. 1670. [10741] Leslie. 1815 [14747-9] Schott. 1664-87. [15161-3] Sturm. 1676-85. [15555-63] Wilkins. 1640-91. [SS 142] Schwenter and Harzdorffer. 1636-92.
— *v. Ballooning. Parachute.*
- AFFINITY (CHEMICAL): [339-40] Bergman. 1785. [364-7] Berthollet. 1803-4. [2860] Martin. 1905. [2936-7] Mayow. 1674-81. [3402] Ostwald. 1896-1902. [6163] Berthollet. 1804. [7509] Eliot. 1782. [8824] Hall. 1888. [9840] Johnston, etc. 1906. [11512] Martin. 1905. [11697] Mayow. 1907. [11758] Menschutkin. 1890. [12848] Ostwald. 1911. [13632-3] Prévost. 1818. [14001-3] Reichenbach. 1850-1. [14726] Schnaubert. 1803. [15506] Wenzel. 1782. [S 2624] Bergman. 1788. [SS 2480] Demachy. 1774. [SS 2627] Swedenborg. 1847.
- AIR (COMPRESSED): [865] Copperthwaite. 1905. [9921] Joule. 1845. [14173] Richards. 1898.
— *v. Compressed Air Locomotive.*
— (LIQUID): [6929] Claude. 1903. [9325] Hiscox. 1902. [12758] Norwicki and Mayer. 1906.
—, EXPERIMENTS ON: [537-44, 548] Boyle. 1660-84. [3797] Priestley. 1785. [6418, 6424-5, 6429] Boyle. 1662-92. [9161] Henshaw. 1677. [10589] Lavoisier. 1783. [14698-9] Scheele. 1780-5. [14743] Schott. 1657. [SS 1768] Hauksbee, c. 1735. [SS 2443] Boyle. 1673. [SS 2617] Scheele. 1781.
— *v. Pneumatics.*
—, IMPURITIES OF: [4975] Tyndall. 1881. [7524] Ellis. 1807-11. [14598] Russell. 1885. [14948, 14950] Smith. 1852-9.
—, PROPERTIES OF: [8302] Gaudio. 1735. [S 2684] Cavallo. 1781. [SS 2369] Tagliani. 1736.
— *v. Gases, Physical P. of. Pneumatics.*
—, RESISTANCE OF: [338] Benzenberg. 1804. [9317] Hirn. 1882. [15631] Eiffel. 1914.
- AIR, TENSION OF: [14029] Renard et Guye. 1907.
— ANALYSIS: [5193] Wanklyn and Cooper. 1890. [6575] Buchan. 1891. [8079] Fox. 1878. [8100] Frankland. c. 1860. [14172] Richards and Woodman. 1900.
— *v. Eudiometry.*
— CURRENTS: [1988-92] Hopkins. 1852-4. [2189] Jordan. 1877-8. [2916] Maury. 1851. [6496] Brillouin. 1900. [8097] Frankenfeld. 1899.
— *v. Winds, Theory of.*
— PUMP: [537-44] Boyle. 1660-84. [1698-9] Guericke. 1672. [3166] Musschenbroek. 1739. [4273] Schott. 1657. [4331] Senguerd. 1685. [4427] Smeaton. 1814. [4670] Sturm. 1685-1701. [6424-5] Boyle. 1662-9. [6522] Brook. 1789. [7239-40] Desaguliers. 1717. [8730] Guericke. 1672. [9430] Hooke. 1678. [11470] Martin. 1766. [14743] Schott. 1657. [14916] Smeaton. 1814. [15161-3] Sturm. 1676-85. [SS 1642] Desaguliers. 1719. [SS 1965] Papin. 1687.
— (MERCURIAL): [4813] Thompson. 1888.
- ALBUMEN AND ALBUMINOIDS: [4287-8] Schulz. 1901-3. [6870] Chittenden. 1882. [6979] Cohnheim. 1904. [10837] Liebig. 1847. [14478] Rosenberg. 1883. [S 2619] Béchamp. 1884.
— *v. Proteids.*
- ALCHEMY: [219] Bacon (R.). 1620. [287-8] Basilus Valentinus. 1676-1700. [858] Comtes. 1678. [1333] Figuier. 1856. [1556-65, 1569] Glauber. 1651-67. [1685] Grosman. 1766. [2298-9] Kircher. 1665-78. [2636] Linojo de St. Didier. 1723. [3450-3] Paracelsus. 1581-1894. [4098] Rothweiler. 1665. [4179] Sala. 1622. [4328-9] Sendivogius. 1650-71. [4806] Thibaut. 1672. [5035] Valerius de Valerius. 1589. [5067] Vigenère. 1618. [5146] Waite. 1888. [5286] Webster. 1671. [5317] Welling. 1784. [5439] Wilson. 1721. [6031-4] Basilus Valentinus. 1646-1893. [6082] Becher. 1755. [6148] Bernard de Trèves. 1624. [6265] Blancard. 1700. [6314] Boni. 1602. [6408-9] Boyle. 1682. [6989] Collectanea Chemica. 1893. [7273] Dewar. 1884. [7591] Erbe. 1737. [7737] Fabre. 1645. [8466-7, 8469] Glauber. 1651-94. [9105-6] Helmont. 1685. [9398] Hollandus. 1773 [9654] Ingegneri. 1606. [9951] Jugel. 1766. [10165-7] Kircher. 1665-78. [10274] Kopp. 1886. [10857-8] Linojo de St. Didier. 1699-1723. [11086-7] Luilius. 1567-73. [12253] Muir. 1894. [12759] Nuisement. 1620-1. [12839] Osten. 1771. [12940-3] Paracelsus. 1650-1894. [13517-24] Porta. 1558-1658. [14504] Rothscholz. 1727-8. [14814-16] Sendivogius. 1639-82. [15396] Vigenère. 1642. [15497] Wedel. 1706. [15578] Wilson. 1709. [S 2612] Barchusen. 1718. [SS 2409-10] Albineus. 1653-73. [SS 2431] Birelli. 1601. [SS 2432] Birrius. 1668. [SS 2437] Eirenaus Philaethes. 1694. [SS 2489] Fabre. 1632. [SS 2500] Figulus. 1893. [SS 2543] Johnson. 1657. [SS 2545] Kelly. 1893. [SS 2553] La Fontaine. 1618. [SS 2566] Libavius. 1613-15. [SS 2612] Rosierucians. *Saec. XVIII.* [SS 2615-6] Salmon. 1695-1741. [SS 2629-30] Theatrum Chemicum. 1613-61. [SS 2634] Tractatus. 1647.
- ALCOHOL—*v. Distilling.*
— (SYNTHETIC): [1865, 9140] Hennell. 1828. [10832] Lieben. 1867-9. [14137] Reynolds. 1873.
—, ACTION OF ELECTRICITY ON: [7002] Connell. 1835.
— RADICALS—*v. Alkyl.*

ALCOHOLOMETRY : [6054] Baumhauer en van Moorsel. 1861. [6256] Blagden. 1790-2.
— v. *Excise Tables*.

ALGEBRA (DOUBLE) : [3095] Morgan. 1849. [9064] Hayward. 1892. [12131] Morgan. 1849. [16115] Hayward. 1892. [16407] Morgan. 1849.

— (ELEMENTARY) : [491] Boucharlat. 1804. [561] Branker. 1668. [582] Bridge. 1838. [676] Capel. 1887. [787] Choquet. 1849. [797] Clairaut. 1768. [842] Colenso. 1859-66. [956] Davies. 1860. [1100] Dubourguet. 1802. [1924-5] Hind. 1839-41. [2127] Jamieson. 1830. [2233] Kelland. 1839. [2353-4] Lacroix. 1836-71. [3731] Potts. 1879. [5169] Wallace. 1828. [5557] Young. 1844. [5746] Amiot. 1872. [6365] Bossut. 1808-9. [6382-9] Bourdon. 1828. [7564] Emerson. 1764. [7826] Fennell. 1831. [8543] Gorse. 1907. [8590] Gravesande. 1752. [8711] Gross. 1884. [10133] Kinckhuysen. 1661. [10372] Lacroix. 1849. [10517] Lardner. 1827. [10565] Laurentberg. 1643. [10670] Lees. 1826. [10677] Lefébure de Fourcy. 1850. [13020] Pathway of Knowledge. 1596. [13041] Peano. 1902. [15381] Venema. 1794. [15456] Ward. 1698. [15679] André. s. d. [15883-5] Combette. 1896-1901. [15926-7] Desboves. 1892. [16031-2] G.-M. 1907-9. [16054] Girod. s. d. [16079] Gross. 1874. [16093] Hall and Knight. 1902-3. [16251] Lacroix. 1863. [16327] Lübsen. 1906. [16427] Netto. 1904. [16462] Papelier. s. d. [16742-3] Vacquant et Macé. s. d.

— (GENERAL) : [373] Bertrand. 1866-7. [460] Bombelli. 1572. [587] Briggs. 1898. [594] Briot et Goursat. 1896. [684] Cardano. 1545. [912] Crousz. 1726. [1062-3] Diophantus. 1621-70. [1541] Girard. 1884. [2758-60] Maclaurin. 1748-96. [3504-6] Peacock. 1830-45 [3913] Recorde. 1557. [3966] Renaldini. 1655. [4403-5] Simpson. 1745-82. [4605] Stifel. 1554. [4875-6] Todhunter. 1866-85. [5099-5100] Visconti 1581. [5189-90] Wallis. 1685. [5285] Weber. 1895-6. [5710] Aldis. 1887. [6309] Bombelli. 1579. [6325] Bonycastle. 1820. [6454] Brasser. 1663. [6766] Cataldi. 1618. [6880-2] Chrystal. 1886-1906. [7300-2] Diophantus. 1621-70. [7926] Fischer and Schwart. 1898. [11224-30] Maclaurin. 1748-96. [12912-14] Pacioli. 1494-1523. [13080] Peletier. 1560. [13174] Petri. 1591. [14028] Renaldini. 1655. [14421] Ronayne. 1727. [14881-2] Simpson. 1755-67. [15453] Wallis. 1685. [15735-7] Bertrand and Garcet. 1873-1904. [15869-70] Chrystal. 1898-1910. [16272] Laurent. 1895-7. [16287] Lefébure de Fourcy. 1893. [16316] Longchamps. 1889-93. [16444-6] Niewen-głowski. 1897-1908. [16506] Pund. 1899. [16604] Schröder. 1873. [16651] Smith. 1889-1900. [16726] Todhunter. 1889-94. [16765-6] Weber. 1898-1912. [16771] Weitzel. 1910. [S 529] Cardano. 1570. [S 1203] Smith. 1893. [SS 802] Salignac. 1580.

— (GEOMETRICAL) : [16180] Jacquier. 1888.
— v. *Geometry (Algebraic)*.

— (HIGHER) : [4184-5] Salmon. 1859-76. [4337] Serret. 1866. [7518] Elliot. 1880. [8813-4] Hall. 1894-6. [14644-5] Salmon. 1859-85. [14821-3] Serret. 1854-79. [15667] Amigues. 1890. [15750-1] Bôcher. 1907-12. [15839] Carnoy. 1900. [15880] Comberousse. 1887-1904. [15948] Dronke. 1872. [16095-6] Hall and Knight. 1889-96. [16177] Jablonski. 1888-91. [16341-3] Macé de Lépinay. 1898. [16431] Neuberg. 1907-9. [16550] Salmon. 1885. [16636-7] Serret. 1866-85. [16705] Tannery. 1895.

— (HINDU) : [4633] Strachey. 1813. [S 588] Colebrooke. 1817.

ALGEBRA (INDUCTIVE) : [4524] Sparkes. 1881.

— (NEW) : [15716] Barnard and Child. 1909-10.

— (SYMBOLIC)—v. *Mathematical Symbols*.

— (UNIVERSAL) : [16781] Whitehead. 1898.

—, ELEMENTS AND PRINCIPLES OF : [505] Bourdon. 1834. [1247-50] Euler. 1774-1828. [1412] Frend. 1796. [2371] Lagny. 1697. [3080] Morgan. 1835-7. [3184] Napier. 1839. [3236-9] Newton. 1707-69. [3381] Olney. 1885. [4210. 4213] Saunderson. 1740-92. [6488] Bridge. 1831-6. [6883-4] Chrystal. 1898-1905. [6984-5] Colenso. 1849-52. [7682-5] Euler. 1774-1840. [8871] Hammond. 1764. [12102-3] Morgan. 1835-7. [12554-63] Newton. 1707-69. [12861. 12863] Oughtred. 1667-94. [12887] Ozanam. 1702. [14670. 14674] Saunderson. 1740-71. [15871] Chrystal. 1905. [S 845] Kersey. 1673-4.

—, HISTORY OF : [7032] Cossali. 1797-9. [8871] Hammond. 1764. [15453] Wallis. 1685. [15997] Fine. 1907.

—, LECTURES ON : [15719] Bauer. 1910. [15788-9] Briot. 1891-7. [15800] Briot et Goursat. s. d. [16430] Netto. 1896-1900. [16504] Pruvost et Pieron. 1898.

—, LOGIC OF : [15919] Davis. 1894.

—, NUMBER SYSTEM OF : [15997] Fine. 1907.

—, PROBLEMS AND EXERCISES : [432-3] Bland. 1841-9. [1939] Hirsch. 1827. [4021] Ritt. 1856. [4444] Smith. 1890. [10619] Lea. 1807. [15926-7] Desboves. 1892. [16034] G.-M. 1901-8. [16118-19] Heis. 1886-1905. [16141-2] Hirsch. 1890-2. [16368] Maupin. 1895. [16441] Nunn. 1913-14. [16528] Ritt. 1856.

—, SYLLABUS OF : [3510] Pearson. 1834.

—, TEACHING OF : [16442] Nunn. 1914.

— AND GEOMETRY COMPARED : [1166] Ellis. 1874. [7049] Cournot. 1847. [7522] Ellis. 1874.

ALGEBRAIC DEVELOPMENT : [2132] Jarrett. 1831.

ALKALIS : [531] Boyle. 1676. [2286] Kingzett. 1877. [6248] Black. 1777. [8906] Hare. 1840. [9885] Jones 1902. [10150] Kingzett. 1877. [11099] Lunge and Hurter. 1891. [11980] Moissan. 1905. [14223] Richardson and Watts. 1863-7. [15542] Wiegleb. 1781. [15620] Edinburgh Essays. 1770-1. [SS 1583-4] Boyle. 1675.

— v. *Chloride Process. Soda Industry*.

ALKALOIDS : [1697] Guareschi. 1896. [2292] Kippenberger. 1895. [4259] Schmidt. 1900. [8549] Graham. 1848. [8729] Guareschi. 1896. [9505] How. 1854. [9933-43] Jowett. 1897-1905. [14582] Runge. 1820. [15568] Winterstein und Trier. 1910.

— v. *Caffeine. Comine, Mudarine. Pomaine. Pyridine. Quinine*.

ALKYL : [8103] Frankland. 1877. [11758-9] Menschutkin. 1890-5. [14613] Sabatier et Senderens. 1905.

ALLOTHANE : [12732] Northcote. 1857.

ALLOTROPISM : [7789] Faraday. 1853.

ALLOYS—v. *Metallic Alloys*.

ALLUVIUM : [5545] Yates. 1831.

ALMANACS : [3077] Morgan. 1907. [8086] Franceur. 1830. [12089. 12099] Morgan. 1845-71. [12155-6] Morland. 1673.

— v. *Calendar. Chronology. Ephemerides*.

ALTITUDE AND AZIMUTH TABLES : [438] Block. 1875. [S 3715] Ball. 1907.

ALUM : [4516] Sorel. 1902. [11419] Marggraf. 1767-8.

- ALUMINIUM: [14176-7] Richards. 1887-96. [14438] Roscoe. 1889.
— *v. Cryolite. Mica.*
- AMALGAMATION PROCESSES: [5108] Vivian. 1825. [6339-42] Born. 1786-91. [14202] Richards. 1906.
- AMIDO-COMPOUNDS AND AMINES: [11758-9] Menschutkin. 1890-5. [13749] Przyłuska. 1909. [14542] Rowney. 1855.
- AMMONIA AND ITS COMPOUNDS: [163] Arnold. 1889. [3790-1] Priestley. 1774-7. [5092] Vincent. 1884. [5704] Alberti. 1780. [5836] Arnold. 1889. [6521] Bronn. 1905. [8717] Grossmann. 1906. [9006] Hatchett. 1796. [9160] Henry. 1809. [9989] Kane. 1839. [11095] Lunge. 1887. [12666] Nicol. 1882. [13261] Phipson. c. 1863. [14475] Rose. 1834. [SS 2804] Lunge. 1900.
— *v. Sal Ammoniac. Saltpetre.*
- AMYL: [8114] Frankland. c. 1851. [11712] Medlock. n. d.
- ANALYSER: [5690] Airy. 1832.
— *v. Polariscope.*
- ANALYSIS (CHEMICAL)—*v. Chemical Analysis.*
— (COMBINATORY): [3316] Nicholson. 1818. [9300] Hindenburg. 1796. [11806] Meyer. 1838. [16429] Netto. 1901. [16667] Spehr. 1840. [S 1081] Pfaff. 1797. [SS 626] Macmahon. 1916.
— *v. Combinations and Permutations.*
— (DIOPHANTINE): [6998] Collins. 1858.
— (FACTORY): [4754-5] Tate. 1845.
— (INDETERMINATE): [4239] Scheffler. 1854. [16278] Le Besgue. 1859. [SS 273] Cataldi. 1618.
— (MATHEMATICAL): [859] Condorcet. 1768. [1140] Eekhardt. 1833. [1254] Euler. 1797. [2186] Jordan. 1882-3. [2370] Lagny. 1733. [2486] Laurent. 1885-91. [3964-5] Renalini. 1665. [4551] Stainville. 1815. [5090] Vilant. 1798. [5225] Waring. 1762-85. [6179] Bertrand. 1867. [6774] Cauchy. 1821. [7384] Duhamel. 1847. [7689-94. 7700] Euler. 1748-97. [9894] Jones. 1706. [9903] Jordan. 1887. [10693] Lehmus. 1838-42. [11764] Meray. 1894-7. [12408] Navier. 1840. [15390. 15394] Viète. 1591-1646. [15655] Villié. 1885-98. [15664-5] Adhémar. 1908-13. [15687] Appell. 1905. [15848] Catalan. 1870. [15853] Cesàro. 1904. [15899] Crefecur. 1902-8. [15925] Demartres. 1892-6. [16065-6] Goursat. 1902-11. [16191] Jordan. 1893-6. [16329] Lübsen. 1902. [16370] Meray. 1894-8. [16462] Papelier. *s. d.* [16465] Pasch. 1909. [16483] Picard. 1893-1901. [16580-3] Schlämilch. 1879-95. [16616] Schubert. 1902. [16694-6] Sturm. 1873-1909. [16783] Whittaker. 1902. [SS 950-3] Waring. 1762-85.
— *v. Mathematics (Higher).*
— : PROBLEMS AND EXERCISES: [724] Cauchy. 1840-7. [1071] Dodson. 1748. [5076] Villié. 1885-90. [7332] Dobson. 1748-55. [10693] Lehmus. 1838-42. [11764] Meray. 1894-7. [15694-5] Aubert et Papelier. 1908-10. [15982] Fabry. 1913. [16273] Laurent. 1885-91. [16587-9] Schlämilch. 1882-1904.
— , THEORIES OF: [S 450] Baire. 1907-8.
— (PRACTICAL [MATHEMATICAL]): [16559] Sanden. 1914.
— (RESIDUAL): [2423] Landen. 1758-64.
— *v. Functions (Analytic).*
— SITUS: [2644] Listing. 1848. [10695] Leibniz. 1768. [10888] Listing. 1848. [14241] Riemann. 1876. [16307] Listing. 1848.
— *v. Knots, Theory of.*
- ANALYTICAL THEOREMS: [10061] Kelvin. 1845. [11182] Macfarlane. 1893.
- ANALYTICAL AND GEOMETRICAL METHODS COMPARED: [5488] Woodhouse. 1802.
- ANAMORPHOSES (OPTICAL): [14740-1] Schott. 1657-9.
- ANCHOR: [13106] Pering. 1819.
- ANEMOMETERS: [3492] Pastorelli. c. 1875. [5457] Wolf. 1709. [6126] Bennet. 1792. [12483] Newman. 1840. [14360-1] Robinson. 1850-80. [15522] Whewell. 1837.
- ANGLES (CONTIGUOUS): [10727] Léotaud. 1663. [15453] Wallis. 1685. [SS 926] Viviani. 1674.
- ANGULAR SECTIONS, ANALYSIS OF: [S 3866] Poinset. 1825.
- ANILINE AND ITS DERIVATIVES: [9376] Hofmann. 1862. [12649] Nicholson. 1847. [13504-5] Pope. 1892-5. [14011] Riemann. 1868. [14413] Romburgh. 1900. [S 3018] Crace-Calvert. 1878.
— *v. Rosolic Acid.*
- ANNUITIES—*v. Interest Tables. Mathematical Tables. Mathematics (Insurance).*
- ANTHRACENE: [5875] Auerbach. 1877. [SS 2412] Auerbach. 1880.
- ANTIMONY AND ITS COMPOUNDS: [288. 6031-3] Basilius Valentinus. 1646-1893. [8369] Gesner. 1599. [11052] Löwig. 1850. [13047] Pearson. 1791.
- APOLLONIAN PROBLEM: [15897] Cranz. 1890.
- APPROXIMATION, METHODS OF: [15743] Biermann. 1905. [16395] Minkowski. 1907. [16746] Vahlen. 1911. [16806] Xavier. 1909.
- ARCHES AND VAULTS: [2048] Hutton. 1801. [8077] Fox. 1881. [8764-5] Gwilt. 1811-26. [9065] Heaford. 1883. [9606] Hutton. 1772. [10448] Lamé et Clapeyron. 1823. [11295] Maillard. 1817. [14279-80] Ritter. 1879-86. [14792] Seaward. 1824.
- ARGAND BURNER: [14724] Schmidt. 1810.
- ARGON: [3137] Mugdan. 1896. [13952] Rayleigh and Ramsay. 1895. [14802] Sedgwick. 1896.
- ARITHMETIC ('AUTOMATIC'): [4227] Sawyer. 1878.
— (COMMERCIAL): [274] Barrème. 1740. [286] Bartjens. 1683. [476] Borgo. 1509. [866] Corachan. 1719. [1828-9] Hayes. 1733-64. [2108] Jackson. 1899. [2596] Leybourn. 1685. [3989] Ricci. 1659. [4208] Sarava. 1561. [4724-5] Taglienti. 1527-70. [4744-5] Tartaglia. 1556-93. [5013] Unicorn. 1598. [5600] Zuchetta. 1600. [5771] Angeli. 1776. [6528] Brooks. 1832. [6699] Campolini. 1700. [6705] Cantone. 1599. [6728] Carey. 1818. [8546] Graaf. 1661. [8701] Griminelli. 1670. [9013-14] Hatton. 1726-34. [10463-4] Lando. 1604-40. [10817-19] Leybourn. 1693-1772. [13116] Peri. 1672-3. [13478] Pollastri. c. 1785. [13596] Pratica. *s. a.* [13963-9] Recorde. 1605-68. [14811] Selden. 1694. [SS 488-9] Hatton. 1712-26.
— (DUAL): [6650. 6654] Byrne. 1863-7.
— (ELEMENTARY): [114] Annet. c. 1750. [185] Ayres. 1730. [274] Barrème. 1740. [987] Deidier. 1839. [1543] Girdlestone. 1892. [1928-9] Hind. 1842-5. [2462] Lardner. 1836. [2766] Macmillan. 1811. [3081-4] Morgan. 1830-46. [3732] Potts. 1876. [4203] Sang. 1856. [4341] Serret. 1852. [4491] Soave. 1796-7. [5166] Walkingame. 1781. [5333] Weston. 1736. [5656] Adhémar. 1834. [6383] Bourdon. 1838. [6529] Brook-Smith. 1877-82. [6965-7] Cocker. 1712-67. [7084] Crivelli. 1728. [7242] Denza. 1871. [7299] Dilworth. 1773. [7335] Donn. 1769. [7924-5] Fisher. 1748-84. [10483] Langley. 1895. [10535] Lardner. 1834. [10670] Lees. 1826. [11424] Mariani. 1876. [12104] Morgan. 1850-6. [12984] Parsons and Wastell. 1703. [15490] Webster. 1740. [15546] Wilkens. 1719. [16327] Lübsen. 1906.
— *v. Ready Reckoner.*

ARITHMETIC (GENERAL): [2786] Malcolm. 1730. [7545] Emerson. 1763. [9283-5] Hill. 1721-61. [10171] Kirkby. 1735. [11313] Malcolm. 1730. [11487-8] Martin. 1735. [13038-9] Peacock. 1826. [13041] Peano. 1902. [15107] Stolz. 1885-6. [15202] Tannery. 1894. [15988] Färber. 1911. [16604] Schröder. 1873. [16620-1] Schurig. 1883-5. [16668-9] Spitz. 1873-82. [16673] Staudacher. 1890-1. [16688] Stolz. 1885-6. [16771] Weitzel. 1910.

— (HIGHER)—*v. Numbers, Theory of.*

— (PRACTICAL): [1634] Gray. 1864-5. [2948] Merrifield. 1872. [3446] Panizza. 1894. [4533-4] Spinucci. 1778. [6936-9] Clavius. 1585-1613. [7765] Fantucci. 1749. [8032] Forestani. 1682. [8268] Garatti. 1686-8. [8795] Halbert. 1789. [9047-50] Hawney. 1730-75. [11075] Lugo. 1754. [11523] Martino. 1786. [12048] Mora. 1786.

— *v. Mercantile Tables. Ready Reckoner.*

—, BIBLIOGRAPHY OF: [3075-6] Morgan. 1847.

—, EARLY WORKS ON (TO 1700): [151] Archimedes 1784. [476] Borgo. 1509. [686] Cardano. 1539. [732] Catani. 1546. [791] Ciacchi. 1675. [815] Clavius. 1671. [831-3] Cocker. 1688-1713. [1054] Digges. 1579. [1502] Gemma Frisius. 1567. [1515-17] Ghaligai. 1548-52. [1808] Hatton. 1699. [2005] Hostus. 1582. [2371] Lagny. 1697. [2516] Lefevre. 1536. [2585-6] Leybourn. 1660-1700. [2894] Mather. 1695. [3066] Moore. 1660. [3397] Ortega. 1552. [3408] Oughtred. 1652. [3429-32] Pacioli. 1494-1523. [3434] Pagani. 1591. [3459] Paris da Montefano. 1622. [3562] Puerbach. 1534. [3566] Peverone. 1558. [3872] Raeymaker. 1634. [3886-8] Ramus. 1565-99. [3912] Recorde. 1648. [4124] Rudimenta. 1688. [4249] Scheubelius. 1545. [4351-4] Sfortunati. 1534-68. [4677] Suevus. 1593. [4716] Tacquet. 1665. [4724] Tagliente. 1570. [4744-5] Tartaglia. 1556-93. [4939] Trenchant. 1618. [4951] Tunstall. 1538. [5013] Unicorno. 1598. [5048-9] Venturoli. 1662-8. [5051] Veronese. 1626. [5052] Venusti. 1561. [5099-5100] Visconti. 1581. [5449] Wingate. 1694. [5600] Zuchetta. 1600. [5820] Archimedes. 1676. [6035-7] Bassi. 1645-1765. [6207-8] Beveridge. 1669-1705. [6279-81] Blundeville. 1597-1636. [6292-5] Boethius. 1488-1546. [6344-51] Borgo. 1484-1517. [6673] Calandrelli. 1518. [6705] Cantone. 1599. [6720] Cardano. 1539. [6725] Care. 1688. [6767] Cataldi. 1602-17. [6771] Catani. 1546. [6892] Ciacchi. 1675. [6936-9] Clavius. 1585-1613. [6965-7] Cocker. 1712-67. [7736] Faber. 1507. [7887-90] Figattelli. 1664-99. [8032] Forestani. 1682. [8268] Garatti. 1686-8. [8299] Gattici. 1613. [8334] Gemma. 1567. [8376-7] Ghaligai. 1552. [8378] Ghebelino. 1568. [8545] Graaf. 1661. [8701] Griminelli. 1670. [9011] Hatton. 1699. [9348] Hodder. 1681. [9820] Johnson. 1655. [10463-4] Lando. 1604-40. [10496-7] Lapazzaja. 1566-9. [10565] Lauremberg (J. W.). 1643. [10569] Lauremberg (P.). 1636. [10630-9] Laziosi. 1518-1629. [10724-6] Leonardo Pisano. 1854-62. [10803] Leybourn. 1678. [11028] Lossius. 1595. [11342] Manelli. 1659. [11380] Manzoni. 1553. [11552] Masterston. 1592-4. [11646] Maurolico. 1575. [11801] Metius. 1611. [12861. 12863] Oughtred. 1667-94. [12912-14] Pacioli. 1494-1523. [13020] Pathway of Knowledge. 1596. [13116] Peri. 1672-3. [13174] Petri. 1591. [13886] Ramus. 1599. [13963-9] Recorde. 1605-68. [14026] Reisch. 1512. [14250] Riese. 1605. [14660] San Giovanni. 1686. [14754] Schuere Meenenaer. 1643. [14811] Selden. 1694.

ARITHMETIC, EARLY WORKS ON (TO 1700), *continued*: [14833] Sfortunati. 1534. [15081] Stevinus. 1625. [15084] Stifel. 1544. [15093] Stockman. 1648. [15194-5] Tacquet. 1665-80. [15213] Taylor. 1816. [15371] Valla. 1611. [15589-95] Wingate. 1652-1760. [S 480] Boetius. 1867. [S 514] Bronkhorst. 1539. [S 588] Colebrooke. 1817. [S 642] Diophantus. 1890. [S 3878-9] Tapp. c. 1620-58. [SS 177-80] Baker. 1591-1659. [SS 265] Cardinael. 1674-8. [SS 297] Chauvet. 1640. [SS 316-26] Cocker. 1697-1767. [SS 328] Coets. 1698. [SS 347] Dansie. 1627. [SS431] Forestani. 1603. [SS 562] Lantz. 1621. [SS 577] Le Gendre. 1682. [SS 587] Leybourn. 1657. [SS 791] Rocha de Gerona. 1564-5. [SS 802] Salignac. 1580. [SS 906] Tunstall. 1529.

— *v. Mercantile Tables. Ready Reckoner.*

—, HISTORY OF: [2566-8] Leslie. 1817-20. [3732] Potts. 1876. [8834. 8839] Halliwell-Phillipps. 1839. [12085-6. 12119] Morgan. 1847-50. [13038-9] Peacock. 1826. [15997] Fine. 1907.

—, PRINCIPLES AND ELEMENTS OF: [2566-8] Leslie. 1817-20. [3081-4] Morgan. 1830-46. [6354] Borne. 1795. [7056] Cox. 1885. [10748] Leslie. 1820. [11022] Lorenz. 1803. [12104] Morgan. 1850-6. [16015] Frege. 1893-1903. [16240] König. 1914.

—, PSYCHOLOGY OF: [16560] Santerre. 1907.

— OF POSITION: [16452] Noth. 1882.

— WITH 16 TO THE BASE: [3356] Nystrom. 1862.

ARITHMETICAL MEANS, METHOD OF: [12446] Neumann. 1887-8.

— *v. Means (Arithmetico-Geometrical).*

— PROBLEMS AND EXERCISES: [16118-19] Heis. 1886-1905. [16141-2] Hirsch. 1890-2. [S 706] Fitz-Patrick et Chevrel. 1900.

— RECREATIONS: [6647] Butler. 1838. [8071] Fourrey. 1899. [16014] Fourrey. 1904. [S 947] Lucas. 1895.

— TRIANGLE: [3477] Pascal. 1665. [4744] Tartaglia. 1556-60. [12997] Pascal. 1665. — *v. Numbers (Trigonal).*

ARMATURE REACTION: [9044] Hawkins. *n.d.*

ARMATURES OF DYNAMOS: [5835] Arnold. 1896. [9170] Hering. 1887. [12982] Parshall and Hobart. 1895.

ARSENIC AND ITS COMPOUNDS: [8558-9] Graham. 1833. [12801] Odling. *n.d.* [13098] Penny and Wallace. 1852. [14697] Scheele. 1786.

—, ACTION ON FERMENTATION BY: [13069] Pedersen. 1902.

ARTILLERY—*v. GUNNERY.*

AS, MATHEMATICAL TREATISE ON THE: [S 455] Glaireanus. 1551.

ASBESTOS: [15268] Thomson. 1831.

ASPHALT: [5850] Asphalte. 1887. [7224] Delano. 1893. [10752] Letouzé et Loyeau. 1897. [11325-6] Malo. 1866-86.

— *v. Bitumen.*

ASSAYING: [1497] Gay-Lussac. 1832. [2278.] Kerl. 1883. [3016-17] Mitchell. 1873-88. [3417] Overman. 1854. [4178] Sage. 1780. [5770] Anrye et d'Arcet. 1813. [6143] Beringer. 1898. [6175] Berthier. 1834. [6823] Chaudet. 1835. [7062] Cramer. 1874. [7592] Ercker. 1629. [10114] Kerl. 1883. [11938-41] Mitchell. 1873-88. [12731] North. 1874. [13179-82] Petrus. 1683-6. [13402] Plattner.

ASSAYING, *continued*:

1849. [14233] Ricketts. 1880. [14624] Sage.
1780. [15378] Vauquelin. 1812. [S 3188]
Budge. 1825. [S 3209] Cramer. 1754. [S 3232]
Furman. 1899.

— *v. Blowpipe Analysis.*

ASTROLABE: [951-2] Danti. 1569-78. [2320]
Köbel. 1594. [4022] Ritter. 1613. [4057*]
Roias. 1551. [4614-15] Stoeffler. 1535-94.
[6279-81] Blundeville. 1597-1636. [7168] Danti.
1569. [8335] Gemma. 1567. [11803] Metius.
1632-3. [14026] Reisch. 1512. [15095]
Stöffler. 1553. [S 3716] Blundeville. 1594.
[SS 496] Henrion. 1621. [SS 936] Vols. 1718.

ASTROLOGICAL CLOCK: [4478] Smyth. 1848.

ASTROLOGY: [670] Camerarius. 1536. [685]
Cardano. 1555. [3419-20] Oxley. 1834-48.
[4653] Struve. 1860. [5335-6] Wharton. 1683.
[8199] Galgemail. 1616. [8251] Gallucci. 1593.
[9455] Hopton. 1616. [9672] Institutions. 1643.
[11281, 11283-6] Magini. 1582-1630. [11955-6]
Mizauld. 1551-5. [11996] Moleti. 1563.
[12147] Morin. 1661. [12686] Nifo. 1614.
[12781] Oderico. 1653. [13717] Proctor. 1875.
[13762] Ptolemaeus. 1646. [13909] Rantanz.
1625. [14026] Reisch. 1512. [14669] Satler.
1605. [14690] Savonarola. 1582. [SS 980]
Albumasar. 1489. [SS 990] Argoli. 1638.
[SS 1020] Cattan. 1567. [SS 1110] Gallucci.
1589. [SS 1151] Kalendar. 1522. [SS 1220-1]
Origanus. 1609-45. [SS 1283] Salmasius. 1648.
[SS 1293] Savonarola. 1581. [SS 1346] Zoboli.
1619.

— *v. Meteorology (Astrological).*

— (JUDICIAL): [953] Dariot. 1653. [1478]
Gassendi. 1659. [2320] Köbel. 1594. [4729-30]
Taisnier. 1562. [7916] Firmicus Maternus.
1499. [11283] Magini. 1582-1616. [12147]
Morin. 1661. [13516] Porta. 1616. [SS 1045]
Colombe. 1606. [SS 1220] Origanus. 1645.
[SS 1267-8] Regiomontanus. 1584.

ASTROMETRY: [7988] Foerster. 1888.

ASTRONOMICAL CALCULATIONS: [2842-3] Martin.
1765-73. [10420] Lalande. 1762.

— CORRESPONDENCE: [6157] Bernoulli. 1771.

— DECLINATIONS (MEAN): [12463] Newcomb.
1896. [12764] Nyrén. 1893.

— ESSAYS: [445] Bode. 1793-7. [2764] Maclear.
1851. [3814-15, 3818-19, 3822-7, 3829,
3838-9] Proctor. 1872-92. [4702] Sylvester.
1866. [8536] Gore. 1888. 13699-702. 13711-14.
13717. 13724] Proctor. 1872-89. [16849]
Gore. 1907.

— FORMULÆ: [232] Baily. 1827. [3554] Peters.
1871.

— INSTRUMENTS: [557] Brahe. 1602. [751]
Challis. 1879. [1996] Horrebow. 1740-1.
[2387] La Hire. 1735. [2716] Ludlam. 1769.
[3911] Recorde. 1551. [5790-1] Apianus.
1532-3. [6439] Brahe. 1602. [6729] Carl. 1863.
[7367] Dreyer. 1881. [8504] Gompertz. 1824.
[10418] Lalande. 1771-81. [10453] Lamont.
1851. [10713] Le Monnier. 1774. [11130]
Lupicini. 1582. [11272] Magellan. 1780.
[11642-3] Mauro. 1550. [11646-7] Maurolico.
1575. [12854] Oudemans. 1865. [12924]
Padovani. 1563. [13512] Porro. 1858. [16817]
Ambron. 1899. [S 1353] Apianus. 1533.
[SS 1046] Colombe. 1608. [SS 1202-3] Metius.
1626.

— *v. Astrolabe. Astronomical Ring. Circle (Repeating).
Cosmoline. Diptheidoscope. Equatorial. Globe
making. Gnomon. Helometer. Horizontal I.
Longitude Scale. Meridian Circle. Meridian Dial.
Mesolabe. Orreries. Quadrant. Quadrant (Mural).
Repsold's Universal I. Siderostat. Telescope.
Theodolite. Transit Circle. Transit Instrument.*

ASTRONOMICAL JOURNALS: [175] Astronomical
Society. 1863-77. [598] British Astro-
nomical Association. 1891-8. [2611]
Lick Observatory. 1887. [2647] Liver-
pool Astronomical Society. 1883-9. [3056-7]
Monthly Notices of the Royal Astronomical
Society. 1867-1900. [3362-3] Observatory.
1877-1905. [5776] Annales de l'Observatoire
de Paris. 1855-61. [5854-6] Astronomical
Register. 1863-86. [5857-60] Astronomi-
cal Society. 1822-1909. [6894] Cincinnati
Observatory. 1869. [7066-7] Crawford.
1876-85. [7445] Edinburgh Royal Observatory.
1902. [8404-5] Gill. 1886-1909. [9729]
Jahresbericht der Nicolai-Hauptsternwarte.
1864. [10824-9] Lick Observatory. 1887-1908.
[11000] Longitudes (Bureau des). 1897.
[11268-71] Madras Observatory. 1887-99.
[12160] Morrison Observatory. 1887. [12776]
Observatory. 1888-96. [13511] Popular
Astronomy. 1894-8. [15616] Astronomical
Society. 1822-1909. [S 19] Astronomische
Gesellschaft. 1891-5. [S 49] Cordoba Observa-
tory. 1881-1914. [S 51] Dunsink Observatory.
1870-1900. [S 72] Erdmessung (Internationale).
1897-1906. [S 77] Geodätisches Institut
(Preuss). 1872-1908. [S 87] Gradmessung
(Europäische). 1882-95. [S 88] Gradmessungs-
Bureau. 1889-1907. [S 114] Lick Observatory
Bulletins. 1901-16. [S 209] Washburn Observa-
tory. 1882-93. [S 211] Yerkes Observatory.
1900-3. [SS 1343] Zach. 1800-5.

— LECTURES: [60] Airy. c. 1850. [2229-31]
Keill. 1725-60. [3116] Moseley. 1839. [4211]
Saunderson. c. 1730. [4321] Segner. 1775-6.
[5382] Whiston. 1715. [5677-8, 5696-7] Airy.
c. 1850-6. [10022-7] Keill. 1718-69. [12198-
200] Moseley. 1846-54. [14671] Saunderson.
c. 1712. [15525, 15529] Whiston. 1707-28.

— MEMOIRS AND PAPERS: [1175] Encke. 1888-9.
[2212] Kaiser. 1836-72. [2643] L'Isle. 1738.
[4471] Smyth (C. P.). 1872. [4474] Smyth
(W. H.). 1851. [10715-16] Le Monnier.
1781-8. [11054] Loys des Cheseaux. 1754.
[11237] Maclear. 1853. [15349-50] Turner.
1902-14.

— MICROMETRY—*v. Micrometry (A).*

— MYTHS: [429, 6261] Blake. 1877. [7943]
Flammarrion. 1877. [13431] Pluché. 1740.
[13708-9] Proctor. 1878-89.

— *v. Constellations.*

— OBSERVATIONS: [174] Astronomical. 1838-77.
[387] Bianchini. 1737. [416] Biot. 1821.
[424] Bishop. 1852. [445] Bode. 1793-7.
[558] Brahe. 1666. [638] Bugge. 1784.
[707-8] Carrington. 1855. [712] Cassini. 1693.
[1350] Flamsteed. 1725. [1359] Fontana. 1646.
[1902] Herschel. 1847. [1904] Herschel and
South. 1825. [2541] Le Monnier. 1741.
[2716] Ludlam. 1769. [2882] Maskelyne. 1765.
[3617] Picard. 1731. [3700] Pond. 1815-19.
[3871] Radcliffe Observatory. 1858-80. [4137]
Rümker. 1829. [4470-2] Smyth. 1858-77.
[4627] Stone. 1877. [5578] Zach. 1784. [5973]
Barclay. 1870-8. [6670] Calandrelli. 1860.
[7515] Ellery. 1866-84. [7876] Feuillée.
1714-25. [7949-50] Flamsteed. 1725. [7999]
Fontana. 1646. [8318] Geelmuyden. 1900.
[8648-9] Greenwich Observations. 1875-1910.
[10714] Le Monnier. 1741. [11268-71] Madras
Observatory. 1887-99. [13386] Plana. 1828.
[13821] Radcliffe Observatory. 1885-1910.
[13852] Rambaut. 1900. [15137] Streeet.
1710. [15461] Washington Astronomical and
Meteorological Observations. 1878-85. [S 49]
Cordoba Observations. 1881-1914. [S 51]
Dunsink Observatory. 1870-1900. [S 114]
Lick Observatory Bulletins. 1901-16. [S 209]

ASTRONOMICAL OBSERVATIONS, continued:

- Washburn Observatory. 1882-93. [S 211]
 Yerkes Observatory. 1900-3. [S 1411] Cohn. 1909.
- *v. Chronometrical O. Lunar O. Planetary O.*
- —, COMBINATION OF: [3216] Newcomb. 1880.
- *v. Observations.*
- OBSERVATORIES: [1964] Holden. 1896. [2501] Lawson. 1844. [3613] Piazzini. 1792-4. [5675] Airy. 1845. [6241] Bishop. 1852. [8420-6] Gill. 1887-1906. [10554] Lassell. 1867. [10615] Lawson. 1844. [13801] Quetelet. 1831. [S 1613] Struve. 1845.
- PARADOXES: [1703] Gumpach. 1863. [1792] Harris. 1876. [3746] Pratt. 1863. [3755-6] Prescott. 1803-23. [3930] Reddie. 1865. [5969] Bamfield. 1764. [5970] Banks. 1829. [12163] Morrison. 1868. [13708-9] Proctor. 1878-89. [13975. 13977] Reddie. 1862-3.
- *v. Astronomy (Cometary) P. Flat Earth P. Lunar Rotation P. Planetary Theory P. Solar P.*
- PHOTOGRAPHY—*v. Photography (A.).*
- PROBLEMS: [5076] Villié. 1885-90. [12473] Newcomb. 1898. [14879] Simpson. 1730-58.
- REDUCTIONS: [14265] Ristenpart. 1902.
- REFRACTION—*v. Refraction (Atmospheric).*
- RING: [5787-9] Apianus. 1550-74. [SS 200] Beausard. 1553.
- SPECULATIONS: [3744] Pratt. 1894. [5444] Wilson. 1856.
- STANDARD SCALE: [5934] Baily. 1836.
- TABLES: [90] Alphontius. 1483. [232] Baily. 1827. [996] Delambre. 1806-17. [1374] Förster. 1869. [1584] Goldmayr. 1639. [1753-5] Halley. 1749-52. [2276] Kepler. 1627. [2387] La Hire. 1735. [2393] Lalande. 1771. [2431] Lansberg. 1632. [3193] Nautical Almanac. 1770-1876. [3554] Peters. 1871. [3926] Regiomontanus. 1557. [4368] Sheepshanks. 1846. [5735] Alphonus. 1545. [5915] Bagay. 1829. [5919-20] Baily. 1827. [6197-6200] Bessel. 1818-30. [6298] Boileau. 1850. [6760-1] Cassini. 1740-56. [7408] Dunn. 1784. [8827] Halley. 1749. [10104] Kepler. 1627. [10413] La Hire. 1755. [11143-4] Lynn. 1827-43. [11286. 11288] Magini. 1583-5. [11348] Manginus. 1626. [12148] Morin. 1675. [13058] Pearson. 1824. [13760] Ptolemæus. 1605. [14014] Reinhold. 1554. [14030] Renieri. 1647. [15626] Bauschinger. 1901. [SS 999] Bartsch. 1624. [SS 1004] Bianchini. 1495. [SS 1223] Pearson. 1824-9. [SS 1265. 1267-8] Regiomontanus. 1496-1585. [SS 1271-2] Riccioli. 1651.
- *v. Altitude and Azimuth T. Ephemerides. Horary T. Lunar T. Nautical T. Planetary T. Polar Distances. Refraction T. Solar T. Zenith Distances.*
- THESES: [4340] Serret. 1847. [7106] Crompt. 1598. [14378] Roche. 1844. [14379] Rochemore. 1769. [14382] Rodrigues de Passos. 1853.
- VORTEX THEORY—*v. Vortex Theory (A.).*
- WORKS (COLLECTED): [2661] Lockyer. 1868-90. [9190] Herschel. 1912. [15614] Adams. 1896-1900. [16877] Laplace. 1843-7.

ASTRONOMY (CHINESE AND OLD JAPANESE): [410]

- Biot. 1862. [4251-2] Schlegel. 1875. [5424] Williams. 1871. [7367] Dreyer. 1881. [10233] Knobel. 1905.
- *v. Astronomy (Oriental).*

- ASTRONOMY (COMETARY): [1188] Englefield. 1793. [1259] Euler. 1744. [1447] Galilei. 1623. [1653-4] Gregory. 1726. [1707-8] Guillemin. 1875-7. [1753-5] Halley. 1749-52. [1930-1] Hind. 1852-7. [1936] Hirn. 1889. [1999] Horrocks. 1678. [2264] Kepler. 1619. [2313] Klinkenberg. 1755. [2400] Lambert. 1761. [2543-4] Le Monnier. 1743. [2710] Lubbock. 1832. [3256-69] Newton. 1713-1871. [3374] Oppolzer. 1880-2. [3380] Olbers. 1797. [3638] Pingré. 1783-4. [3781] Prince. 1883. [3867] R. (J. A.). 1873. [4447] Smith. 1744. [4654. 4658] Struve. 1859-68. [5216] Ward. 1654. [5388] Whiston. 1716. [5424] Williams. 1871. [5806-7] Arago. 1833-61. [5907. 5909] Backlund. 1881-92. [6759] Cassini. 1681. [7143] Damoiseau et Pontécoulant. 1835. [7584] Engström. 1881. [7810] Faulhaber. 1619. [7886] Fievez. 1881. [8221-2] Galilei. 1623. [8311] Gautier. 1888. [8381] Ghislieri. 1737. [8585-7] Grassi. 1619-26. [8654-5] Gregory. 1715-26. [8726-7] Grynaeus. 1580. [8767] Gylden. 1884. [8848] Hamilton. 1772. [9057] Hayn. 1889. [9294-5. 9298] Hind. 1848-57. [9432] Hooke. 1705. [9528-9] Huggins. 1882. [9776] Jelinek. 1848. [9958] Julius. 1867. [10217] Klinkerfues. 1880. [10255] Koerber. 1887. [10270] König. 1891. [10305-6] Kreutz. 1882-1901. [10762] Leveau. 1877. [10943] Loewy. 1858-9. [11237. 11239] Maclear. 1853-60. [11636] Mauerpertuis. 1742. [11754-5] Merfield. 1899-1901. [11821] Meyer. 1882. [11893] Milne. 1828. [11943-5] Miscellanea Curiosa. 1708-27. [11966] Mohn. 1861. [11998-9] Möller (A.). 1862-73. [12002] Möller (J.). 1901. [12279] Müller. 1619. [12501-24] Newton. 1687-1871. [12773] Nüssler. 1719. [12856. 12860] Oudemans. 1857-9. [13348-9] Pingré. 1783-4. [13446-7] Plummer. 1883-94. [13494] Ponthéus. 1681. [13675] Prince. 1883. [13830-1] Ragona. 1854-8. [13853] Rambaut. 1910. [14240] Riem. 1896. [14393] Rohde. 1797. [14668] Santucci. 1611. [14960] Snell. 1619. [15149] Struve. 1853. [15530] Whiston. 1716. [S 324] Hooke. 1678. [S 1450] Galle. 1894. [SS 1017] Brahe. 1610. [SS 1027] Cassini. 1665. [SS 1034] Comètes. 1770-80. [SS 1040] Clairaut. 1760. [SS 1054-5] Cysat. 1619. [SS 1127-8] Guiducci. 1619. [SS 1184] Manzini. 1665. [SS 1218] Olbers. 1847.

— *v. Encke's Comet. Orbits (Planetary and Cometary). Perturbations.*

- —: PARADOXES: [10382] Lacy. 1779. [12162] Morrison. 1860. [13742] Prusol. 1879.
- (ELEMENTARY): [252] Ball. 1880. [1605] Gore. 1890. [1932] Hind. 1853. [2343-5] La Caille. 1755-64. [2542] Le Monnier. 1746. [2665] Lockyer. 1883-6. [3247-8] Newton. 1728-31. [4058] Rolfe and Gillet. 1868. [5271] Watts. 1752. [5485] Woodhouse. 1812. [5703] Ajasson de Grandsagne. 1835. [5977-8] Barlow. 1822. [6319-24] Bonnycastle. 1786-1822. [6506] Briot. 1878. [7223] Delambre. 1813. [8289-91] Gassendi. 1653-83. [8671] Gregory. 1808. [8702-3] Grimthorpe. 1876. 83. [9296] Hind. 1863. [10359-60] La Caille. 1750-64. [10953-4] Lockyer. 1868-89. [12328] Mylne. 1819. [14830] Settele. 1818-19. [16815] Alliaume. 1913. [16823] Ball. 1903. [16842] Flotow. 1911. [16889] Moulton. 1906. [16898] Parker. 1900. [16911] Schwalbe. 1904.
- (FIELD)—*v. Explorer's Science. Geographical Determination of Places.*
- (GENERAL): [227] Baillaud. 1893. [755-6] Chambers. 1877-90. [994] Delambre. 1814. [1582] Godfrey. 1866. [1891-9. 1903] Herschel. 1837-78. [2311] Klein. 1871-2. [2390-1] Lalande. 1764-71. [2454-5] Lardner. 1853-67. [2508] Leadbetter. 1735. [2686-8] Long.

ASTRONOMY (GENERAL), *continued*:

1742-84. [2802] Manfredi. 1749. [3839-40] Proctor and Ranyard. 1892. [4095] Rost. 1726. [4638] Streete. 1710. [5078] Vince. 1797-9. [5394] Whiting. 1828. [5463] Wolf. 1870-2. [5489] Woodhouse. 1818-23. [5548-50] Young. 1889-99. [6286] Bode. 1844. [6726-7] Carey. 1825-42. [6760-1] Cassini. 1740-56. [6817-19] Chambers. 1861-77. [7817] Faye. 1881-3. [8494] Godfray. 1886-94. [8654-5] Gregory. 1715-26. [9069] Heath. 1760. [9226-30. 9240-2] Herschel. 1833-78. [10418] Lalande. 1771-81. [10521] Lardner. 1867. [10998-9] Long. 1742-84. [13725-7] Proctor and Ranyard. 1892. [16822] Baillaud. 1893-6. [16835] Clerke, etc. 1898. [16840] Faye. 1881-3. [16847-8] Godfray. 1874-94. [16859-61] Herschel. 1871-4. [16862] Himmel und Erde. 1908-9. [16870] Klein. 1901. [16900] Plassmann. 1913. [16922] Wolf. 1890-3. [16923] Young. 1900.

— (GREEK AND LATIN): [154] Aristarchus. 1688. [157] Aristoteles. 1601. [2804-8] Manilius. 1566-1767. [3788] Proclus. 1536. [3846-52] Ptolemæus. 1515-1816. [4803] Theon Smyr-næus. 1849. [5825-6] Aristarchus. 1572. [5827-9] Aristoteles. 1631-1870. [5853] Astronomica Veterum. 1589. [6542] Brown. 1899-1900. [7916] Firmicus Maternus. 1499. [10785] Lewis. 1862. [13695] Proclus. 1540. [13760-2] Ptolemæus. 1548-1646. [S 1362] Autolycus. 1885. [S 1545] Manilius. 1786. [SS 890-2] Theodosius. 1558-86. [SS 1277] Roberval. 1644.

— (MATHEMATICAL): [266-7] Barlow. 1892. [1610] Gouÿe. 1688. [1624] Grant. 1850. [1652-4] Gregory (D.). 1702-26. [1666] Gregory (O. G.). 1802. [2440-5] Laplace. 1798-1878. [2768-9] Maddy. 1826-32. [3420] Oxley. 1848. [3703-4] Pontécoulant. 1829-60. [3975] Résal. 1865. [4508-9] Somerville. 1831. [4769] Taylor. 1841. [6005] Barlow. 1819. [6498-6501] Brinkley. 1836-74. [6711] Capello. 1733-7. [7563] Emerson. 1769. [10500-3. 10507-9] Laplace. 1798-1829. [10624] Leadbetter. 1735. [11266] Maddy. 1832. [11961] Moebius. 1843. [13491-3] Pontécoulant. 1829-46. [14084] Résal. 1884. [14366] Robison. 1804. [14497] Rost. 1727. [15588] Wing. 1651. [15655] Villié. 1885-98. [16827] Barlow and Bryan. 1892-1903. [16529] Brinkley. 1886. [16882] Main. 1893. [16890-1] Moulton. 1902-14. [16901] Poincaré. 1905-10. [16905-6] Resal. 1865-84. [S 1449] Frisi. 1768. [S 1574] Poincaré. 1892-9.

— (MILTON'S): [3385] Orchard. 1896.

— (NAUTICAL): [2002] Hosier. 1809. [2090] Inman. 1849. [2134] Jeans. 1868-70. [2238-9] Kelly. 1801-13. [2863] Martin. 1888. [2908] Maupertuis. 1743. [2949] Merrifield. 1886. [2950-1] Merrifield and Evers. 1868. [3395] Orr. 1860. [3891] Raper. 1849. [5567] Young. 1855. [6653] Byrne. 1875. [7818] Faye. 1880. [8429] Gill. 1898. [10010] Kater. 1822. [10047] Kelly. 1796. [10112] Kerigan. 1845. [11520] Martin. 1888. [13913-14] Raper. 1857-82. [14238-9] Riddle. 1824-42. [15026] Stebbing. 1896. [15511] West. 1838. [15634] Nuñez. 1592. [16867] Jeans. 1876-84. [16880] Liais. 1867.

— (ORIENTAL): [80] Al-Fergani. 1669. [231] Bailly. 1787. [410] Biot. 1862. [5940] Bailly. 1787. [6542] Brown. 1899-1900. [10234. 10236] Knobel. 1895-1908. [S 433] Apianus. 1532. [S 1390] Brennand. 1896. [S 1508] Kuzler. 1900. [SS 980] Albumasar. 1489.

ASTRONOMY (PHYSICAL): [412-13] Biot. 1810-57. [650] Burr. 1865. [1425] Frisi. 1768. [1610] Gouÿe. 1688. [1626] Grant. 1852. [1656] Gregory. 1893. [5603] Abbott. 1870. [6227] Biot. 1841-57. [8262] Gámaches. 1740. [8579] Grant. 1852. [9231] Herschel. 1827. [11694] Mayer. 1848. [14884-5] Simpson. 1757.

— (POPULAR): [55-56] Airy. 1866-83. [135-6] Arago. 1855. [254-6] Ball. 1887-92. [513] Bouvier. 1856. [624] Bryan. 1799. [1042] Dick. 1861. [1316-20] Ferguson. 1757-1821. [1346] Flammarion. 1885. [1606-7] Gore. 1888-94. [1710-12] Guillemin. 1865-76 [1788] Harris. 1729. [2133] Jeans. 1856. [2435-7] Laplace. 1813-35. [2535] Leitch. 1863. [2771] Maedler. 1849. [2809] Mann. 1845. [3012-13] Mitchel. 1858-60. [3213. 3217-18] Newcomb. 1878-1903. [3308. 3310] Nichol. 1838-9. [3620] Pictures. 1857. [3733] Pouchet. 1870. [3813-19. 3822-27. 3829. 3833. 3838-9] Proctor. 1868-92. [3878] Rambosson. 1875. [4059] Rollwryn. 1871. [4283] Schubert. 1804-10. [4345-6] Serviss. 1888-95. [5692] Airy. 1868. [5852] Aspin. 1825. [5956-60] Ball. 1885-1900. [6394] Bouvier. 1856. [6570-1] Bryan. 1799-1805. [7281. 7283-4] Dick. 1838-52. [7363] Drew. 1845. [7406-7] Dunkin. 1869-79. [7838-43. 7867] Ferguson. 1756-1811. [7939. 7942] Flammarion. 1875-84. [8384] Giberne. 1887-91. [10500-3] Laplace. 1809-24. [10527] Lardner. 1856. [10891] Littrow. 1866. [11903] Milner. 1846. [11947-9] Mitchel. 1848-60. [12462. 12472] Newcomb. 1878-1903. [16831] Bürgel. 1911. [16865] Houzeau. 1882. [16868-9] Klein. 1892-1905. [16899] Peck. 1890. [16916] Webb. 1893-4. [16918] Weiss. 1892.

— *v. Globes, Use of the.*

— (PRACTICAL): [751] Challis. 1879. [767] Chauvenet. 1868. [1043] Dick. 1845. [1079] Doollittle. 1885. [2693-4] Loomis. 1865-72. [2780] Main. 1863. [3395] Orr. 1860. [4089] Ross. 1735. [4225] Sawitch. 1879. [4872] Todd. 1900. [5089] Vince. 1790. [5233] Warren. 1879. [5279-81] Webb. 1859-94. [5918] Baikie. 1906. [6833] Chauvenet. 1871 [7170] Darby. 1864. [9768] Jeans. 1856 [11013-15] Loomis. 1855-83. [11302] Main. 1863. [12353] Narrien. 1845. [13058] Pearson. 1824. [14984] Souchon. 1883. [16830] Brünnow. 1869-72. [16837] Chauvenet. 1889. [16880] Liais. 1867. [16883] Main. 1863. [16884-5] Martus. 1904-12. [SS 1223] Pearson. 1824-9.

— *v. Astronomical Tables. Refraction Tables. Stargazing.*

— (PRE-NEWTONIAN): [500] Boulliau. 1645. [557-8] Brahe. 1602-66. [867-8] Copernicus. 1543-66. [1439-43. 1447] Galilei. 1632-1710. [1473-6] Gassendi. 1647-83. [1999] Horrocks. 1678. [2221] Kaufmann. 1676. [2260-1. 2270-2] Kepler. 1609-35. [2429-31] Lansberg. 1632-63. [2689] Longomontanus. 1622. [2737] Luyts. 1692. [2966] Metius. 1630-3. [3303] Newton (John). 1657. [3331] Nierop. 1658. [3910] Recorde. 1556. [5335-6] Wharton. 1683. [5411-12] Wilkins. 1640-84. [6279-81] Blundeville. 1597-1636. [6376] Boulliau. 1657. [6439-41. 6443] Brahe. 1602-1901. [7017] Copernicus. 1617. [7106] Croppet. 1598. [7272] Deusing. 1643. [7289] Digges. 1573. [8205-11] Galilei. 1632-1710. [8289-91] Gassendi. 1653-83. [8730] Guericke. 1672. [10013] Kaufmann. 1676. [10099-10133] Kepler. 1618-22. [10162] Kircher. 1660. [10494] Lansberg. 1631. [11002] Longomontanus. 1622. [11287] Magini. 1589. [11803] Metius. 1632-3. [12346] Naibod. 1580. [12631] Newton. 1657. [13962] Recorde.

ASTRONOMY (PRE-NEWTONIAN), *continued*:

1556. [14164-5] Riccioli. 1651-65. [14437]
Rosaccio. 1604. [15136-7] Streete. 1663-1710.
[15555-8] Wilkins. 1640-84. [15588] Wing.
1651. [S 1416-17] Copernicus. 1873. [S 1559]
Neander. 1561. [S 3716] Blundeville. 1594.
[SS 1017] Brahe. 1610. [SS 1057-8] Deusing.
1643. [SS 1271-2] Riccioli. 1651. [SS 1332]
Walker. 1684.

— *v. Cosmography.*

— (PTOLEMAIC): [119-20] Apianus. 1550-75.
[819] Clavius. 1602. [2774] Magini. 1589.
[3332] Nifo. 1508. [3561] Peucer. 1553-4.
[3564-5] Peuerbach. 1515-51. [3625-9]
Piccolomini. 1540-79. [4017] Ringelbergh.
1535. [4085] Ross. 1646. [4170-4] Sacro
Bosco. 1488-1629. [4268] Schreckenfuhs.
1556. [4614] Stoeffler. 1535. [5744] Amico.
1537. [6070] Beati. 1662. [6610] Buonin-
contro. 1491. [6944-5] Clavius. 1570-96.
[7908] Fine. 1538. [8251] Gallucci. 1593.
[8336] Gemma Frisius. 1553. [8732] Guillemus.
1531. [11642-3] Mauro. 1550. [12232] Moya.
1573. [13090] Pemble. 1630. [13165] Petau.
1630. [13191] Peuerbach. 1557. [13296-9]
Piccolomini. 1540-68. [13515-16] Porta.
1614-16. [14026] Reisch. 1512. [15095-6]
Stöffler. 1534-53. [15370] Valla. 1502.
[15634] Nuñez. 1592. [S 1487] Hill. 1599.
[S 1678] Bacon. 1614. [SS 1110] Gallucci.
1589. [SS 1240] Pighius. 1522. [SS 1262]
Ricci. 1521.

— *v. Primum Mobile.*

— (SIDEREAL): [825] Clerke. 1890. [1044] Dick.
1850. [2321] Kobold. 1906. [2400] Lambert.
1761. [4475-7] Smyth. 1844-81. [4648]
Struve. 1847. [6951] Clerke. 1905. [8989-90]
Harzer. 1901-10. [9072] Heath. 1905. [9769-
70] Jeans. 1848-68. [10246] Kobold. 1906.
[11629 11637] Mauerpertuis. 1742-68. [11815]
Meyer. 1887. [12959-60] Parkes. 1887-8.
[13302] Pickering. 1880. [16819] André.
1899-1900. [16833-4] Clerke. 1903-5. [16853]
Hale. 1909. [18873] Kobold. 1906. [16896]
Newcomb. 1904. [16908-9] Scheiner. 1908-12.
[16912] Secchi. 1878. [16913] Seeliger. 1898-
1909. [S 1499] Kippax. 1914.

— *v. Stellar.*

— (SPHERICAL): [623] Brünnow. 1851. [736]
Cavalieri. 1690. [767] Chauvenet. 1868.
[1424] Frisi. 1744-5. [2238-9] Kelly. 1801-
13. [2780] Main. 1863. [6562-5] Brünnow.
1851-72. [6833] Chauvenet. 1871. [10047]
Kelly. 1796. [11302] Main. 1863. [12465]
Newcomb. 1906. [12628] Laska. 1906.
[16826] Ball. 1908. [16830] Brünnow. 1869-
72. [16837] Chauvenet. 1889. [16878] Laska.
1889. [16883] Main. 1863. [16895] New-
comb. 1906. [S 1559] Neander. 1561.
[SS 890-2] Theodosius. 1558-86.

— (THEORETICAL): [2068] Hymers. 1840. [4284]
Schubert. 1822. [5248] Watson. 1868.
[5490] Woodhouse. 1821-3. [9639-40]
Hymers. 1840. [10216] Klinkerfues. 1899.
[16843] Frischauf. 1903. [16872] Klinkerfues.
1899. [16878] Laska. 1889. [16915] Watson.
1869. [16919] White. 1905. [S 1506] Klin-
kerfues. 1912.

—, BIBLIOGRAPHY OF: [2011] Houzeau et Lan-
caster. 1882-9. [4655] Struve. 1860. [9497]
Houzeau et Lancaster. 1882-9. [10423]
Lalande. 1808. [13764] Pulkowa Observatory.
1845. [16922] Wolf. 1890-3. [SS 1138]
Houzeau. 1882.

—, CYCLOPÆDIAS AND DICTIONARIES OF: [1180]
Encyclopædia Metropolitana. 1848. [1604]
Gore. 1893. [1922] Hill. 1768. [14164-5]
Riccioli. 1651-65. [16851] Gretschel. 1882.

ASTRONOMY, CYCLOPÆDIAS AND DICTIONARIES OF, *continued*:

[16858] Herpin. 1875. [16876] Krichsch. 1902.
[16914] Valentiner. 1897-1902. [SS 1271-2]
Riccioli. 1651.

—, HISTORY OF: [228-31] Bailly. 1775-87.
[429] Blake. 1877. [823-4] Clerke. 1885-93.
[874] Costard. 1767. [995] Delambre. 1817-27.
[998] Delambre. 1810. [1002] Delaunay.
1867. [1626] Grant. 1852. [2435-7] Laplace.
1813-35. [2541] Le Monnier. 1741. [2580]
Lewis. 1862. [2664] Lockyer. 1894. [2695]
Loomis. 1856. [2770] Macpherson. 1906.
[3176] Narrien. 1833. [4490] Snyder. 1907.
[4957] Turner. 1901. [5122] Voiron. 1810.
[5304] Weidler. 1741. [6261] Blake. 1877.
[6542] Brown. 1899-1900. [6950] Clerke.
1893. [7033] Costard. 1767. [7368] Dreyer.
1880. [7943] Flammarion. 1877. [8579]
Grant. 1852. [9359] Hoefler. 1873. [10022-7]
Keill. 1718-69. [10502, 10504] Laplace.
1824-63. [10714] Le Monnier. 1741. [10785]
Lewis. 1862. [10885] L'Isle. 1738. [11016]
Loomis. 1851. [12245] Macpherson. 1906.
[11803] Metius. 1632-3. [12350-2] Narrien.
1833-50. [14164] Riccioli. 1651. [15347]
15351] Turner. 1901-4. [16922] Wolf. 1890-3.
[S 1373] Berry. 1898. [S 1392] Bryant. 1907.
[S 1523] Lebon. 1899. [SS 1271-2] Riccioli.
1651. [SS 1332] Walker. 1684.

—, PHILOSOPHY OF: [7001] Comte. 1844.

— AND THEOLOGY: [295] Baxter. 1740. [4199]
Salusbury. 1661. [5345-7] Whewell. 1834-52.
[5383] Whiston. 1725. [6812] Chalmers.
1854-6. [7235] Derham. 1741. [7857] Fer-
guson. 1775. [11617-18] Maunder. 1909.
[12685] Neuwentyt. 1729. [15526] Whiston.
1717. [SS 2025] Rheita. 1645.

ASTROPHYSICS—*v. Astronomy (Sidereal). Physics (Cosmic).*

ATMOSPHERIC ABSORPTION: [10484-5] Langley.
1884.

— HYPOTHESIS OF EPIDEMICS: [14589] Russell.
1892.

— PRESSURE—*v. Barometry.*

—, PHYSIOLOGICAL EFFECT OF: [6158]
Bert. 1878.

— REFRACTION—*v. Refraction (Atmospheric).*

— TEMPERATURE: [2025] Humboldt. 1817.
[3738] Powell. 1825. [5864] Atkinson. 1825.
[7298] Dyk. 1876. [7429] Dyer. 1856.
[9317] Hirn. 1882. [11395] Marcet. 1861.
[11943-5] Miscellanea Curiosa. 1708-27.
[13471] Poisson. 1837. [13637] Prévost. 1792.
[13796 13805-6] Quetelet. 1836-45. [14755]
Schumacher. 1843. [14841] Six. 1788.
[15550] Williams. 1806. [S 2508] Dove. 1852.
— *v. Heat (Solar). Isotherms. Radiation (Terres-
trial). Temperature (Mean).*

— TRANSPARENCY: [14587] Russell. 1902.

ATOMIC DISINTEGRATION: [14972] Soddy. 1909.

— TABLES: [14467] Rose. 1850.

— THEORIES: [4332] Sennart. 1664. [4407]
Simpson. 1675. [4941] Trouessart. 1854-
[4971] Tyndall. 1874. [7821] Fehner. 1864.
[9271-2] Higgins. 1814. [11804] Meusel. 1902-
[11818] Meyer. 1895. [12253] Muir. 1894-
[12305] Murray. 1901. [13187] Petty. 1674.
[13578] Power. 1664. [13756] Puschl. 1869-
[14181. 14185. 14191] Richards. 1901-11.
[14802-3] Sedgwick. 1882-96. [14814-16]
Sendivogius. 1639-82. [14819] Sennert. 1637.
[15110] Stoney. 1891. [15257] Thomson
(J. J.). 1904. [15269] Thomson (T.). 1825.
[15611] Wollaston. 1814. [S 360] Masson.
1884. [S 1730-1] Boscovich. 1759-63

- ATOMIC THEORIES, *continued*:
 [S 2668-70] Boyle. 1661-80. [SS 1664] Euler. 1746. [SS 2627] Swedenborg. 1847.
 — *v. Corpuscular Theory. Matter, Theories of. Proust's Hypothesis. Vortex Theory.*
 — THEORY (DALTON'S): [613] Brown. 1858. [933-4] Dalton. 1808-27. [954] Daubeny. 1831. [1917] Higgins. 1814. [4078] Roscoe and Harden. 1896. [4835] Thomson. 1813-18. [4840] Thomson. 1807. [5533-5] Wurtz. 1879-92. [7153-5] Dalton. 1808-27. [11733] Meldrum. 1911. [11887] Mills. 1871. [14452] Roscoe and Harden. 1896. [15265-7. 15279] Thomson. 1807-26.
 — *v. Avogadro's Law. Chemical Combinations. Chemical Equivalents.*
 — WEIGHTS: [809] Clarke. 1897. [1933] Hinrichs. 1901. [4568] Stas. 1894. [6190] Berzelius. 1835. [9714] Jacquerod et Bogdan. 1905. [9858] Jones. 1905. [10038] Keiser. 1888. [10286-7] Köthner. 1903-4. [11317. 11319-20] Mallet. 1856-92. [11404] Marchand and Scheerer. 1850. [11811] Meyer (J.). 1903. [11812-14] Meyer (L. J.). 1872-88. [13371-3] Plaats. 1885-93. [13427] Playfair. 1860. [13870] Ramsay. 1881. [14187. 14190-4. 14197. 14201. 14203. 14211. 14213] Richards. 1891-1910. [15020-1] Stas. 1860-94. [15119] Stoney. 1902. [15281. 15287] Thorpe. 1908-10. [15476-7] Watts. 1903-4. [S 2609] Atomic Weights. 1891-1908. [S 2682] Brauner. 1908. [S 2686] Clarke. 1882. [S 2689] Crookes. 1874. [SS 2626] Stas. 1865.
 — *v. Chemical Proportions. Molecular W. Periodic Law. Proust's Hypothesis.*
 ATOMS, COMBINING POWER OF: [9370. 9373] Hofmann. 1865-6.
 —, MOVEMENT OF: [1771] Hansemann. 1871.
 ATTRACTION, THEORY OF: [131] Appell. 1892. [524] Boyle. 1674. [1137] Earnshaw. 1844. [2188] Jordan. 1866-7. [3342] Nobili. 1818. [3750] Pratt. 1871. [6429] Boyle. 1674. [8379] Gherardi. 1841. [8908] Hargreave. 1841. [9895] Jones. 1762. [9906] Jordan. 1867. [10070] Kelvin. 1844. [10500-1] Laplace. 1813. [12702] Nobili. 1818. [13602] Pratt. 1871. [14544] Rowning. 1767. [14808] Seguin. 1861. [16934] Appell. 1892. [17017] Earnshaw. 1844. [S 581] Chasles. 1855. [SS 1701] Gerdil. 1754. [SS 1892] Michel. 1802.
 — *v. Electric A. Gravitation. Magnetic A.*
 —, HISTORY OF THE: [4884-5] Todhunter. 1873.
 — OF ELLIPSOIDS: [2710] Lubbock. 1831. [5731] Allman. 1853. [6996] Collins. 1854. [11055] Lubbock. 1835. [S 579-80] Chasles. 1838-46.
 — OF MOUNTAINS: [2124] James. 1856. [2880-1] Maskelyne. 1776. [3783] Pringle. 1775.
 — OF VESSELS: [8048] Foster. 1824.
 ATTRACTIVE POWERS, RESOLUTION OF: [5230] Waring. 1789.
 ATWOOD'S MACHINE: [180. 5869-70] Atwood. 1784.
 AURORA BOREALIS: [570] Bravais. 1847. [930-2] Dalton. 1793-1834. [2782] Mairan. 1754. [3677] Pointer. 1738. [4493] Snow. 1842. [4667] Sturgeon. 1848. [4940] Tromholt. 1882. [6799] Cavendish. 1790. [7148-52] Dalton. 1793-1834. [8445] Glaisher. 1870. [8619] Greely. 1881. [8848] Hamilton. 1772. [8907] Hare. 1836. [9577] Hutchinsonson. 1787. [10540] La Rive. 1862. [11307-8] Mairan. 1733-54. [12077] Morgan. 1847. [13027] Paulsen. 1894. [13335] Pigott. 1789. [14533-4] Rowell. 1840-87. [S 1621] Tromholt. 1902. [S 2542] Lemström. 1886. [SS 1289] Schickhard. 1631.
 AUTOGRAPH LETTERS OF SCIENTISTS: [5892] Babbage. 1864. [7792] Faraday. 1828. [9246] Herschel. 1824.
 AVOGADRO'S LAW: [S 2611] Avogadro. 1837-41.
 BACTERIAL DECOMPOSITION: [7536] Emmerling. 1902.
 BALANCE: [9496] Houten. 1827. [11069] Ludlam. 1766. [15432] Walker. 1887. [S 1739] Brauer. 1909.
 — *v. Hydrostatic B. Torsion B.*
 BALATA: [4790] Terry. 1907.
 BALL-BEARINGS: [14527-9] Rowe. 1734.
 BALLISTIC CHRONOGRAPH: [6030] Bashforth. 1866. [12715-16] Noble. 1868. [S 1692-5] Bashforth. 1870-1900.
 — PENDULUM: [4044-5] Robins. 1805. [12065] Mordecai. 1845. [14345] Robins. 1761.
 BALLISTICS: [607] Brown. 1777. [875] Cotes. 1770. [893] Cranz. 1896. [1058] Didion. 1860. [1445] Galilei. 1638. [1845] Hélie. 1865. [3681] Poisson. 1839. [3809] Projectiles. 1836. [4044-5] Robins. 1805. [4536] Spitzgeschosse. 1864. [4567] Starrat. 1746. [4746-9] Tartaglia. 1546-62. [4916] Torricelli. 1644. [5795] Apollonius Pergæus. 1779. [6029] Bashforth. 1907. [6313] Bond. 1888. [6539] Brown. 1777. [7037] Cotes. 1770. [7829] Fenwick. 1859. [8212-13] Galilei. 1638-1730. [70333] Kummer. 1875. [11006-7] Longridge. 1889. [11782] Mersenne. 1644-7. [12058] Moore. 1813. [14345] Robins. 1761. [14393] Rohde. 1797. [14422-4] Ronca. 1901. [14580] Rumford. c. 1782. [14886-8] Simpson. 1752-1810. [15322-3] Torricelli. 1644. [16982] Charbonnier. 1907-8. [17185] Poisson. 1839. [S 1692-5] Bashforth. 1870-1900. [S 2003] Ingalls. 1912. [S 2510] Ferrel. 1860. [SS 1954] Peyre. 1809. [SS 2110] Tartaglia. 1537.
 — *v. Galvanometer (Ballistic). Gunnery. Mathematics (Artillery).*
 BALLOONING: [183] Augustin. 1806. [1127] Dupuis-Delcourt. 1850. [1306-10] Faujas. 1783-4. [1364] Fonvielle. 1882. [1371] Forster. 1832. [1547-50] Glaisher, etc. 1870-2. [1681] Grimaldi. 1788. [2369] La Garenne. 1852. [2729-37] Lunardi. 1784-6. [2885] Mason. 1838. [3634] Pilâtre de Rozier. 1785. [4176] Sadler. 1812. [4177] Sadler. 1817. [4918] Tournachon. 1864. [4927] Treille et Meyer. 1852. [4953] Turgan. 1851. [4961] Turnor. 1865. [5107] Vivenair. 1783. [5453] Wise. 1850. [5657] Aérostate. 1784. [5659] Aereo-Statica. 1804. [5660] Aeronautical Society of Gt. Britain. 1866-70. [5661] Aerostatics. 1802. [5662] Aerostation. 1808. [5663] Aerostation Displayed. c. 1802. [5912] Bacon. 1907. [5952] Baldwin. 1786. [6266] Blanchard. 1785. [7227] Deminne. 1865. [7806-8] Faujas de St.-Fond. 1783-4. [8027] Fonvielle. 1877. [8448-50] Glaisher, etc. 1870-1. [9280] Hildebrandt. 1908. [11089-92] Lunardi. 1784-6. [11428-9] Marion. 1867-70. [11584] Mathieu. 1799. [12327] Muzzi. 1839. [13343] Pilâtre de Rozier. 1786. [13501] Poole. 1838. [13548] Potain. 1824. [15311] Tissandier. 1878. [15353] Turnor. 1865. [S 3732] Coxwell. 1889. [S 3837-8] Zambecari. 1803. [SS 3184] Para du Phanjas. 1786. [SS 3197] Serrati. 1787.
 — *v. Aerial Navigation. Aerostation.*
 BARIUM AND ITS COMPOUNDS: [970] Davy. 1808. [13364] Pisani. 1876. [14189. 14210] Richards. 1893-4. [14707] Scheerer und Drechsel. 1873.
 BAROMETER (ANEROID): [7234] Dent. 1852. [14013] Reinherz. 1887.
 BAROMETRICAL TABLES: [SS 2354] Schögl. 1787.

- BAROMETRY AND THE BAROMETER:** [537-44] Boyle. 1660-84. [929] Dalencé. 1688. [1698-9] Guericke. 1672. [1832] Hazen. 1882. [1991] Hopkins. 1854. [2714-15] Luc. 1772. [3011] *Miscellanea Curiosa*. 1705-7. [3476] Pascal. 1663. [3692] Poleni. 1709. [4209] Saul. 1735. [4307] Scott. 1871. [4914-15] Torricelli. 1715. [5435] Willsford. 1658. [5714-6] Alencé. 1638-1753. [6326] Bontadosi. 1781. [6522] Brook. 1789. [7060] Crahay. 1835. [7350] Dove. 1826. [7450] Eeles. 1771. [7934] Fitzgerald. 1859. [8730] Guericke. 1672. [9431] Hooke. 1665. [9515] Howard. 1850-4. [10715-16] Le Monnier. 1781-8. [11059] Luc. 1784. [11138-9] Luz. 1784. [11272] Magellan. 1780. [11943-5] *Miscellanea Curiosa*. 1708-27. [12484] Newman. *n.d.* [14671] Saunderson. c. 1712. [14747-9] Schott. 1664-87. [14893] Sinclair. 1669. [15161-3] Sturm. 1676-85. [15320-1. 15325] Torricelli. 1715-1908. [SS 1477-81] *Accademia del Cimento*. 1667-91. [SS 1516] Bartoli. 1678. [SS 1588] Buat. 1816. [SS 1642] Desaguliers. 1719. [SS 2285] La Brosse. 1717. [SS 2306] Magellan. 1779. [SS 2334] Ramazzini. 1710. [SS 2369] Tagliani. 1736. [SS 2990] Dobrzanski. 1659.
— *v. Hypsometry. Sun's Influence on Air.*
- , PARADOXES ON: [8801] Hale. 1675. [13769] Purshall. 1707. [14505] Roubais du Tourcoin. 1721.
- BAROSCOPE:** [5133-4] Vossius. 1663. [7016] Cooper. 1839. [15161-3] Sturm. 1676-85.
- BASALT:** [3902] Raspe. 1776. [6094] Beddoes. 1791. [7809] Faujas de St.-Fond. 1784. [13917-18] Raspe. 1776. [SS 2226] Aubuisson de Voisin. 1814.
— *v. Greenstone.*
- BATHOMETER:** [14848] Siemens. 1876.
- BEAUTY, MATHEMATICAL THEORY OF:** [9107] Helbing. 1897.
— *v. Ornament, Geometrical Law of.*
- BEQUEREL RAYS:** [11407] Marckwald. 1904. [15146] Strutt. 1904.
- BEECH OIL:** [1920] Hill. 1715.
- BELEMNITE:** [6384] Bourguet. 1762.
- BELL-RINGING:** [15539] White. 1677.
- BELLS:** [1682] Grimthorpe. 1860. [8949] Harrison. 1831.
- BELTING:** [7015] Cooper. 1883. [9482] Hospitalier, *v. y.*
- BEN OIL, CHEMISTRY OF:** [3142. 12247] Mulder. 1847.
- BENZENE (BENZOL) AND ITS DERIVATIVES:** [1288. 7769. 7784] Faraday. 1825-59. [9379] Hofmann. 1845. [9712] Jacobson and Hönigsberger. 1903. [11359] Mansfield. 1849. [11951-3] Mitcherlich. 1834-47.
— *v. Aniline. Camphors. Indigo. Mesitylene. Phenol. Picric Acid. Retene. Terpenes. Toluene.*
- BENZOIC ACID AND BENZOATES:** [5067] Vignère. 1618. [13506] Pope. 1895. [13776] Pyman. 1904. [14697] Scheele. 1786. [15396] Vignère. 1642.
- BESSEMER PROCESS:** [383] Bessemer. 1905. [1748] Hall. 1857.
— *v. Blast Furnace.*
- BIBLIOGRAPHY OF SCIENCE:** [3668] Poggendorff. 1863-1904. [10759] Leuchs. 1841. [10988] London. 1658. [12598] Newton. 1888. [12943] Paracelsus. 1890-3. [14548-50] Royal Society of London. 1839-83. [SS 141] Royal Society's Catalogue. 1867-94.
— *v. Accounting, B. of. Astronomy, B. of. Catalogues. Chemistry, B. of. Electricity, B. of. Engineering, B. of. Geometry (Euclidean), B. of.*
- BIBLIOGRAPHY OF SCIENCE, continued:**
Magnetism, B. of. Mathematics, B. of. Meteorology, B. of. Physics, B. of. Telegraphy (Electric), B. of. Vitruvius, B. of.
- BILLIARDS, MATHEMATICAL THEORY OF:** [870-1] Coriolis. 1835. [9127] Hemming. 1899. [S1981] Hemming. 1904.
- BINOMIAL THEOREM:** [6-7] Abel. 1839-81. [141] Arbon. 1844. [352] Bernoulli. 1713. [1247-50] Euler. 1774-1828. [2875. 2877] Maseres. 1791-1807. [3234-5. 3249-50. 3254-5] Newton. 1704-40. [4744] Tartaglia. 1556-60. [5189-90] Wallis. 1685. [5611-12] Abel. 1839-81. [6149-50] Bernoulli. 1713. [7682-5] Euler. 1774-1840. [9609] Hutton. 1786. [11533. 11535] Maseres. 1795-1807. [12506. 12534-6. 12543-7. 12572-3] Newton. 1704-40. [13384] Plana. 1837. [13845-6] Ralplhson. 1702. [14335] Robertson. 1795. [15453] Wallis. 1685. [S 1081] Pfaff. 1797.
— *v. Arithmetical Triangle. Series (Infinite).*
- BIOCHEMISTRY—*v. Chemistry (Physiological).***
- BIOGRAPHIES, NOTICES, AND CORRESPONDENCE OF SCIENTISTS AND ENGINEERS:** [198] Babbage. 1864. [383] Bessemer. 1905. [448-9] Boerhaave. 1743-6. [559] Brahe. 1890. [621] Brunel (I. K.). 1870. [622] Brunel (Sir M. I.). 1862. [693] Cardano. 1898. [714] Cassini (J. D.). 1851. [728] Cauchy. 1878. [737] Cavalieri. 1844. [742-3] Cavendish. 1851. [935-7] Dalton. 1854-95. [1029-32] Descartes. 1700-1905. [1061] Diogenes Laertius. 1533. [1121] Dumas. 1880. [1300-4] Faraday. 1868-84. [1327] Ferguson. 1870. [1366] Forbes (J. D.). 1873. [1389] Fowler. 1900. [1491] Gauss. 1860. [1855-6] Helmholtz. 1897-1906. [1878] Hero Alexandrinus. 1854. [1879] Herschel (Miss). 1879. [1963] Hofmann. 1888. [1999] Horrocks. 1859. [2143] Jenkin. 1887. [2157] Jevons. 1866. [2475] La Rive. 1877. [2631-3] Liebig. 1844-1906. [2674] Lodge. 1893. [2928-9] Maxwell. 1882-1901. [3096] Morgan. 1882. [3178] Nasmyth. 1883-5. [3189-91] Napier. 1787-1834. [3279. 3284] Newton. 1850-5. [3478-9] Pascal. 1848-1902. [3490-1] Pasteur. 1896-9. [3550] Perry. 1890. [3808] Pritchard. 1897. [3866] Quetelet. 1875. [3957] Reis. 1883. [4080] Roscoe. 1906. [4175] Sacro Bosco. 1562. [4383] Siemens. 1893. [4409] Simson. 1812. [4439-41] Smiles. 1862-74. [4576] Stephenson (G.). 1857-8. [4578] Stephenson (R.). 1864. [4589] Stevinus. 1842. [4757] Taylor. 1793. [4793] Tesla. 1894. [5072] Vignoles. 1889. [5165] Walker. 1862. [5253-63] Watt. 1824-1904. [5379-80] Whewell. 1876. [5507-8] Worcester. 1865. [5613] Abel. 1906. [5805] Arago. 1857. [5891-2] Babbage. 1864. [5937] Baily. 1845. [6165] Berthollet. 1844. [6444-7] Brahe. 1655-1890. [6474-5] Brewster. 1846-70. [6494] Bright. 1908. [6559] Bruno. 1846-7. [6724] Cardano. 1898. [6800-1] Cavendish. 1851. [6923] Clarke. 1825. [7018] Copernicus. 1876. [7110] Crosse. 1857. [7156-8] Dalton. 1854-1906. [7205-8] Davy. 1831-62. [7217] Dee. 1842. [7265-6] Descartes. 1880-93. [7348] Douglass. 1900. [7473] Edison. 1894. [7597] Ericsson. 1890-2. [7708] Euler. 1783. [7758-9] Fairbairn. 1877. [7796-7801] Faraday. 1868-73. [7868] Ferguson. 1867. [7931] Fitzgerald. 1901. [8069] Fourier. 1833. [8074] Fowler. 1900. [8183-4] Colden. 1817. [8225-39] Galilei. 1778-1886. [8309] Gauss. 1884. [8403] Gilbert. 1891. [8528] Gordon. 1877. [8575] Grandi. 1744. [8950] Harrison. 1882. [8964-8] Harrison. 1835-82. [9116] Helmholtz. 1899. [9146] Henry. 1880. [9188] Herschel. 1876. [9372. 9384-5] Hofmann.

- BIOGRAPHIES, NOTICES, AND CORRESPONDENCE OF SCIENTISTS AND ENGINEERS, continued:**
 1888-1902. [9543] Hull. 1910. [9758] Jannetaz. 1892. [9765] Joffcock. 1867. [9774] Jeffreys. 1855. [9931] Joule. 1892. [10045] Kekulé. 1898. [10082-4] Kelvin. 1908-10. [10107-9] Kepler. 1804-31. [10212] Klijnsmia. 1861. [10479] Langdon. 1908. [10851-2] Liebig. 1876-91. [10938] Locke. 1862. [11127] Lyell. 1881. [11463-4] Martin. 1764. [11524] Marum. 1899. [11682-3] Maxwell. 1882-4. [11762] Menshutkin. 1908. [11820] Meyer. 1897. [12133] Morgan. 1882. [12290] Murchison. 1875. [12335] Napier (D.). 1912. [12343-4] Napier (J.). 1787. [12363] Nasmyth. 1883. [12409] Navier. 1837. [12475-6] Newcomb. 1903-10. [12495] Newton (H.A.). 1896. [12592-6]. 12607. 12615] Newton. 1748-1885. [13013-15] Pasteur. 1885-98. [13343] Pilâtre de Rozier. 1786. [13440] Plücker. 1872. [13625] Prestwich. 1899. [13673] Priestley. 1806. [13736] Prony. 1839. [13794] Quélet. 1873. [14080] Rennie. 1875. [14293] Roberts. 1911. [14371] Robison. 1815. [14443] Roscoe (Pasteur). 1889. [14581] Rumford. 1875. [14700-1] Scheele. 1886-93. [14801] Selgwick. 1890. [14836] Sharp. 1889. [14852-3] Siemens (C. W.). 1888. [14856] Siemens (E. W.). 1893. [14937] Smee. 1878. [14981] Sopwith. 1891. [15022-4] Stas. 1891-9. [15038-9] Stephenson (G.). 1857-64. [15043] Stephenson (R.). 1864. [15071] Stevenson (R.). 1878. [15079] Stevinus. 1846. [15208] Taylor. 1793. [15221] Telford. 1838. [15316] Topley. 1894. [15324-5] Torricelli. 1864-1908. [15334] Trevithick. 1872. [15659] Acta Mathematica. 1913. [17184] Poincaré. 1913. [S 418] Abel. 1885. [S 643] Diophantus. 1885. [S 777] Hamilton. 1882-9. [S 1642] Airy. 1896. [S 1777] Cauchy. 1868. [S 1890] Dumas. 1868. [S 1979] Helmholtz. 1906. [S 2077] Lesage. 1805. [S 2160] Newton. *s.d.* [S 2332] Stokes. 1907. [S 2643] Berzelius. 1901. [S 2894] Priestley. 1831-2. [S 3665] Watt. 1839. [SS 15] Archimedes. 1737. [SS 1724] Gilbert. 1903.
 — *v. Correspondence of Scientists.*
- BIOMETRICS:** [2825] Marey. 1878. [SS 3222] Biometrica. 1901-6.
 — *v. Evolution, Mathematical Theory of.*
- BIRDFLIGHT, THEORY OF:** [10046] Keller. 1911.
- BISMUTH:** [6738] Carnot. 1878. [7776] Faraday. 1849. [13057] Pearson. 1856. [13550] Pott. 1753.
- BITUMEN:** [9008] Hatchett. 1804. [10244] Knox. 1823.
 — *v. Asphalt.*
- BLAST FURNACE:** [1694] Gruner. 1873. [10120] Kerpely. 1884. [14721] Schinz. 1870.
- BLASTING:** [4155] Rziha. 1866. [5764] André. 1878. [8761] Guttman. 1892. [S 3219] Drinker. 1878.
- BLEACHING:** [363] Berthollet. 1841. [3396] O'Reilly. 1804. [4290] Schützenberger. 1882. [5334] Westrum. 1819. [5610] Abel. 1905. [6162. 6164] Berthollet. 1791-1841. [9270] Higgins. 1799. [9418] Home. 1756. [12920-1] Pajot des Charmes. 1798-1800. [14611] Ryan. 1852. [15044] Stephenson. 1808. [S 3060] Hübner. 1912. [SS 2719] Berthollet. 1824. [SS 2817] Partridge. 1823.
- BLOOD, CHEMISTRY OF:** [535] Boyle. 1684. [1744-6] Hales. 1731-40. [5496] Wooldridge. 1893. [8684] Grew. 1679. [8806] Hales. 1731-3. [13671] Priestley. 1776.
 — *v. Globulin.*
- BLOWPIPE ANALYSIS:** [3119] Moses and Parsons. 1895. [3652-5] Plattner. 1845-75. [4090] Ross. 1884. [6185-7] Berzelius. 1822-45. [6606]
- BLOWPIPE ANALYSIS, continued:**
 Bunsen. 1886. [7088] Cronstedt. 1788. [10342] Kupferschlaeger. 1860. [13402-6] Plattner. 1845-75. [14487] Ross. 1880. [14705] Scheerer. 1851. [S 2641] Berzelius. 1821-37.
 — *v. Oxyhydrogen Blowpipe.*
- BOILER DEPOSITS:** [13251] Phipson. 1868.
 — EXPLOSIONS: [839] Colburn. 1860. [7320] Dodd. 1818. [8973] Hartig. 1867. [11457-8] Marten. 1869-72. [13124] Perkins. c. 1840.
 — TESTING: [13126] Perkins. 1881.
- BOILERS (MARINE):** [369] Bertin. 1906. [6167] Bertin. 1896. [6717] Caralp. 1896. [8440] Girard. 1897.
 — (STEAM): [3516-17] Peattie. 1888-92. [4921-2] Traill. 1890-6. [5163] Walker. 1908. [5831] Armstrong. 1839. [6008] Barr. 1899. [6116] Bellens. 1895. [7986] Foden. 1900. [9477] Hospitalier. *v. d.* [13125-6] Perkins. 1877-81. [14965] Snow. 1899. [15295] Thurston. 1888. [S 3421] Donkin. 1898. [S 3505] Kent. 1915.
 — *v. Injectors. Valve.*
- BOILING POINT:** [11408] Marckwald. 1888. [13453] Pohl. 1850. [14753] Schröder. 1844. [15367] Urriola. 1908. [15464-6] Watson. 1791-1800.
- BOMBS AND GRENADES:** [4628] Stone. 1645. [SS 2806] Malthus. 1650. [SS 2845] St.-Remy. 1707-41.
 — *v. Gunnery and Artillery. Pyrotechnics.*
- BOROLANITE:** [9460] Hornc and Teall. 1892.
- BORAX—*v. Boron.***
- BORING AND DRILLING:** [2895] Mather. 1864. [4786] Tecklenburg. 1886-96. [8997] Haskoll. 1846. [11188] McGuire. 1896. [S 3219] Drinker. 1878.
- BORON AND ITS COMPOUNDS:** [970] Davy. 1808. [3968] Rennevald. 1745. [6267] Blane. 1787. [8314-15] Gay-Lussac et Thénard. 1811.
- BOYLE-MARIOTTE'S LAW—*v. Gases, Laws of.***
- BRACHISTOCURVE:** [353] Bernoulli. 1742. [1873] Hermann. 1716. [6151-2] Bernoulli. 1742. [9171] Hermann. 1716.
 — *v. Curves (Isoperimetrical).*
- BRASS, METALLURGY OF:** [3539] Percy. 1861. [10545] Larkin. 1887. [13111] Percy. 1861.
- BREADMAKING:** [2114] Jago. 1886. [7336] Donovan. 1830. [7447] Edlin. 1805. [14411] Rollet. 1846. [SS 2708] Accum. 1821.
 — *v. Cereals, Chemistry of.*
- BREWING:** [27] Accum. 1821. [225] Bailey. 1889. [294] Baverstock. 1826. [427-8] Black. 1844-75. [562] Brande. c. 1825. [569] Braungart. 1901. [780-1] Child. 1797. [854-5] Combrune. 1762-1804. [1369] Ford. 1862. [1983] Hooper. 1882. [2575-6] Levesque. 1845-53. [3107] Moritz and Morris. 1893. [3528] Peltz und Habich. 1876. [3645] Pitt. 1859. [3741] Practical Brewing. 1879. [3996] Richardson. 1805. [4361] Shannon. 1805. [4572] Steel. 1881. [4836] Thomson. 1849. [4864] Tizard. 1845-6. [4948] Tuck. 1822. [5636] Accum. 1820. [6250] Black. 1835. [6469] Brewer (Compleat). 1760. [6470] Brewer (London and Country). 1737-8. [6471] Brewer's Monitor. 1824. [7336] Donovan. 1830. [8780] Hagecius. 1855. [8846-7] Ham. 1822-3. [9061] Hayman. 1819. [9433] Hooper. 1882. [10302] Krebs. 1887. [10777] Levesque. 1847. [11042] Lovibond. 1883. [11334] Malt-Liquors. c. 1740. [11725] Meibom. 1668. [12150] Moritz and Morris. 1891. [12165-7] Morrice. 1819-34. [13392-3] Plat. 1653. [13934] Rawlinson. 1807. [13979] Reddington. 1780. [14220] Richardson. 1777. [14318-19]

BREWING, continued :

- Roberts. 1837-47. [14432] Ronna. 1869. [15270] Thomson. 1849. [SS 2723. 2725-7] Brewer (London and Country). 1735-50. [SS 2730] Combrune. 1758.
 — *v. Malting. Saccharometer.*
 —, BACTERIOLOGY OF: [3487-8. 13007-9] Pasteur. 1876-9.
 — *v. Fermentation.*
 —, CHEMISTRY OF: [S 3150] Windisch. 1895.
 BRICK MAKING: [7316] Dobson. 1850. [13082] Pérouze. 1828.

- BRIDGE BUILDING: [100] Anderson. 1818. [630] Buck. 1857. [1084-5] Douglas. 1816-32. [1492] Gauthey. 1809-16. [1812] Haupt. 1864. [2021] Humber. 1870. [2141] Jenkin. 1876. [2389] Laisse et Schuebler. 1871. [2833] Marquand. 1749. [2897] Matheson. 1873. [2921] Maw and Dredge. 1872. [2952] Merrill. 1870. [4325] Temple. 1776. [4429-30] Smeaton. 1812-14. [6587-8] Buck. 1839-80. [7229] Dempsey. 1850-6. [7741-4] Fairbairn. 1849-70. [8181-2] Fulton. 1796. [9028] Haupt. 1862-73. [9065] Sleaford. 1883. [9350] Hodges. 1860. [9536] Hughes. c. 1852. [9550-1] Humber. 1861-70. [9615] Hutton. 1891. [9790] Jenkin. 1876. [10125] Ketchum. 1908. [10561-2] Latham. 1858. [11445] Marquand. 1749. [11578] Matheson. 1873. [11696] Maynard. 1868. [11771] Merrill. 1870. [11776] Merriman and Jacoby. 1894-7. [12062] Morandière. 1874-82. [12403] Navier. 1823. [13140-1] Perronet. 1788-94. [13318] Pictet. 1823. [13503] Pope. 1811. [13730] Prony. 1832. [14064-5] Rennie (J.). 1736-1823. [14276] Ritter. 1879. [14425] Rondelet. 1836. [14792] Seaward. 1824. [14806-7] Seguin. 1824-6. [14927-30] Smeaton. 1767-1814. [15142] Struckel. 1906. [15342] Turnbull. 1841. [15387] Veranzio. c. 1895. [15426] Waddell. 1884.

— *v. Arches. Caissons. Chains (Suspension). Girders. Joints (Riveted). Roofs. Trusses. Viaducts.*

- PIERS: [12488] Newman. 1893.
 — RIBS: [8076] Fox. 1849. [10937] Locke. 1849.
 BRIDGES, THEORY OF: [2048. 9606. 9610-11] Hutton. 1772-1812.

BROCARD'S FIGURES: [15973] Emmerich. 1891.

BROMINE AND ITS COMPOUNDS: [250] Balard. 1826. [14179. 14209] Richards. 1890-7.

— PROCESS: [6853] Chevalier. 1841.

BUBBLE FORMATION: [13813] Quince. 1894.

BUILDERS' GUIDES: [639] Builder. 1734. [1006] Dempsey. 1857. [3314] Nicholson. 1845. [4195] Salmon. 1752. [6400] Boyers. 1807. [6601] Builder's Practical Director. 1856-8. [6628] Burn. 1870. [7191-3] Davy. 1839-41. [12643-4] Nicholson. 1812-45. [12985] Partington. 1825.

BUILDING CONSTRUCTION: [87] Allen. 1900. [264] Barberot. 1906. [640] Building. 1883. [3688] Pole. 1872. [4312] Scott-Moncrieff. 1897. [4377] Shields. 1877. [5510-11] Wray. 1872-80. [6021] Bartholomew. 1840. [6495] Brightmore. 1908. [6602-3] Building Construction. 1875-85. [6605] Bulloch. 1854. [6640] Burrell. 1895. [6641] Burri. 1873. [6810] Chabat. 1881. [7317] Dobson. 1856. [7742-4] Fairbairn. 1857-70. [8077] Fox. 1881. [8174] Fryer. 1876. [10227] Knight. 1889. [11441] Marks. 1901. [11551] Masonry. 1847. [13935] Rawlinson. 1858. [14427] Rondelet. 1842-3. [15143] Strukel. 1906. [17344] Hochbaukunde. 1899-1905. [S 3340] Andrews. 1913. [S 3376-7] Building Construction. 1879-1908. [S 3491] Innocent. 1916.

BUILDING CONSTRUCTION, continued :

— *v. Concrete (Reinforced). Grain Magazines. Hospital C. Lighthouses. Masonry C. Roofs. Sheds. Steel Structures. Structural Design. Structures. Theatre C. Towers.*

— ESTIMATES: [176] Atchley. 1868. [13185]

Pewtner. 1870. [S 3585] Rea. 1913.

— *v. Engineering Costs. Quantity Surveying.*

— LAW: [5974] Fletcher. 1896.

— MATERIALS: [5621] Abney. 1876. [9544] Hull. 1872. [12281] Munby. 1909. [13003] Pasley. 1838. [13345] Pincot. 1770.

— *v. Brick Making. Cement. Concrete. Granite. Mortar. Timber. Wood.*

BUTYRIC ACID: [13272] Phipson. *n.d.* [14274] Ritsert. 1890.

CABLE TESTING: [5942] Baines. 1903.

— TRANSPORT: [2326] Kool en Siedenburgh. 1871.

— *v. Tramways (Wire). Wire Rope.*

CABLES (CHAIN): [6069] Beardslee. 1879. [6560] Brunton, etc. 1814-15. [13106] Pering. 1819.

— (SUBMARINE): [13609] Preece. 1862.

CADMIUM AND ITS COMPOUNDS: [9662] Ingalls. 1903. [10478] Lang et Rigaut. 1899. [14202. 14206] Richards. 1898-1906. [S 3255] Ingalls. 1906.

CÆSIUM: [13358] Pisani. 1864.

CAFFEINE: [12648] Nicholson. 1847. [14582] Runge. 1820.

CAISSONS: [7218-19] Deeble. 1827-8.

CALCIUM: [970] Davy. 1808. [12794] Odling. 1859. [14187. 14203] Richards. 1902-10.

— CARBIDE: [13319] Pictet. 1896.

— *v. Acetylene.*

— MONOXIDE: [6248] Black. 1777. [6928] Classen. 1733. [7444] Edinburgh Essays. 1754-71. [9459] Hornby. 1821. [15620] Edinburgh Essays. 1803.

— PHOSPHIDE: [3509] Pearson. 1792.

CALCULATING MACHINES AND DEVICES: [190-1. 198]

Babbage. 1864-89. [2395] Lalanne. 1840.

[3188] Napier. 1617. [3692] Poleni. 1709.

[3973] Reuleaux. 1862. [4809] Thomas. 1865.

[5891. 5896] Babbage. 1843-64. [7321] Dodd.

1853. [12155-6] Morland. 1673. [12339-42]

Napier. 1617-22. [12768] Nystrom. 1852.

[SS 871] Suardi. 1752.

— *v. Abacus. Counters. Napier's Bones. Scale (Mathematical). Slide Rule.*

CALCULATION, PRINCIPLES OF: [752] Challis. 1869.

[7543] Emerson. 1770. [12084. 12087] Morgan.

1843-9. [15860] Challis. 1869. [16334] Lüroth.

1900.

CALCULUS: PHILOSOPHICAL PRINCIPLES OF THE:

[347-8] Berkeley. 1734-5. [700] Carnot. 1839.

[1367] Forbes. 1837. [1822] Hawkes. 1822.

[2207-8] Jurin. 1734-5. [2604] L'Huilier. 1787.

[3378] Ohm. 1843. [3442] Paman. 1744. [3560]

Petvin. 1750. [4041-2] Robins. 1735-40.

[4344] Serret. 1855. [4913] Torelli. 1758.

[5196-7] Walton. 1735. [5486-7] Woodhouse.

1803. [6056] Bays. 1736. [6144-5] Berkeley.

1734-54. [6741-2] Carnot. 1801-39. [6972]

Coddington. 1825. [8028] Forbes. 1837.

[9344] Hobson. 1902. [9963] Jurin. 1734.

[12684] Nieuwentyt. 1695. [14134] Reynau.

1708. [14345] Robins. 1761. [14672-3] Saun-

erson. 1756. [14761] Schwarz. 1853. [15838]

Carnot. 1860. [15999] Fleury. 1899. [16048]

Genocchi. 1899. [16260] Lamarle. 1861-3.

[16807] Young. 1910.

— *v. Continuity. Infinity. Limits. Method of. Maclaurin's Theorem.*

- CALCULUS : NEWTON-LEIBNIZ CONTROVERSY ON ITS INVENTION :** [2532] Leibniz. 1745. [3282] Commercium. 1712. [3298] Recueil. 1720. [3900] Raphson. 1715. [4690] Suzzi. 1723. [4757] Taylor. 1793. [5040] Varignon. 1725. [5183] Wallis. 1693-9. [10696. 10699-701. 10703] Leibniz. 1720-1884. [12117] Morgan. 1851. [12534-6] Newton. 1704. [12564-71] Commercium Epistolicum. 1712-1856. [12613] Newton et Leibniz. 1863. [12616] Morgan. 1846. [13846] Raphson. 1715. [15208] Taylor. 1793. [S 922] Sloman. 1860.
- , **PRE-NEWTONIAN WORKS ON THE :** [735] Cavalieri. 1653. [1063] Diophantus. 1670. [1328] Fermat. 1679. [2273] Kepler. 1615. [3477] Pascal. 1665. [4419] Sluze. 1668. [5184-5] Wallis. 1657. [6438] Bradwardine. 1495. [6781] Cavalieri. 1653. [7301-2] Diophantus. 1670. [8652] Gregorius a S^{to} Vincentio. 1647-9. [15451] Wallis. 1658. [SS 181] Barrow. 1735.
- *v. Curves, Quadrature of. Exhaustion, Method of. Indivisibles, Method of. Interpolation. Mazima and Minima. Tangents (Geometrical).*
- : **FLUXIONAL AND DIFFERENTIAL NOTATIONS COMPARED :** [3498] Peacock. 1819. [3574] Philleleutherus Londinensis. 1744. [5486-7] Woodhouse. 1803. [9245] Herschel and Babbage. 1813. [13036] Peacock. 1819.
- ('ANTECEDENTAL') : [8478] Glenie. 1793.
- (BARYCENTRIC) : [16397-8] Möbius. 1827-85.
- (DIFFERENTIAL) : [298] Bazaine. 1817. [856] Byerly. 1880. [1150] Edwards. 1893. [1251] Euler. 1787. [1822] Hawkes. 1823. [2487] Laurent. 1885. [2765] McMahon and Snyder. 1898. [3359] O'Brien. 1842. [3410] Otley. 1837. [3768] Price. 1848. [3991] Rice and Johnson. 1880. [4900-3] Todhunter. 1871-90. [5205-7] Walton. 1845-6. [5427-8] Williamson. 1877-89. [5503] Woolhouse. 1845. [5558] Young. 1836. [6181] Bertrand. 1864. [6448] Brahy. 1867. [6545] Browne. 1824. [7462-4] Edwards. 1886-93. [7686] Euler. 1755. [9293] Hind. 1831. [10696] Leibniz. 1884. [10792-3] L'Hospital. 1716. [11878] Miller. 1833. [14134] Reynau. 1708. [14160-1] Rice and Johnson. 1888. [15782-4] Brahy. 1867-1905. [15825] Byerly. 1901. [15966] Edwards. 1909. [16048] Genocchi. 1899. [16225] Kleyer and Haas. 1888-94. [161313] Lodge. 1902. [16732-3] Todhunter. 1873-1907. [16793] Williamson. 1899. [16801] Woolhouse. 1874. [SS 346] Crousaz. 1721.
- *v. Differential.*
- (FLUXIONAL) : [876] Cotes. 1722. [983] Dealtry. 1816. [1066] Ditton. 1726. [1827] Hayes. 1704. [2148] Jephson. 1826-30. [2425-6] Landen. 1780-9. [2761-3] Maclaurin. 1742. [2939] Meerman. 1742. [3028] Moivre. 1704. [3234-5. 3246. 3249-50] Newton. 1704-36. [3900] Raphson. 1715. [4110-12] Rowe. 1751-1809. [4115] Rowning. 1756. [4202] Saunderson. 1756. [4395-6] Simpson. 1750-1805. [4621-2] Stone. 1730-5. [5086-7] Vince. 1805-12. [5670-1] Agnesi. 1801. [6056] Bayes. 1736. [6545] Browne. 1824. [7038-9] Cotes. 1722. [7211] Dealtry. 1816. [7304] Ditton. 1726. [7548-9] Emerson. 1743-57. [8808-9] Hales. 1800. [9060] Hayes. 1704. [9354-5] Hodgson. 1736-58. [9404] Holliday. 1777. [10460] Landen. 1780. [11147-3] Lyons. 1758. [11231-5] Maclaurin. 1741-1801. [11489. 11493] Martin. 1739-59. [11615-16] Mauduit. 1768. [12269] Muller. 1736. [12506. 12534-6. 12572-3. 12579-83. 12588] Newton. 1704-45. [14531] Rowe. 1757. [14672-3. 14676] Saunderson. 1742-56. [14872] Simpson. 1750. [S 1041] Newton. 1737.
- CALCULUS (GEOMETRICAL) :** [16247] Kraft. 1893. [16473] Peano. 1891. [16613] Schubert. 1879.
- (GRAPHIC) : [265] Barker. 1902. [15900] Cremona. 1875. [16453] Ocagne. 1908. [17163] Ott. 1879-85.
- *v. Statics (Graphic).*
- (INFINITESIMAL) : [726] Cauchy. 1840-4. [910] Crousaz. 1721. [1052] Differential and Integral Calculus. 1837-43. [1360-1] Fontenelle. 1727. [1644-5] Greenhill. 1891-6. [2007] Hôtel. 1878-81. [2357-8] Lacroix. 1810-19. [2598-9] L'Hospital. 1716-68. [3079] Morgan. 1842. [3197] Navier. 1848-9. [3769-72] Price. 1852-62. [3980] Reynau. 1708. [4338] Serret. 1879-80. [6180] Bertrand. 1864-70. [6776] Cauchy. 1840-4. [7112] Crousaz. 1721. [7220] Deidier. 1740. [7992] Fontaine. 1770. [8021-2] Fontenelle. 1727. [8028] Forbes. 1837. [8820-2] Hall. 1837-63. [10380-1] Lacroix. 1810. [12096-8] Morgan. 1842. [13642-6] Price. 1852-89. [13818] Raabe. 1839-47. [14824] Serret. 1906-9. [15733-4] Bertrand. 1864-70. [15775] Boussinesq. 1887-90. [15845] Carr. 1886. [15855] Cauchy et Moigno. 1840-4. [15856] Caunt. 1914. [15898] Crefœur. 1902-8. [15907-8] Czuber. 1898-1906. [16053] Gilbert. 1894. [16089] Haag. 1893. [16163] Hôtel. 1878-81. [16207] Kiepert. 1901-3. [16275-6] La Vallée-Poussin. 1903-12. [16306] Lipschitz. 1877-80. [16320] Lorentz. 1907. [16380-1] Meyer. 1901-15. [16405] Morgan. 1842. [16421] Navier. 1875. [16500-1] Price. 1857-89. [16638-9] Serret. 1886-1909. [16685-7] Stolz. 1893-9. [SS 2358-60] Stancari. 1713.
- *v. Analysis (Mathematical). Mathematics (Higher).*
- , **ELEMENTARY WORKS ON THE :** [390] Bézout. 1824. [488-90] Boucharlat. 1826-81. [1109] Duhamel. 1860-1. [1138] Echols. 1902. [1342] Fisher. 1881. [1749-50] Hall. 1834-46. [1785-6] Harnack. 1881-91. [1862-3] Hemming. 1848-52. [1927] Hind. 1831. [1993] Hopkins. 1833. [2359-62] Lacroix. 1816-74. [2397] Lamb. 1897. [2453] Lardner. 1825. [2692] Loomis. 1874. [2985] Miller (T. H.). 1891. [2991-2] Miller (W. H.). 1833-43. [3312] Nichols. 1900. [3481] Pasch. 1882. [3495] Pauly. 1887. [4019] Ritchie. 1847. [4756] Tattershall. 1838. [4768] Taylor (F. G.). 1899. [4770] Taylor (J. M.). 1884. [4825-6] Thomson. 1831-56. [5554] Young and Lineberger. 1900. [7050-2] Cournot. 1841-57. [7293] Dienger. 1857. [7387] Duhamel. 1856. [8388-9] Gibson. 1901-4. [5584] Granville. 1904. [8635-6] Greenhill. 1886-91. [9128] Hemming. 1852. [10373. 10375-8] Lacroix. 1816-74. [10519-20] Lardner. 1825. [10780-2] Levy. 1830. [13574] Powell. 1829. [15696] Autenheimer. 1901-10. [15773] Boucharlat. 1891. [15780] Bowser. 1905. [15819] Burkhardt. 1907. [15825-6] Byerly. 1889-1901. [15829] Cain. 1909. [15858] Cesàro. 1904. [15950] Duhamel. 1860-1. [16018-19] Fricke. 1902-9. [16050. 16052] Gibson. 1904-10. [16075] Greenhill. 1896. [16109] Harnack. 1891. [16236] Kohlrausch. 1907. [16252] Lacroix. 1867. [16261] Lamb. 1907. [16330] Lübsen. 1899. [16472] Pauly. 1909. [16520] Rice and Johnson. 1888. [16593] Schlotke. 1903. [S 1208] Spitz. 1871.
- : **APPLICATIONS AND EXAMPLES :** [1415] Frenet. 1873. [1657-9] Gregory. 1841-6. [1923] Hind. 1832. [3499-503] Peacock. 1820. [8662-4] Gregory. 1841-6. [15298] Tisserand. 1877. [15782-4] Brahy. 1867-1905. [15937] Dingeldey. 1910-13. [16017] Frenet. 1891.

- CALCULUS: APPLICATION AND EXAMPLES, continued:** [1628-9] Fuhrmann. 1890-1903. [16071] Graindorge. 1885. [16076-7] Gregory. 1846. [16300] Lieblein. 1889. [16656-8] Sohncke. 1885-1908. [16725] Tisserand. 1896.
- FOR ENGINEERS: [13156-7] Perry. 1897-1910. [14512] Rouché et Lévy. 1902. [15687] Appell. 1905. [16234] Koestler und Tramer. 1913. [16266] Larkman. 1904. [16475] Perry. c. 1900. [16538] Rouché et Lévy. 1900-2. [16565-6] Scheffers. 1911.
- (INTEGRAL): [657] Byerly. 1881. [704] Carré. 1700. [779] Cheyne. 1703. [859] Condorcet. 1765. [876] Cotes. 1722. [1252-3] Euler. 1768-1845. [2074-5] Hymers. 1835-44. [2095] Integral Calculus. 1835. [2169] Johnson. 1883. [2542] Legendre. 1811-17. [3413] Ottley. 1838. [4622] Stone. 1735. [4904-7] Todhunter. 1868-95. [4917] Tortolini. 1844-6. [5179-80] Walmsley. 1749-53. [5429-30] Williamson. 1880-91. [5559] Young. 1831. [7038-9] Cotes. 1722. [7465] Edwards. 1894. [7687] Euler. 1824-45. [8904] Hardy. 1905. [10736] Le Seur. 1748. [10912] Lobatto. 1851-2. [14156-7] Riccati. 1757-62. [14291] Roberts. 1887. [14880] Simpson. 1743. [15001] Spottiswoode. *n. d.* [15097] Stone. 1735. [15783-4] Brahy. 1895-1905. [15826] Byerly. 1889. [16071] Graindorge. 1885. [16227-8] Kleyer und Haas. 1889. [16532] Roberts. 1887. [16734-5] Todhunter. 1874-95. [16793-4] Williamson. 1906. [S 497] Bougainville. 1754-6. [S 1081] Pfaff. 1797.
- *v. Integration. Pfaff's Problem.*
- OF DERIVATIONS: [S 443] Arbogast. 1800.
- OF FINITE DIFFERENCES: [468-70] Boole. 1860-72. [1170] Emerson. 1763. [1251] Euler. 1787. [1336] Finite Differences. 1849. [1883-4] Herschel. 1820. [2072-3] Hymers. 1839-58. [2334] Kuhff. 1831. [2374. 2381] Lagrange. 1806-13. [3317] Nicholson. 1817. [3511] Pearson. 1849. [4762] Taylor. 1715. [6331-3] Boole. 1860-72. [6626] Burn and Brown. 1902. [6733] Carmichael. 1860. [7555-6] Emerson. 1763. [7686] Euler. 1755. [8819] Hall. c. 1819. [9214-15] Herschel. 1820. [9642-3] Hymers. 1839-58. [12815] Ohm. 1851. [13050-2] Pearson. 1849-50. [15763] Boole. 1872. [15820] Burn and Brown. 1902. [16359] Markoff. 1896. [16635] Selivanov. 1904. [SS 880-1] Taylor. 1717.
- *v. Differential Method. Series (Infinite).*
- OF FUNCTIONS: [194] Babbage. 1820. [5890] Babbage. 1820. [9233] Herschel. 1820. [12093-4] Morgan. 1836.
- *v. Functions, Theory of. Taylor's Theorem.*
- OF OPERATIONS: [6734-6] Carmichael. 1853-5. [12347] Naquet. 1879.
- *v. Calculus of Derivations.*
- OF VARIATIONS: [695-6] Carl. 1881-5. [1256] Euler. 1741. [1750] Hall. 1846. [2139] Jellett. 1850. [2605-6] L'Huilier. 1789. [4895] Todhunter. 1871. [5491] Woodhouse. 1810. [6774] Cauchy. 1821. [8819. 8821] Hall. 1819-46. [9708] Jacobi. 1866. [9778] Jellett. 1850. [10859] Lindelöf. 1861. [13642-6] Price. 1852-89. [14884-5] Simpson. 1757. [15757] Bolza. 1909. [15837] Carl. 1881. [16232] Kneser. 1900. [16471] Pascal. 1899. [16793] Williamson. 1906. [SS 69] Gauss. 1870-1906.
- *v. Curves (Isoperimetric).*
- HISTORY OF THE: [4888-90] Todhunter. 1861.
- CALENDAR:** [1965] Holder. 1694. [1999] Horrocks. 1678. [8692] Griffith. 1892. [8742] Gumpach. 1848. [8839] Halliwell-Phillipps. 1839. [9455] Hopton. 1616. [12101] Morgan. 1844. [14284] Rivard. 1804. [14997] Spinola. 1562. [15138] Streete. 1667. [SS 1329] Vetter. 1759.
- *v. Almanacs. Chronology. Easter. Ephemerides. Time.*
- REFORMS: [818] Clavius. 1603. [1076] Doglioni. 1587. [2214] Kalendarium Gregorianum. 1582. [3629] Piccolomini. 1568. [3642] Pitavus. 1568. [6943] Clavius. 1612. [12880] Padovani. 1576. [13299] Piccolomini. 1568. [SS 1025] Calvisius. 1616. [SS 1044] Clavius. 1595. [SS 1110] Gallucci. 1589. [SS 1188] Martelli. 1583.
- CALICO PRINTING:** [904] Crookes. 1874. [3358] O'Brien. 1789. [4290] Schützenberger. 1882. [7094] Crookes. 1882. [10760] Leuchs. 1828. [12973] Parnell. 1849. [S 3018] Crace-Calvert. 1878.
- CALLIGRAPHY:** [4726] Tagliente. 1525.
- CALORIC ACTION IN ORGANIC CHEMISTRY:** [1115. 7395] Dumas. 1838.
- CALORIMETRY:** [13309. 13311] Pickering. 1886.
- *v. Pyrometry.*
- CALOTYPE:** [4687] Sutton. 1855. [9570] Hunt. 1851. [10729] Lerebours. 1843. [14540] Rowland. 1855.
- CAMBRIDGE MATHEMATICS:** [259] Ball. 1889. [669] Cambridge Problems. 1821. [753] Challis. 1875. [1428] Frost. 1849. [1551] Glaisher. 1879. [2886] Mathematical Problems. 1837. [4877] Todhunter. 1873. [5242] Watson and Routh. 1860. [5474-6] Wolstenholme. 1878-91. [6690-3] Cambridge Problems. 1821-57. [7874] Ferrers and Jackson. 1851. [8167] Frost. 1849. [8267] Gantillon. 1853. [8460] Glaisher, etc. 1879. [8639] Greenhill. 1876. [9741] Jameson. 1851. [11560] Mathematical Problems. 1836. [16799] Wolstenholme. 1891. [S 1112] Radford. 1915.
- CAMERA LUCIDA:** [SS 2739-40] Chevalier. 1829.
- **OBSCURA:** [3711-12] Porta. 1585-1644. [6451] Brander. 1767. [13517-19] Porta. 1558-89. [15161-3] Sturm. 1676-85. [S 2437-8] Zahn. 1685-1702. [SS 1658-9] Euclide. 1573. [SS 1861-2] Magini. 1611-28. [SS 2186-7] Adams. 1771. [SS 2739-40] Chevalier. 1829.
- CAMPHORS:** [4492] Société Chimique. 1889-92. [8037-8] Forster. 1897-1903. [10153. 10156] Kipping. 1895-6. [15440] Wallach. 1909.
- CANAL ENGINEERING AND NAVIGATION:** [4646] Strootman. 1858. [4741] Tanner. 1840. [5059] Vernon-Harcourt. 1882. [6778] Cautley. 1862. [7753] Fairbairn. 1831. [8033] Forfait. 1777. [8181-2] Fulton. 1796. [9391] Hogrewe. 1780. [9799] Jessop and Milne. 1791. [10273] Konijnenburg. 1905. [10647] Lecchi. 1773. [10709] Lely. 1884. [10873] Linguet. 1769. [13140] Perronet. 1788. [13209] Phillips. 1792-4. [14041. 14048. 14050-6. 14059-61. 14067] Rennie (J.). 1770-1816. [14072] Rennie (Sir J.). 1842. [14264] Riquet. 1805. [14912. 14927-31] Smeaton. 1767-1814. [15057-8] Stevenson (D.). 1858-72. [15069] Stevenson (R.). 1817. [15170-1] Sutcliffe. 1797-1816. [15206] Tatham. 1799. [S 3582] Raccolta (Nuova). 1823. [SS 3002] Frisi. 1818. [SS 3064] Raccolta. 1821.
- *v. Panama Canal. River Navigation.*
- *** A copious collection of such works may be found in Messrs. Sotheran's *Bibliotheca Viatica*.
- CANDLE, CHEMISTRY OF THE—v. Flame.**
- **MAKING:** [S 3009] Carpenter. 1895.

- CAPILLARITY: [538. 544] Boyle. 1661. [799] Clairaut. 1743. [2440-5. 2447-8] Laplace. 1798-1878. [3055] Montanari. 1667. [3680] Poisson. 1831. [3863] Quet. 1867. [5135] Vossius. 1666. [5572-6] Young. 1807-45. [6435-6] Boys. 1890-2. [6865] Chiarletti. 1775. [9962] Jurin. 1732. [11586] Mathieu. 1883. [12702] Nobili. 1818. [13401] Plateau. 1873. [13473] Poisson. 1831. [13815] Quincke. 1897. [14010] Reiff. 1879. [15174] Swan. 1848. [16950] Beer. 1869. [17183] Poincaré. 1895. [SS 1037] Clairaut. 1808. [SS 1516] Bartoli. 1678. [SS 1557] Borelli. 1686.
- *v. Surface Tension.*
- : PARADOXES: [SS 2016] Rabiqueau. 1753.
- CAPILLARY ANALYSIS: [8522] Goppelsroeder. 1901.
- TUBES: [12322] Musschenbroek. 1752. [13470] Poiseuille. 1842. [SS 1701] Gerdil. 1754. [SS 1906-7] Musschenbroek. 1729.
- , CHEMICAL EFFECT OF: [S 2691] Becquerel. 1867-72.
- CAPORCIANITE: [5760] Anderson. 1842.
- CARBOLIC ACID—*v. Phenol.*
- CARBON COMPOUNDS, DICTIONARY OF: [3997. 14231] Richter. 1900-5.
- DIOXIDE: [318] Beins. 1875. [3509] Pearson. 1792. [3790-1] Priestley. 1774-7. [5727] Allen and Pepys. 1807. [10755] Letts and Blake. 1900. [SS 1792-6] Ingenhousz. 1782-9. [SS 2424] Berthollet. 1776.
- , LIQUEFACTION OF: [2823] Mareska. 1845.
- ABSORBED BY PLANTS: [2084-7. 9665-6] Ingenhousz. 1779-90. [14817] Senebier. 1783.
- CARBORUNDUM: [13322] Pierce. 1909.
- CARDAN'S FORMULA: [684] Cardano. 1545. [4746-9. 4751] Tartaglia. 1546-62. [6703] Canterzani. 1787. [S 529] Cardano. 1570.
- CARDING: [11150] M. (J.). 1832. [15171] Sutcliffe. 1816.
- *v. Spinning.*
- CARNOT'S CYCLE: [701] Carnot. 1824. [S 2034] Kelvin. 1849.
- CARPENTRY: [3318] Nicholson. 1792. [3535] Penher. 1731. [4929-30] Tredgold. 1820-40. [7525] Ellis. 1906.
- CARRIAGE AND COACH BUILDING: [3581] Philipson. 1889. [4236] Scheffer. 1671. [5407] Wiehen. 1771-2. [5652] Adams. 1837. [7454] Edgeworth. 1813. [8393] Gilbey. 1905. [14527-9] Rowe. 1734. [15133] Straus. 1912. [SS 2992] Edgeworth. 1817. [SS 3003] Fry. 1802.
- *v. Wheels (Carriage).*
- * * * *An extensive collection of such books will be found in Messrs. Sotheran's Bibliotheca Viatica.*
- LIGHTING: [5318] Wellington, etc. 1892.
- TRACTION: [12784] Oddi. 1806.
- CARRIAGES (MILITARY): [10050] Kemmis. 1874.
- (STEAM)—*v. Steam Carriages.*
- MECHANICALLY DRIVEN: [3415] Ovenden. 1774.
- CARTOGRAPHICAL INSTRUMENTS: [11309] Maissiat. 1818.
- CARTOGRAPHY: [2122] James. 1875. [2128] Jamieson. 1814. [3423] Ozanam. 1700. [5436] Wilme. 1846. [5882] Avezac. 1863. [6174] Bertelli. 1894. [6279-81] Blundeville. 1597-1636. [6452] Bransby. 1808. [7903] Fiorini. 1831. [7989] Fogliani. 1718. [9030] Haupt. 1883. [9746] Jamieson. 1814. [11474] Martin. 1758. [11687] Mayer. 1770. [11698] Mead.
- CARTOGRAPHY, *continued*:
1717. [12161] Morrison. 1901. [12886] Ozanam. 1750. [12906] Palmer. 1873. [13142] Perrot. 1903. [13992] Reeves. 1910. [15580] Wilson. 1722. [16863-4] Hinks. 1912-13. [SS 1297-8] Severt. 1598.
- CASKING MACHINES: [13908] Ransome. 1876.
- CASTING AND FOUNDING—*v. Iron (Cast and Wrought).*
- CATALOGUES OF SCIENTIFIC LIBRARIES: [202] Babbage. 1872. [14548-50] Royal Society. 1839-83. [SS 2039] Ronalds. 1880.
- CATALYSIS: [13256] Phipson. 1858.
- CATHODE RAYS: [12412. 17149] Neesen. 1904. [17223] Schmidt. 1904.
- CATOPTICS: [3009] Mirami. 1582. [3169] Mydorge. 1639. [7614] Euclides. 1557.
- *v. Light, Reflexion of. Perspective [Older Works].*
- CAUSALITY: [2129] Jamieson. 1872.
- CAUSTICS: [353-4. 6151-2] Bernoulli. 1742. [6866] Childe. 1857. [10538-9] La Rive. 1823. [11591] Matthes. 1837. [11648] Maurolico. 1613.
- CELL (LIVING), CHEMISTRY OF THE: [1493] Gautier. 1898.
- CELLULOID: [5761] Andés. 1908.
- CELLULOSE: [908] Cross. 1897. [7109] Cross and Bevan. 1906. [S 3019] Cross. 1895.
- CEMENT: [1625] Grant. 1875. [3941-2] Reid. 1877. [8436-7] Gillmore. 1863-79. [9265-6] Higgins. 1780. [11823] Michaélis. *s. d.* [12358] Naske. 1903. [13003] Pasley. 1838. [13981] Redgrave. 1895. [14615] Sabin. 1905. [S 2998] Asch. 1913. [S 3041] Gillmore. 1902. (SS 2776) Hassenfratz. 1825.
- CENTRIFUGAL AND CENTRIPETAL FORCES: [2064] Huygens. 1673. [2188] Jordan. 1866-7. [4602] Stewart. 1761. [5223] Waring. 1788. [9628] Huygens. 1673. [9906] Jordan. 1867.
- CEREALS, CHEMISTRY OF: [2114] Jago. 1886.
- CHAINS (SUSPENSION), OSCILLATIONS OF: [14405] Rohrs. 1851.
- CHALDEAN SCIENCE: [2168] Johnson. 1890.
- CHANNEL RAILWAY: [754] Chalmers. 1867. [6811] Chalmers. 1861.
- CHAPTALISING: [758. 6826-7] Chaptal. 1801-7. [6829] Charpentier Cossigny. 1807.
- CHARACTERISTICS, METHOD OF: [10917] Lobatto. 1837.
- *v. Geometry (Enumerative).*
- CHARCOAL: [8397] Gillot. 1873. [S 3068] Duhamel du Monceau. 1761.
- CHEMICAL ACTION A MODE OF MOTION: [7275] Dibbits. 1876.
- AFFINITY—*v. Affinity (Chemical).*
- ANALYSES, DICTIONARY OF: [SS 2640-1] Viollette. 1851-9.
- ANALYSIS (COMMERCIAL AND TECHNICAL): [86] Allen. 1879-98. [3349] Normandy. 1875. [5012] Ulzer and Fraenkel. 1898. [11094. 11096] Lunge. 1904-6. [13545] Post et Neumann. 1910.
- *v. Microscopy (Technical).*
- (GENERAL): [904] Crookes. 1894. [1104] Dufois. 1871. [2307] Klaproth. 1801. [3228] Newth. 1898. [3336] Noad. 1852. [5976] Barreswil et Sobrero. 1843. [7074] Crell. 1786-91. [7103] Crookes. 1886. [7533] Elsner. 1893. [9133] Henderson and Parker. 1899. [9329] Hjårne. 1753. [9809] John. 1808.

CHEMICAL ANALYSIS (GENERAL), *continued*:

- [9813] Johnson. 1897. [10173-4] Klaproth. 1801. [11067] Lucas. 1908. [11757] Menschutkin. 1895. [12325-6] Muter. 1887-92. [12492] Newth. 1898. [12846. 12849] Ostwald. 1900-10. [13550] Pott. 1753. [14468-72] Rose. 1833-71. [15228] Thénard. 1818. [17304] Halliburton. 1904. [SS 2423] Bergman. 1788-91. [SS 2460] Children. 1819.
- *v. Fuel A. Gas A. Microchemical A. Mineral A. Refractive A.*
- (INORGANIC): [6184] Berzelius. 1827. [S 2636] Berzelius. 1833. [SS 2654] Wöhler. 1854.
- *v. Mineral Analysis.*
- (ORGANIC): [86] Allen. 1879-88. [774] Chevreul. 1824. [1511] Gerhardt. 1855. [10842-4] Liebig. 1839-53.
- (QUALITATIVE): [1417-18] Fresenius. 1887-97. [4529] Spencer. 1868. [5032] Valentin. 1898. [5421] Will. 1846. [6963] Clowes. 1890. [7828] Fenton. 1894-5. [13117-18] Perkin. 1901-5. [S 2882] Prescott and Johnson. 1903. [S 2931] Treadwell. 1908.
- *v. Blowpipe Analysis. Capillary Analysis. Reagents.*
- (QUANTITATIVE): [1416] Fresenius. 1864-5. [1452] Galloway. 1870. [2970] Meyer. 1897. [3021-3] Mohr. 1870-88. [4606] Stillman. 1897. [4685] Sutton. 1890. [4926] Treadwell. 1904. [6248] Black. 1777. [6964] Clowes and Coleman. 1903. [7954] Fleischer. 1880. [8975] Hartley. 1887. [12693-4] Noad. 1848-52. [14715] Scheffer. 1779. [15085] Stillman. 1905.
- (ZOO-): [10837] Liebig. 1847.
- —, PRINCIPLES OF: [S 2871] Ostwald. 1904. [SS 2529] Harriot, etc. 1914.
- APPARATUS: [451] Bohne. 1685. [5095] Violette. 1839. [5801] Apparatus. 1824. [8369] Gesner. 1599. [8907] Hare. 1836. [13356] Pisani. c. 1860. [SS 2579] Marum. 1798.
- *v. Distilling A. Pneumatic Trough. Saccharometer.*
- COMBINATIONS AND COMPOSITION: [2513] Leconte. 1853. [8158] Freund. 1904. [10266] Kolbe. 1859.
- CONGRESSES: [S 3016-17] Congress of Applied Chemistry. 1907-10. [SS 2742-7] Congress of Applied Chemistry. 1902-10.
- CONSTANTS: [7594] Erdmann and Köthner. 1905. [S 340] Kaye and Laby. 1911.
- CYCLOPÆDIAS AND DICTIONARIES: [772] Chemistry. 1882. [2630] Liebig, etc. 1856-64. [2767] Macquer. 1771. [3015] Mitchell. 1864. [5264-7] Watts. 1863-94. [5527-8] Wurtz. 1868-1904. [7824] Fehling. 1871-1910. [10175] Klaproth and Wolff. 1807-10. [10383] Ladenburg. 1882-96. [10849-50] Liebig and Poggendorff. 1837-64. [12248-9] Macquer. 1771-7. [12387] Handwörterbuch der Chemie. 1882-95. [12654] Nicholson. 1795. [14814] Sendivogius. 1650. [17301] Fremy. 1882-99. [19331] Wurtz. 1874-1908. [S 3843] Aiken. 1807. [SS 2543] Johnson. 1657. [SS 2616] Salmon. 1695.
- *v. Carbon Compounds, Dictionary of. Chemical Analysis, Dictionary of.*
- DISSOCIATION—*v. Dissociation (Electrolytic).*
- DYNAMICS: [1960] Hoff. 1896. [11735] Mellor. 1904. [12803] Oersted. 1813. [17306] Hoff. 1884. [17314] Mellor. 1904.
- *v. Explosion.*

- CHEMICAL EFFLUVIA: [526. 6411] Boyle. 1673.
- ELEMENTS—*v. Elements (Chemical).*
- EQUILIBRIUM: [2540] Lemoine. 1881. [4070] Roozeboom. 1901-4. [10892] Liveing. 1885. [S 2791] Jüptner. 1910.
- *v. Phase Rule.*
- EQUIVALENTS: [1114] Dumas. 1859. [11043] Low. 1854. [12799] Odling. 1858. [13236] Phillips. 1839. [15611] Wollaston. 1814.
- *v. Electrochemical Equivalents.*
- ESSAYS: [341-2] Bergman. 1788. [2035] Hunt. 1875. [5243-4. 5246] Watson. 1771-96. [5441] Wilson. 1862. [5638] Achard. 1784. [6140-1] Bergman. 1781-91. [9345] Hochheimer. 1793. [10594-7] Lavoisier. 1776-1801. [12966] Parkes. 1830. [15464-6] Watson. 1791-1800. [15514] Westrumb. 1785-7. [SS 2480] Demachy. 1774.
- EXPERIMENTS—*v. Chemistry (Experimental).*
- INDUSTRY: [7226] Demachy. 1784. [10020] Kees. 1824. [11371] Manufacturen. 1780. [SS 2539] Hofmann. 1863.
- *v. Chlorate I. Chloride Process. Coal Tar I. Electrochemical I. Soda I.*
- JOURNALS: [110-12] Annales. 1789-1855. [115] Annuaire. 1851. [344-6] Berichte. 1875-1904. [769-70] Chemical Society. 1841-1904. [771] Chemisches Centralblatt. 1835-1901. [1164] Electrochemical Society. 1902-4. [2115] Jahrbuch der Chemie. 1891-6. [2118-19] Jahresbericht über die Fortschritte der Chemie. 1847-85. [2203] Journal of the Society of Chemical Industry. 1882-1904. [2628-9] Liebig and Kopp. 1847-50. [3570] Pharmaceutic Journal. 1842-1901. [5775] Annales de Chimie et de Physique. 1836-47. [6837] Chemie, Jahrbuch der. 1891-1903. [6839] Chemische Gesellschaft (Deutsche). 1896-1901. [6842-4] Chemical Industry (Society of). 1882-1908. [6845-6] Chemical News. 1864-1909. [6847] Chemical Review. 1879-87. [6848-50] Chemical Society of London. 1868-1907. [6868] Chemie, Annuaire de. 1845-51. [7069-73] Crell. 1774-88. [9670] Institute of Chemistry. 1903-11. [9722-3] Jahrbuch der Chemie. 1891-1909. [9727] Jahrbuch für ökonomische Chemie. 1847. [9730-2] Jahresbericht über die Fortschritte der Chemie. 1847-96. [9733] Jahresbericht über die Fortschritte der chemischen Technologie. 1856-1906. [9734] Jahresbericht über die Fortschritte der physischen Wissenschaften. 1822-40. [10833] Liebig's Annalen. 1832-1912. [11743] Mémoires. 1807-17. [13751] Public Analysts. 1876. [15158-9] Sturgeon. 1837-41. [S 6] Annalen der Physik und Chemie. 1873-1914. [S 21] Biochemisches Centralblatt. 1904-7. [S 29] Chemist. 1840-6. [S 107] Jahresbericht über die Fortschritte der Pharmacie. 1850-94. [S 112] Journal für technische und ökonomische Chemie. 1829-32. [S 213] Zeitschrift für Chemie und Pharmacie. 1861-71. [SS 3214] Annals of Chymistry. 1843. [SS 3241-2] Chemisches Centralblatt. 1897-1904. [SS 3242] Chemist. 1824. [SS 3243] Chemist, or Reporter of Chemical Discoveries. 1840-58. [SS 3272] Jahrbuch der Elektrochemie. 1895-1906. [SS 3332] Zeitschrift für analytische Chemie. 1862-98. [SS 3334] Zeitschrift für Chemie und Pharmacie. 1861-71. [SS 3335] Zeitschrift für Elektrotechnik und Elektrochemie. 1895-1900. [S 3336] Zeitschrift für physikalische Chemie. 1887-94.
- LABORATORIES: [14346] Robins. 1885. [14480] Rosenhain. 1908. [14837] Shaw and Hawksbee. 1731. [S 2781] Hofmann. 1831.

- CHEMICAL LABORATORY METHODS: [443] Bloxam. 1886. [862] Cooke. 1892. [1136] Earl. 1890. [1283-6] Faraday. 1827-42. [1672] Griffin. 1866. [2478-9] Lassar-Cohn. 1895-1903. [3074] Morfitt. 1857. [3336] Noad. 1852. [4636] Streatfield. 1891. [5095] Violette. 1839. [5422] Williams. 1857-79. [6888] Church. 1906. [7766-9] Faraday. 1827-42. [8297-8] Gattermann. 1898-1900. [8906-7] Hare. 1836-40. [14257] Riggs. 1904. [S 2949] Wolfram. 1903.
- LAW OF VOLUMES—*v. Chemical Proportions.*
- LECTURE SCHEMES: [13085] Pemberton. 1731.
- LECTURES: [426] Black. c. 1770. [1297] Faraday. 1861. [4365] Shaw. 1734. [4500] Solly. 1849. [5246] Watson. 1771. [6249] Black. c. 1775. [7534] Eltoft. 1880. [7785-6. 7789] Faraday. 1853-61. [8106-7] Frankland. 1866-76. [8756] Gurney. 1823. [9267-9] Higgins. 1795. [12787] Odling. 1874. [13175] Petterson. 1900. [14715] Scheffer. 1779. [15619] Black. 1803. [SS 2478] Dalton. 1802.
- MATHEMATICS: [1065] Dittmar. 1890. [2727. 11132] Lupton. 1882-94. [11736] Mellor. 1902. [12347] Naquet, 1879. [12993] Partington. 1911. [16369] Mellor. 1905. [16424-5] Nernst. 1907-10. [16565-6] Scheffers. 1911. [16756-7] Vogt. 1904-9. [17305] Hay. 1910. [17312] Laar. 1901.
- MEMOIRS AND PAPERS: [139] Arata. 1901. [768] Chemical Reports. 1848. [1398] Frankland. 1881. [2277] Kerekhoff. 1851-68. [2490. 2492-3] Lavoisier. 1774-1801. [4492] Société Chimique. 1889-92. [6851] Chemistry. 1810-43. [7997-8] Fontana. 1784. [8549] Graham. 1848. [10472-3] Landriani. 1781. [11419] Marggraf. 1767-8. [11743] Mémoires. 1807-17. [12877] Owens College. 1893. [13081] Pelletier. 1798. [14626-7] Sage. 1773. [14642] Sakurai. 1908. [15203] Templeman. 1753-4. [S 2699] Dunstan. 1892. [S 2873] Papers. 1810-43. [SS 2491] Fourcroy. 1784.
- METHOD: [2483-4] Laurent. 1854-5. [5245-6] Watson. 1768-71. [10240] Knop. 1859. [10571-2] Laurent. 1854-5. [12246] Mulder. 1868. [15467-9] Watson. 1771.
- NOMENCLATURE: [744] Caventou. 1825. [2843-4] Laurent. 1854-5. [2491] Lavoisier. 1787. [6803] Caventou. 1825. [8058] Fourcroy. 1790. [10571-2] Laurent. 1854-5. [10590-3] Lavoisier. 1787-8. [12314] Murray. 1833. [13202] Pfordten. 1889. [S 2683] Cannizzaro. 1896. [SS 2457] Chenevix. 1802.
- PARADOXES: [2205] Jullien. 1870. [2282] Kilgour. 1865. [7123] Curiosities in Chymistry. 1691. [7451] Eckhardtshausen. 1800. [14723] Schmidt. 1803. [15047-8] Stevenson. 1846-9.
- PROPORTIONS: [379] Berzelius. 1819. [6190] Berzelius. 1835. [9147] Hensmans. 1824. [12314] Murray. 1833. [SS 2626] Stas. 1865.
- REAGENTS—*v. Reagents (Chemical).*
- RECREATIONS: [17] Accum. 1819. [1673. 8688] Griffin. 1823-38. [SS 2400-1] Accum. 1817-18.
- RESEARCHES: [1288] Faraday. 1859. [1498] Gay-Lussac. 1811. [1613] Graham. 1876. [2102] Istituto Chimico. 1891. [4121] Royal College of Chemistry. 1849. [7769] Faraday. 1859. [8314-15] Gay-Lussac. 1811. [8548] Graham. 1876. [10269] Kolbe. 1861. [12248] Mulder. 1842-51.
- CHEMICAL SECRETS: [79] Alessio. 1614. [431] Blancourt. 1699. [1565] Glauber. 1661. [3582] Phillip. 1596. [3648] Planis Campy. 1629. [3651] Plat. 1653. [4449] Smith. 1755. [5296-7] Wecker. 1651-60. [5721-4] Alessio. 1563-78. [5728-9] Alletz. 1768-9. [7911] Fioravanti. 1598. [10358] Laboratory. 1739. [13392-3] Plat. 1653. [S 3006] Blancourt. *fs. of* 1699. [SS 2484] Dossie. 1768. [SS 2757-8] Dossie. 1758-64.
- SOLUBILITIES—*v. Solubilities (C.).*
- STATICS: [364-6] Berthollet. 1803-4. [1118-20] Dumas. 1842-4. [1957] Hoff. 1899. [6163] Berthollet. 1804. [7397] Dumas. 1842. [11735. 17314] Mellor. 1904.
- STRUCTURE THEORY: [653] Butlerow. 1870. [9716] Jaeger. 1908. [10042-4] Kekulé. 1861-87.
- *v. Chemistry (Stereo-).*
- TABLES AND DIAGRAMS: [986] Decremps. 1823. [9833] Johnston. 1836. [10470-1] Landolt und Börnstein. 1883-1905.
- TECHNOLOGY: [1116-17] Dumas. 1828-46. [1340] Fischer. 1900-2. [4062] Ronalds. 1855. [5140] Wagner. 1872; [6828] Chaptal. 1807. [7189] Davy. 1904. [7396] Dumas. 1828-46. [8483] Gmelin. 1786. [10226] Knapp. 1848-51.
- *v. Chemical Industry. Chemistry (Applied).*
- THEORIES: [2971-2] Meyer. 1883-8. [4091] Ross. 1875. [5529-30] Wurtz. 1868-9. [11812-14] Meyer. 1872-88. [12796] Odling. 1857. [17324] Reycher. 1903. [S 2683] Cannizzaro. 1896. [SS 2450] Brendel. 1671.
- *v. Atomic T. Chemistry (New). Crystalline T. Electron T. Molecular T. Phlogiston T.*
- TRANSMUTATION—*v. Alchemy.*
- AND ELECTRICAL FORCES, IDENTITY OF: [12803] Oersted. 1813.
- CHEMISTRY (AGRICULTURAL): [971-3] Davy. 1813-36. [2176-9] Johnston. 1845-77. [2284] King. 1898. [2305] Kirwan. 1796. [2617-18. 2620-2] Liebig. 1842-63. [3201] Nesbit. 1856. [3552] Petermann. 1883. [4039] Robertson. 1907. [4221] Saussure. 1805. [4253] Schlösing. 1897. [5145] Wahschaffe. 1891. [7197-8] Davy. 1813-14. [7401] Dundonald. 1803. [7476] Einhof. 1808. [9062-3] Hayward. 1825. [9667] Ingle. 1902. [9836-7] Johnston. 1849-81. [10577-9. 10581. 10585] Lawes. 1851-1900. [10838. 10845-6] Liebig. 1847-63. [11664] Mayer. 1886. [12427] Nesbit. 1856. [12727] Normandy. 1853. [13006] Passon. 1910. [13188-9] Petzholdt. 1845-6. [15169] Suckow. 1784. [15445] Wallerius. 1766. [17309] Johnston. 1894.
- *v. Fertilisers. Nitragin. Silos. Vegetable Mould. Wine. C. of.*
- (ANALYTICAL)—*v. Chemical Analysis.*
- (APPLIED): [343] Bergsma. 1821. [759] Chaptal. 1807. [775] Chevreul. 1868. [2579] Lewes. 1889. [3496] Payen. 1878. [6142] Bergsma. 1821. [8103] Frankland. 1877. [12972] Parnell. 1844. [13032-3] Payen. 1832-49. [13207-8] Phillips. 1891-1902. [14451] Roscoe. 1877. [15085] Stillman. 1905. [15169] Suckow. 1784. [S 3003-4] Blount. 1896-1905. [S 3016-17] Congress of Applied Chemistry. 1907-10. [S 3091] Martin. 1917. [SS 2742-7.] Congress of Applied Chemistry. 1902-10. [SS 2843] Runge. 1836.
- *v. Chemical Technology. Chemistry (Practical).*
- (BACTERIOLOGICAL): [8072] Fowler. 1911. [11646] Mayer. 1886.
- *v. Bacterial Decomposition. Brewing, Bacteriology of. Fermentation. Nitragin.*

CHEMISTRY (ELECTRO)—*v. Electrochemistry.*

- (ELEMENTARY): [5440] Wilson. 1860. [5938-9] Bailey. 1904-5. [7738] Fabulet. 1802. [8671] Gregory. 1808. [11101-2] Lunn. 1827. [12247] McPherson and Henderson. 1906. [12798] Odling. 1870. [14043] Rennie. 1834. [14442] Roscoe. 1888. [14773] Scapoli. 1786.
- (EXPERIMENTAL): [1083] Dossie. 1760. [1288] Faraday. 1859. [1397] Frankland. 1877. [1871] Henry. 1823. [7769] Faraday. 1859. [8092] Francis. 1842-5. [8103] Frankland. 1877. [8782] Hagen. 1786. [9153-9] Henry. 1801-29. [9172-4] Hermbstädt. 1786-1826. [9267-8] Higgins. 1795. [12314] Murray. 1833. [12354-6] Nasini. 1893-1901. [12490-1] Newth. 1892-1908. [15008] Stahl. 1731.
- (FORENSIC): [6053] Baumert, etc. 1906-7. [9718] Jago. 1909.
- (GENERAL): [26] Accum. 1807. [375-6] Berzelius. 1829-50. [440-2] Bloxam. 1867-1903. [563-4] Brände. 1821-30. [948-9] Daniell. 1843. [1078] Donovan. 1837. [1116-17] Dumas. 1828-46. [1787] Fourcroy. 1790. [1390-1] Fownes. 1844-73. [1496] Gay-Lussac. 1833. [1578-9] Gmelin. 1843-66. [1614] Graham. 1850-8. [2718] Luff and Page. 1904. [2986-8] Miller. 1863-80. [3163] Muspratt. 1854-62. [3369-70] Odling. 1861-70. [3404] Ostwald. 1890. [3461] Parkes. 1807. [3462] Parkinson. 1803. [3527] Pelouze et Fremy. 1860-4. [4079] Roscoe and Schorlemmer. 1877-93. [4797-8] Thénard. 1827-36. [4840-2] Thomson. 1807-17. [4855] Tidy. 1887. [4857] Tilden. 1897. [5268] Watts. 1889. [5425] Williamson. 1873. [6182-3] Berzelius. 1829-50. [6450] Brände. 1830. [7396] Dumas. 1828-46. [8058-60] Fourcroy. 1790-1804. [8075] Fownes. 1877. [8486-7] Gmelin. 1848-72. [8551-3] Graham. 1842-58. [8562] Graham. 1829. [8565] Götting. 1798-1800. [8883] Handwörterbuch. 1842-50. [9988] Kämtz. 1849. [11867] Miller. 1867-78. [11951-3] Mitscherlich. 1834-47. [12312] Murray. 1867-7. [12340-1] Muspratt. 1854-62. [12795] Odling. 1861. [12844] Ostwald. 1890. [12961-5] Parkes. 1808-37. [13740] Prout. 1834. [13994-6] Regnault. 1847-51. [15226-7] Thénard. 1817-35. [15279] Thomson. 1807. [15543] Wiegleb. 1786. [17322] Ostwald. 1909. [S 2617] Bayen. 1798. [S 2634-5] Berzelius. 1825-31. [SS 2406-7] Accum. 1803. [SS 2588] Nicholson. 1808.
- (HINDU): [9134] Henderson. 1803. [13944] Ray. 1902.
- (IATRO-): [79] Alessio. 1614. [674] Caneparo. 1660. [858] Comtes. 1678. [898-9] Croll. 1608-57. [1053] Digby. 1669. [1409-10] French. 1652-67. [1514] Gesner. 1559. [1553-70] Glauber. 1651-67. [1858-9] Helmont. 1648-52. [1961] Hoffmann. 1722. [2527] Le Givre. 1682. [3450-3] Paracelsus. 1581-1894. [3648] Planis Campy. 1629. [4096] Rothe. 1717. [4179] Sala. 1622. [4806] Thibaut. 1672. [5067] Vigenère. 1618. [5439] Wilson. 1721. [5721-4] Alessio. 1563-78. [6031-4] Basilus Valentinus. 1646-1893. [6083] Becher. 1664. [6265] Blancard. 1700. [7296] Digby. 1658. [7911] Fioravanti. 1598. [8135-6] Freind. 1712-25. [8369] Gesner. 1599. [8463] Glaser. 1676. [8466-7] Glauber. 1689-94. [8979-81] Hartmann. 1647-63. [9119-22] Helmont. 1652-64. [9303] Hippocrates. 1690. [10111] Kerger. 1663. [10396] La Garaye. 1745. [10675] Le Febvre. 1664. [10710-11] Lémery. 1698-1710. [10717-19] Le Mort. 1687-96. [12151-2] Morley. 1684-1702. [12280] Müller. 1659. [12835] Orta. 1913. [12940-3] Paracelsus. 1650-1894. [13392-3] Plat. 1653. [13526-9]

CHEMISTRY (IATRO-), continued:

- Porta. 1608-9. [13535] Porta Leone. 1584. [15912-3] Tachen. 1669-71. [15233] Thibaut. 1668. [15396] Vigenère. 1642. [15621-3] Brunschwiyg. 1519-37. [15629] Cesi. 1638. [15630] Croll. 1669-70. [S 2681] Boyle. 1685. [SS 2450] Brendel. 1671. [SS 2566] Libavius. 1613-15.
- *v. Alchemy. Distilling.*
- (INDUSTRIAL AND TECHNICAL)—*v. Chemistry (Applied).*
- (INORGANIC): [1191] Erdmann. 1898. [1769] Handbuch. 1892-4. [2184] Jones. 1903. [2323] Kolbe. 1884. [2330] Krafft. 1891. [2977] Michaelis. 1878-89. [2990] Miller. 1876-87. [3229] Newth. 1903. [3958-60] Remsen. 1886-1901. [4000] Richter. 1895. [4779] Taylor. 1892. [4848] Thorpe. 1896. [8116] Frankland and Japp. 1884. [8370] Geubel. 1847. [9301] Hinds. 1902. [9102] Holleman. 1902. [9717] Jago. 1895. [12845] Ostwald. 1904. [14019-20] Remsen. 1886-9. [14453-60] Roscoe. 1887-1907. [14776] Scoffern. 1856. [14939] Smith. 1906. [17330] Werner. 1909. [S 2789] Inorganic Chemistry. 1914. [S 2902] Roscoe. 1911. [S 2912] Smith. 1907. [S 2920] Stewart. 1912.
- *v. Gases, C. of.*
- (MEDICAL): [9395] Holland. 1905. [9715] Jacquin. 1785. [12791-2] Odling. 1869-76. [15486] Weber. 1780.
- (MINERAL): [13858-60] Rammelsberg. 1841-75. [15632] Moissan, etc., 1904-6.
- ('MOLECULAR'): [4327] Selmi. c. 1850.
- (NEW): [1122] Duncan. 1905. [4373] Shennstone. 1906. [9374-5] Hofmann. 1865. [7007-8] Cooke. 1876-96. [7398] Duncan. 1907. [17330] Werner. 1909.
- (ORGANIC): [159] Armstrong. 1884. [316-17] Beilstein. 1886-1902. [355] Bernthsen. 1895. [359] Berthelot. 1872. [1479] Gattermann. 1896. [1509-10] Gerhardt. 1853-6. [1971] Holleman. 1903. [2253] Kekulé. 1863-83. [2626] Liebig. 1841-4. [2976] Meyer and Jacobson. 1893-1903. [2989] Miller. 1880. [3354] Noyes. 1897. [3548] Perkin. 1894-5. [3901] Raspail. 1833. [3961-2] Remsen. 1885-1906. [3998-9] Richter. 1894-1901. [4267] Schorlemmer. 1874. [4637] Strecker and Wislicenus. 1881. [6159] Berthelot. 1860. [6161] Berthelot et Jungfleisch. 1881. [6978] Cohen. 1902. [8365] Gerhardt. 1853-6. [8675] Gregory. 1852. [9403] Holleman. 1903-6. [10042-4] Kekulé. 1861-87. [10363] Lachman. 1899. [10847] Liebig. 1840-4. [11819] Meyer and Jacobson. 1893-1903. [11868] Miller. 1880. [13083] Pelouze et Fremy. 1864. [13121-2] Perkin. 1897-1902. [13823] Radcliffe and Sinnat. 1905. [14021] Remsen. 1896. [14461-3] Roscoe and Schorlemmer. 1881-8. [15271] Thomson. 1838. [17310] Keane. 1909. [S 2688] Cohen. 1909. [S 2901] Richter. 1907. [S 2919] Stewart. 1911.
- *v. Alkyl. Allophane. Amido-Compounds and Amines. Amyl. Carbon Compounds. Cyanogen Compounds. Hydrocarbons. Nitrogenous Organic Compounds. Organic Compounds. Organic Metals. Radicals (Organic). Volatile Organic Bases.*
- (PHARMACEUTICAL): [629] Buohner. 1849. [3072] Morelot. 1809. [6052] Baumé. 1762. [8391] Giese. 1811. [9287] Hill. 1751. [11061] Ludwig. 1671. [11327] Malouin. 1754. [12070] Morelot. 1803. [12308] Murray. 1776-84. [12735] Nollet. 1787. [14773] Scapoli. 1786. [S 2699] Dunstan. 1892. [SS 2481-2] Dioscorides. 1518-98. [SS 2599] Pomet. 1748.
- *v. Drugs.*

CHEMISTRY (PHLOGISTIC): [300] Baumé. 1778. [302-3] Becher. 1719-38. [446-7] Boerhaave. 1733. [451] Bohne. 1685. [2539] Lémery. 1756. [2967] Meurdrac. 1687. [3206-7] Neumann. 1759. [3790-5] Priestley. 1774-90. [4229, 4231] Scheele. 1785-6. [4530] Speth. 1712. [4550] Stahl. 1746-7. [6050-2] Baumé. 1757-73. [6082, 6084] Becher. 1738-55. [6290-1] Boerhaave. 1732-41. [8055-6] Fourcroy. 1785. [9264] Higgins. 1786. [11073-4] Ludolf. 1752. [11248-56] Macquer. 1751-77. [11419] Marggraf. 1767-8. [11854] Millar. 1754. [12452] Neumann. 1773. [13166] Petermann. 1750. [13549] Pott. 1738. [13654-8, 13669-70] Priestley. 1772-90. [14626-7] Sage. 1773. [14697-9] Scheele. 1780-6. [14715] Scheffer. 1779. [14995-6] Spielmann. 1763-6. [15008-10] Stahl. 1723-71. [15356] Tychem. 1787. [15412-13] Vogel. 1757-75. [15445-6] Wallerius. 1766-80. [15577-8] Wilson. 1699. [S 2654-5] Boerhaave. 1727-53. [SS 2422] Baumé. 1786. [SS 2437] Boerhaave. 1735. [SS 2530] Harrington. 1804.

— *v. Phlogiston Theory.*

— (PHOTOGRAPHIC): [1777-8, 8900-2] Hardwick. 1859-83. [10608] Leaper. 1891. [11729] Meldola. 1889-1901. [14596] Russell. 1904. [14698] Scheele. 1780. [S 2792] Kühne. 1878.

— *v. Photographic Chemicals.*

— (PHYSICAL): [861] Cooke. 1886. [974-5] Davy. 1812. [1957-8] Hoff. 1899-1903. [4531] Speyers. 1897. [7006] Cooke. 1886. [8103] Frankland. 1877. [9364] Hoff. 1902. [12420] Nernst. 1896. [13176] Petterson. 1879. [15431] Walker. 1903. [15446] Wallerius. 1776-80. [17308] Hoff. 1899-1901. [17328-9] Walker. 1904-7. [S 2710] Findlay. 1914. [S 2779] Hoff. 1898-9. [S 2790] Jones. 1903. [S 2860] Morgan. 1914. [S 2876] Perrin. 1903. [S 2920] Stewart. 1912.

— *v. Acids. Affinity. Allotropism. Atomic Theory. Catalysis. Chemistry, Principles of. Colloids. Molecular Volumes. Organic Radicals. Periodic Law. Phase Rule. Polyatomic Compounds. Radical Theory. Solubilities. Solution, Theory of. Stoichiometry. Substitution Theory. Transpiration (Liquid). Types, Theory of. Valency.*

— (PHYSIOLOGICAL): [525] Boyle. 1669. [1776] Hammarsten. 1899. [2529] Lehmann. 1851-4. [2617-19, 2623-5, 2627] Liebig. 1842-70. [3143] Mulder. 1849. [3368] Odling. 1866. [4180] Salkowski. 1893. [6404-6] Boyle. 1661-9. [6453] Brasch. 1901. [8256] Gamgee. 1880. [8277] Garnier. 1896. [8697-8] Griffiths. 1846-53. [9452] Hoppe-Seyler. 1877-81. [9561] Humboldt. 1797. [10149] Kingzett. 1878. [10691] Lehmann. 1851-4. [10835-9, 10848] Liebig. 1842-7. [11262] Macvicar. 1871. [11403] Marchand. 1842-4. [13396] Plenck. 1797. [13740-1] Prout. 1827-34. [13840] Raffe. 1873. [13988] Rees. 1842. [14006] Reid and Hambly. 1895. [14968] Snyder. 1903. [15283] Thorpe. *n.d.* [15540-1] Widmer. 1751-3. [S 2638, 2642] Berzelius. 1813-31.

— *v. Albumen. Alkaloids. Blood. Butyric Acid. Caloric Action. Capillary Tubes, Chemical Effect of. Carbon Dioxide absorbed by Plants. Cell (Living), C. of the. Chlorophyll. Coagulation. Cooking. Digestion. Fermentation. Food. Lactic Acid. Metabolism. Milk. Nitrogen absorbed by Plants. Osmosis. Oxygen given off by Plants. Plants, C. of. Poisons (Animal). Proteids. Respiration. Starch. Urine. Wood, C. of.*

— (POPULAR): [2172-5] Johnston. 1855-9. [2613-16] Liebig. 1844-78. [3842] Prout. 1834. [4382] Sibson. 1861. [7526] Ellis. 1852. [9834-5] Johnston. 1859-79. [10552-3]

CHEMISTRY (POPULAR), continued:

Lassar-Cohn. 1905-9. [10840-1] Liebig. 1851-9. [11396-7] Marcat. 1813-53. [14777] Scoffern. 1848. [SS 2618] Scoffern. 1839.

— (PRACTICAL): [443] Bloxam. 1886. [514] Bowman. 1861-2. [1636] Gray. 1828. [1775-6] Harcourt. 1872-87. [3366-7] Odling. 1854-65. [3935] Reid. 1830. [6963] Clowes. 1890. [8895] Harcourt and Madan. 1897. [11203-4] Mackenzie. 1823-5. [13986] Reece. 1814. [14837] Shaw and Hawksbee. 1731. [SS 2406-7] Accum. 1803.

— *v. Chemistry (Applied).*

— (STEREQ.): [423] Bischoff. 1904. [1959] Hoff. 1892. [2975] Meyer. 1890. [4590] Stewart. 1907. [5536] Wurtz. 1876. [8924] Harper's Scientific Memoirs. 1901. [15604] Wislicenus. 1889. [17297] Bischoff. 1894. [17307] Hoff. 1892. [17313] Mamlock. 1907. [17326] Stewart. 1907. [S 2998] Asch. 1913.

— *v. Chemical Structure Theory. Isomerism. Metamerism.*

— (SYNTHETIC): [357-8] Berthelot. 1864-97. [609] Brown. 1870. [6159] Berthelot. 1860. [11730] Meldola. 1904. [13120] Perkin. 1908. [SS 2529] Hanriot, etc. 1914.

— *v. Alcohol (Synthetic). Coal Tar Colours.*

— (THEORETICAL): [2973] Meyer. 1892. [3200] Nernst. 1900. [3963] Remsen. 1892. [14022] Remsen. 1877. [17308] Hoff. 1899-1901. [17319] Meyer. 1907. [S 2779] Hoff. 1898-9. [S 2864] Nernst. 1911. [S 2906] Scherer. 1795. [SS 2046-7] Accum. 1803.

— *v. Chemical Theories. Salts, Theory of. Solutions, Theory of.*

— (THERMO.): [3139] Muir and Wilson. 1885. [3192] Naumann. 1882. [6160] Berthelot. 1879. [12256] Muir and Wilson. 1885.

— *v. Cryometry. Explosion.*

—, BIBLIOGRAPHY OF: [5464] Wolff. 1845. [7014] Cooper. 1675. [7598] Erxleben. 1784. [7831] Ferguson. 1906.

—, HISTORY OF: [863-4] Cooke. 1874-84. [2327] Kopp. 1843-7. [2968] Meyer. 1891. [3405] Ostwald. 1908. [4837] Thomson. *c.* 1833. [5529-30] Wurtz. 1868-9. [7068] Crell. 1786. [7322] Fechner. 1832-3. [8538] Gorton. 1910. [9861, 9363] Høfer. 1842-72. [10005] Kastner. 1814. [10053] Kemp. 1855. [10110] Kerckhoff. 1858. [10276-81] Kopp. 1843-73. [11808] Meyer. 1891. [14383] Rodwell. 1874. [14739] Schorlemmer. 1894. [15274-5] Thomson. 1830-1. [15285] Thorpe. 1902. [17323] Ostwald. 1906. [S 2853] Meyer. 1906. [S 2919-20] Stewart. 1911-12. [S 2954] Yeats. 1798. [SS 2423] Bergman. 1788-91. [SS 2622] Schorlemmer. 1879.

— *v. Chemistry (New). Drugs, H. of. Elements (Chemical), H. of.*

—, PRINCIPLES AND ELEMENTS OF: [933-4] Dalton. 1808-27. [974-5] Davy. 1812. [1383-6] Fourcroy. 1792-1806. [1451] Galloway. 1888. [1669] Gren. 1800. [1916] Higgins. 1786. [2215] Kane. 1842. [2497-2500] Lavoisier. 1789-1802. [2945] Mendeléeff. 1891. [3138] Muir. 1884. [3321-2] Nicholson. 1790-6. [3514] Peart. 1789. [5245-6] Watson. 1768. [6426] Boyle. 1661. [7153-5] Dalton. 1808-27. [7161] Daniell. 1839. [7598] Erxleben. 1784. [8059, 8062-5] Fourcroy. 1795-1806. [8482] Gmelin. 1780. [8678] Gren. 1800. [9574] Hunt. 1887. [9861] Jones. 1912. [10005] Kastner. 1814. [10598-10605] Lavoisier. 1789-99. [10645] Leboulenger. 1624. [10878] Link. 1795-7. [11748] Mendeléeff. 1890.

CHEMISTRY, PRINCIPLES AND ELEMENTS OF, *continued* :

[11885] Mills. 1876. [12255] Muir. 1884. [12348-9] Naquet. 1867-8. [12656-8] Nicholson. 1790-2. [13395] Plenck. 1801. [13420] Playfair. 1858. [14004] Reid. 1839. [15269] Thomson. 1825. [17300] Carnegie. 1894. [17137-18] Mendeléeff. 1891-1905. [17327] Tilden. 1901. [S 2668-70] Boyle. 1661-80. [S 2910] Shaw. 1730. [SS 2495] Fourcroy. 1807. [SS 2563-4] Lavoisier. 1802. [SS 2627] Swedenborg. 1847.

— *v. Chemical Analysis, P. of. Radical Theory. Substitution Theory. Types, Theory of. Valency.*

—, RETARDING ACTION IN : [11886] Mills. 1877.

—, TEACHING OF : [600] Brodie. 1880. [4442] Smith and Hall. 1902. [6701] Cannizzaro. 1872. [7917] Fischer. 1897.

—, USES OF : [6138] Bergman. 1783. [S 2625] Bergman. 1784.

CHES, MATHEMATICS OF : [5125] Vospicelli. 1850. [S 3861] Jaenisch. 1862-3.

— PLAYER ('AUTOMATON') : [5445] Windisch. 1784.

CHIMNEYS AND STOVES : [168] Arnott. 1855. [1481-4] Gauger. 1713-36. [4936] Tredgold. 1824. [5842] Arnott. 1838. [6400] Boyers. 1807. [6935] Clavering. 1779. [8129] Franklin. 1793. [8358] Gérard. 1828. [9080] Hébrard. 1756. [13935] Rawlinson. 1858. [14954-5] Smith. 1854.

— *v. Smoke Abatement. Ventilation and Heating.*

CHLADNI'S FIGURES—*v. Acoustic Figures.*

CHLORATE INDUSTRY (ELECTROLYTIC) : [10124] Kershaw. 1905.

CHLORIDE PROCESS (VINCENT'S) : [14445] Roscoe. 1879.

— OF NITROGEN : [11743] Mémoires. 1807-17.

CHLORINE AND ITS COMPOUNDS : [978-9] Davy (J.). 1812. [1288] Faraday. 1859. [4492] Société Chimique. 1889-92. [6856] Chevallier. 1829. [7769-70] Faraday. 1823-59. [8163] Fritzsche. 1860. [8554] Graham. 1837. [9152] Henry. 1810. [14473] Rose. 1832. [14697] Scheele. 1786.

— *v. Hydrochloric Acid. Hypochlorites. Iron, Perchloride of.*

CHLOROPHYLL : [2084-5] Ingenhousz. 1779-85. [14817] Senebier. 1783. [S 2946] Willstätter und Stoll. 1913. [SS 2619] Senebier. 1782.

CHROMATICS—*v. Colours, Theory of.*

CHROMIUM AND ITS COMPOUNDS : [14473] Roscoe. 1832. [S 2808] Le Blanc. 1904.

CHRONOLOGY : [142] Arbutnot. 1900. [2081] Ideler. 1825-6. [2269] Kepler. 1615. [3240-1] Newton. 1728. [4692] Swan. 1653. [5451] Wislicenus. 1895. [6207-8] Beveridge. 1669-1705. [7544] Emerson. 1770. [9069] Heath. 1760. [9356] Hodgson. 1747. [9455] Hopton. 1616. [10512] La Prise. 1780. [11612] Matzka. 1844. [12249] Mulerius. 1630. [12574-5] Newton. 1728. [12924] Padovani. 1563. [14166] Riccioli. 1669. [14628-9] Saigey. 1834. [15515] Wetherald. 1760. [16866] Ideler. 1825-6. [S 1496] Ideler. 1831. [SS 980] Albusasar. 1489. [SS 1024] Calvisius. 1685. [SS 1286] Scaliger. 1658. [SS 1333] Warren. 1825.

— *v. Almanacs. Calendar.*

CHRONOMETERS : [1155] Eiffe. 1842. [3133] Mudge. 1799. [5979] Barlow. 1821. [6170-2] Berthoud. 1773. [7111] Croucher. c. 1810. [7437-8] Earnshaw. 1808. [7474] Eiffe. 1842. [8891] Hansen. 1836. [8955, 8958-9, 8962, 8964-6, 8970] Harrison. 1737-1869. [8985] Harvey.

CHRONOMETERS, *continued* :

1823. [9977-8] Kaiser. 1868-87. [11542-3, 11550] Maskelyne. 1767-92. [12240-3] Mudge. 1781-99.

— *v. Horology.*

CHRONOMETRICAL OBSERVATIONS : [4649] Struve. 1844.

CHRONOMETRY : [1965] Holden. 1694. [2010] Houlzeau. 1853. [2187] Jordan. 1885. [3525] Pellizer. 1800. [4216] Saunier. 1858. [5220] Warner. 1869. [5933] Baily. 1824. [6672] Calandrelli. 1850. [8312] Gautier. 1894. [8992] Harzer. 1899. [9761] Janvier. 1821.

— *v. Day, Length of.*

CIDER : [4361] Shannon. 1805. [8903] Hardy. 1785. [10231-2] Knight. 1813. [10302] Krebs. 1887. [10751] Le Sourd. 1892.

CIRCLE (REPEATING) : [SS 1554] Borda. 1802.

—, DIVISION OF THE : [5654] Adamson. 1815. [5905, 15702] Bachmann. 1872. [S 727] Gauss. 1801.

—, GEOMETRY OF THE : [748] Ceulen. 1619. [1664] Gregory. 1668. [2062] Huygens. 1654. [2396] La Loubère. 1651. [2874] Maseres. 1758. [3693] Poleni. 1712. [4362] Sharp. 1717. [4601] Stewart. 1746. [5739] Alvord. 1855. [5820] Archimedes. 1676. [6676] Caldani. 1782. [6768] Cataldi. 1612. [7038-9] Cotes. 1722. [7305] Dodt van Flensburg. c. 1835. [7984] Floryn. c. 1814. [9094] Hellins. 1794. [9626] Huygens. 1654. [10727] Léotaud. 1663. [11532] Maseres. 1758. [11989-91] Moivre. 1730. [14028] Renaldini. 1655. [14500] Rothe. 1805. [14750] Schöttel. 1754-6. [14959] Snell. 1621. [15991] Fiedler. 1882. [16133-4] Hesse. 1881-1906. [16337] McClelland. 1891. [16523] Richter. 1908.

— *v. Apollonian Problem.*

— OF PROPORTION—*v. Compass of Proportion.*

— SQUARING : [652] Buteo. 1559. [705] Carrick. 1876. [1311] Fauré. 1749. [1651] Gregorius a Sto. Vincentio. 1647-9. [1790] Harris. 1874. [1825] Hayden. 1872. [1949] Hobbes. 1669. [2103] J. (S. B.). 1871. [2548] Léotaud. 1654. [2834] Marsson. 1770. [2982] Miladowski et Izbiicki. 1850. [3058] Monti. 1830. [3062-3] Montucla. 1754-1831. [3078] Morgan. 1872. [3470] Parsey. 1832. [3659] Playfair. 1819-22. [3708-9] Porta. 1610. [3918] Recordon. 1865. [3927] Regiomontanus. 1533. [4093] Rossi. 1804. [4125] Rudio. 1892. [4453-6] Smith. 1861-70. [4631] Storms. 1633. [5010] Uffenbach. 1653. [5331] West. 1875. [6074] Beaulieu. 1676. [6438] Bradwardine. 1495. [6768] Cataldi. 1612. [6943] Clavius. 1612. [7736] Faber. 1507. [7909] Fine. 1556. [8652] Gregorius a Sto. Vincentio. 1647-9. [8933] Harris. 1884. [9341-2] Hobbes. 1681-5. [10336] Kuntze. 1792. [10727] Léotaud. 1663. [12044] Montucla. 1754. [12090-1] Morgan. 1872. [12282] Münchhausen. 1739. [12981] Parsey. 1832. [13414-17] Playfair. 1804-36. [15312] Tomassi. 1817. [15394] Viète. 1591. [15423] Wayvel. 1712. [15452] Wallis. 1669. [15456] Ward. 1698. [16144] Hobson. 1913. [16399] Monteil. 1912. [SS 250] Büchten. 1756. [SS 335] Coriarius. 1766. [SS 632] Mallemet de Messange. 1686. [SS 767] Roomen. 1597.

— *v. π (Value of).*

CISSOIDS : [12676] Nicolas. 1696-7.

CITRIC ACID : [13272] Phipson. *n.d.* [14697] Scheele. 1786.

- CIVIL ENGINEERING: [2748] Macgregor. 1894. [3894] Rankine. 1865. [6457] Brees. 1844. [7081-2] Cresy. 1861. [7565] Endrés. 1884-8. [7880] Fieberger. 1905. [8660] Gregory. 1842. [8799] Haldane. 1890. [8999] Haskoll. 1858-68. [10610-12] Law and Burnell. 1852-82. [10732] Lesage. 1810. [11277-9] Mahan. 1838-64. [11710] Medley. 1871-8. [11873] Millington. 1839. [13898] Rankine. 1873. [14780-1] Scott. 1874-81. [15062] Stevenson. 1838. [17351] Rankine. 1898. [S 3350] Bédior. 1813. [S 3395] Civil Engineering. 1899.
- , HISTORY OF: [14070. 14073] Rennie 1839-74.
- , LAW: [11156] Macassey and Strahan. 1890.
- CLAIRAUT'S THEOREM: [799] Clairaut. 1743. [6997] Collins. 1853.
- CLASSIFICATION OF SCIENCE: [5748] Ampère. 1834-43.
- CLIMATOLOGY: [1099] Dubois. 1895. [4450] Smith. 1872. [5389] Whistlecraft. 1840. [6274] Blodget. 1857. [7087] Croll. 1875. [9510-12. 9515] Howard. 1818-54. [10415] Lais. 1873. [10831] Liais. 1872. [12486] Newham. 1869. [13674] Prince. 1886. [13796] Quetelet. 1845. [13862] Ramsay. 1884. [15550] Williams. 1806. [S 2506] Dove. 1857-69. [S 2519] Hann. 1897.
- (GEOLOGICAL): [7087] Croll. 1875. [8328] Geikie. 1877. [10694] Le Hon. 1877. [S 2606] Whitney. 1882.
- CLOCKS (ELEMENTAL): [12888] Ozanam. 1725-50.
- (SYMPATHETIC): [7511] Ellicott. c. 1740.
- CLOUDS, ATLAS AND PHOTOGRAPHS OF: [4526] Specola Vaticana. 1891-3. [17392] Hildebrandsson, etc. 1896.
- , FORMATION OF: [4667] Sturgeon. 1848. [4977] Tyndall. 1872-85. [5614] Abercromby. 1888. [6127] Bennet. 1789. [8848] Hamilton. 1772.
- , *v. Fog, Rain.*
- , IRIDESCENCE IN: [15111] Stoney. 1887.
- , NOMENCLATURE OF: [2012] Howard. 1832. [8039-40] Forster. 1815-23. [9514] Howard. 1832. [14586] Russell. 1883.
- COACH BUILDING—*v. Carriage and Coach Building.*
- COAGULATION: [10388] Laer. 1905.
- COAL, CHEMISTRY OF: [12233-4] Muck. 1873-81. [14541] Rowney. 1855. [15238] Thomas. 1878. [15464-6] Watson. 1791-1800. [S 3077] Lewes. 1912.
- , *v. Coal Tar.*
- AND COAL TRADE: [1646] Greenwell and Elsdon. 1907. [2533] Leifchild. 1873. [3070] Morand. 1770-7. [3666] Plimsoil. 1861. [4416-18] Sinclair. 1672. [4911] Tonge. 1907. [5243-4] Watson. 1784-96. [7467] Edwards. 1892. [8098-9. 8113] Frankland. 1850-2. [8329] Geinitz, &c. 1865. [8367-8] Gesner 1861-5. [9396] Holland. 1835-41. [9800-1] Jevons. 1866-1906. [11699-700] Meade. 1882. [11713] Meldola. 1891. [12688] Nixon. 1900. [12976] Parr. 1904. [13019] Paterson. 1887. [13980] Redfern. 1854. [14025] Reinsch. 1881. [14496] Rossi c. 1858. [14693] Scafe. 1820. [14977] Somermeier. 1912. [15237] Thomas (D. A.). 1903. [15238] Thomas (J. W.). 1878.
- , DUST FIRING: [13774] Putsch. 1901.
- COAL FIELDS: [116] Anstie. 1873. [2015] Hull. 1873-1905. [8623] Green, etc. 1878. [2539] Hull. 1881. [12283] Murchison. 1827. [15551] Williams. 1810.
- , GAS: [18-20. 22-24] Accum. 1815-20. [1380] Foucault. *s.d.* [5282] Webber. 1907. [6395] Bowditch. 1867. [6949] Clegg. 1868. [7977] Fleming. 1898. [8101-2] Frankland. 1852. [9457-8] Hornby. 1896-1911. [9476] Hospitalier. *v.y.* [9537] Hughes. 1853. [9564] Humphrys. 1891. [12052] Moore. 1894. [13422] Playfair. *n.d.* [14218] Richards. 1877.
- , *v. Gas Lighting. Gas Works.*
- , MINES AND MINING: [105] André. 1879. [1735] Hair. 1844. [1972] Holmes. 1816. [4473] Smyth. 1890. [5218-19] Wardle. 1889. [6609] Bulman and Redmayne. 1906. [6974] Coal Supplies. 1905. [6999] Compagnie d'Anzin. 1855. [8248] Galloway. 1904. [9084-5] Hedley. 1851. [9637] Hyslop. 1876. [9690] Jackson. 1851. [10122] Kerr. 1902. [11426] Mariemont. 1889. [11613] Mauchline. 1893. [13108] Percy. 1882-6. [13394] Platt. 1881. [13578] Power. 1664. [14254] Rigg. 1897. [14525] Roy. 1876. [S 3211] Curr. 1797. [S 3315] Seddon. 1887.
- , *v. Mine Explosions. Mine Ventilation. Safety Lamp.*
- , MINING, HISTORY OF: [S 3234] Galloway. 1882.
- , TERMS: [8679] Gresley. 1883.
- , TAR: [349] Berkeley. 1744. [1742-3] Hales. 1739-45. [6146-7] Berkeley. 1744-7. [7400] Dundonald. 1785. [8803] Hales. 1747. [SS 1539] Berkeley. 1744.
- , CHEMISTRY OF: [4286] Schultz. 1900. [11095] Lunge. 1887. [11360] Mansfield. 1849. [15464-6] Watson. 1791-1800. [SS 2804] Lunge. 1900.
- , *v. Benzene. Coal, Chemistry of. Naphtha Bases. Naphthalene.*
- , COLOURS: [333] Benedikt. 1886. [1421] Friedländer. 1891. [13119] Perkin. 1906. [SS 2512-13] Gérard et Laire. 1873. [SS 2729] Coal Tar Products. 1865-73.
- , *v. Aniline. Anthracene. Benzene. Rosolic Acid.*
- , INDUSTRY: [14446] Roscoe. 1886. [S 3035] Gardner. 1915.
- , TESTING: [12955] Parker, etc. 1905.
- , WASHING: [11448-9] Marsaut. 1878-9.
- COAST EROSION: [9258] Hewitt. 1844.
- COBALT AND ITS COMPOUNDS: [14197] Richards. 1897-9.
- COEFFICIENTS (LAPLACE'S)—*v. Functions (Harmonic).*
- COHESION: [1445. 8212-13] Galilei. 1638-1730. [9895] Jones. 1762. [12322] Musschenbroek. 1753. [12702] Nobili. 1818. [14145] Reynolds. 1878. [SS 1906-7] Musschenbroek. 1729.
- , PARADOXES ON THE THEORY OF: [11048-9] Lovett. 1766-74.
- COKE: [5071] Vignoles. 1850.
- COLD (ARTIFICIAL): [2570] Leslie. 1813. [5159] Walker. 1788-95. [10032] Keir. 1787.
- , *v. Cryometry. Freezing Mixtures.*
- , EXPERIMENTS ON: [536] Boyle. 1665. [7171] Darwin. 1787. [S 2677] Boyle. 1683. [SS 1477-81] Accademia del Cimento. 1667-91.
- , MECHANICAL PRODUCTION OF: [SS 2255] Dalton. 1801.

- COLD, NATURE OF: [555] Boyle. 1674. [11430-3] Mariotte. 1717-40. [S 2677] Boyle. 1683. [SS 1583-4] Boyle. 1675-6.
- , PRODUCTION OF—*v. Freezing Mixtures.*
- INDUSTRY—*v. Refrigeration.*
- COLLECTED SCIENTIFIC WORKS—*v. General Works on Science.*
- COLLOIDION PROCESSES: [1777-8] Hardwick. 1859 -61. [3132] Mudd. 1866. [4141] Russell. 1865. [5639] Ackland. 1859. [10686-7] Le Gray. 1850-2. [10690] Legros. 1852. [10995-6] Long. 1857-8. [12011] Monckhoven. 1862. [14540] Rowland. 1855. [SS 2697] Belloc. 1855.
- COLLOIDAL STATE OF MATTER: [14403] Rohland. 1910.
- COLLOIDS, PHYSICS OF: [3386] Ord. 1879. [12261] Müller. 1903.
- *v. Dialysis.*
- COLLOTYPE: [1345] Fithian. 1901.
- COLOUR (ORGANIC): [12213] Mott. 1898.
- , CHANGE OF: [1005. 7225] Delaval. 1777. [SS 1639] Delaval. 1778.
- MEASUREMENT: [12] Abney. 1891. [2707. 11041] Lovibond. 1893. [11883. 11886] Mills. 1877-9. [S 1699] Baur. 1907.
- MIXING, AND COLOURING: [217] Bacon. 1866. [6858-9] Chevreul. 1855-9. [7883-4] Field. 1835-77. [9051] Hay. 1836. [SS 1839] Lambert. 1772. [SS 2757-8] Dossie. 1758-64.
- PHOTOGRAPHY: [15] Abney. 1897. [459] Bolas, etc. 1900. [5591] Zenker. 1900. [9815] Johnson. 1909.
- *v. Heliocromy.*
- REACTIONS: [3328] Nickel. 1890.
- VISION: [13] Abney. 1895. [2027] Hunt. 1892. [10570] Laurence. 1861. [13399] Plateau. 1834.
- *v. Irradiation.*
- COLOURED SHADOWS, EXPERIMENTS ON: [4131] Rumford. 1794.
- COLOURS—*v. Paints and Colours.*
- (ACCIDENTAL): [SS 2060] Scherffer. 1761.
- (MINERAL): [11409] Marucci. 1816.
- , EXPERIMENTS ON: [11672] Maxwell. 1855. [13950] Rayleigh. 1883.
- , NOMENCLATURE OF: [9052] Hay. 1846.
- , PHYSIOLOGY OF: [618] Brücke. 1866.
- , THEORY OF: [43-4] Aguilon. 1613. [385] Beuther. 1833. [527-9] Boyle. 1664. [1089] Dove. 1853. [1583] Goethe. 1840. [1831] Hayter. 1826. [2822] Marci de Kronland. 1648. [3249-55] Newton. 1704-40. [3379] Oken. 1808. [3725] Porzio. 1548. [4069] Rood. 1883. [4617] Stokes. 1877. [4791] Telesio. 1570. [5132] Vossius. 1662. [5916] Baif. 1541. [6415] Boyle. 1664. [6535] Brougham and Vaux. 1796. [7113] Crum. 1830. [7225] Delaval. 1777. [8498-9] Goethe. 1840-2. [8549] Graham. 1848. [8874] Hands. 1879. [10881] Linton. 1852. [11041] Lovibond. 1893. [11430-3] Mariotte. 1717-40. [11674] Maxwell. 1860. [12534-53] Newton. 1704-87. [14015] Reinold and Rücker. 1881. [15612] Young. 1801. [16394] Minifie. 1903. [S 2999-3000] Bancroft. 1813. [SS 1559] Boscovich. 1767. [SS 1639] Delaval. 1778. [SS 1652] Duhamel. 1660. [SS 1664] Euler. 1746-51. [SS 1711] Goethe. 1812. [SS 1714] Grégoire. 1789. [SS 1742-4] Grimaldi. 1665. [SS 1839] Lambert. 1772. [SS 1972-4] Peckham. 1504-42.
- : PARADOXES: [12324] Muston. 1830. [13960] Reade. 1818.
- COLOURS OF THIN PLATES: [9431] Hooke. 1665. [14545] Royal Institution. 1802.
- COMBINATIONS AND PERMUTATIONS: [2875] Maseres. 1795. [5209] Warburton. 1847. [7547] Emerson. 1770. [11534] Maseres. 1795. [14988] Spehr. 1840. [15007] Stahl. 1800. [15453] Wallis. 1685. [16674] Staudacher. 1893.
- *v. Analysis (Combinatory).*
- COMBUSTION, THEORY OF: [2496] Lavoisier. 1781. [2936-7] Mayow. 1674-81. [9431] Hooke. 1665. [9477] Hospitalier. *v. y.* [11697] Mayow. 1907. [12079] Morgan. 1781.
- *v. Flame. Fuel. Heat of Combination. Heat of Combustion.*
- : PARADOXES: [8177-8] Fulhame. 1794.
- COMETARY ASTRONOMY—*v. Astronomy (Cometary).*
- COMETS, CAPTURE THEORY OF: [12493] Newton. 1891.
- COMPASS OF PROPORTION: [678] Capra. 1655. [709] Casati. 1664. [1444. 1446. 1449] Galilei. 1635 -56. [1866. 1868] Henricus. 1613-80. [2820] Marchelli. 1759. [3407] Oughtred. 1633. [3427] Ozanam. 1736. [6749] Casati. 1685. [8031] Forest Duchesne. 1639. [8214. 8220] Galilei. 1640. [9143] Henricus. 1631. [10569] Lauring. 1636. [12785] Oddi. 1633. [12895] Ozanam. 1769. [12897] Pagnini. 1753. [14338 -41] Robertson. 1747-75. [SS 420] Faulhaber. 1610. [SS 436-8] Galgémair. 1610-55. [SS 445 -6] Galilei. 1613-35. [SS 496] Henricus. 1621. SS 507] Horcher. 1605. [SS 512-14] Hulsius. 1603-15. [SS 549] Lambert. 1768.
- (MARINER'S): [4427] Smeaton. 1814. [5147-8] Wakely, 1741-59. [7233] Dent. 1844. [11309] Maissait. 1818. [13576] Powell. 1661. [14795] Seebeck. 1828. [14916] Smeaton. 1814. [15436] Walker. 1853.
- *v. Magnetic Needle.*
- , HISTORY OF THE: [5884] Azuni. 1797. [7188] Davies. 1837. [15232] Thevenard. 1800. [SS 1488] Alencé. 1687.
- CARD: [17244] Thompson. 1913.
- DEVIASCOPE: [6064] Beall. 1866.
- DEVIATION: [171] Arson. 1871. [242] Bain. 1817. [322] Belavenetz. 1865. [1260-3] Evans. 1863-72. [2162] Johnson. 1847. [2648] Liverpool Compass Commission. 1869. [4571] Steam Navigation. 1858. [5982-4] Barlow. 1823-4. [6876] Christie. 1820. [8043] Fotheringhame. 1837. [15326] Towson. 1899. [15436] Walker. 1853. [S 3781-2] Magnetism of Ships. 1867-9. [SS 1511] Barlow. 1820.
- COMPLEXES, SYMBOLISM OF: [16773] Weitzenböck. 1908.
- COMPRESSIBILITY: [14181. 14217] Rickards. 1903-11.
- CONCHOIDS: [12676] Nicolas. 1696-7.
- CONCRETE: [3227] Newman. 1894. [3730] Potter. 1877. [3937-9] Reid. 1873-9. [4684] Sutcliffe. 1893. [8435] Gillmore. 1871. [10646] Lebrun. 1835. [13558] Potter. 1891. [14615] Sabin. 1905. [15211] Taylor and Thompson. 1909. [S 3586] Reid. 1908. [SS 2776] Hassenratz. 1825.
- (REINFORCED): [633] Buel. 1905. [7987] Foerster. 1907. [13145] Pesenti. 1910. [14123] Revere. 1910. [15211] Taylor and Thompson. 1909. [15341] Trussed Concrete Steel Co. 1908. [S 3586] Reid. 1908.
- 'CONE-IN-CONE' STRUCTURES: [14018] Reis. 1903.

- CONGRUENCES, MATHEMATICAL THEORY OF: [13438] Plücker. 1852. [16700] Sturm. 1908-9. [16740] Tschebyscheff. 1902. [S 727] Gauss. 1801. [S 1204] Smith. 1894.
- CONIC INSTRUMENTS: [6449] Bramer. 1646-7. [SS 1459] Schönberger. 1615.
— *v. Curves, Mechanical Drawing of.*
- SECTIONS (ANALYTICAL): [1758-9] Hamilton. 1834-43. [2600-3] L'Hospital. 1707-23. [4188-90] Salmon. 1848-55. [8854-6] Hamilton. 1827-38. [10794] L'Hospital. 1707. [12257] Mair. 1886. [14649-53] Salmon. 1865-79. [15438] Wallace. 1808-23. [15691] Askwith. 1908. [15933] Dette. 1909. [16085] Gundelfinger. 1895. [16553-7] Salmon. 1869-88. [16678] Staude. 1910.
- (GEOMETRICAL): [122-6. 128. 130] Apollonius. 1566-1710. [162] Arnold. 1832. [380] Besant. 1895. [931] Day. 1868. [1097] Drew. 1868-75. [1470] Gaskin. 1852. [1651] Gregorius a Sto. Vincentio. 1647-9. [2071] Hymers. 1845. [2104] Jack. 1742. [2348] La Chapelle. 1765. [2384-6] La Hire. 1679-1729. [2481] Latham. 1848. [2699] Lorenzini. 1721. [3002] Milnes. 1723. [3066] Moore. 1660. [3140] Mukhopadhyay. 1893. [3169] Mydorge. 1639. [3857] Puckle. 1870. [4032-5] Robertson. 1792-1818. [4265] Schooten. 1646. [4408] Simson. 1735. [4457] Smith. 1887. [4763-7] Taylor. 1863-83. [4928] Trevigar. 1731. [5079-80] Vince. 1805-17. [5112-4] Viviani. 1659-1701. [5155-6] Walker. 1794. [5348] Whewell. 1846. [5408] Wildig. 1822. [5794] Apollonius. 1710. [6376] Boulliau. 1657. [6449] Bramer. 1646-7. [6486-7] Bridge. 1811-17. [6569] Bryan and Pinkerton. 1907. [6947] Clebsch. 1879-80. [6970] Cockshott and Walters. 1889. [7365] Drew. 1857-62. [8652] Gregorius a Sto. Vincentio. 1647-9. [8849-52] Hamilton (H.). 1758-73. [8996] Haskell. 1905. [9017] Hastler. 1820. [9687] Jack. 1742. [10882] Liouville. 1844. [11158] Macaulay. 1895. [11646-7] Maurolico. 1575. [11900] Milne and Davis. 1894. [12056] Moore. 1660. [12269] Muller. 1736. [12632] Newton. 1794. [12881] Padulli. 1777. [13753-5] Puckle. 1868-1903. [14230] Richter. 1712. [14310. 14312] Roberts. 1870-2. [14336] Robertson. 1792. [14734-6] Schooten. 1646-57. [15451] Wallis. 1656. [15686] Apollonius. 1896. [15729-30] Besant. 1890-1901. [15878] Cockshott. 1897-1902. [15946] Drew. 1868-98. [16179] Jackson. 1872. [16392] Milne and Davis. 1890-4. [16505] Puckle. 1870. [16591] Schlotke. 1903. [16648-50] Smith. 1898-1912. [16714-15] Taylor. 1881-1903. [S 880] La Hire. 1685. [S 1201-2] Smith. 1892-4. [SS 839] Simson. 1750.
- (SYNTHETIC): [15865] Chasles. 1865. [15949] Dronke. 1881. [16046] Geissler. 1905. [16385-6] Milinowski. 1882. [16681-2] Steiner. 1875-98. [16721] Thomae. 1894. [S 587] Chasles. 1841.
- CONINE: [10385] Ladenburg. 1892.
- CONSTANTS—*v. Chemical C. Dielectric C. Physical C.*
- CONSTELLATIONS (ASTRONOMICAL): [429] Blake. 1877. [6542] Brown. 1899-1900. [7943] Flammarion. 1877. [10418] Lalande. 1771-81. [10431] Lamb. 1673.
— *v. Astronomical Myths. Star Names.*
- , REARRANGEMENT OF: [9210] Herschel. 1841.
- CONTACT ACTION: [9681] Irving. 1887.
- CONTINUITY, PRINCIPLE OF: [3236-9] Newton. 1707-69. [5183-5] Wallis. 1656-99. [10097] Kepler. 1604. [10695] Leibniz. 1768. [12554-63] Newton. 1707-69. [15451] Wallis. 1656.
— *v. Calculus (Principles of).*
- CONTROVERSIES (SCIENTIFIC): [1444] Galileo. 1655. [8870] Hamilton. 1866. [10719] Le Mort. 1687. [13672] Priestley. 1775. [14551-2] Royal Society of London. 1784.
— *v. Earth, Rotation of the (Galilean C.).*
- COOKING, CHEMISTRY OF: [5628] Accum. 1821.
- COOLING OF BODIES: [2865] Martine. 1780. [11521-2] Martine. 1772. [SS 2316] Martine. 1792.
- COORDINATE SYSTEMS: [1331] Ferrers. 1861. [2412] Lamé. 1859. [5520] Wright. 1875-9. [6335] Booth. 1873-7. [7873] Ferrers. 1866. [10437-8] Lamé. 1859. [12778] Ocagne. 1885. [15000] Spottiswoode. 1881. [15912] Darboux. 1910. [15989-90] Ferrers. 1861-90. [16461] Papelier. 1894-5. [16626] Schwing. 1884. [16787] Whitworth. 1866.
- COPERNICAN SYSTEM AND THEOLOGY: [14830] Settele. 1818-19. [SS 1213] Nierop. 1661.
- COPPER, CHEMISTRY AND METALLURGY OF: [907] Crookes. 1869. [3539] Percy. 1861. [3555] Peters. 1887. [8007] Forbes. 1853. [13111] Percy. 1861. [13334] Piggot. 1858. [14179. 14190. 14209. 14215] Richards. 1890-7. [14599] Russell and Matthiessen. 1862. [15264] Thomson. 1814. [S 3224] Eissler. 1902. [S 3302-3] Pryce. 1778. [SS 2925] Hofman. 1914. [SS 2932] Levy. 1912. [SS 2947-8] Peters. 1901-11.
— *v. Brass.*
— DEPOSITS: [10866] Lindgren. 1904.
— SHEATHING OF SHIPS: [7196] Davy. 1824.
— TRADE: [13737] Provis. 1801.
- COPYING INSTRUMENTS: [S 1625] Wallace. 1839.
— *v. Pantograph.*
- CORDITE: [11357] Mansell. 1907. [12701] Nobel's Explosives Co. 1894-5.
— *v. Gun Cotton. Smokeless Powder.*
- CORNISH PUMPING ENGINE: [3689-90] Pole. 1844-8. [6398-9] Wicksteed. 1841. [15334] Trevithick. 1872.
- CORPUSCULAR THEORY: [526. 546. 554] Boyle. 1666-8. [3559] Petty. 1674. [6404-6. 6411-13. 6417. 6422-3. 6426] Boyle. 1661-86.
- CORRELATION (PHYSICAL): [1298-9] Faraday. 1860-1. [1688-93] Grove. 1848-74. [7787-8] Faraday. 1860-1. [8721-3] Grove. 1846-74. [8824] Hall. 1888. [11584] Mathieu. 1799. [12215] Moulin. *n.d.*
- CORRESPONDENCE, PRINCIPLE OF: [745. 6806] Cayley. 1889-98. [SS 813] Schwarz. 1890.
— *v. Geometry (Enumerative).*
- OF SCIENTISTS: [1028] Descartes. 1893. [1725] Hachette. 1804-16. [2063] Huygens. 1833. [2532] Leibniz. 1745. [3691] Poleni. 1728. [4230] Schaele. 1892. [5185. 5191] Wallis. 1658. [5579] Zach. 1818-26. [7253-4] Descartes. 1668-83. [7791] Faraday. 1899. [8190] Fuss. 1843. [9132] Hemmer. 1780-7. [9627] Huygens. 1833. [10106] Kepler. 1718. [10697. 10699. 10701. 10703] Leibniz. 1720-1857. [11782] Merenne. 1644-7. [12564-71. 12589. 12601-3. 12621] Newton. 1712-1856. [13480] Poleni. 1728. [14879] Simpson. 1730-58. [15208] Taylor. 1793. [15324] Torricelli. 1864.
— *v. Biographies etc. of Scientists.*
- CORROSION: [3226] Newman. 1896. [SS 1583-4] Boyle. 1675.
— *v. Iron, C. of. Steel, C. of.*
- COSMOGENIC HYPOTHESES: [2400. 2407-8] Lambert. 1761-1880. [3388] Ormawate. 1872. [5516-17] Wright. 1750. [7819] Faye. 1885. [7860] Ferguson. 1754. [9197. 9201] Herschel. 1785-94. [10426] Lambert. 1784. [11584] Mathieu. 1799. [11637] Maupertuis. 1768. [11694]

COSMOGONIC HYPOTHESES, *continued*:

- Mayer. 1848. [11807] Meyer. 1901. [12584-5]
 Newton. 1728. [12637-8] Nichol. 1837-46.
 [13431] Pluché. 1740. [13692] Proclus. 1825.
 [13723] Proctor. 1878. [17256] Tünzelmann.
 1910. [S 1361] Arrhenius. 1908. [S 1524]
 Lowell. 1909. [S 1572] Poincaré. 1913.
 [S 1633] Wolf. 1886. [S 2485] Cosmogony.
 1909. [S 2491] Darwin. 1877-89. [SS 1652]
 Inhamel. 1660.
 — *v. Comets, Capture Theory of. Earth, Theories of
 the. Meteoritic Hypothesis. Moon and Earth
 Compared. Nebular Hypothesis. Planets,
 Origin of. Plurality of Worlds. Tidal Friction.*
 — — — PARADOXES: [13742] Prusol. 1879.

- COSMOGRAPHY: [69] Alembert. 1754-6. [654] Buy
 de Nornas. 1770. [859] Condorcet. 1768.
 [1334] Pine. 1555. [2980] Miega. 1682. [5458]
 Wolf. 1731. [5786-9] Apianus. 1533-74.
 [6279-81] Blundeville. 1597-1636. [8336]
 Gemma. 1553. [8894] Harant et Lafitte. 1853.
 [9555-8] Humboldt. 1845-89. [15391] Viète.
 1637. [16841] Faye. 1854. [16844] Garceet.
 1896. [6902] Porchon. 1899. [S 3716] Blunde-
 ville. 1594. [SS 1011] Blundeville. 1597.
 [SS 1190] Mizauld. 1567.
 — *v. Spher. Doctrine and Use of the.*

— (CHEMICAL): [17296] Baur. 1903.

COSMOLABE: [6201] Besson. 1569.

— *v. Astrolabe.*

COTTON: [662] Burkett and Poe. 1906. [11316]
 Mallet. 180. [14611] Ryan. 1852.

COULOMB'S LAW: [884] Coulomb. 1884. [3802-4]
 Priestley. 167-94. [SS 2089] Société française
 de Physique 1884-7.

COULOMETER: [4182] Richards. 1908.

COUNTERS: [499] Trenchant. 1618.

— *v. Napier's Bones.*

COUPLES, THEORY OF: [3807] Pritchard. 1831.
 [8868] Hamton. 1835. [13460-4] Poinsot.
 1824-77.

COVARIANTS: [801] Forsyth. 1888. [8696] Griffiths.
 1890.

— *v. Invariant Transformations.*

CRANES: [8481] Lynn. 1873. [9981] Kammerer.
 1907.

— *v. Hoisting Machinery.*

CRANKS (JOPLING) DOUBLE: [2185] Jopling. 1825.

CRITICAL POINT: [13871] Ramsay. 1880.

— PHENOMENA [10313. 10315-16. 10318]
 Kuener. 189-5.

CROSS BEAMS: [1546] Post. 1885.

— STAFF: [17109. 8745-50] Gunter. 1636-80.

CRYOHYDRATES: 8758] Guthrie. 1875-6.

CRYOLITE: [9909] Jørgensen. 1909.

CRYOMETRY AND CRYOSCOPY: [3898] Raoult. 1901.
 [11716] Meilik. 1904. [13911-12] Raoult.
 1894-8.

CRYPTOGRAPHY: [3710] Porta. 1563. [5419]
 Wilkins. 164. [6459] Breithaupt. 1737.
 [13531-2] Pom. 1593-1606. [15395] Vigenère.
 1586. [1556-5] Wilkins. 1694. [SS 962]
 Wilkins. 164. [SS 831] Schott. 1668.

CRYSTAL TWINS: [4118] Reusch. 1872.

CRYSTALLINE COMBINATIONS: [15519] Whewell.
 1827.

— THEORY: [1066. 10068] Kelvin. 1882-1911.
 [14186] Richards. 1911. [14829] Settele. 1805.
 [15606] Wollaston. 1813.

CRYSTALLIZATION: [6384] Bourget. 1762. [8815-16]
 Hall. 1805. [9036. 9038] Haüy. 1817-19.
 [11845. 11847] Miers. 1905-7.

— *v. Cryohydrates.*

— (SPONTANEOUS): [9682-3] Isaac. 1908-10.

— SPECULATIONS ON: [14001-3] Reichenbach.
 1850-1. [SS 2664] Boyle. 1672.

CRYSTALLOGRAPHY (CHEMICAL): [1356] Fock. 1895.
 [3883] Rammelsberg. 1881-2. [5174] Wallerant,
 1899. [7985] Fock. 1895. [10209] Klement et
 Renard. 1886. [10238] Knop. 1867. [11844-
 11851] Miers. 1900-9. [13504-5] Pope. 1892-5.
 [15610] Wollaston. 1812. [S 2988] Tutton.
 1910. [SS 2627] Swedenborg. 1847.
 — *v. Isomorphism. Refractive Indices.*

— (GENERAL): [21] Accum. 1813. [293] Baum-
 hauer. 1905. [2476] Larkin. 1820. [2995-6]
 Miller. 1839-63. [3000] Milne. 1879. [3119]
 Moses and Parsons. 1895. [3394] Orr. 1860.
 [4061] Romé de l'Isle. 1772. [4081] Rose.
 1838. [4574-5] Stensen. 1669-1904. [4632]
 Story-Maskelyne. 1895. [5631] Accum. 1813.
 [6525-6] Brooke. 1823-30. [8736] Guglielmini.
 1688. [10546] Larkin. 1820. [11881] Miller.
 1839. [11896] Milne. 1879. [13239-41]
 Phillips. 1823-52. [13994. 13997] Regnault.
 1847-8. [14418] Romé de l'Isle. 1772. [15033]
 Stensen. 1671. [17365] Baumhauser. 1905.
 [17368] Karsten. 1861. [17370] Linck. 1908.
 [17372-3] Miller. 1839-63. [17381] Story-
 Maskelyne. 1895. [17382-3] Tutton. 1911.
 [17386] Williams. 1899. [S 2960] Bravais.
 1866. [S 2972] Haüy. 1784. [SS 2670] Griffin.
 1841.

— (MATHEMATICAL): [8716] Grossmann. 1857.
 [12264-7] Müller. 1841-57. [12449] Neumann.
 1823. [13919. 13921] Rath. 1873. [15519]
 Whewell. 1827. [17364] Baumhauser. 1899.
 [17366] Gossner. 1914. [17369] Kirchmayr.
 1908. [17371] Lion. 1891. [17378] Schoenflies.
 1891. [17379-80] Sommerfeldt. 1906-11.
 [17382] Tutton. 1911. [S 2980] Miller. 1868.
 — *v. Goniometer.*

— (PHYSICAL): [2634] Liebisch. 1891. [3000]
 Milne. 1879. [7976] Fletcher. 1892. [8719]
 Groth. 1876. [9234] Herschel. 1820. [9844]
 Joly. 1901. [10218] Klocke. 1881. [11896]
 Milne. 1879. [12293] Murmann und Rotter.
 1859. [13679-80] Pritchard. 1838-45. [15417]
 Voigt. 1910. [17307] Groth. 1895. [17384-5]
 Voigt. 1898-1910. [S 2964-5] Cloizeaux.
 1864-7.

— *v. Magne-Crystalline Action. Magnetism of
 Crystals.*

CRYSTALLOID STATE OF MATTER: [14403] Rohland.
 1910.

CRYSTALS (FLUID): [17376] Schenck. 1905.

— (GROWING): [10238] Knop. 1867. [14196]
 Richards. 1901.

— CLEAVAGE OF: [4973] Tyndall. 1856.

— MOLECULAR TACTICS OF: [2242] Kelvin. 1894.
 [S 2038] Kelvin. 1884.

CURRENT CHARTS—*v. Wind and Current Charts.*

— OBSERVATIONS—*v. Tidal and Current Observations*
 — WITHIN LIQUIDS: [14117] Reusch. 1860.

CURVATURE, THEORY OF: [13313] Pickering. 1892.
 [15896] Cranz. 1886. [16004] Forsyth. 1912.

— [16382] Meyer. 1911.

— *v. Surfaces.*

CURVE TRACING: [8168] Frost. 1872. [9828-9]
 Johnson. 1885-8. [16025] Frost. 1892-1911.
 [16187] Johnson. 1895.

- CURVES (ALGEBRAIC): [892] Cramer. 1750. [5228-9] Waring. 1772. [6947] Clebsch. 1879-80. [7061] Cramer. 1750. [12892] Ozanam. 1687. [13438] Plücker. 1839. [14302. 14304. 14307. 14315] Roberts. 1856-75. [16322-3] Loria. 1902-11. [16561] Sauerbeck. 1902. [16790] Wieletner. 1905. [S 619] Darboux. 1872.
- (CAUSTIC)—*v. Caustics.*
- (CIRCULAR): [14299] Roberts. 1869.
- (CONVEX): [16194] Jordan et Fiedler. 1912.
- (CUBIC): [3242] Newton. 1797. [4916] Torricelli. 1644. [14120] Reuschle. 1847. [15717] Basset. 1901. [S 432] Aoust. 1876.
- (ISOPERIMETRICAL): [1256] Euler. 1741.
- *v. Brachistochrone.*
- (KINEMATIC): [13133] Perigal. *n.d.* [16713] Taylor. 1874-5.
- (PARALLEL): [11029] Lotteri. 1792.
- (PLANE): [454] Bois-Aymé. 1829. [1135] Eagles. 1885. [1616] Grandi. 1728. [4191-2] Salmon. 1852-73. [14654-6] Salmon. 1852-79. [15744] Binder. 1896. [15961] Eagles. 1885. [16322-3] Loria. 1902-11. [16558] Salmon. 1879. [16789] Wieletner. 1908.
- (QUARTIC): [15717] Basset. 1901.
- (ROLLING): [S 2125] Maxwell. 1849.
- (TRANSCENDENTAL): [16322-3] Loria. 1902-11.
- CALCULUS APPLIED TO: [16347] Mango'dt. 1902.
- GROUPS OF: [16303] Lilienthal. 1896.
- MECHANICAL DRAWING OF: [15936] Dingeldey. 1885. [SS 871] Suardi. 1752.
- *v. Conic Instruments.*
- QUADRATURE OF: [891] Craigie. 1685-93. [1664] Gregory. 1668. [3234-5. 3250-1. 3277] Newton. 1704-45. [12588] Newton. 1745. [15451] Wallis. 1656. [SS 2120-1] Valerio. 1606-60.
- THEORY OF: [281-3] Barrow. 1669-73. [681] Caraccioli. 1740. [1664] Gregory. 1668. [2064] Huygens. 1673. [2367] Lacroix. 1795. [2548] Léotaud. 1654. [2565] Leslie. 1821. [2756-7] Maclaurin. 1720. [3246] Newton. 1736. [3708-9. 3714] Porta. 1601-10. [4419] Sluze. 1668. [4521-2] Sover. 1630. [5225] Warner. 1762. [6014] Barrow. 1735. [8658] Gregory. 1668. [9628] Huygens. 1673. [10192] Klein. 1892. [10747] Leslie. 1821. [11223] Maclaurin. 1720. [11264] Maddison. 1892. [12578-80] Newton. 1736-48. [12705-6] Noether. 1879-82. [13566-7] Powell. 1828-30. [14562] Ruchonnet. 1880. [14880] Simpson. 1743. [15684] Aoust. 1869-76. [15876] Clebsch. 1875-91. [15964] Ebner. 1906. [15969] Eisenhart. 1909. [16060] Gomes Teixeira. 1908-9. [16237] Kommerell. 1903. [16507] Raffy. 1897. [16539] Ruchonnet. 1901. [16595] Schmidt. 1881. [16792] Wilczynski. 1906. [SS 339-40] Cremona. 1865. [SS 483] Hesse. 1897. [SS 952-3] Waring. 1762.
- *v. Brachistochrone. Caustics. Cissoids. Conchoids. Cycloid. Epicycloids. Glissettes. Logarithmic C. Ovoid. Roulettes. Spirals.*
- OF DOUBLE CURVATURE: [798] Clairaut. 1731. [2160] Joachimsthal. 1881. [6304] Bois-Aymé. 1800. [6900] Clairaut. 1731. [11974-5] Molins. 1845. [13131] Perigal. 1849. [14311] Roberts. 1874. [16185] Joachimsthal. 1881. [16569] Schell. 1898. [16595] Schmidt. 1881.
- OF THE SECOND ORDER: [84] Alings. 1849. [1836-7] Hearn. 1846. [3418] Ovidio. 1876. [12111] Morgan. 1831.
- CURVES OF THE THIRD ORDER: [12572-3] Newton. 1711. [13438] Plücker. 1835. [15086] Stirling. 1717. [15744] Binder. 1896. [16610] Schröter. 1880.
- OF THE FOURTH ORDER: [6101] Beer. 1852. [13438] Plücker. 1839. [14228] Richmond and Stuart. 1903. [15744] Binder. 1896. [15936] Dingeldey. 1885.
- OF THE FIFTH ORDER: [15874] Clebsch. 1870.
- CYANIDE PRACTICE: [9736-7] James. 1902. [SS 2935] MacFarrin. 1912.
- CYANOGEN COMPOUNDS: [9365] Höfflmayr und Prückner. 1837. [9838-9] Johnston. 1837-9. [10477] Lang. 1881. [10587] Leach. 1905. [13425-6] Playfair. 1849. [14209] Richards. 1897. [14697] Scheele. 1786.
- CYCLES AND VELOCIPEDES: [649] Burt. 1898. [3415] Ovenden. 1774. [4364] Shap. 1896. [5176] Wallis-Taylor. 1897. [11701] Mechanic. 1849-70. [SS 3082] Scott. 1889. [SS 3097] Velocipede. 1869. [SS 3098] Velox. 1869.
- * * An interesting collection of early Cycling Journals was found in Messrs Sotheran's Bibliotheca Vaticana.
- (MOTOR): [6046] Baudry de Saurier. 1899.
- CYCLOID: [2348] La Chapelle. 1755. [3475] Pascal. 1659. [4916] Torricelli. 1644. [7984] Floryn. c. 1814. [9628] Huygens. 1673. [12074] Morgan. 1770. [13721] Proctor. 1878. [14303] Roberts. 1873. [1532-3] Torricelli. 1644. [16502] Proctor. 1878.
- CYCLOPEDIAS AND COMPENDIA OF SCIENCE: [172] Arts. 1866-8. [269. 271] Barlow. 1814. [565-6] Brande. 1865-75. [72] Circle. *n.d.* [1048] Dictionnaire. 1816-30. [1050] Diderot. 1772. [1178] Encyclopædia Britannica. 1853. [1179-84] Encyclopædia Metropolitana. 1829-48. [1552] Glanville. 1491. [1789] Harris. 1736-44. [1826] Haydn. 1871. [045-7] Hutton. 1796-1815. [2315] Knight. 1859. [3307] Nichol. 1857. [3392] Orr. 1854-6. [3537] Pepper. c. 1880. [3598-9] Phosphoria. 1681-2. [3667] Plinius. 1668-9. [3711-12] Porta. 1585-1644. [5022-5] Ure. 139-63. [5992-3] Barlow. 1814. [8884] Hadwörterbuch der Naturwissenschaften. 1911 etc. [9902] Jonston. 1632. [11462] Martn. 1776. [12652] Nicholson. 1809. [13099] Enny Cyclopædia. 1833-44. [13407-10] Pliurs. 1571-1669. [13517-24] Porta. 1558-1658. [13750] Psellus. 1647. [14026] Reisch. 151. [SS 3] Alsted. 1641. [SS 140] Reisch. 159.
- *v. Dictionaries of Science and Technology.*
- DAGUERRETYPE: [926] Daguer. 1839. [6853] Chevalier. 1841. [7134-6] Daguerre. 1839. [8300-1] Gaudin. 1842-5. [9570-1] Hunt. 1841-51. [10729] Lereboux. 1843. [11460] Martin. 1848. [12429] Nett. 1843. [S 3025] Daguerre. 1839. [S 303] Gaudin. 1844. [SS 2697] Belloc. 1855. [S 2738] Chevalier. 1854. [SS 2811] Melloni. 339-40.
- DAM CONSTRUCTION: [502] Bouret. 1773. [5302] Wegmann. 1907.
- DAY, LENGTH OF, METEORIC INFLUENCE ON: [15114] Stoney. 1902.
- NUMBERS (INDEPENDENT): [536] Gill. 1897-8.
- DECIMAL FRACTIONS: [15081] Svinus. 1625.
- SYSTEM: [1405] Franklin. 1853. [6397] Bowring. 1854. [11809] Mesr. 1808. [12095. 12132] Morgan. 1840-7.
- *v. Metric System.*
- DEFORMITY, THEORY OF: [1586] Cosserat. 1909. [16150] Hoffmann. 1888.
- DENDRATION: [9843] Joly. 190. [15112] Stoney. 1899.
- DEODORISERS: [11871] Miller. 1860.

DESCARTES AND NEWTON RECONCILED: [8262]
Gamaches. 1740.

DETERMINANTS, THEORY OF: [262-3] Baltzer. 1861.
[590] Brioschi. 1856. [5316] Weld. 1893.
[5520] Wright. 1875-9. [5967] Baltzer. 1875.
[6504] Brioschi. 1856. [8320] Gegenbauer.
1885. [8455] Glaisher. 1876. [10695] Leibniz.
1768. [11514] Martin. c. 1866. [12259-60]
Muir. 1882-90. [14782] Scott. 1880. [14999]
Spottiswoode. 1851. [15712-13] Baltzer.
1875-81. [15786] Brioschi. 1856. [15941]
Dodgson. 1867. [15944] Dostor. 1883-1905.
[16087] Günther. 1877. [16108] Hanus.
1886-1903. [16245] Kowalewski. 1909.
[16284] Lecat. 1910. [16355] Mansion.
1883. [16411-12] Muir. 1882-1911. [16426]
Necto. 1910. [16468] Pascal. 1900. [16513]
Reidt. 1874. [16629-30] Scott. 1880-1904.
[16769-70] Weichhold. 1893. [16774] Weld.
1903. [S 727] Gauss. 1801.
— *v. Hyperdeterminants.*

DEW, THEORY OF: [5322-5. 5327] Wells. 1814-77.
[8848] Hamilton. 1772. [13317] Pictet. 1791.
[13630-1] Prévost. 1809. [14588] Russell.
1892. [SS 2254] Dalton. 1799.

DEXTRINE: [8096] Frankel. 1881.

DIALLAG: [8791] Haidinger. 1823.

DIALLING: [332] Benedetti. 1574. [717] Castrone.
1728. [804] Clark. 1682. [816-17] Clavius.
1581-1603. [848] Collins. 1659. [1014]
Deparcieux. 1741. [1279-81] Fale. 1652.
[1453-4] Gallucci. 1592. [1466] Garnier.
1773-1815. [1480] Gatty. 1890. [1485]
Gaupp. 1708-20. [1650] Gregorio di San
Francesco. 1715. [1767] Hammond. 1731.
[2382] La Hire. 1698. [2506-7] Leadbetter.
1737-73. [2587] Leybourn. 1669. [2739]
Lyon. 1658. [2779] Maignan. 1648. [2966]
Metius. 1624. [3097-8] Morgan. 1652. [3129]
Moxon. 1703. [3152-3] Münster. 1531-51.
[3355] Nuis. 1686. [3407] Oughtred. 1633.
[3433] Padovani. 1582. [3534] Penther. 1734.
[3630] Pierre de Ste.-Magdelaine. 1680. [3743]
Pozzo. 1679. [3855] Ptolemaeus. 1562. [3861]
Quadri. 1743. [4023-4] Ritter. 1652. [4496]
Soeten. 1710. [4612] Stirrup. 1659. [4644]
Strode. 1688. [4675-6] Sturmey. 1679-1700.
[4721] Tagliani. 1648. [5077] Vimercato.
1566. [5101-6] Vitruvius. 1567-1800. [5117]
Voch. 1778. [5319] Wells. 1635. [5443]
Wilson. 1724. [5513] Wright. 1614. [5540]
5542] Ximenes. 1757-76. [5753] Anderson.
1689-1708. [6449] Bramer. 1646-7. [6452]
Bransby. 1808. [6548] Bruce. 1867. [6704]
Cantone. 1670. [6941-2] Clavius. 1581-99.
[6952] Clerke. 1687. [6975] Coets. 1705.
[6995] Collins. 1658. [7140] Dam. 1715.
[7245] Desargues. 1659. [7546. 7552. 7562]
Emerson. 1749-70. [7599] Erzey. 1764. [7608]
Etten. 1652. [7850. 7861-2] Ferguson. 1764-90.
[7906-7] Fine. 1587. [7925] Fisher. 1784.
[8050-2] Foster. 1654-9. [8188] Furtenbach.
1662. [8242] Galli. 1694. [8646] Gregorio
di San Francesco. 1715. [8654] Gregory. 1726.
[8700] Grimani. 1642. [10112] Kerigan. 1845.
[10219] Knoop. 1761. [10492-3] Lansberg.
1675. [10512] La Prise. 1780-1. [10738]
Lesow. 1713-14. [10772-4] Leurechon. 1652-74.
[10804. 10809-13. 10820] Leybourn. 1669-1771.
[10890] Littrow. 1838. [11068] Luchini. 1730.
[11328] Malthe. 1640. [11344] Manfredi. 1736.
[11646-7] Maurolico. 1575. [11765] Meredith.
1791. [11803] Metius. 1632-3. [11963-4]
Mogge. 1666-75. [12003] Mollet. 1820.
[12078] Morgan. 1652. [12230-1] Moxon.
1674. [12232] Moyat. 1873. [12889-9] Ozanam.
1708-50. [12935] Paradies. 1687. [13204]
Philips. 1786. [13576] Powell. 1661. [13778]
Quadri. 1743. [14224] Richardson. 1889. [14277]

DIALLING, *continued*:

Ritter. 1652. [14283] Rivard. 1741. [14633-9]
Ste.-Marie Magdelaine. 1645-1701. [14820]
Serle. 1664. [14831] Settele. 1816. [15032]
Stengel. 1680. [15045] Sternheim. 1835.
[15222] Terzi. 1823. [15339-40] Trotta.
1631-51. [15352] Turner. 1750-2. [15399]
Vimercato. 1672. [15409-11] Vitruvius.
1511-1649. [15504] Wells. 1725. [15634]
Nuñez. 1592. [SS 366] Dürer. 1532. [SS 438]
Galgenair. 1655. [SS 831] Schott. 1668.
[SS 936] Vols. 1718. [SS 1202-3] Metius.
1626. [SS 1347] Blagrave. 1609. [SS 1348]
Blaise. 1744. [SS 1357] Blau. 1652. [SS 1358]
Bonhomo. 1758. [SS 1359] Bosse. 1643.
[SS 1361] Brown. 1671. [SS 1368-70] Collins.
1659-1710. [SS 1371] Corsanico. 1829.
[SS 1380] Fale. 1633. [SS 1384] Fidati. 1636.
[SS 1385] Figatelli. 1667. [SS 1387] Foster.
1675. [SS 1396] Gütle. 1797. [SS 1406]
Kinkhuysen. 1645. [SS 1346-7] Oddi. 1614-38.
[SS 1348] Otia Mathematica. 1719. [SS 1458-9]
Schönberger. 1615-22. [SS 1468] Vimercato.
1567. [SS 1471] Wittekind. 1576. [SS 3138]
Collins. 1659.
— *v. Sphere, Projection of the.*

DIALYSIS: [12793] Odling. 1862.

DIAMAGNETISM: [2900] Matteucci. 1854. [4997]
Tyndall. 1870. [7775] Faraday. 1846. [7972]
Fleming and Dewar. 1898.

DIAMOND: [579] Brewster. 1852. [2930] Mawe.
1815. [5727] Allen. 1807. [13427] Playfair.
1860. [SS 2695-6] Streeter. 1882.

DICTIONARIES OF SCIENCE AND TECHNOLOGY: [628]
Buchanan. 1884. [990] Deinhardt. 1906.
[1789] Harris. 1736-44. [1953] Hoblyn. 1849.
[4783-5] Technical Dictionaries. 1908. [4909]
Tolhausen. 1882. [5276] Weale. 1873.
[8931-2] Harris. 1704-25. [15215-18] Technical
Dictionaries. 1906-10. [15219] Technical
Dictionary. 1903. [15640] Goodchild and
Tweney. 1906. [15651] Poiré, etc. *s. d.*
[15652] Privat-Deschanel. 1903-5. [15654]
Technological Dictionary. 1878-87. [SS 59-61]
Dictionary (New and Complete). 1754-64.
[SS 62] Dictionary (Complete). 1764-6.
— *v. Cyclopedias of Science.*

DIDYMIUM: [10487] Langmuir. 1894. [10893]
Livinge. 1899.

DIELECTRIC CONSTANTS: [7973] Fleming. 1897.

DIELECTRICS: [1289-90] Faraday. 1839-55.
[2925-7] Maxwell 1873-92. [7777-80] Faraday.
1839-55. [11679-81] Maxwell. 1873-81. [12209]
Mossotti. 1846.

DIES: [S 3335] Woodworth. 1903.

DIFFERENCE TABLES, ALGEBRA OF: [7717] Everett.
1900.

DIFFERENTIAL CALCULUS—*v. Calculus (Differential).*

— METHOD: [585-6] Briggs. 1628-33. [876]
Cotes. 1722. [1169] Emerson. 1767. [4607]
Stirling. 1764. [7038-9] Cotes. 1722. [7541]
Emerson. 1767. [12572-3] Newton. 1711.
[14764] Schweins. 1825. [15087-90] Stirling.
1730-64.

— *v. Calculus of Finite Differences. Interpolation.*

— RELATIONS: [8451] Glaisher. 1872.

— RESOLVENTS: [8911] Harley. 1892.

DIFFRACTION GRATINGS: [13950] Rayleigh. 1883.
[15608] Wollaston. 1813.

DIFFUSION OF GASES AND LIQUIDS: [7881] Fick.
1855. [8550. 8555-6] Graham. 1832-50.
[SS 1636] Dalton. 1802.

— *v. Metals, Diffusion of. Osmosis.*

- DIGESTER (PAPIN'S): [12911] Papin. 1682. [SS 1365] Papin. 1687.
- DIGESTION, CHEMISTRY OF: [2572] Leuret. 1825. [10321-3] Kühne. 1876-8. [13740] Prout. 1834. [SS 2213] Spallanzani. 1780.
- DIOPHANTINE PROBLEM: [14313] Roberts. 1886.
- DIOPTRICS: [479] Boscovich. 1767. [2265] Kepler. 1611-53. [3037] Molyneux. 1692 [3169] Mydorge. 1639. [3716] Porta. 1593. [7256] Descartes. 1637. [7681] Euler. 1769-71. [10097-8] Kepler. 1611-53. [10223] Klügel. 1778. [11379] Mangini. 1660. [12006] Molyneux. 1709.
— *v. Light, Refraction of.*
- DIORAMA: [926. 7134-6] Daguerre. 1839.
- DIPLEIDOSCOPE: [7232] Dent. 1845-52.
- DIRICHLET'S PRINCIPLE: [16433] Neumann. 1865.
- DISCOVERIES AND INVENTIONS IN SCIENCE: [1131-2] Dutens. 1769-96. [2421] Lana. 1670. [4107] Routledge. 1891. [5505-6] Worcester. 1663-1825. [5808] Arcana. 1831. [5950] Bakewell. 1859. [6086] Beckmann. 1846. [6391] Bourne. 1578. [7424] Dutens. 1796. [8431] Gill. 1822-30. [9808] Jobard. 1857-8. [10457] Lana. 1670. [10757] Leuchs. 1851. [13017] Patent Journal. 1846-7. [14082-3] Repertory of Arts. 1794-1823. [14111] Retrospect. 1806-15. [SS 66] Fioravanti. 1564. [SS 3103-4] White. 1822.
— *v. Electric Inventions. Electromagnetic Discoveries. Experimenting, Theory of. Light, D. on. Patents.*
- DISCOVERY (SCIENTIFIC), PRINCIPLES OF: [8532-3. SS 70] Gore. 1878. [SS 3184] Para du Phanjas. 1786.
- DISINFECTANTS: [10152] Kingzett. 1885. [14947] Smith. 1869.
- DISPERSION (ATMOSPHERIC): [13849] Rambaut. 1893.
- DISPLACEMENTS, ANALYTICAL THEORY OF: [9527] Hudson. 1903.
- DISSOCIATION (ELECTROLYTIC): [4566] Stark. 1903. [9681] Irving. 1887. [9860. 9864. 9872. 9880] Jones. 1893-1907. [9976] Kahlenberg, etc. 1901. [10295] Krecke. 1871. [10303] Kreidler and Jones. 1911. [13876] Ramsay and Young. 1888.
- DISTILLATION (DESTRUCTIVE): [11884] Mills. 1877. [11977] Moissan. 1906.
—, HISTORY OF: [7760-1] Fairley. 1905-7.
- DISTILLING: [1409-10] French. 1652-67. [1559-61] Glauber. 1651-8. [3073] Morewood. 1824. [3651] Plat. 1653. [3707] Porta. 1611. [4361] Shannon. 1805. [4448] Smith. 1776. [4836] Thomson. 1849. [5871] Anbergier. 1825. [7336] Donovan. 1830. [7378] Dubrunfaut. 1824. [7379] Duclaux. 1900. [7411] Duplaiz. 1858. [7521] Elliot. 1786. [7602] Estienne et Liebault. 1601. [8317] Gauthier. 1819. [8369] Gesner. 1599. [8468-9] Glauber. 1651. [9465] Hornot. 1753. [10751] Le Sourd. 1892. [11159-60] McBride. 1793. [11507] Martin. 1759. [11587] Mathieu de Dombasle. 1820. [11725] Meiborn. 1668. [12071-2] Morewood. 1824-38. [12428] Nettleton. 1893. [13392-3] Plat. 1653. [13526-9] Porta. 1608-9. [14432] Ronna. 1869. [14963] Smyth. 1779. [15270] Thomson. 1849. [15621-3] Brunschwylg. 1519-37. [S 2702] Eremita. 1624. [S 2731] French. 1653. [SS 2749-50] Cooper. 1757-60. [SS 2753] Déjean. 1759. [SS 2859] Smith. 1731.
— *v. Fermentation.*
— APPARATUS: [1814] Hausbrand. 1893.
- DIVIDING ENGINES: [13878-81] Ramsden. 1777-90. [14923] Smeaton. 1785. [SS 295] Chaulnes. 1768. [SS 1008] Bird. 1767.
— *v. Circle, Division of.*
- DIVING BELLS AND APPARATUS: [4277] Schott. 1664. [4416-18] Sinclair. 1672. [4426] Smeaton. 1791. [7190] Davis. 1909. [14747-9] Schott. 1664-87. [14893] Sinclair. 1669. [14913-15] Smeaton. 1791. [15387] Veranzio. c. 1595 [15539] White. 1677.
- DIVING ROD: [5039] Vallemont. 1696. [SS 1710] Gerboin. 1808. [SS 2122] Vallemont. 1693.
- DIVISORS, THEORY OF: [14133] Reynaud. 1833. [16420] Muth. 1899.
— *v. Elimination.*
- DOCKS: [5057] Vernon-Harcourt. 1885. [5288] Webster. 1853. [6110] Bell. 1859. [6991] Colson. 1894. [8399] Harbour and Dock Works. 1878. [14041] Rennie (G.). 1829. [14539] Rowlands. 1825.
— *v. Harbour Works.*
- DOPPLER EFFECT—*v. Stellar Motions.*
- DRAINAGE: [1013] Denton. 1883. [4199] Salusbury. 1661. [5231-2] Waring. 1867-76. [5320] Wells. 1830. [6574] Buchan. 1883. [6983] Coleman. 1896. [9841] Johnstone. 1834. [11066] Lucas. 1903. [12919] Page. 1794. [14057-8. 14062-3] Rennie (J.). 1800-10. [14072. 14077] Rennie (Sir J.). 1837-42. [14925] Smeaton. c. 1769. [14956] Smith. 1806. [15059] Stevenson. 1874. [15297] Tigh. 1903. [15460] Waring. 1891.
— *v. Mine D.*
- DRILLING—*v. Boring.*
- DROUGHTS: [9579] Hutchinson. 1789.
- DRUGS, HISTORY OF: [8738] Guibourt. 1820.
- DRUMMOND LIGHT: [14081] Renton. 1860.
- DRY ROT: [1507] George. 1829. [6516] Britton. 1875. [12934] Papworth. 1803. [SS 3127] Blackburn. 1817.
- DRYING, TECHNICS OF: [6962] Clöter. 1837.
- DUALITY, PRINCIPLE OF: [6830] Chasles. 1875. [13438] Plücker. 1839. [13490] Poncelet. 1822. [16493-4] Poncelet. 1862-6. [SS 860] Steiner. 1832.
— *v. Arithmetic (Dual). Geometry (Enumerative). Polars (Reciprocal).*
- DUODECIMAL SYSTEM: [10672] Leech. 1866.
— *v. Decimal S.*
- DUPIN'S THEOREM: [1123] Dupin. 1813.
- DUPPLICATION OF THE CUBE: [399] Biring. 1844. [1081] Doria. 1722. [1949] Hobbes. 1669. [3955] Reimer. 1798. [6716] Caracciolo. 1790. [7909] Fine. 1556. [15394] Viète. 1591. [15452] Wallis. 1669.
- DUST FIGURES: [14597] Russell. 1903.
- DYES AND DYEING: [360-3] Berthollet. 1791-1841. [904] Crookes. 1874. [938] Dambourney. 1786. [1733-4] Haigh. 1778-87. [3173] Napier. 1855. [3334] Nietzki. 1894. [3358] O'Brien. 1773-89. [4193-4] Salmon. 1685-1701. [4235] Scheffer. 1787. [4290] Schützenberger. 1882. [4445] Smith. 1882. [5531-2] Wurtz. 1876. [6162. 6164] Berthollet. 1791-1841. [6921] Clarke. 1820. [7094] Crookes. 1882. [7141] Dambourney. 1786. [7243] Dépière. 1880. [7802] Farben-Industrie. 1889-90. [8792-3] Haigh. 1778. [9098-9100] Hellot. 1750-89. [9417] Homassel. 1818. [9566] Hurst. 1892. [10758. 10760] Leuchs. 1828-31. [10789-90] Lewis. 1783. [11040] Love. 1855. [11161] McCann. 1863. [11965] Möhlau. 1890. [12879] Packer.

DYES AND DYEING, *continued*:

1830. [12973] Parnell. 1849. [13257] Shipson.
s. d. [13936] Rawson, etc. 1901. [14011-12]
 Reimann. 1868. [14431] Rondot. 1858.
 [14667] Sansone. 1888. [14715] Scheffer.
 1779. [15629] Cesi. 1636. [S 2999-3000]
 Bancroft. 1813. [S 3018] Crace-Calvert. 1878.
 [S 3029] Dyeing, *reprint of* 1705. [S 3031]
 Farbe-Büchlein. 1711. [S 3034] Garçon.
 1893-7. [S 3060] Hübner. 1912. [S 3117]
 Macquer. 1789. [S 3143] Textile Colourist.
 1876-8. [SS 2719] Berthollet. 1824. [SS 2762]
 Esel. 1757. [SS 2817] Partridge. 1823.
 [SS 2849] Scheffer. 1803. [SS 2861-3] Smith.
 1740-99. [SS 2870-1] Tanning. 1774-80.

— *v. Bleaching, Calico Printing, Coal Tar Colours, Colour, Indigo, Lac.*

— PARADOXES: [8177-8] Fulhame. 1794.
 [12324] Muston. 1830.

DYNAMIC PARADOXES: [1791] Harris. 1890.

— THEORIES: [13982] Redtenbacher. 1857.

DYNAMICS (ANALYTICAL): [9708] Jacobi. 1866.
 [17133] Mathieu. 1878. [S 1317] Whittaker.
 1904.

— (APPLIED): [4827-8. 15254] Thomson.
 1886-8. [17110] Lecornu. 1908. [17245]
 Thomson. 1888.

— (ELEMENTARY): [485] Bossut. 1763. [1465]
 Garnett. 1875. [2685] Loney. 1891-2. [2725]
 Lunn. 1859. [5221-2] Warr. 1851. [5360]
 5367] Whewell. 1832. [5432] Williamson and
 Tarleton. 1889. [5709] Aldis. 1882. [9261-3]
 Hicks. 1890-7. [10934] Lock. 1890. [10994]
 Loney. 1892-7. [11030] Loudon. 1898.
 [11129] Lunn. 1859. [11186] Macgregor. 1887.
 [11904] Minchin. 1900. [14294] Roberts. 1900.
 [17039] Garnett. 1889. [17114. 17117-18]
 Loney. 1892-1909.

— (GENERAL): [72-3] Alembert. 1743-58.
 [251] Baliani. 1638. [321] Bélanger. 1866.
 [1137] Earnshaw. 1844. [1445] Galilei. 1638.
 [1677-8] Griffin. 1847-8. [4104-5] Routh.
 1882-97. [5378] Whewell. 1823. [5712]
 Alembert. 1758. [5954] Baliani. 1638. [6369]
 Bouguer. 1757. [8212-13. 8224] Galilei. 1638-
 1730. [8638] Greenhill. 1908. [8690-1]
 Griffin. 1847-8. [10066] Kelvin. 1882-1911.
 [13354] Pirie. 1875. [14516-21] Routh.
 1860-97. [16931] Antomari. 1902. [16952]
 Bélanger. 1866. [16957-8] Besant. 1902-14.
 [17017] Earnshaw. 1844. [17052] Gray. 1901.
 [17102] Lamb. 1914. [17173-4] Petersen.
 1887. [17212] Routh. 1892-7. [17234] Tait.
 1895. [S 308] Gibbs. 1906. [SS 1787-8]
 Huygens. 1673. [SS 2144] Webster. 1904.

— *v. Centrifugal and Centripetal Forces, Kinetics, Motion, Vis Viva.*

— (GRAPHIC): [13728] Proell. 1874.

— (MOLECULAR): [10060] Kelvin. 1904-5.

— ELEMENTS OF: [826. 6960] Clifford. 1878-87.
 [14366] Robison. 1804. [16995] Clifford. 1878.

— LAWS OF: [3256-74] Newton. 1713-1871.
 [12501-33] Newton. 1687-1883.

— OF PARTICLES: [321] Bélanger. 1864. [4103]
 Routh. 1898. [4738-9] Tait and Steele.
 1865-71. [5359-60] Whewell. 1832-5. [14515]
 Routh. 1898. [16953] Bélanger. 1864. [17238]
 Tait and Steele. 1878. [SS 2144] Webster. 1904.

— *v. Couples, Motion of Points.*

DYNAMITE: [4925] Trauzl. 1870.

DYNAMO-ELECTRIC MACHINES: [4370] Sheldon.
 1901. [4814-17] Thompson. 1886-96. [7920-1]
 Fischer-Hinnen. 1897-9. [8831] Halliday.
 1892. [8852] Handmann. 1879. [9046]

DYNAMO-ELECTRIC MACHINES, *continued*:

Hawkins and Wallis. 1893. [9309] Hird. 1908.
 [9449] Hopkinson. 1901. [9501] Houston and
 Kennelly. 1899. [11155] McAllister. 1906.
 [12041] Montpellier. 1897. [15156-7] Sturgeon.
 1850. [15240-5] Thompson. 1884-1905.
 [17349] Oudin. 1900. [17358] Volkert. 1838-
 1900.

— *v. Armatures, Electric Commutation, Electric Currents.*

DYNAMOMETER (FRICTION; 'FREIN-PRONY'): [13352]
 Piobert et Tardy. 1840. [13731] Prony. *c.* 1821.

DYNAMOMETERS AND DYNAMOMETRY: [2999] Milne.
 1830. [4389] Simms. 1837. [8172] Froude.
 1877. [9315] Hirn. 1876. [11894] Milne.
 1880. [12922] Palmer. 1824. [13611] Preece.
 1897. [13999] Regnier. 1798.

— *v. Electrodynamometer.*

EAR TRUMPET: [9031] Hautefeuille. 1788.
 — *v. Speaking Trumpet.*

EARTH, DENSITY OF THE: [5676] Airy. 1856.
 [6750-1] Casati. 1656-8. [13581-2] Poynting.
 1892-4.

— *v. Pendulum Observations.*

— FIGURE OF THE: [646] Burnett. 1697. [799]
 Clairaut. 1743. [1156] Eisenschmidt. 1691.
 [2124. 2126] James. 1856-8. [2227-8] Keill.
 1734. [2910-12] Maupertuis. 1738-9. [3154]
 Murdoch. 1741. [3360] O'Brien. 1840. [3377]
 Ogilby. 1872. [3750] Pratt. 1871. [4157]
 Sabine. 1825. [4884-5] Todhunter. 1873.
 [5682] Airy. 1830. [6368] Bouguer. 1749.
 [6662] Cagnoli. 1819. [6750] Casati. 1658.
 [8743] Gumpach. 1862. [8908] Hargreave.
 1841. [9949] Juan et Ulloa. 1752. [11630-5]
 Maupertuis. 1738-42. [12774] O'Brien. 1840.
 [12804] Ogilby. 1872. [13602] Pratt. 1871.
 [14880] Simpson. 1743. [15033] Stensen. 1671.
 [15101] Stone. 1766. [SS 981] Alembert.
 1754-6. [SS 1021] Celsius. 1738. [SS 1037]
 Clairaut. 1808. [SS 1150] Juan y Ulloa. 1773.

— *v. Geodesy.*

— MOTION OF THE (COPERNICAN THEORY):
 [16894] Neisser. 1907.

— *v. Copernican System and Theology.*

— ROTATION OF THE (FALL-EXPERIMENTS):
 [338] Benzenberg. 1804. [776] Cheyne.
 1867. [5509] Worms. 1862. [2430] Lansberg
 1650. [6750-7] Casati. 1655-8. [6861] Cheyne.
 1867. [14000] Reich. 1832. [14827] Sheeres.
 1698. [S 291] Foucault. 1878. [S 1453]
 Gilbert. 1883. [S 2491] Darwin. 1877.
 [SS 1756-9] Guglielmini. 1789-92.

— GALILEAN AND POST-GALILEAN CON-
 TROVERSY ON THE: [1439-43] Galileo. 1632-1710.
 [3990] Riccioli. 1668. [4199] Salusbury. 1661
 [13346] Pino. 1806. [SS 1242] Polacco. 1644-
 69. [SS 1271-3] Riccioli. 1651-68.

— PARADOX: [4018] Ritchie. 1850. [4038]
 Robertson. 1897. [14337] Robertson. 1908.

— TEMPERATURE OF THE: [7298] Dyk. 1876.
 [9565] Hunter. 1787. [13128] Pernet. 1870.
 [13471] Poisson. 1837. [13796. 13805-6.
 13808-9] Quetelet. 1836-45. [13854] Rambaut.
 1900. [S 1880] Forbes. 1846-60. [S 2454]
 Ångström. 1851.

— THEORY OF THE: [646] Burnett. 1697.
 [922] Cuvier. 1822. [1495] Gautier. 1721.
 [2318-19] Knight. 1818. [3906] Ray. 1692.
 [4574-5] Stensen. 1669-1904. [5175] Wallerant.
 1779. [5385-6] Whiston. 1696-1725. [5391-2]
 Whitehurst. 1778-86. [5496-8] Woodward.
 1695-1726. [5769] Andrews. 1900. [7127]
 Cuvier. 1815. [10021] Keill. 1734. [11170]
 Macculloch. 1831. [11298-9] Maillet. 1750.

- EARTH, THEORY OF THE, *continued* :
 [12292] Murdoch. 1741. [13940-3] Ray.
 1693-1722. [14027] Rémond. 1902. [14417]
 Romé de l'Isle. 1781. [14785] Scrope. 1825.
 [15033] Stensen. 1671. [15454] Warren. 1690.
 [15508] Werner. 1802. [15527-8] Whiston.
 1696.
- *v. Geological Theories.*
- : PARADOXES : [9054] Hay. 1824. [13775]
 Pye. 1766. [14268] Ritchie. 1874. [14505]
 Roubaix de Tourcoin. 1721. [15441] Walsh.
 1743.
- *v. Flat Earth Paradox.*
- MODIFIED BY HUMAN ACTION : [11453] Marsh.
 1874.
- EARTHQUAKES—*v. Seismology.*
- EARTHWORK, CALCULATION OF : [4924] Trautwine.
 1853. [9526] Hudson. 1902. [9535] Hughes.
 1846. [10048] Kelly. 1847. [12242-4]
 Macneill. 1833-46.
- SLIPS : [3225] Newman. 1890.
- EASTER, TIME OF : [384] Bettazzi. 1733-4. [8304]
 Gauss. 1810.
- ECLIPSES AND OCCULTATIONS : [1670] Grevenstein.
 1592. [1890] Herschel. 1824. [2167] Johnson.
 1874. [2387] La Hire. 1735. [2399] Lambert.
 1765. [2612] Lick Observatory. 1891. [3533]
 Penrose. 1869. [4297] Scientia Eclipsium.
 1744-7. [4638] Streete. 1710. [5500] Wool-
 house. 1836. [5518] Wright. 1740. [6362]
 Bose. 1733. [6671] Calandrelli. 1859. [8051-2]
 Foster. 1659. [8133] Frankz. 1736. [10097]
 Kepler. 1604. [10113] Kerigan. 1844.
 [10413] La Hire. 1755. [11056] Lubbock. 1835.
 [11960] Moebius. 1815. [12115] Morgan. 1846.
 [12822] Oppolzer. 1887. [13100] Penrose.
 1902. [13443] Plummer. 1901. [14030]
 Renieri. 1647. [14942] Smith. 1748. [15018]
 Stade. 1585. [16910] Schwahn. 1910. [SS 1652]
 Duhamel. 1660.
- *v. Lunar E. Solar E.*
- EDUCATION (SCIENTIFIC AND TECHNICAL) : [794]
 Civil Engineers. 1870. [4963] Twining. 1874.
 [5377] Whewell. 1837. [7576] Engineering
 Education. 1891. [8247] Galloway. 1881.
 [13423-4] Playfair. 1851-2. [13873] Ramsay.
 1892. [14798] Sedgwick. 1850.
- ELASTIC MEDIA : [9019] Houghton. 1849.
- ELASTICITY, THEORY OF : [2240] Kelvin. 1878.
 [2416] Lamé. 1852. [2704] Love. 1892-3.
 [3329] Nicolai. 1772. [3559] Petty. 1674.
 [5188] Wallis. 1670. [6948] Clebsch. 1862.
 [9430] Hooke. 1678. [10017] Keck. 1893.
 [10062-3. 10066-7] Kelvin. 1878-90. [10442-5]
 Lamé. 1852-66. [11036. 11038] Love. 1888-92.
 [12074] Morgan. 1770. [12451] Neumann.
 1885. [13187] Petty. 1674. [13890. 13892]
 Rankine. 1872-81. [14272] Ritchie. 1830.
 [15449-50] Wallis. 1670-1. [16950] Beer.
 1869. [16994] Clebsch. 1862. [17082] Ibbetson.
 1887. [17105] Lamb. 1912. [17125] Love.
 1906. [17180] Poincaré. 1892. [S 1736]
 Boussinesq. 1885. [S 1817] Clebsch. 1883.
 [S 2125] Maxwell. 1850.
- *v. Percussion. Strains. Strength of Materials.*
Stresses. Tension.
- , HISTORY OF THE : [4891-2. 17251]
 Todhunter. 1886-93. [S 2202] Pearson. 1889.
- ELECTRIC ATTRACTION AND REPULSION : [SS 1592-4]
 Cabcó. 1629. [SS 1750-2] Guericke. 1672.
- *v. Coulomb's Law.*
- BELLS : [6375] Bottone. 1889. [7012] Cooke.
 1839.
- ELECTRIC CELLS AND BATTERIES : [950] Daniell.
 1836. [1692] Grove. 1874. [3203] Neuffer. 1802.
 [5126-8] Volta. 1816. [7167] Daniell. 1836-42.
 [8506] Goodman. 1847. [8723] Grove. 1874.
 [9144] Henry. 1835. [10576] Laurie. 1908.
 [12633-4] Niaudet. 1878-80. [14934] Smee.
 1840. [S 2439] Zamboni. 1812. [S 3408] Cooper.
 1902. [SS 1909] Negro. 1802-3.
- *v. Accumulators.*
- CIRCUITS : [5749] Ampère. 1821. [7064]
 Crapper. 1903. [13324] Pierce. 1911.
- CLOCKS : [1267] Everts. 1872. [5941] Bain.
 1843. [7813] Favarger. 1892. [10285] Kotten.
 1855. [15516] Wheatstone. 1879.
- COMMUTATION, THEORY OF : [9044-5] Hawkins.
 1900.
- CONDENSERS : [8125-8] Franklin. 1754-74.
 [SS 1485-6] Aepinus. 1759. [SS 2016] Rabi-
 queau. 1753.
- CONDUCTION : [1842] Heaviside. 1892. [5278]
 Webb. 1862. [9074] Heaviside. 1892. [9475]
 Hospitalier. *v. y.* [11601-3. 11605. 11608-10]
 Matthiessen. 1857-60. [14251] Riess. 1844.
 [14363] Robinson. 1848. [15472-5] Watson.
 1746. [SS 1485-6] Aepinus. 1759.
- *v. Dielectrics.*
- CONDUCTORS (POINTED) : [12318] Musgrave.
 1779. [12334] Nairne. 1779.
- *v. Lightning Conductors.*
- CONGRESSES : [860] Congrès. 1882. [1163]
 Electiciens. 1890. [9483] Hospitalier. *v. y.*
 [S 3405] Congrès. 1901-3. [S 3406] Congresso.
 1912. [SS 2993] Electrical Congress. 1905.
- CURRENTS (ALTERNATING) : [2288. 2291]
 Kinzbrunner. 1906-7. [4820] Thompson. 1900.
 [6097] Bedell and Crehore. 1893. [6264]
 Blakesley. 1889. [8952] Harrison. 1906.
 [9488] Hospitalier. 1893. [10368] La Cour.
 1902. [10644] Lebois. 1909. [11019] Loppe
 and Bouquet. 1898. [15031] Steinmetz and Berg.
 1897. [15249-50] Thompson. 1895-1900. [16961]
 Blakesley. 1889. [17034] Franklin and
 Williamson. 1909.
- (CONTINUOUS) : [2290] Kinzbrunner.
 1906. [10644] Lebois. 1909.
- (HIGH FREQUENCY) : [4793] Tesla. 1894.
 [7089] Crook. 1906. [7966] Fleming. 1906.
- (POLYPHASE) : [4793] Tesla. 1894. [4820]
 Thompson. 1900. [9488] Hospitalier. 1893.
 [15249-50] Thompson. 1895-1900. [17243]
 Thompson. 1900. [17349] Oudin. 1900.
- , CRYSTAL RECTIFIERS FOR : [13322]
 Pierce. 1909.
- DISCHARGE : [5832] Armstrong. 1897-9.
 [8939. 8943] Harris. 1856. [10550] La Rue, etc.
 1875. [12318] Musgrave. 1779. [S 1861]
 Electrical Discharges. 1878-83.
- DISTRIBUTION : [4144] Russell. 1892. [12209]
 Mossotti. 1846. [SS 1850] Lichtenberg. 1778-9.
- DOUBLER : [3907] Read. 1794. [6127] Bennet.
 1789. [10032] Keir. 1787. [12653] Nicholson.
 1788.
- *v. Electrophorus.*
- ENERGY : [9490] Hospitalier. 1890.
- ENGINEERING : [2003] Hospitalier. 1883.
 [2335] Kuhn. 1866. [3044] Moncel and Gerdaldy.
 1883. [3469] Parr. 1906. [4083] Rosenberg.
 1903. [4807] Thomälen. 1907. [5605] Abbott.
 1888. [7487] Electrical Engineering Institute.
 1903-4. [7506-7] Electricity. 1884. [8131]
 Franklin and Esty. 1906. [8597] Grawinkel und
 Strecker. 1891. [9439] Hoorweg. 1895. [9917]
 Joyce. 1903. [10085] Kennelly. 1915. [14870]

ELECTRIC ENGINEERING, *continued* :

- Simmons. 1908. [S 3352] Benischke. 1907. [S 3370] Brion. 1910. [S 3425] Electric Practice. 1904. [S 3464] Heather. 1906.
- *v. Dynamo-Electric Machines. Electric Lighting.*
- EXHIBITIONS: [1834] Heap. 1884.
- EXPERIMENTS: [1811] Hauksbee. 1709. [6127] Bennet. 1789. [8094] Francis. c.1850. [8125-8] Franklin. 1754-74. [9023-7] Hauksbee. 1709-19. [9330] Hoadly and Wilson. 1756. [11473] Martin. 1746. [12655] Nicholson. 1789. [15462] Watkins. 1747. [15470-5] Watson. 1746-8.
- *v. Electricity (Experimental). Electro-magnetic E.*
- FIELD OF FORCE—*v. Electromagnetic F. of F.*
- FIGURES: [5832] Armstrong. 1897-9. [14252] Riess. 1861.
- *v. Lichtenberg's F.*
- FURNACE: [9845] Joly. 1901. [10136-8] King. 1908-9. [S 3168] Borchers. 1908. [S 3283] Moissan. 1897. [SS 2898] Borchers. 1897.
- HARSICHOUD: [SS 1829] Laborde. 1761. [SS 1875] Mariani. 1767.
- HAULAGE—*v. Telferage.*
- INFLUENCE: [SS 1485-6] Aepinus. 1759.
- INSECT (ACARUS ELECTRICUS): [7110] Crosse. 1857.
- INSTALLATIONS: [10093] Kennedy. 1910.
- INTENSITY AND TENSION: [8940] Harris. 1863.
- INVENTIONS: [7963] Fleming. 1909. [13593] Prescott. 1879.
- JOURNALS: [642] Bulletin. 1883-93. [1159] Electrical Engineer. 1889-92. [1160] Electrical Review. 1882-93. [1161] Electrician and Electrical Engineer. 1884-92. [1162] Électricien. 1881-3. [2723-4] Lumière Électrique. 1879-92. [4788] Telegraph Engineers. 1872-1905. [7486] Electrical Engineer. 1896-1905. [7488-91] Electrical Engineers (Institution of). 1872-1910. [7492] Electrical Magazine. 1843-6. [7493] Electrical News. 1875. [7495] Electrical Society (London). 1843. [7497] Electrical World. 1901-5. [7498] Electrician. 1861-4. [7499-7501] Electrician. 1879-1911. [7502] Électriciens (Société Internationale des). 1884-1906. [7503] Électricité. 1881. [11082] Lumière Électrique. 1879-94. [14768-71] Science Abstracts. 1898-1912. [15158-9] Sturgeon. 1837-41. [S 214] Zeitschrift für angewandte Electricitätslehre. 1879-89. [S 3428] Éclairage Électrique. 1903-16. [S 3592] Revue Générale de l'Électricité. 1917. [SS 3272] Jahrbuch für Electrochemie. 1895-1906. [SS 3333] Zeitschrift für angewandte Electricitätslehre. 1879-89. [SS 3335] Zeitschrift für Elektrotechnik. 1895-1900.
- LABORATORIES: [7961] Fleming. 1894. [SS 3007] Fleming. 1901-4.
- LAMPS: [5589] Zeidler und Lustgarten. 1908. [7959-60] Fleming. 1894-9. [9472] Hospitalier. *v. y.* [11662] Maycock. 1902. [13848] Ram. 1898. [S 3066] Johnston. 1915. [SS 3081] Sawyer. 1881.
- LIGHT, SPECTRA OF—*v. Spectra of E. L.*
- LIGHTING: [1158] Electric Illumination. 1882. [1721] Guy. 1891. [1768] Hammond. 1884. [3551] Peschel. 1896. [3759] Prescott. 1879. [4228] Sawyer. 1881. [4793] Tesla. 1894. [5029] Urquhart. 1893. [5161] Walker. 1896. [7085] Crocker. 1896-1902. [7280] Dibdin. 1902. [7959] Fleming. 1894-9. [7994] Fontaine. 1878. [8527] Gordon. 1884. [9275] Higgs. 1879.

ELECTRIC LIGHTING, *continued* :

- [9472] Hospitalier. *v. y.* [11661-2] Maycock. 1902-4. [13551] Souchet. 1878. [13593] Prescott. 1879. [14608] Rutter. 1849. [S 3428] Éclairage Électrique. 1903-16. [SS 3081] Sawyer. 1881.
- LAW: [6396] Bower. 1889.
- PLANTS: [6593] Buckley. 1894.
- MACHINES AND APPARATUS: [1698-9] Guericke. 1672. [1811] Hauksbee. 1709. [2289] Kinzbrunner. 1906. [3956] Reis. 1877. [5149] Walekiers de St. Amand. 1784. [5645] Adams. 1799. [6282] Blunt. 1807. [6789] Cavallo. 1788. [6920] Clarke. 1836. [7126] Cuthbertson. 1807. [8600] Gray. 1890. [8730] Guericke. 1672. [9023-7] Hauksbee. 1709-19. [9033] Hanson. 1743. [10739] L'Espinasse. 1769. [12333] Nairne. 1787. [12653] Nicholson. 1788. [14861-2] Sigaud de la Fond. 1785. [15462] Watkins. 1747. [15575] Wilson. 1752. [15600-1] Winkler. 1744-5. [S 1720] Bohnenberger. 1784. [SS 1633] Cuthbertson. 1821. [SS 1768] Hauksbee. c. 1735. [SS 1792-6] Ingenhousz. 1782-9. [SS 2138] Waitz. 1745. [SS 2169-70] Winkler. 1748.
- *v. Electric Influence. Induction Coils.*
- MEASUREMENT: [805] Clark. 1868. [1427] Frölich. 1905. [4694] Swinburne. 1888. [7966. 7969] Fleming. 1903-6. [8363] Gerhardt. 1906. [8603-6] Gray. 1884-93. [9474. 9483] Hospitalier. *v. y.* [9793] Jenkin. 1867. [13450] Poggenдорff. 1841. [13651] Price. 1894. [13946-7] Rayleigh. 1885-6. [14410] Roller. 1907. [S 2409] Neumann. 1846-52.
- *v. Coulometer. Electric Resistance. Electro-meters. Electroscopes. Galvanometers. Ohm's Law. Wheatstone's Bridge.*
- MEMOIRS AND PAPERS: [741] Cavendish. 1879. [884] Coulomb. 1884. [1289-93] Faraday. 1832-55. [3802-4] Priestley. 1767-94. [4666] Sturgeon. 1850. [7777-81] Faraday. 1839-55. [9074] Heaviside. 1892. [13388-90] Planté. 1879-83. [15156-7] Sturgeon. 1850. [15258] Thompson. 1893. [S 1862] Electrical Papers. 1857-84.
- MOTORS: [9478-9] Hospitalier. *v. y.* [11517] Martin. 1887.
- OSCILLATIONS: [13323] Pierce. 1910. [13668] Priestley. 1769. [15258] Thomson. 1893. [17181] Poincaré. 1894.
- *v. Oscillation Transformers.*
- PAUSES: [SS 1737] Gross. 1776.
- PHENOMENA: [1811] Hauksbee. 1709. [1917] Higgins. 1814. [4994] Tyndall. 1873. [5834] Arnim. 1799. [9003] Hasselberg. 1879. [9023-7] Hauksbee. 1709-19. [10692] Lehmann. 1898. [14861-2] Sigaud de la Fond. 1785. [SS 1529] Becaria. 1749. [SS 1768] Hauksbee. c. 1735. [SS 1780] Herbert. 1778.
- *v. Lichtenberg's Figures. Priestley's Rings. Vacuum Tubes.*
- POTENTIAL—*v. Potential (Electric).*
- POWER STATIONS: [1721] Guy. 1891. [8313] Gay and Yeaman. 1899. [9083] Hedges. 1892. [14788] Seabrook. 1913. [S 3702-3] Wordingham. 1901-3.
- RAILWAYS AND TRAMWAYS: [3471] Parshall and Hobart. 1907. [8541] Gotshall. 1903. [9184] Herrick and Boynton. 1907. [9335] Hobart. 1910. [9479] Hospitalier. *v. y.* [10480] Langdon. 1897. [11412] Maréchal. 1902.
- RESISTANCE: [9447] Hopkinson. 1879. [9475] Hospitalier. *v. y.* [11600] Mathiessen. 1861. [13651] Price. 1894.
- *v. Wheatstone's Bridge.*

ELECTRIC SAFETY DEVICES : [11657] May. 1893.

— SHIPS : [9334] Hobart. 1911. [9479] Hospitalier. *v. y.*

— SPARK : [1296] Faraday. 1832. [8292] Gassiot. 1840. [9023-7] Hauksbee. 1709-19. [15601-4] Winkler. 1744-6. [SS 1750-2] Guericke. 1672.

— SWITCHBOARDS : [6327] Boje. 1907.

— TABLES : [806. 6914] Clark and Sabine. 1871.

— TESTING : [2255] Kempe. 1884. [5942] Baines. 1903. [10055] Kempe. 1887. [12975] Parr. 1901. [SS 3007] Fleming. 1901-4.

— TRADES : [7496] Electric Trades Directory. 1911.

— TRANSFORMERS : [1353] Fleming. 1890-2. [6096] Bedell. 1896. [7955-7] Fleming. 1889-1900. [9333] Hobart. 1911. [10368] La Cour. 1902.

— *v. Oscillation Transformers.*

— TRANSMISSION : [328] Bell. 1906. [2216] Kapp. 1886. [3580] Philippi. 1905. [4208*] Sartori. 1899. [4482] Snell. 1899. [4943] Truchot. 1891. [5606] Abbott. 1895. [8952] Harrison. 1906. [9998] Kapp. 1890-1. [S 1745] Brillouin. 1904. [S 3339] Adams. 1906. [S 3342] Andrews. 1904.

— UNITS : [1265] Everett. 1891. [2144] Jenkin. 1873. [4695] Swinburne. 1883. [9795] Jenkin. 1873.

— WAVES : [1500] Geitler. 1905. [1842] Heaviside. 1892. [1910-11] Hertz. 1892-3. [2743] Macdonald. 1902. [2923] Maxwell. 1868. [4962] Turpain. 1902. [7962. 7966] Fleming. 1906. [8331] Geitler. 1905. [9074-5] Heaviside. 1892-3. [9250-1] Hertz. 1892-3. [15258] Thomson. 1893. [15355] Turpain. 1902. [16944] Bateman. 1915. [17030] Franklin. 1909. [S 2441] Zenneck. 1905.

— *v. Light, Electromagnetic Theory of. Telegraphy (Wireless).*

— WIRING : [4028] Robb. 1896. [4144] Russell. 1892. [10243] Knox. 1907. [11662] Maycock. 1902. [13500] Poole. 1907.

ELECTRICITY (ANIMAL)—*v. Electro-Biology.*

— (ATMOSPHERIC) : [3907-8] Read. 1791-4. [6081] Beccaria. 1758. [12316] Murray. 1830. [13798] Quetelet. 1849. [13956] Read. 1792. [14861-2] Sigaud de la Fond. 1785. [SS 1521-2. 1528] Beccaria. 1775-93. [SS 1780] Herbert. 1778.

— *v. Lightning.*

— (EXPERIMENTAL) : [1287. 1289-93] Faraday. 1832-55. [1403-4] Franklin. 1752-74. [5342] Whitham. 1905. [7126] Cuthbertson. 1807. [7773-81] Faraday. 1831-55. [14861-2] Sigaud de la Fond. 1785. [15011-12] Stanhope. 1779-81. [17142] Mie. 1910. [SS 2075] Sigaud de la Fond. 1781.

— *v. Electric Experiments.*

— (FRICTIONAL) : [1800-1] Harris. 1867. [2571] Letter. 1746. [4007-8] Riess. 1853-79. [8948] Harris. 1867. [9039] Häuy. 1819. [10211] Kleyer. 1886. [10739] L'Espinasse. 1769.

— *v. Electrostatics. Leyden Jar.*

— (GALVANIC) : [64] Aldini. 1803. [783] Children. 1815. [950] Daniell. 1836. [1458-60] Galvani. 1792-1842. [5126-9] Volta. 1793-1816. [5043] Wiedemann. 1861-3. [5420] Wilkinson. 1804. [5876] Augustin. 1803. [5902] Bachhoffner. 1838. [6240] Bischoff. 1801. [6372] Bostock. 1818. [8260-1] Galvani. 1792-3. [9686] Izarn. 1804. [11659] May. 1887. [13193-4]

ELECTRICITY (GALVANIC), *continued :*

Pfaff. 1837. [13450] Poggendorff. 1841. [14273] Ritchie. 1832. [14396] Roget. 1826. [14483] Rösling. 1824. [14545] Royal Institution. 1802. [14934] Smee. 1840. [15156-7] Sturgeon. 1850. [15337] Trommsdorff. 1808. [15488] Weber. 1815. [S 1644] Aldini. 1804. [SS 1839] Luc. 1804. [SS 1909] Negro. 1802-3. [SS 2035] Ritter. 1800. [SS 2104-5] Sue. 1802-5.

— (HYDRO-) : [1289-92. 7777-81] Faraday. 1839-55. [14731] Schon. 1908. [15602-3] Winkler. 1746.

— (INDUCED)—*v. Electromagnetic Induction.*

— (MEDICAL) : [11385] Marat. 1784. [14858] Sigaud de la Fond. 1802. [15566] Wilkinson. 1783. [SS 2016] Rabiqueau. 1753.

— (PHOTO-) : [S 1999] Hughes. 1914.

— *v. Selenium.*

— (PIEZO-) : [925] Curie. 1895. [1820] Häuy. 1822-3. [9041-2] Häuy. 1806-7. [15417] Voigt. 1910. [S 1837] Curie. 1895.

— (POSITIVE) : [15259] Thomson. 1913.

— (PYRO-) : [8011] Forbes. 1834. [9466] Hornton. 1907.

— *v. Tourmaline.*

— (THERMO-) : [4319] Seebeck. 1825. [11607-8] Matthiessen. 1858. [14363] Robinson. 1848. [14415] Rollmann. 1859.

—, ARITHMETIC OF : [4412] Sloane. 1801.

—, BIBLIOGRAPHY OF : [SS 2039] Ronalds. 1880.

—, EARLY WORKS ON (to 1800) : [301] Beccaria. 1776. [738-9] Cavallo. 1782-3. [741] Cavendish. 1879. [1243] Euler, etc. 1757. [1403-4] Franklin. 1752-74. [1459-60] Galvani. 1792-3. [1526-7] Gilbert. 1600. [1698-9] Guericke. 1672. [1811] Hauksbee. 1709. [1816] Häuy. 1787. [2571] Letter. 1746. [2740] Lyon. 1780. [2839] Martin. 1746. [3344-5. 3347] Nollet. 1746-64. [5330] Wesley. 1771. [5645] Adams. 1799. [6078-81] Beccaria. 1753-72. [6166-7] Bertholon. 1783-7. [6522] Brook. 1789. [6783-9. 6793] Cavallo. 1777-95. [7238] Desaguiliers. 1742. [7505] Electricity. 1746. [7811] Faure. 1747. [7848-9] Ferguson. 1770-5. [8125-8] Franklin. 1754-74. [8599] Gray. 1788. [9023-7] Hauksbee. 1709-19. [9033] Hausen. 1743. [9138] Henly. 1777. [9330] Hoadly and Wilson. 1756. [9735] Jallabert. 1749. [10297] Kratzenstein. 1746. [11385. 11387-8] Marat. 1782-4. [11473] Martin. 1746. [12653. 12655] Nicholson. 1788-9. [12736-8. 12546-7] Nollet. 1746-65. [13171] Peletin. 1802. [13661. 13666-8] Priestley. 1767-9. [14797] Secondat. 1746. [14858. 14861-2] Sigaud de la Fond. 1785-1802. [15011-12] Stanhope. 1779-81. [15180-1] Swinden. 1784. [15462] Watkins. 1747. [15470-5] Watson. 1746-8. [15566] Wilkinson. 1783. [15570-5] Wilson. 1746-80. [15600-3] Winkler. 1744-6. [S 1720] Bohnenberger. 1784. [S 1901] Franklin. 1751. [SS 1474] Adams. 1792. [SS 1482] Adelsio. 1781. [SS 1483-6] Aepinus. 1758-62. [SS 1521-4. 1528-9] Beccaria. 1749-93. [SS 1583-4] Boyle. 1675. [SS 1592-4] Cæco. 1629. [SS 1654] Électricité. 1749. [SS 1660-1] Euler. 1755. [SS 1667] Fluido Elettrico. 1772. [SS 1737] Gross. 1776. [SS 1750-2] Guericke. 1672. [SS 1768] Hauksbee. *c.* 1735. [SS 1780] Herbert. 1778. [SS 1792-6] Ingenhousz. 1782-9. [SS 1829] Laborde. 1761. [SS 1850] Lichtenberg. 1778-9. [SS 1875] Mariani. 1767. [SS 2000. SS 2004-7] Priestley. 1767-86. [SS 2016] Rabiqueau. 1753. [SS 2035] Ritter. 1800. [SS 2071-2. 2075] Sigaud de la Fond. 1775-84.

ELECTRICITY, EARLY WORKS ON (to 1800), *continued* :

[SS 2079] Sguario. 1746. [SS 2118] Tressan. 1786. [SS 2138] Waitz. 1745. [SS 2151] Watson. 1745-6. [SS 2169-70] Winkler. 1748. [SS 2443] Boyle. 1673.

—, HISTORY OF : [311] Becquerel. 1858. [1994] Hoppe, 1884. [3802-4] Priestley. 1767-94. [4998] Tyndall. 1884. [6124] Benjamin. 1895. [7892] Figuiet. 1883. [10968-9] Lodge. 1889-92. [13666-8] Priestley. 1767-9. [14861-2] Sigaud de la Fond. 1785. [15337] Trommsdorff. 1808. [SS 2007] Priestley. 1772. [SS 2075] Sigaud de la Fond. 1781. [SS 2104-5] Sue. 1802-5.

— *v. Electric Inventions. Electromagnetic Discoveries.*

—, LAWS OF : [3039] Moncel. 1860. [8941-2] Harris. 1836-64. [14235] Riecke. 1875.

— *v. Coulomb's L. Ohm's L.*

—, LECTURES ON : [1365] Forbes. 1888. [7970] Fleming. 1886. [8359] Gerard. 1905. [12695-7] Noad. 1844-57. [SS 2099] Sturgeon. 1842.

—, MODERN THEORY OF—*v. Electron Theory.*

—, PROBLEMS AND EXAMPLES : [15489] Weber. 1902. [S 2379] Turner. 1885.

—, THEORIES OF : [1243] Euler. 1757. [1816] Haiy. 1787. [2740] Lyon. 1780. [3157] Murphy. 1833. [3863] Quet. 1867. [4994] Tyndall. 1873. [5455] Witte. 1906. [5972] Barbançois. 1817. [6310] Bompas. 1817. [7450] Eeles. 1771. [7505] Electricity. 1746. [7811] Faure. 1747. [8125-8] Franklin. 1754-74. [8874] Hands. 1879. [9138] Henly. 1777. [9271-2] Higgins. 1814. [9735] Jallabert. 1749. [10297] Kratzenstein. 1746. [10451] Laming. 1858-9. [10968-9] Lodge. 1889-92. [11048-9] Lovett. 1766-74. [11145-6] Lyon. 1780-1. [11387-8] Marat. 1782-4. [11473] Martin. 1746. [12022] Mons. 1812. [12249] Murphy. 1833. [12703] Nobili. 1822. [12746-7] Nollet. 1749-64. [13025] Paulian. 1768. [13171] Petetin. 1802. [13237] Phillips. 1887. [13454] Poincaré. 1908. [13666-8] Priestley. 1767-9. [14483] Rösling. 1824. [14680] Saur. 1832. [14797] Secondat. 1746. [14803] Sedgwick. 1882. [14810] Seguin. 1865. [15257] Thomson. 1904. [15444] Wallentin. 1904. [15470-5] Watson. 1746-8. [15570-1. 15573] Wilson. 1746-80. [15600-1] Winkler. 1744-5. [SS 1484-6] Aepinus. 1758-9. [SS 1520] Beccaria. 1749. [SS 1654] Électricité. 1749. [SS 1660-1] Euler. 1755. [SS 1780] Herbert. 1778. [SS 1850] Lichtenberg. 1778-9. [SS 1859] Luc. 1804. [SS 2118] Tressan. 1780. [SS 2138] Waitz. 1745. [SS 2169-70] Winkler. 1748.

— *v. Electron Theory. Electrons. Ions.*

—, PARADOXES : [11048-9] Lovett. 1766-74. [14723] Schmidt. 1803. [15047-8] Stevenson. 1846-9. [15190] Symes. 1771. [SS 1710] Gerboin. 1808. [SS 2000] Peart. 1791. [SS 2016] Rabiqueau. 1753.

—, SPECULATIONS : [14001-3] Reichenbach. 1850-1.

—, VELOCITY OF : [15470] Watson. 1748.

—, CONTROL : [S 3342] Andrews. 1904.

— IN GASES : [4829-30] Thomson. 1903. [14975] Soddy and Mackenzie. 1908. [15019] Stark. 1902. [15147] Strutt. 1900. [15255-6] Thomson. 1898-1906.

— AND MAGNETISM (ELEMENTARY) : [1036] Deschales. 1901. [1600] Gordon. 1886. [1728] Hadley. 1905. [2142] Jenkin. 1881-3. [2451] Larden. 1887. [2457] Lardner. 1841-4. [2537] Leithhead. 1837. [2922] Maxwell. 1881.

ELECTRICITY AND MAGNETISM (ELEMENTARY),

continued :

[3740] Poyser. 1892. [4146] Rust. 1888. [4603] Stewart. 1906. [4819] Thompson. 1895. [4839] Thomson. 1830. [5848] Ashford. 1903. [6119] Benischke. 1896. [6465-6] Brett. 1899-1902. [8048-9] Foster. 1824-6. [8132] Franklin and Macnutt. 1908. [8470] Glazebrook. 1903-4. [8601] Gray. 1901. [8774] Hadley. 1905. [9675] Iredell. 1908. [9691] Jackson. 1902. [9747] Jamieson. 1894. [9791-2] Jenkin. 1873-83. [10516] Larden. 1891. [11103-4] Lunn. 1825. [11671] Maxwell. 1881. [11872] Millikan and Mills. 1908. [12698-9] Noad. 1857-67. [14843] Shephardson. 1901. [15246] Thomson. 1895. [15277] Thomson. 1830. [17031] Franklin and Macnutt. 1900. [17044] Glazebrook. 1903. [17099] Kolbe. 1908. [17242] Thomson. 1900.

— (GENERAL) : [312] Becquerel. 1855-6. [664] Caillard. 1891. [789] Chrystal. 1894. [1508] Gerard. 1897. [1599] Gordon. 1891. [1632] Gray. 1898. [2470-4] La Rive. 1853-8. [2871-2] Mascart et Joubert. 1882-8. [2925-7] Maxwell. 1873-92. [3338-40] Noad. 1859-79. [3518] Pécheux. 1904. [4545] Sprague. 1884. [5404-5] Wiedemann. 1882-5. [6091] Becquerel. 1834-40. [8526] Gordon. 1883. [8607] Gray. 1898. [9336] Hobart. 1909. [10541-3] La Rive. 1853-8. [11528] Mascart et Joubert. 1896. [13454] Poincaré. 1908. [14895-6] Singer. 1814. [16974] Brooks and Poyser. 1912. [17132] Mascart et Joubert. 1896-7. [17170] Pellat. 1901-8. [17192] Poyser. 1904. [17209] Riemann. 1876. [17219] Sarazin. 1910. [17231] Stewart. 1909. [S 2233] Poynting and Thomson. 1914.

— (POPULAR) : [1709] Guillemin. 1891. [4990] Tyndall. 1876. [5020] Urbanitzky. 1890. [5949] Bakewell. 1853. [7174] Dary. 1903. [7504] Electricity. 1891. [8387] Gibson. 1907. [9485] Hospitalier. 1889. [11593] Matthews. 1909. [13661] Priestley. 1768. [16991] Claude. 1911. [17050] Graetz. 1903. [17275] Weiler. 1905.

— (PRACTICAL) : [186] Ayrton. 1887. [1864] Henderson. 1898. [1869] Henry and Hora. 1905. [2258] Kennelly and Wilkinson. 1890. [3040-1. 3043] Moncel. 1856-9. [4952] Tunzelmann. 1889. [5883] Ayrton. 1896. [9135] Henderson. 1898. [9486-7. 9489] Hospitalier. 1881-3. [SS 1631-3] Cuthbertson. 1807-21.

—, DICTIONARIES OF : [2009] Houston. 1889. [5305] Weiler. 1898. [9500] Houston. 1889. [17077] Hoppe. 1905. [17226] Sloane. 1898. [17276] Weiler. 1898.

—, MATHEMATICAL THEORY OF : [916-18] Cumming. 1876-85. [1173] Emtage. 1891. [1642] Green. 1828. [2925-7] Maxwell. 1873-92. [3372-3] Ohm. 1827-60. [4831-2] Thomson. 1895-7. [5240-1] Watson and Burbury. 1885-9. [7125] Curry. 1897. [7358] Emtage. 1891. [8628] Green. 1828. [11679-81] Maxwell. 1873-81. [12809-11] Ohm. 1827-87. [15261-2] Thomson. 1895-7. [16990] Classen. 1903-4. [17002] Cumming. 1894. [17018] Emtage. 1894. [17062] Hauck. 1896. [17139] Maxwell. 1892. [17246-7] Thomson. 1893-1904. [17274] Webster. 1897. [S 1714] Bertrand. 1890. [S 2017] Jeans. 1908.

— COMPARED—*v. M. and E. compared.*

ELECTRO-BIOLOGY : [455-6] Bois-Reymond. 1848-84. [1668] Gregory. 1851. [3785] Pringle. 1775. [5173] Waller. 1897. [6167] Bertholon. 1783. [8676] Gregory. 1851. [10981] Logan. 1739. [14001-3] Reichenbach. 1850-1. [14609] Rütter. 1854.

— *v. Electro-Physiology.*

- ELECTROCHEMICAL EQUIVALENTS:** [14200] Richards, 1899.
- **INDUSTRIES:** [13677] Pring, 1908. [S 3162] Ashcroft, 1909.
- **RELATIONS:** [14206] Richards and Lewis, 1898.
- ELECTROCHEMISTRY:** [169] Arrhenius, 1902. [309-10] Becquerel, 1843-64. [439] Blount, 1906. [967, 970] Davy, 1807-8. [1289-93] Faraday, 1839-55. [1987] Hopkins, 1905. [2726] Lüpke, 1897. [6090] Becquerel, 1843. [6267] Blount, 1901. [7159-60] Daniell, 1840-4. [7201] Davy, 1826. [7777-81] Faraday, 1839-55. [10628] Le Blanc, 1907. [10897] Löb, 1905. [11970-1] Moigno, 1849. [12001] Möller, 1904. [14895-6] Singer, 1814. [15156-7] Sturgeon, 1850. [17295] Arrhenius, 1901. [S 2824] Lehfeldt, 1908.
- *v. Contact Action, Dissociation (Electrolytic), Electric Furnace, Electrolysis, Ions.*
- ELECTRODYNAMICS:** [92-5] Ampère, 1820-83. [915] Cumming, 1827. [2329] Korteweg, 1879. [5750] Ampère, 1826. [7118] Cumming, 1827. [10066] Kelvin, 1882-1911. [11658] May, 1888. [12010] Moncel and Gerdal, 1883. [16947] Beer, 1865. [SS 2089] Société française de Physique, 1884-7.
- *v. Hysteresis, Metals, Electrodynamical Qualities of.*
- ELECTRODYNAMOMETER:** [14434] Rosa, 1907.
- ELECTRO-ENGRAVING:** [S 3295] Pfanhauser, 1906.
- ELECTROLYSIS:** [1357, 7993] Fontaine, 1885. [9840] Johnston, etc. 1906. [10267] Kolbe, 1850. [12187] Morse, 1910. [15535-6] Whetham, 1895-1902.
- *v. Ions, Water, Electrolysis of.*
- **PARADOX:** [15047] Stevenson, 1849.
- ELECTROLYTIC CONDUCTION:** [8919] Harper's Scientific Memoirs, 1899. [9869-72, 9880] Jones, 1904-8. [14642] Sakurai, 1908.
- ELECTROMAGNETIC DISCOVERIES:** [5751] Ampère et Babinet, 1822. [8770] Hachette, 1820.
- **EXPERIMENTS:** [5897] Babbage and Herschel, 1825.
- **FIELD OF FORCE:** [7440] Ebert, 1897. [7775] Faraday, 1846. [9480] Hospitalier, *v. y.* [12703] Nobili, 1822. [16960] Bjerknes, 1909. [S 2125] Maxwell, 1856. [SS 1592-4] Cabeo, 1629.
- **(ROTATING):** [2900-1] Matteucci, 1854. [13816] Quincke, 1896.
- **INDUCTION:** [1269] Ewing, 1892. [1289-93] Faraday, 1832-55. [1354] Fleming, 1890. [1598] Gordon, 1879. [2900-1] Matteucci, 1854. [3042] Moncel, 1859. [4468] Smith, 1882. [7351] Dove, 1842. [7726-7] Ewing, 1892-1900. [7773-4, 7777-81] Faraday, 1838-55. [8923] Harper's Scientific Memoirs, 1900. [9092] Hele-Shaw, 1900. [9145] Henry, 1835. [9887] Jones, 1897. [10300] Krebs, 1889. [12450] Neumann, 1846. [13784-93] Quet, 1882-4. [S 2158] Neumann, 1848.
- *v. Electromagnetism, Wattenhofen Phenomenon.*
- **THEORY—*v. Light, Electromagnetic Theory of.***
- ELECTRO-MAGNETISM:** [92-5] Ampère, 1820-83. [270] Barlow, 1824. [453] Bois, 1896. [3371] Orsted, 1820. [4084] Rösling, 1823. [5403] Wiedemann, 1861-3. [5749-50] Ampère, 1821-6. [5902] Bachhoffner, 1838. [5980-4, 6005] Barlow, 1823-4. [7200] Davy, 1823. [10066-7] Kelvin, 1882-90. [10163] Kircher, 1654. [11660] May and Krebs, 1904. [13452] Pohl, 1830. [14273] Ritchie, 1832. [15156-7] **ELECTRO-MAGNETISM, continued:** Sturgeon, 1850. [17265] Walker, 1910. [S 1656] Ampère, 1827. [SS 1772] Heinke und Ebert, 1902-4. [SS 2063] Seebeck, 1821.
- *v. Electromagnetic Induction, Solenoid.*
- **MAGNETS:** [3038-9, 3043] Moncel, 1858-83. [4666] Sturgeon, 1850. [4818] Thompson, 1891. [9711] Jacobi und Lenz, 1843. [12007] Moncel, 1883. [15156-7] Sturgeon, 1850.
- **METALLURGY:** [1601-2] Gore, 1890-6. [3174] Napier, 1857. [4434] Smece, 1843. [8080] Fox, 1835. [8530-1] Gore, 1884-90. [14932-3, 14935] Smece, 1841-51. [17303] Gore, 1900 [SS 2898] Borchers, 1897.
- *v. Electroplating.*
- ELECTROMETERS:** [789] Chrystal, 1894. [7442] Edgumbe, 1908. [9138] Healy, 1777. [9474] Hospitalier, *v. y.* [10476] Lane, 1769. [14976] Salomon, 1906. [15516] Wheatstone, 1879.
- *v. Galvanometers.*
- ELECTRON THEORY:** [8070] Fournier d'Albe, 1906. [10066] Kelvin, 1882-1911. [11021] Lorentz, 1909. [15115] Stoney, 1894. [16977] Campbell, 1913. [17206] Richardson, 1914. [17256] Tunzelmann, 1910. [S 1639] Abraham et Langevin, 1905.
- *v. Physics (New), Science (New).*
- ELECTRONS:** [2671] Lodge, 1906. [15115] Stoney, 1894.
- ELECTROPHORUS:** [5126-8] Volta, 1816. [SS 1850] Lichtenberg, 1778-9.
- *v. Electric Doubler.*
- ELECTRO-PHYSICS:** [SS 1772] Heinke und Ebert, 1902-4.
- ELECTRO-PHYSIOLOGY:** [1458-60] Galvani, 1792-1842. [2901] Matteucci, 1858. [4432-3, 4436-7] Smece, 1849-50. [5129] Volta, 1793. [9561-2] Humboldt, 1797-9. [13289] Pianciani, 1839. [13327] Pilla, 1817. [SS 2104-5] Sue, 1802-5.
- *v. Electro-Biology.*
- ELECTROPLATING:** [3567] Pfanhauser, 1904. [5251] Watt, 1886. [6090] Becquerel, 1843. [8535] Gore, 1856. [9709-10] Jacobi, 1840. [10018] Keer, 1855. [10728] Lerebours, 1843. [14932-3] Smece, 1841-3. [14994] Spencer, 1840. [15366] Urquhart, 1880. [15428] Walker, 1841. [S 3225] Field, 1911. [S 3295] Pfanhauser, 1906. [S 3331] Watt, 1902.
- ELECTROSCOPES:** [5126-8] Volta, 1816. [6125, 6127] Bennet, 1786-9. [6522] Brook, 1789. [6783-4, 6793] Cavallo, 1777-87. [SS 2138] Waitz, 1745.
- ELECTROSTATICS:** [301] Beccaria, 1776. [738] Cavallo, 1782-3. [741] Cavendish, 1879. [1403-4] Franklin, 1752-74. [2244-6] Kelvin, 1872-84. [2868] Mascart, 1876. [8947] Harris, 1857. [10069, 10074-5] Kelvin, 1845-84. [16947] Beer, 1865.
- *v. Electric Influence, Electricity (Frictional), Glass, Electric Properties of.*
- ELECTROTIC STATE OF MATTER:** [1289-92, 7777-81] Faraday, 1839-55.
- ELEMENTS (CHEMICAL):** [8710] Groshans, 1866-7. [11444] Marne, 1786. [11804] Meusel, 1902. [14181] Richards, 1911.
- **CHART OF:** [S 2701] Elements, 1912.
- **HISTORY OF:** [14440] Roscoe, 1875.
- ELIMINATION, THEORY OF:** [391] Bézout, 1779. [4703] Sylvester, 1839. [6806] Cayley, 1889-98. [14133] Reynaud, 1833. [15981] Faà de Bruno, 1859. [SS 433] Hesse, 1897.
- *v. Divisors.*

- ELLIPSE AND ELLIPSOID: [3066] Moore. 1660.
 [4502] Somers. 1842. [6867] Childe. 1861.
 [8689] Griffin. 1879. [9324] Hirst. 1852.
 [10655] Leconte. 1890. [12056] Moore. 1660.
 [13132] Perigal. 1855. [13378. 13382] Plana.
 1837-9. [SS 1664] Euler. 1751.
- EMBALMING: [11064-5] Lucas. 1908-11.
- EMULSION PROCESSES: [5617. 5623] Abney. 1878-80.
- ENAMELLING: [SS 2757-8] Dossie. 1758-64.
- ENCKE'S COMET: [9187] Herschel. 1795. [12212] Mossotti. 1824.
- ENDOSMOSIS: [8549] Graham. 1848. [11590] Matteucci. 1847.
- ENERGY, CONSERVATION OF: [279] Barlow. 1885.
 [1288] Faraday. 1859. [1849] Helm. 1898.
 [4591] Hewart. 1873-7. [4733-4] Tait. 1876.
 [7769] Faraday. 1859. [9109] Helmholtz. 1847.
 [9919. 9924-5] Joule. 1847-87. [11695] Mayer. 1867. [13890] Rankine. 1881. [11537] Rowland. 1880. [17016] Duhem. 1911.
- *v. Chemical Action. Correlation (Physical). Electric Energy. Force. Heat. Mechanical Equivalent of. Matter and Energy.*
- — — PARADOXES: [8430] Gill. 1860-1. [14665] Sands. 1906.
- — — DISSIPATION OF—*v. Entropy.*
- — — TRANSFER OF, IN THE ELECTROMAGNETIC FIELD: [13585] Poynting. 1884.
- — — AND MATTER—*v. Matter and E.*
- ENGINEERING (COMMERCIAL): [10902] Liversedge. 1912.
- (EXPERIMENTAL): [6743] Carpenter. 1906.
- (POPULAR): [7427] Dye. 1895. [17333] Blücher. 1912. [17335] Corbin. 1911. [17361] Williams. 1913. [S 3401] Cochrane. 1904.
- — — BIBLIOGRAPHY OF: [SS 2995] Engineering Literature. 1892-1908.
- — — CYCLOPÆDIAS OF: [1184] Encyclopædia. 1905-6. [1843] Hebert. 1849. [2083] Industries. 1881-2. [2316] Knight. 1877-84. [4537-8] Spon. 1869-81. [4910] Tomlinson. 1854. [7081-2] Cresy. 1847-61. [10229] Knight. 1877-84. [10450] Lami et Tharel. 1881-8. [13509] Poppe. 1820-7.
- — — EARLY WORKS ON—*v. Machinery (Early).*
- — — HISTORY OF: [1274] Fairbairn. 1869. [8720] Grothe. 1867.
- *v. Civil Engineering (H. of).*
- — — AID BOOKS AND TABLES: [2896] Matheson. 1876 [3897] Rankine. 1866. [4699] Swingle. 1905. [4923-4] Trautwine. 1853-91. [5011] Uhland. 1882. [5309] Weisbach. 1874. [6908] Clark. 1877. [6930] Claudel. 1845. [7210] Dawson. 1899 [7466] Edwards. 1898. [7755-7] Fairbairn. 1856-67. [8337] Génieys. 1835-46. [8998] Haskoll. 1866. [9252] Hertzner. 1864. [9451] Hopkinson. 1875. [9583-4] Hütte. 1902-5. [9589] Hutton. 1892. [10410] La Harpe. 1907. [11575-6] Matheson. 1889. [12139-43] Morin. 1838-64. [13905] Rankine. 1889. [14571] Ruff. 1912. [S 3490] Hutton. 1901.
- — — CONGRESSES: [7575] Engineering Congress. 1902. [S 3837] Engineering Congress. 1894.
- — — COSTS AND ESTIMATES: [3400] Osthoff. 1883. [6269] Blenkarn. 1865. [9029] Haupt. 1881. [9468] Hoskold. 1905. [S 3455] Gillette. 1910. [S 3536] Metcalfe. 1900.
- *v. Building Estimates.*
- ENGINEERING DRAWING—*v. Machine Drawing.*
- — — JOURNALS: [793] Civil Engineer. 1837-45. [795-6] Civil Engineers (Institution of). 1836-1905. [1183] Engineer. 1863. [1187] Engineering. 1866-93. [1190] English Mechanic. 1865-96. [2938] Mechanical Engineers. 1847-1905. [3007] Mining and Mechanical Engineers (North of England Institute of). 1871-1904. [5777] Annales des Ponts et Chaussées. 1831-1900. [6895] Civil Engineer. 1837-45. [6896-9] Civil Engineers (Institution of). 1836-1908. [7571-2] Engineer. 1856-93. [7573] Engineering. 1866-97. [7577] Engineering Review. 1891-2. [7578-9] Engineers (Royal). 1864-1904. [7582-3] English Mechanic. 1865-1906. [8280] Gas Engineers (Institution of). 1891-1910. [8281] Gas Engineers (Association of). 1883-1909. [8282] Gas Institute. 1870-92. [8283] Gas Lighting. 1849-96. [9655] Ingenieurs. 1848-1908. [9661] Industriel. 1826. [11702] Mechanics' Magazine. 1862-7. [11704-5] Mechanical Engineers. 1847-1912. [11919] Mining and Mechanical Engineers. (North of England Institute of). 1852-91. [11922] Mining, Civil, and Mechanical Engineers (Chesterfield and Derbyshire Institute of). 1871-89. [13592] Practical Mechanic. 1842-5. [14082-3] Repertory of Arts. 1794-1823. [14768-71] Science Abstracts. 1898-1912. [S 92] Ingenieurs. Kon. Ned Instituut van. 1848-1908. [S 3851] Central. 1903-15. [SS 3228] Bulletin des Sciences Technologiques. 1824-31. [SS 3252-3] Engineer. 1872-1919. [SS 3255] Engineering. 1909-19. [SS 3256] Engineering Society (King's College). 1858-60. [SS 3257] Engineers and Shipbuilders (North-East Coast Institution of). 1885-1918. [SS 3317] Repertory of Arts. 1794-1832. [SS 3331] Shipbuilder. 1906-18.
- *v. Mining and Metallurgical J. Technological J.*
- — — LABORATORIES: [10092] Kennedy. 1887.
- — — MANUSCRIPTS: [6497] Brindley. 1759-63.
- — — PAPERS: [5277] Weale. 1844-9. [9449] Hopkinson. 1901. [14780-1] Scott. 1874-81. [14854-5] Siemens. 1892-5. [14928-30] Smeaton. 1812-14. [S 406] Thomson. 1912.
- — — SPECIFICATIONS: [11180] Macey. 1898.
- — — TESTING: [6743] Carpenter. 1906. [13765] Pullen. 1900.
- ENGINES (AIR): [9920] Joule. 1851. [S 3422] Donkin. 1905.
- (EXPANSION): [11714] Mees. 1886.
- (FIRE): [1875-6] Hero Alexandrinus. 1575. [5552] Young. 1866. [9175-9] Hero Alexandrinus. 1575-1851.
- *v. Pumps.*
- (GAS): [9326] Hiscox. 1898. [9585] Hutton. 1903. [11187] Macgregor. 1885. [12730] Norris. 1896. [12980] Parsell and Weed. 1900. [13161] Perry. 1904. [17340] Goodeve. 1891. [17358] Volkert. 1898-1900. [S 3422] Donkin. 1905.
- *v. Power Gas Production.*
- (HEAT): [4942] Trowbridge. 1874. [17338] Ewing. 1910. [17340] Goodeve. 1891. [S 3337] Anderson. 1889. [S 3422] Donkin. 1905. [S 3477] Hirshfeld and Barnard. 1915.
- (MODERN): [10094] Kennedy. c. 1910.
- (OIL): [13161] Perry. 1904. [S 3422] Donkin. 1905. [S 3502] Kean. 1915.
- (PORTABLE): [5208] Wansbrough. 1887.
- (STEAM)—*v. Steam Engines.*
- — — BALANCING OF: [4363] Sharp. 1907.
- ENGRAVING—*v. Graphic Arts.*

- ENTROPY: [9473] Hospitalier. v. y. [13397] Pfaunder. 1888. [13902] Rankine. 1852. [17233] Swinburne. 1904.
- EPHEMERIDES: [1486] Gaurico. 1533. [2799] Manfredi. 1715-25. [3193] Nautical Almanac. 1770-1876. [3390] Origanus. 1609. [4616] Stoeffler. 1532. [4874] Todd. 1738. [5446] Wing. 1720. [5586] Zacuth. 1502. [5931] Baily. 1835. [7031] Cossali. 1792. [7471] Eichstadt. 1644. [7590] Ephemeris (The American), 1893-1909. [9393] Holdsworth. 1850. [10944] Loewy. 1891-1902. [11283-6] Magini. 1582-1630. [11343] Manfredi. 1715-25. [11996] Moletti. 1563. [12393-7] Nautical Almanac. 1810-1908. [15017-18] Stade. 1581-5. [15094] Stöffler. 1518. [15138] Streete. 1667. [15406-7] Vlacq. 1632. [15586] Wing. 1658. [SS 990-1] Argoli. 1638-77. [SS 999] Bartsch. 1624. [SS 1221] Origanus. 1609.
- EPICYCLOIDS: [2383. 10411-12] La Hire. 1694.
- EQUATION (FREDHOLM'S): [S 808] Heywood et Frechet. 1912.
- (PERSONAL) IN ASTRONOMY: [13747] Przybyllok. 1909.
- v. *Errors, Theory of. Least Squares.*
- (RICCATI'S): [8450] Glaisher. 1881.
- EQUATIONS (ALGEBRAIC): [248] Baker. 1684. [391] Bézout. 1779. [437] Blanken. 1839. [647] Burnside and Panton. 1881. [788] Christmann. 1827. [1487] Gauss. 1849. [1789] Hargreave. 1866. [2076-7] Hymers. 1837-40. [2874. 2878-9] Maseres. 1758-1803. [3155-6] Murphy. 1839. [3236-9] Newton. 1707-69. [3899] Raphson. 1697. [4127] Ruffini. 1799. [4265] Schooten. 1646. [4285] Schulenberg. 1861. [4419] Sluze. 1668. [4795] Thacker. 1748. [5066] Viète. n. d. [5124] Vospicelli. 1851. [5225] Waring. 1762. [5523] Wronski. 1812. [5568-9] Young. 1835-43. [5945] Baker. 1684. [6357] Bortz. 1771. [6590] Buck. 1823. [8066-7] Fourier. 1831. [8187] Fürstenau. 1867. [8890] Hansen. 1849. [8909] Hargreave. 1866. [9796-8] Jerrard. 1845-59. [10620] Lea. 1811. [10940] Lockhart. 1813. [11532. 11536-9] Maseres. 1758-1803. [11579] Mathews. 1900. [11943-5] *Miscellanea Curiosa*. 1708-27. [12301] Murphy. 1831. [13066] Pellet. 1878. [13845-6] Ralphson. 1702. [14305-6] Roberts. 1867. [14573] Ruffini. 1799. [14736] Schooten. 1646. [14881] Simpson. 1755. [15392-4] Viète. 1591. [15579] Wilson. 1799. [15714-15] Bardey. 1893-1902. [15745] Blind. 1890-5. [15935] Dickson. 1903. [16193] Jordan. 1870. [16220] Kleyer. 1886. [16367] Matthiessen. 1896. [16372] Merriman. 1906. [16375] Metger. 1892. [16479-80] Petersen. 1878-97. [16541] Runge. 1900. [16758] Vogt. 1895. [S 529] Cardano. 1570. [SS 929] Viète. 1630. [SS 952-3] Waring. 1762. [SS 1758] Guglielmini. 1809.
- v. *Cardan's Formula. Sturm's Theorem.*
- (DIFFERENTIAL): [466-7] Boole. 1859-65. [1376-7] Forsyth. 1885-1902. [2072-3] Hymers. 1839-58. [2170] Johnson. 1889. [2210] Kaestner. 1743-56. [2787] Malfatti. 1790. [2803] Manfredi. 1707. [3330] Nicolai. 1783. [3410-12] Otley. 1832. [3435] Page. 1897. [6328-30] Boole. 1859-77. [6968] Cockle. n. d. [7981] Floquet. 1879. [8083] Franchini. 1798. [9410] Holmgren. 1869. [9642-3] Hymers. 1839-58. [9831] Johnson. 1889. [10002] Kapteijn. 1891. [10191] Klein. 1890. [10915] Lobatto. 1837. [11345-6] Manfredi. 1707. [12683] Nieupert. 1802. [13190] Petzval. 1851-5. [13744-5] Prym. 1869-71. [13819] Raabe. 1856. [14305] Roberts. 1867. [15764] Boole. 1877. [16007-8] Forsyth. 1888-1912. [16152] Horn. 1905. [16189] Johnson. 1910. [16192] Jordan. 1887.
- EQUATIONS (DIFFERENTIAL), continued: [16236] Kohlrausch. 1907. [16404] Moore, etc. 1910. [16576-8] Schlesinger. 1895-1904. [S 709] Forsyth. 1890-1906. [S 771] Halphen. 1883. [SS 608] Lie. 1891.
- v. *Analysis (Mathematical). Calculus (Integral). Fuchs's Theorem. Singular Solutions.*
- (FUNCTIONAL)—v. *Calculus of Functions.*
- (INDETERMINATE): [7083] Cristoforo. 1700. [7271] Desmarest. 1852. [7300-2] Diophantus. 1621-70. [10627] Lebesgue. 1843. [12892] Ozanam. 1687. [16290-1] Legendre. 1830-93. [SS 431] Forestani. 1603.
- (INTEGRAL): [13938] Rawson. 1878. [16231] Kneser. 1911. [S 882] Lalesco. 1912.
- v. *Equation (Fredholm's).*
- (NUMERICAL): [2379-80] Lagrange. 1798-1808. [4126] Ruffini. 1804. [4669] Sturm. 1835. [5065] Viète. 1600. [5306] Weddle. 1842. [5562-3] Young. 1850-68. [8066-7] Fourier. 1831. [10406-8] Lagrange. 1808-26. [11565] Mathematician. 1856. [14572] Ruffini. 1804. [14606] Rutherford. 1849.
- (PARTIAL DIFFERENTIAL): [1835] Hearn. 1846. [2170] Johnson. 1889. [4005-6] Riemann. 1900-1. [5681] Airy. 1866. [6305] Bois-Reymond. 1864. [6968] Cockle. n. d. [7764] Falk. 1872. [8457] Glaisher. 1878. [9831] Johnson. 1889. [10914] Lobatto. 1837. [11370] Mansion. 1875. [12047] Moon. 1868. [13377] Plana. 1811. [14246-8] Riemann. 1869-82. [15874] Clebsch. 1870. [15924] Delassus. 1897. [16067-8] Goursat. 1891-8. [16153] Horn. 1910. [16189] Johnson. 1910. [16525-6] Riemann. 1882-1901. [16527] Riquier. 1901. [S 621] Darboux. 1883. [S 746] Graindorge. 1872. [S 831] Imshenetsky. 1869-72.
- v. *Singular Solutions.*
- (TRANSCENDENTAL): [16683] Stern. 1858.
- , THEORY OF: [3236-9] Newton. 1707-69. [4880-2] Todhunter. 1861-75. [5225] Waring. 1782. [6634-5] Burnside and Panton. 1886-92. [10736] Le Seur. 1748. [10918] Lobatto. 1844. [12554-63] Newton. 1707-69. [13080] Peletier. 1560. [15822-3] Burnside and Panton. 1892-1904. [15830] Cajori. 1904. [15924] Delassus. 1897. [16177] Jablonski. 1888-91. [16711-12] Tartinville. 1886-1902. [SS 230] Borchardt. 1888. [SS 1664] Euler. 1750.
- v. *Abel's Theorem. Elimination. Fourier's Theorem. Groups. Icosahedron. Lagrange's Method. Roots. Sturm's Theorem.*
- OF DIFFERENCES: [16761] Wallenberg and Guldberg. 1911.
- EQUATORIAL: [4381] Schukburgh-Evelyn. 1793. [5675] Airy. 1845. [SS 1062] Dollond. c. 1772.
- EQUILIBRIUM (ASTATIC): [S 619] Darboux. 1882.
- EQUINOXES—v. *Precession and Nutation.*
- EQUIPOLLENSES, METHOD OF: [15723] Bellavitis. 1874.
- ERBIUM: [10893] Liveing. 1899.
- ERRORS, THEORY OF: [876] Cotes. 1722. [4399] Simpson. 1757. [5679] Airy. 1861. [7038-9] Cotes. 1722. [11133] Lupton. 1898. [14884-5] Simpson. 1757. [15906] Czuber. 1891. [15980] Faà de Bruno. 1869. [16188] Johnson. 1912. [16800] Woodward. 1906.
- v. *Least Squares.*
- ESSAYS (SCIENTIFIC): [827] Clifford. 1879. [1966-9] Holland. 1862-75. [4978-82. 4992-3] Tyndall. 1871-92. [6534] Brougham and Vaux. 1839. [6961] Clifford. 1879. [7199] Davy. 1858. [9216] Herschel. 1857. [10528] Lardner. 1852. [13699-702] Proctor. 1873-89.

- ETHER THEORIES: [421] Birks. 1862. [752] Challis. 1869. [1072] Dolbear. 1892. [5494] Woods. 1906. [6239] Birks. 1862. [6440] Brahe. 1648. [7930] Fitzgerald. 1902. [8808-9] Hales. 1800. [9432] Hooke. 1705. [9895] Jones. 1762. [11164] McCullagh. 1833-6. [11723] Melloni. c. 1850. [12212] Mossotti. 1824. [12451] Neumann. 1885. [12623] Robinson. 1747. [14148] Reynolds. 1903. [14767] Schyano. 1868. [15130] Stoney. 1890. [S 1864] Ether. 1892-7. [S 2074-5] Larmor. 1900. [SS 1539] Berkeley. 1744.
- — —, HISTORY OF: [S 2419] Whittaker. 1910.
- — —: PARADOXES: [11048-9] Lovett. 1766-74.
- ETHERS: [1865] Hennell. 1828. [6051] Baumé. 1757. [7002] Connell. 1835. [8757] Guthrie. 1857. [9140] Hennell. 1828. [10929] Lobry de Bruyn. 1899.
- ETHYLENE: [14122] Reuter. 1892.
- EUCALYPTUS, CHEMISTRY OF: [10151] Kingzett. 1884.
- EUCLID VINDICATED: [7322-3] Dodgson. 1879.
- EUDIOMETRY: [2773] Magellan. 1783. [4450] Smith. 1872. [8806] Hales. 1731-3. [9563] Humboldt et Gay-Lussac. 1805. [11137] Luz. 1784. [11273-4] Magellan. 1777. [14545] Royal Institution. 1802. [SS 1792-6] Ingenhousz. 1782-9.
- v. *Air Analysis*.
- EVAPORATION: [12185] Morse. 1910. [13876] Ramsay and Young. 1888. [SS 1636] Dalton. 1802. [SS 1714] Grégoire. 1789. [SS 2491] Fourcroy. 1784.
- v. *Heat of Evaporation*.
- EVOLUTION, MATHEMATICAL THEORY OF: [13054-5] Pearson. 1900.
- v. *Biometrics*.
- EXCHANGES, MATHEMATICAL THEORY OF: [16460] Osorio. 1913.
- EXCISE TABLES: [3577-9] Philipps. 1656-76.
- EXHAUSTION, METHOD OF: [143-50] Archimedes. 1544-1897. [1194-1201] Euclides. 1482-1818. [5813-18] Archimedes. 1675-1808. [7608-27] Euclides. 1482-1899. [14421] Ronayne. 1727.
- EXPANSION: [12250] Muncke. 1828. [14181] Richards. 1911. [14384] Rodwell. 1882. [SS 1636] Dalton. 1802.
- EXPERIMENTING, THEORY OF: [547. 556] Boyle. 1668-9.
- EXPLORER'S SCIENCE: [3209-90] Neumayer. 1888-1906. [6271] Blim. 1899. [9221-3] Herschel. 1849-86.
- EXPLOSION, THEORY OF: [6428] Boyle. 1672. [14534] Rowell. 1887. [15286] Thorpe. 1892.
- v. *Mine Explosions*.
- EXPLOSIVES: [1157] Eissler. 1890. [4200] Salvati. 1893. [4301] Scoffern. 1852. [7483] Eissler. 1884. [9788] Jettell. 1897. [10763] Lewes. 1895. [12712] Noble. 1906. [14666] Sanford. 1896. [14778] Scoffern. 1858. [S 3008] Brunswig. 1912. [S 3219] Drinker. 1878.
- v. *Blasting. Chloride of Nitrogen. Cordite. Dynamite. Gun Cotton. Gunpowder. Mesitylene. Mining (Military). Picric Acid. Pyroxylic Acid*.
- EXTENSION, THEORY OF: [16812] Zoretti. 1911.
- FACTOR TABLES: [561] Brancker. 1668. [645] Burckhardt. 1817. [721] Cataldi. 1603. [6614-15] Burckhardt. 1816-17. [SS 299] Chernac. 1811. [SS 453-4] Glaisher. 1879-83.
- FACTORIAL NOTATION: [7530] Elphinstone. 1857.
- FALL EXPERIMENTS—v. *Earth, Rotation of the*.
- FANS (CENTRIFUGAL): [10135] Kinealy. 1905.
- FASCINE WORKS: [7732] Eytelwein. 1818.
- FATS AND OILS: [568] Braunt. 1896. [2582] Lewkowitsch. 1898. [2998] Mills. 1877. [3737] Poutet. 1828. [6860] Chevreul. 1823. [7589] Ennis. 1909. [10761] Leuchs. 1831. [10791] Lewkowitsch. 1901. [12805] Oil and Colorman. 1863. [S 2997] Andés. 1898. [S 3033] Fryer. 1917. [S 3151] Wright. 1903.
- v. *Beech Oil. Ben Oil. Glycerine. Lubricants. Waxes*.
- FERMENTATION: [511] Bourquelot. 1893. [1433] Gährungstechnisches Jahrbuch. 1892. [1467] Garnier. 1888. [2193-4] Jörgensen. 1889-1900. [2223] Kayser. 1896. [2368] Lafar. 1897. [2637] Lindner. 1901. [2902] Matthews and Lott. 1889. [3487-9] Pasteur. 1868-79. [4407] Simpson. 1675. [5674] Ahrens. 1902. [5971] Baranetzky. 1878. [7379] Duclaux. 1900. [8560] Graham, etc. 1852. [8896] Harden. 1905. [9281] Hill. 1903. [9713] Jacquemin. 1900. [10111] Kerger. 1663. [11663-4] Mayer. 1876-86. [12149] Moritz and Glendinning. 1892. [13007-9] Pasteur. 1876-9. [13773] Purvis. 1907.
- FERROTYPE: [7600-1] Estabrooke. 1872-80.
- FERTILISERS AND ARTIFICIAL MANURES: [8811] Hall. 1909. [10206] Kirwan. 1796. [12073] Morfit. 1872-3. [12307] Murray. 1910. [15397-8] Ville. 1879-1909.
- v. *Guano. Nitragin*.
- FIGURES (INSCRIBED AND SUPERSCRIBED), GEOMETRY OF: [6376] Boulliau. 1657.
- FILMS (THIN LIQUID): [14015-17] Reinold and Rucker. 1881.
- v. *Soap Bubbles*.
- FINITE DIFFERENCES—v. *Calculus of Finite Differences*.
- MAGNITUDES, ANALYSIS OF: [10006] Kästner. 1760.
- FIRE ARMS: [121] Antoni. 1789. [1406] Fraxno. 1850. [1499] Gaya. 1678. [2149] Jervis. 1859. [2969] Meyer. 1837. [4255-6] Schmidt. 1842-3. [4713] Tackels. 1866. [5396] Whitworth. 1858. [6071] Beaufoy. 1808. [6313] Bond. 1888. [7595] Erdmannsdorff. 1845. [7912] Fire Arms. 1829. [8130] Franklin. 1874. [8188-9] Furtenbach. 1644-62. [8631] Greener. 1896. [11294] Magné de Marolles. 1788. [11332] Mangeot. 1851. [11440] Marks. 1898. [12028] Monterey. 1868. [12063] Morandotti. 1886. [12064] Mordecai. 1860. [12749] Norton. 1880. [12825] Oppert. 1880. [12909] Panot. 1851. [14778] Scoffern. 1858-9. [S 3688] Whitworth. 1873. [SS 2845-6] St. Remy. 1707-41. [SS 3016] Greener. 1846.
- v. *Gunnery and Artillery. Machine Guns. Revolver. War Engines*.
- CLAYS: [3539. 13111] Percy. 1861.
- PREVENTION AND EXTINCTION: [1338] Fire Prevention Committee. 1898-1900. [5553] Young. 1784. [5708] Aldini. 1830. [7913-15] Fire Prevention Committee. 1898-1901. [8495] Godfrey. 1724. [8938] Harris. 1890. [8974] Hartley. 1834.
- FLAME, RESEARCHES ON: [977] Davy. 1825. [1282. 1297] Faraday. 1861-74. [6428] Boyle. 1672. [7785-6] Faraday. 1865. [12670] Nickles. 1856. [15175] Swan. 1859.
- FLAMES (SINGING): [5009] Tyndall. 1857.
- FLAT EARTH PARADOX: [702] Carpenter. 1871. [4109] Rowbotham. 1864. [4304] Scott. 1901. [12612] Mercier. 1806.

- FLOATING BODIES: [152. 5821-2] Archimedes. 1565. [5867] Atwood. 1796.
- FLUIDS—*v. Liquids.*
- FLUORESCENCE: [2293-4] Kircher. 1646-71. [3641] Pisko. 1861. [10161] Kircher. 1671.
- FLUORINE AND ITS COMPOUNDS: [4492] Société Chimique. 1889-92. [7195] Davy. 1814. [11811] Meyer. 1903. [11978-9. 11981-2] Moissan. 1897-1906. [12669. 12674-5] Nickles. 1857-8. [14473] Rose. 1832. [14626-7] Sage. 1773. [14697] Scheele. 1786. [14707] Scheerer und Drechsel. 1873. [15288] Thorpe and Kirwan. 1892. [15505] Wenzel. 1783.
- FLUXIONS—*v. Calculus (Fluxional).*
- FOG, FORMATION OF: [13084] Peltier. 1842.
- FOOD, CHEMISTRY AND ANALYSIS OF: [106] Andrews. 1901. [2324] König. 1889. [6111-12] Bell. 1886. [6886-7] Church. 1876-89. [8079] Fox. 1878. [10225] Knapp. 1848. [11400] Marcet. 1856. [13421] Playfair. 1853. [13741] Prout. 1827. [14172] Richards and Woodman. 1900. [17311] König. 1903-10. [17325] Röttger. 1907.
- *v. Breadingmaking. Cooking. Starch.*
- , PRESERVATION OF: [14380] Rocques. 1906.
- , ADULTERATIONS: [5635] Accum. 1820. [7142] Dammer. 1885-7. [8276] Garnier et Harel. 1844. [9001] Hassall. 1876. [11400] Marcet. 1856.
- FORCE: [1133] Dyer. 1858. [6455] Bray. 1866. [6981] Colden. 1751. [14131] Reyer. 1909.
- *v. Energy. Motion.*
- ('VITAL'): [14001. 14003] Reichenbach. 1850-1.
- FORCES, AGGREGATION OF: [12112] Morgan. 1859.
- , COMPOSITION OF: [5053] Verdam. 1825.
- , CORRELATION OF—*v. Correlation (Physical).*
- , DECOMPOSITION OF: [13892] Rankine. 1872.
- , DIAGRAMS OF: [S 2125] Maxwell. 1870.
- , IDENTITY OF: [8507] Goodman. 1847.
- , PARALLELOGRAM OF—*v. Parallelogram of F.*
- , TRIANGLE OF—*v. Triangle of F.*
- FORMS (CANONICAL): [4704] Sylvester. 1851.
- (IMAGINARY ALGEBRAIC): [16747] Vallés. 1869-76.
- (QUADRATIC): [7122] Cunningham. 1895. [15807] Bromwich. 1906.
- , THEORY OF: [6947] Clebsch. 1879-80. [15675-6] Andoyer. 1898-1900. [15874-5] Clebsch. 1869-72. [15979] Faà de Bruno. 1876. [16202] Kempe. 1886. [16379] Meyer. 1909. [16691] Study. 1889.
- FORTIFICATION: [836] Coehoorn. 1741. [1368] Forbes. 1849. [1719] Gunter. 1636. [2449] Lanteri. 1557. [2511] Le Blond. 1764. [2581] Lewis. 1890. [3067] Moore. 1673. [3426] Ozanam. 1694. [3713] Porta. 1608. [4586-7] Stevinus. 1617-18. [4628] Stone. 1645. [4674] Sturm. 1737. [4675] Sturmy. 1679. [4746-9] Tartaglia. 1546-62. [4856] Tielke. 1789. [4914-15] Torricelli. 1715. [5042] Vauban. 1795. [6646] Busca. 1598. [7221-2] Deidier. 1742. [7341] Douglas. 1859. [7595] Erdmannsdorff. 1845. [7983] Floriani. 1630. [8051-2] Foster. 1659. [8188-9] Furtenbach. 1644-62. [8745-50] Gunter. 1636-80. [10641-2] Le Blond. 1764-6. [10787] Lewis. 1890. [11442] Marolois. 1628. [12012-13] Monieriff. 1873-5. [12193] Mouzé. 1804. [12268. 12272-3] Muller. 1747-74. [12893-4] Ozanam. 1711-27. [13002. 13004] Pasley. 1822-32. [13198] Pffinginger. 1740. [15231] Thi. 1589. [15320-1] Torricelli. 1715. [S 3350] Béliidor. 1813. [SS 496] Henrion. 1621.
- FOURIER'S THEOREM: [1388] Fourier. 1822. [8066-7] Fourier. 1831. [16292-3] Lejeune-Dirichlet. 1871-94.
- FOURTH DIMENSION: [5607] Abbott. 1884. [15140] Stromeyer. 1911. [15643-4] Hinton. 1886-1906.
- *v. Geometry (Four-dimensional).*
- FRACTIONS (CONTINUED): [722] Cataldi. 1613. [14765] Schwenter. 1616-18. [16474] Perron. 1913. [SS 421] Faulhaber. 1622.
- (RATIONAL): [6361] Boscovich. *s. a.*
- (VULGAR): [583] Bridge. 1718. [1393] Fractions. 1738. [11752] Mengoli. 1650.
- — AS DECIMALS: [1596-7] Goodwyn. 1823.
- FRAUENHOFER'S LINES: [10320] Kuhn. 1853.
- *v. Spectroscopy.*
- FREE WILL, MATHEMATICAL THEORY OF: [S 244] Boussinesq. 1878.
- FREEZING MIXTURES: [289] Bate. 1634. [536] Boyle. 1665. [6043-4] Bate. 1634. [6248] Black. 1777. [6796-7] Cavendish. 1786-8. [7444] Edinburgh Essays. 1754-71. [13136-7] Perrault. 1721. [15620] Edinburgh Essays. 1770-1. [S 2677] Boyle. 1663. [SS 30] Bate. 1631.
- POINT: [6253-4] Blagden. 1788. [9859] Jones. 1893.
- FRENCH ACADEMY OF SCIENCE: [S 242] Bertrand. 1869. [SS 1887] Martyn and Chambers. 1742.
- FRICTION (HYDRAULIC): [13163] Perry, etc. 1893. [15282] Thorpe. 1894.
- , THEORY OF: [2140] Jellet. 1872. [5081] Vince. 1784. [9780] Jellet. 1872. [12145] Morin. 1834. [14146] Reynolds. 1875. [14605] Rutherford. 1862. [17086] Jellet. 1890. [17164] Painlevé. 1895.
- *v. Ball-Bearings. Machinery, Lost Work in. Viscosity.*
- FROSTS (HISTORICAL): [4697] Swinden. 1778. [10291] Krafft. 1741.
- FUCHS'S THEOREM: [13459] Poincaré. 1885.
- FUEL: [9477] Hospitalier. *v. y.* [10764] Lewes. 1907. [11889-90] Mills and Rowan. 1889. [14849] Siemens. 1873.
- *v. Charcoal. Coal Dust Firing. Combustion. Gas Firing. Sulphides as Fuel.*
- (GASEOUS): [4853] Thwaite. 1889. [9522] Hubert. 1900. [12392] Naumann. 1881. [14524] Rowan. 1886. [S 3078] Lewes. 1907.
- *v. Power Gas Production. Water Gas.*
- (LIQUID): [11738] Melville. 1904. [13022] Paul. 1868. [S 3007] Booth. 1911. [S 3078] Lewes. 1907.
- IN METALLURGICAL OPERATIONS: [3539-40] Percy. 1861-75. [4350] Sexton. 1897. [13111-12] Percy. 1861-75.
- ANALYSIS: [1524] Gill. 1896. [2280] Kershaw. 1907. [5845] Arth. 1897. [13206] Phillips. 1887.
- ECONOMY: [313] Bde. 1859. [1151] Edwards. 1868. [3779] Prideaux. 1853. [6578] Buchanan. 1810. [6907] Clark. 1886. [14486] Ross. 1875. [14612] Ryder. 1852. [S 3174] Bell. 1894. [S 3505] Kent. 1915.
- *v. Machinery, E. of. Steam Economy.*
- FUNCTION (POTENTIAL): [131] Appell. 1892. [1642] Green. 1828. [6933-4] Clausius. 1859-77. [16934] Appell. 1892. [17169] Peirce. 1902. [17183] Poincaré. 1899. [S 1807] Clausius. 1870. [SS 472] Gudermann. 1833.
- *v. Potential.*

- FUNCTIONS (ABELIAN): [6-7. 5611-12] Abel. 1839-81. [10193] Klein. 1889. [12448] Neumann. 1884. [12707] Noether. 1890. [14249] Riemann. 1857. [15790] Briot. 1879. [15876] Clebsch. 1875-91. [SS 69] Gauss. 1870-1906. [SS 519] Jacobi. 1881-4.
- (ALGEBRAIC): [2309] Klein. 1893. [12708] Noether. 1886. [15688] Appell et Goursat 1895. [16264] Landfriedt. 1902. [16484] Picard et Simart. 1897-1900.
- (ANALYTIC): [1781] Harkness and Morley. 1898. [2381] Lagrange. 1813. [5332] West. 1838. [10403-5] Lagrange. 1797-1813. [15511] West. 1838. [15742] Biermann. 1887. [15817-18] Burkhardt. 1899-1903. [16012] Fouet. 1907-9. [16783] Whittaker. 1902.
- *v. Calculus of Functions.*
- (ARITHMETICAL): [15689-90] Arnoux. 1906. [16346] Maillet. 1906.
- (BESSEL'S): [1633] Gray and Mathews. 1895. [2682] Lommel. 1868. [4878-9] Todhunter. 1875. [8609] Gray and Mathews. 1895. [10003] Kapteyn. 1893. [10987] Lommel. 1868. [11171] Meissel. 1892. [16074] Gray and Mathews. 1895. [16563] Schafheitlin. 1908.
- (BETA): [1252-3] Euler. 1768-1845. [2524] Legendre. 1811-17. [7687-8] Euler. 1824-45.
- (CIRCULAR): [1882] Herschel. 1815. [SS 432-3] Forti. 1863.
- (CONJUGATE): [8868] Hamilton. 1835.
- (CYLINDER): [12444] Neumann. 1881. [16437] Nielsen. 1904.
- (ELLIPTIC): [222] Bæhr. *c.* 1840. [1068] Dixon. 1894. [1643] Greenhill. 1892. [2074-5] Hymers. 1835-44. [2111] Jacobi. 1829. [2325] Königsberger. 1874. [2524. 2526] Legendre. 1811-28. [4339] Serret. 1851. [5611-12] Abel. 1839-81. [6334] Booth. 1852. [6509] Briot et Bouquet. 1875. [6807] Cayley. 1876. [7419] Durège. 1868. [7588] Enneper. 1876. [8632-3] Greenhill. 1892. [8840-1] Halphen. 1886-91. [9289] Hill. 1835. [9576] Hurwitz. 1881. [10574] Laurent. 1882. [10913] Lobatto. 1846. [14241] Riemann. 1876. [14391] Roberts. 1873. [15752] Boehm. 1908-10. [15799] Briot et Bouquet. 1875. [15857] Cayley. 1895. [15939] Dixon. 1894. [15956-8] Durège. 1868-1908. [16693] Study. 1893. [16707] Tannery et Molk. 1893-1902. [16764] Weber. 1891. [S738] Glaisher. 1885. [S 1204] Smith. 1894. [SS 69] Gauss. 1870-1906. [SS 519] Jacobi. 1881-4.
- (GAMMA): [1252-3] Euler. 1768-1845. [2524] Legendre. 1811-17. [7687-8] Euler. 1824-45. [16438] Nielsen. 1906. [S 740] Godefroy. 1901. [SS 69] Gauss. 1870-1906.
- (GENERATING): [11213] Macmahon. 1894. [SS 230] Borchardt. 1888.
- (HARMONIC): [655] Byerly. 1893. [1330] Ferrers. 1877. [1835] Hearn. 1846. [2440-3] Laplace. 1798-1878. [3360] O'Brien. 1840. [3750] Pratt. 1871. [4878-9] Todhunter. 1875. [7872] Ferrers. 1877. [10507-9] Laplace. 1798-1829. [12299] Murphy. 1833. [12774] O'Brien. 1840. [13602] Pratt. 1871. [15827] Byerly. 1906.
- *v. Attraction of Ellipsoids.*
- (HOMOGENEOUS): [SS 170] Aronhold. 1838.
- (HYPERBOLIC): [10085] Kennelly. 1912. [SS 432-3] Forti. 1863. [SS 472] Gudermann. 1833.
- (HYPERELLIPTIC): [10194] Klein. 1887. [16265] Landfriedt. 1902.
- FUNCTIONS (IRRATIONAL): [15001] Spottiswoode. *n.d.*
- (LAMÉ'S): [2413-14] Lamé. 1857. [4878-9] Todhunter. 1875. [10439] Lamé. 1857.
- (LAPLACE'S)—*v. Functions (Harmonic).*
- (METASPHERICAL): [16440] Nielsen. 1911.
- (PERIODIC): [16508] Rausenberger. 1884.
- (PERTURBING): [8873] Hamy. 1894.
- (POLYEDRIC AND MODULAR): [16753] Vivanti. 1910.
- (PRYM'S): [SS 753] Prym und Rost. 1911.
- (SCALAR): [13071] Peirce. 1910.
- (SPHERICAL): [12444] Neumann. 1881. [16286] Le Comte. 1858. [17270] Wangerin. 1909. [S 791] Heine. 1861.
- (SYMMETRICAL): [9961] Junker. 1894. [11214] Macmahon. 1890.
- (THETA): [5611-12] Abel. 1839-81. [5943] Baker. 1897. [14709] Schellbach. 1864. [16265] Landfriedt. 1902. [16719] Thomae. 1890. [S 1204] Smith. 1894. [SS 69] Gauss. 1870-1906. [SS 519] Jacobi. 1881-4.
- (ZETA): [10467] Landau. 1911.
- , CALCULUS OF—*v. Calculus of Functions.*
- , TABLES OF: [2526] Legendre. 1825-8. [16181] Jahnke und Emde. 1909. [SS 432-3] Forti. 1863.
- , THEORY OF: [1638] Grebel. 1851. [1649] Gregan-Craufurd. 1844. [1782] Harkness and Morley. 1893. [2374. 2381] Lagrange. 1806-13. [6625] Burkhardt. 1899-1903. [7050-2] Cournot. 1841-57. [8651] Gregan-Craufurd. 1844. [10397] Lagrange. 1806. [12443] Neumann. 1862. [13743] Prym. 1869. [14506] Rouché. 1858. [15754] Bois-Reymond. 1882. [15768] Borel. 1898-1905. [15818] Burkhardt. 1899-1903. [16227-8] Kleyer and Haas. 1899. [16404] Moore and Wlezynski. 1910. [16459] Osgood. 1907. [16689] Stolz und Gmeiner. 1905. [16706] Tannery. 1904-11.
- *v. Analysis (Mathematical), Analysis (Residual), Quantics, Taylor's Theorem.*
- OF COMPLEX VARIABLES: [1128] Durège. 1896. [7419] Durège. 1873. [14241. 14244] Riemann. 1867-76. [15953-5] Durège. 1873-1906. [16005-6] Forsyth. 1900-14. [16524] Riemann. 1892. [16719-20] Thomas. 1890-8.
- OF REAL VARIABLES: [15938] Dini. 1892. [16145] Hobson. 1907. [16486] Pierpont. 1905-12.
- FURNACE (REFINING): [5770] Anfrye et d'Arcet. 1813.
- (REGENERATIVE GAS): [14850] Siemens. 1868.
- FURNACES: [6008] Bair. 1899. [10789-90] Lewis. 1763. [13935] Rawlinson. 1858.
- *v. Electric Furnace.*
- FUSES: [11176] Macdonald. 1819. [13316] Pictet. 1848.
- GALILEO'S DISCOVERIES, CONTROVERSIES ON: [251] Baliani. 1638. [1359] Fontana. 1646. [5954] Baliani. 1638. [7999-8001] Fontana. 1646. [8585-7] Grassi. 1619-26.
- TRIAL: [8226] Biot. 1858. [8226] Charles. 1862. [8231-2] Gebler. 1876-9. [8234] Marini. 1850. [8235] Wegg-Prosser. 1889. [13385] Plana. 1858. [SS 1116-17] Grassi. 1619-26. [SS 1242] Polacco. 1644. [SS 1271-2] Riccioli. 1651.
- GALLIC ACID: [14697] Scheele. 1786. SS 2446] Boyle. 1667.

- GALLS, CHEMISTRY OF: [3142. 12247] Mulder. 1847.
- GALVANISM — *v. Electricity (Galvanic).*
- GALVANOMETER: [92] Ampère. 1826.
- (BALLISTIC): [13078] Pierce. 1909.
- GAMES OF CHANCE: [3059] Montfort. 1708. [3811] Proctor. 1887. [4100] Rouse. 1814. [4263-4] Schooten. 1659-60. [4631] Storms. 1635. [6149-50] Bernoulli (Jacques). 1713. [6675] Calcul. 1739. [6916-17] Clark. 1758. [15699] Babbage. 1820.
- GARNET: [13360] Pisani. *s. d.*
- GAS ANALYSIS: [422] Bischof. 1824. [610] Brown. 1883. [643] Bunsen. 1857. [1524] Gill. 1896. [1803] Hartley. 1879. [2280] Kershaw. 1907. [5193] Wanklyn and Cooper. 1890. [6540] Brown. 1883. [6607-8] Bunsen. 1857-77. [8357] Geppert. 1885.
- ENGINEERING: [1469] Gas Institute. 1877-1902. [8280] Gas Engineers (Institution of). 1891-1910. [8281] Gas Engineers (Association of). 1883-1909. [8282] Gas Institute. 1870-92. [12458-60] Newbigging. 1870-1913. [12687] Nisbet-Latta. 1907.
- *v. Producer Gas. Water Gas.*
- ENGINES — *v. Engines (Gas).*
- FIRING: [6660] Cabrol. 1837. [11405] Marchis. 1906. [13774] Putsch. 1901.
- FITTING: [6247] Black. 1886.
- LIGHTING: [18-20. 22-4] Accum. 1815-20. [2904] Matthews. 1832. [3343] Nodier. 1823-4. [3519] Peckston. 1823. [3526] Pelouze et Audouin. 1878. [4250] Schilling. 1879. [5629-30. 5632-4] Accum. 1816-20. [5707] Aldini. 1823. [7280] Dibdin. 1902. [7485] Electric and Gas Exhibition. 1884. [8192] Fyfe. 1842. [8283] Gas Lighting. 1849-96. [9476] Gas Lighting. *v. y.* [10765] Lewes. 1897. [11594-5] Matthews. 1827-32. [12294-7] Murdock. 1808-9. [13042-4] Peckston. 1819-41. [13060] Pécelet. 1827. [14608. 14610] Rutter. 1833-49. [15483] Webber. 1907.
- *v. Acetylene. Coal Gas.*
- (INCANDESCENT): [9476] Hospitalier. *v. y.* [9659] Incandescent Gas Light Co. 1896. [S 3066] Johnstone. 915.
- MIXTURES, CONDENSATION OF: [10313-14. 10318] Kuenen. 1892-5.
- WORKS: [6432] Brackenbury. 1905. [8284] Gas Works Directory. 1909. [9537] Hughes. 1853. [S 3015] Colyer. 1884.
- GASES (ATMOSPHERIC): [3885] Ramsay. 1896. [10895-6] Livinge. 1900-1.
- *v. Air. Argon. Krypton. Nitrogen. Oxygen.*
- CHEMISTRY OF: [2417] La Méthérie. 1785. [3784] Pringle. 1774. [3789-95. 3797] Priestley. 1772-90. [4231] Scheele. 1785. [4384] Sigaud de la Fond. 1779. [5062] Viero. 1788. [10594-7. 10606] Lavoisier. 1776-1834. [13654-8. 13669-70] Priestley. 1772-90. [14699] Scheele. 1785. [14860] Sigaud de la Fond. 1779.
- *v. Occlusion.*
- ELECTRICITY IN — *v. Electricity in Gases.*
- IONISATION OF: [14221] Richardson. 1906.
- ISOTHERMALS OF: [10019] Keesom. 1903.
- KINETIC THEORY OF: [2974] Meyer. 1877. [5238-9] Watson. 1876-93. [8556] Graham. 1846-9. [8889] Hausemann. 1871. [8913. 8925] Harper's Scientific Memoirs. 1898-1902. [9316] Hirn. 1886. [9430] Hooke. 1678. [11430-3] Mariotte. 1717-40. [11743] Mémoires. 1807-17. [11816] Meyer. 1899. [16976] Byk. 1910. [17271] Watson. 1893. [17320] Meyer.
- GASES, KINETIC THEORY OF, *continued*:
1899. [S 1724] Boltzmann. 1902-5. [S 1763] Burbury. 1899. [S 1931] Graham. 1863. [S 2016] Jeans. 1904. [S 2114] Meyer. 1899. [S 2349] Tait. 1886-91.
- *v. Radiometry. Vapour Densities. Vapour Pressure. Viscosity.*
- LAWS OF: [540] Boyle. 1662. [2823-9] Mariotte. 1717-40. [6424] Boyle. 1662. [8917] Harper's Scientific Memoirs. 1899. [11430-3] Mariotte. 1717-40.
- LIQUEFACTION OF: [1288. 7769-71] Faraday. 1823-59. [11524] Marum. 1899.
- *v. Air (Liquid). Carbon Dioxide, L. of. Critical Point. Oxygen (Liquid).*
- PHYSICAL PROPERTIES OF: [12767] Nystrom. 1876.
- *v. Pneumatics.*
- POLARIZATION STRESS IN: [15120] Stoney. 1878.
- PRESSURE OF — *v. Manometers.*
- PURIFICATION OF: [11979] Moissan. 1906.
- SPECTRA OF — *v. Spectra of G.*
- THERMAL CONDUCTIBILITY OF: [3794-5. 13655-7] Priestley. 1790.
- THERMODYNAMIC PROPERTIES OF: [6680] Callendar. 1900.
- GATES AND WICKETS: [12958] Parker. 1801. [13722] Prony. 1836.
- GAUGING: [2273] Kepler. 1615. [3120] Moss. 1779. [3577-9] Philipps. 1656-76. [3618] Pickering. 1710. [5210] Ward (G.). 1693. [5212-15] Ward (J.). 1719-62. [5537] Wybard. 1650. [5759] Anderson. 1668-9. [7543] Emerson. 1770. [7602] Estienne. 1601. [7714-15] Everard. 1721-7. [9047-50] Hawney. 1730-75. [9848] Jonas. 1806. [10622-3] Leadbetter. 1766-76. [13203] Philipps. 1721. [13827] Raedts. 1580. [14840] Shirecliffe. 1740. [15458-9] Ward. 1713-24. [SS 222] Beyer. 1603. [SS 347] Dansie. 1627. [SS 403] Everard. 1684. [SS 437-8] Galignair. 1615-55.
- ROD: [S 512-14] Hulsius. 1603-15.
- GAUSS'S ANALOGIES: [1489-90] Gauss. 1800-57.
- GELATINE: [762] Charpentier. 1890. [7869] Fernbach. 1907.
- GEMS (ARTIFICIAL): [431] Blancourt. 1699. [12419] Neri. 1668. [13518-24] Porta. 1589-1658. [S 3006] Blancourt. *fs. of* 1699.
- GENERAL AND COLLECTED WORKS ON SCIENCE: [134] Arago. 1854-7. [143-50] Archimedes. 1544-1897. [205-9] Bacon. 1737-1883. [519-22] Boyle. 1725-44. [584] Bridgewater Treatises. 1833-7. [683] Cardano. 1663. [964-5] Davy. 1839-40. [1019-22] Descartes. 1664-1826. [1067] Diverses Ouvrages. 1693. [1399-1402] Franklin. 1806-82. [1419] Fresnel. 1866-70. [1422-3] Frisi. 1782-3. [1835-8] Galilei. 1656-1856. [1458] Galvani. 1841-2. [1472] Gassendi. 1727. [1640] Greaves. 1737. [1700] Guglielmini. 1719. [1945] Hobbes. 1668. [1980] Hooke. 1705. [2056-61] Huygens. 1703-1905. [2195] Joule. 1884-7. [2241] Kelvin. 1882-90. [2259] Kepler. 1858-71. [2429] Lansberg. 1663. [2434] Laplace. 1802-29. [2458] Lardner. 1854-6. [2489] Lavoisier. 1864-8. [2531] Leibniz. 1768. [2698] Lorenz. 1904. [2720-1] Lullius. 1598-1617. [2828-9] Mariotte. 1717-40. [2907] Maupertuis. 1756. [3233] Newton (Sir I.) 1779-85. [3304] Newton (J.). 1693. [3473-4] Pascal. 1779-1882. [3658] Playfair. 1822. [3892] Rankine. 1881. [3982] Reynolds.

GENERAL AND COLLECTED WORKS ON SCIENCE,

continued:

- 1900-3. [3988] Riccati. 1761-6. [4043] Robins. 1761. [4047-8] Robison. 1822. [4052] Rohault. 1682. [4128-30. 4135] Rumford. 1796-1876. [4154] Ryland. 1768. [4240] Scheibler. 1685. [4583-4] Stevinus. 1608-84. [4743] Tartaglia. 1606. [5054] Verdet. 1868-72. [5126-8] Volta. 1816. [5338] Wheatstone. 1879. [5409-10] Wilkins. 1708-1802. [5570-1] Young. 1855. [5588] Zanotti. 1818. [5804] Arago. 1854-62. [5813-19] Archimedes. 1675-1808. [5913] Bacon. 1750. [6360] Boscovich. 1785. [6401-3] Boyle. 1725-72. [6552-3] Bruno. 1830-86. [6718-19] Cardano. 1663. [7194] Davy. 1839-40. [7249-52. 7257-8] Descartes. 1644-1844. [7609-10] Euclides. 1703-1899. [7930] Fitzgerald. 1902. [8120-4] Franklin. 1773-1819. [8157] Fresnel. 1866-70. [8200-4] Galilei. 1656-1909. [8500] Goethe. 1862. [8548] Graham. 1876. [8614-15] Greaves. 1737. [9119-22] Helmont. 1652-62. [9247] Hertz. 1896. [9337-9] Hobbies. 1668-1845. [9622-5] Huygens. 1703-1910. [9919] Joule. 1884-7. [10066-7] Kelvin. 1882-1911. [10096] Kepler. 1858-71. [10169] Kircher. 1680. [10177] Kirchhoff. 1882. [10456] Lana. 1684-92. [10695. 10697-8] Leibniz. 1768-1903. [11430-3] Mariotte. 1717-40. [11668] Maxwell. 1890. [12496-500] Newton. 1744-85. [12996] Pascal. 1864-5. [13046] Pearson. 1768-1800. [13136-7] Perrault. 1721. [13413] Playfair. 1822. [13890] Rankine. 1881. [14156-8] Riccati. 1757-62. [14577-9] Rumford. 1797-1802. [14844] Siemens. 1888-9. [15020] Stas. 1894. [15076-7] Stevinus. 1608-34. [15105-6] Stokes. 1880-1905. [15516] Wheatstone. 1879. [15553] Wilkins. 1708. [15614] Adams. 1896-1900. [16877] Laplace. 1843-7. [S 215] Abbe. 1904-6. [S 225-6] Archimedes. 1880-1. [S 251] Boyle. 1699. [S 263] Darwin. 1911. [S 291] Foucault. 1878. [S 299] Fermat. 1891-1912. [S 308] Gibbs. 1906. [S 337] Hero Alexandrinus. 1899-1900. [S 385] Rayleigh. 1899-1912. [S 406] Thomson. 1912. [S 2102] Macculagh. 1880. [SS 10. 13-15] Archimedes. 1558-1824. [SS 69] Gauss. 1870-1906.

GEODESIC TORSION: [11580] Mathews. 1894.

GEODESICS, THEORY OF: [1256] Euler. 1741. [6151-2] Bernoulli (Jean). 1742. [10883] Liouville. 1844.

GEODESY: [223] Baeyer. 1873. [713] Cassini. 1792. [808] Clarke. 1880. [1341] Fischer. 1845-6. [1603] Gore. 1889. [2607] Liagre. 1879. [2764] Maclear. 1851. [2907] Maupertuis. 1756. [3859] Puissant. 1819-27. [4483] Snell van Royen. 1627. [4691] Svanberg. 1805. [4912] Topping. 1788. [5463] Wolf. 1870-2. [5515] Wright. 1884. [6368] Bouguer. 1749. [6598] Bugge. 1794. [6639] Burrard. 1901. [762-3] Cassini de Thury. 1744-63. [6919] Clarke. 1867. [7716] Everest. 1839. [8087-8] Francœur. 1835-79. [9949] Juan et Ulloa. 1752. [10284] Kortazzi. 1871. [10364] La Condamine. 1751-4. [11544-5] Maskelyne. 1787. [12244-5] Mudge. 1804. [12353] Narrien. 1845. [12416] Nell. 1884. [13752] Pucci. 1886. [13763] Puissant. 1842. [14561] Rubin. 1903. [14961] Snell. 1617. [16857] Helmert. 1880-4. [16879] Laska. 1894. [S 1625] Wallace. 1839.

— *v. Earth, Figure of the. Meridian. Pothenet's Problem.*

GEODETIC INSTITUTES' PUBLICATIONS: [S 72] Erdmessung (Internationale). 1897-1906. [S 77] Geodätisches Institut. 1872-1908. [S 87] Gradmessung (Europäische). 1882-95. [S 88] Gradmessungs-Bureau. 1889-1907.

GEODETIC OBSERVATIONS: [416] Biot. 1821. [712] Cassini. 1693.

— SURVEYS: [8415-19] Gill. 1806-1908. [11240] Maclear. 1866.

GEODYNAMICS: [6697] Campbell. 1865. [17123] Love. 1911. [S 2509] Earth's Crust. 1839-75.

GEOGRAPHICAL CONGRESSES: [8353] Geographical Congress. 1896.

— DETERMINATION OF PLACES: [3209-10] Neumayer. 1838-1906. [5452] Wislicenus. 1891. [6271] Blim. 1899. [7000] Comstock. 1905. — *v. Explorer's Science. Latitude. Longitude.*

GEOGRAPHY (MATHEMATICAL AND PHYSICAL): [463] Bonney. 1896. [637] Buff. 1851. [1343] Fisher. 1881. [1504] Geographical Science. 1852-9. [1810] Houghton. 1880. [1900] Herschel. 1861-7. [2055] Huxley. 1882-90. [2813] Manual. 1852. [3394] Orr. 1860. [3553] Petermann. 1850. [3884] Ramsay. 1872. [3915] Reade. 1903. [4358] Shaler. 1890. [4511] Somerville. 1849. [4693] Swan. 1665. [4846-7] Thornton. 1890-2. [5121] Vogt. 1901. [5496-8] Woodward. 1695-1726. [5627] Abulfeda. 1650. [6092] Bequerel. 1847. [6136] Berger. 1889-93. [6316-17] Bonney. 1893-6. [7025] Corro. 1725. [7297] Digby. 1902. [7546] Emerson. 1770. [8328] Geikie. 1877. [8462] Glaireanus. 1536. [8754] Günther. 1897-9. [9167] Herbinus. 1678. [9366] Hoffmann. 1821. [9618] Huxley. 1877. [9832] Johnston. 1848-54. [9996-7] Kant. 1802-17. [10454] Lamont. 1843. [11903] Milner. 1846. [12075] Morgan. 1898. [13090] Pemble. 1630. [13195] Pfaff. 1877. [13865-6] Ramsay. 1878-94. [13929] Ratzel. 1901-2. [13957] Reclus. 1877. [14167-8] Riccioli. 1661-72. [14869] Simmons. 1897. [15376] Varen. 1681. [16862] Himmel und Erde. 1908-9. [17389] Davis. 1912. [17390] Günther. 1890. [17395] Penck. 1894. [17396] Peschel. 1884-5. [17397] Rudzki. 1911. [S 1678] Bacon. 1614. [S 2585] Supan. 1896. [SS 2363] Suess. 1903-5.

— *v. Coast Erosion. Cosmography. Denudation. Earth. Geodynamics. Geology (Physical). Glacier Theory. Lakes. Mountains. Degradation of. Oceanography. Orography. Rivers. Sedimentation. Snow Line. Springs. Valleys.*

— PARADOXES: [4038] Robertson. 1897. [14337] Robertson. 1908.

GEOLOGICAL COLLECTIONS: [10898] Lobanoff. 1897.

— CYCLES: [13867] Ramsay. 1880.

— DEPOSITION: [15112] Stoney. 1899.

— ESSAYS AND LETTERS: [2035] Hunt. 1875. [2054] Hutton. 1792. [10204-5] Kirwan. 1799. [1810] Meyer. 1858.

— FAULTS: [12818] Olver. 1911.

— JOURNALS: [1505] Geological Society. 1845-1905. [8341] Geological Magazine. 1864-1911. [8342-3] Geological Record. 1875-81. [8344-9] Geological Society. 1811-1911. [8350] Geological Society (Manchester). 1841-1901. [8355] Geologist. 1858-64. [9728] Jahrbuch der kgl. preuss. geologischen Landesanstalt. 1883. [9990] Kansas. 1896-9. [10901] Liverpool Geological Society. 1861-85. [11336] Manchester Geological Society. 1841-1901. [15510] Wernerian Natural History Society. 1811-32. [S 86] Geologists' Association. 1873-1915. [SS 3264] Geological Survey of Gt. Britain. 1846-1913.

— MAPS AND ATLASES: [14136] Reynolds. 1889. [15388] Verneuil et Collomb. c. 1865.

*** *An important collection of such maps will be found in Messrs. Sotheran's Bibliotheca Viatica.*

— PARADOXES: [13976] Reddie. 1865.

- GEOLOGICAL SURVEYS: [11749-50] Mondenhall. 1902-3. [15365] U.S. Geological Survey. 1869-79.
- THEORIES: [3158] Murray. 1802. [9273] Higgins. 1833. [9432] Hooke. 1705. [11170] Macculloch. 1831. [11298-9] Maillet. 1750. [11324] Mallett. 1872-4. [SS 2226] Aubuisson de Voisins. 1814. [SS 2361-2] Steno. 1669. [SS 2381] Whitehurst. 1778-86. [SS 2395-8] Woodward. 1695.
- *v. Earth, Theories of the.*
- TRAVELS: [11126] Lyell. 1845-9.
- GEOLOGY (AGRICULTURAL): [17309] Johnston. 1894.
- (CHEMICAL): [8005-8008] Forbes. 1868. [8815-16] Hall. 1805.
- *v. Hydrogeology.*
- (ELEMENTARY): [11110-11, 11115-6, 11125] Lyell. 1851-78. [11185] Macgillivray. 1840. [11364] Mantell. 1844. [12915-16] Page. 1867-72. [13210, 13218] Phillips. 1838-64. [13242] Phillips. 1818. [14783] Scott. 1897. [15278] Thomson. 1836.
- (EXPERIMENTAL): [S 3213] Daubrée. 1879.
- (FIELD): [13093] Penning. 1876.
- (GENERAL): [631] Buckland. 1858. [1505] Geological Society. 1845-1905. [1506] Geological Survey of Gt. Britain. 1846-89. [2298-9] Kircher. 1665-78. [2339-40, 2342] La Beche. 1824-51. [3583] Phillips. 1885. [3766] Prestwich. 1886. [4573-5] Stensen. 1667-1904. [5026] Ure. 1829. [5120] Vogt. 1879. [6584-5] Buckland. 1820-36. [8324-7] Geikie. 1882-92. [8621-2] Green. 1876-82. [8641] Greenough. 1819. [8784] Hague and Emmons. 1877. [8971-2] Harrison. 1882-97. [9952-4] Jukes. 1871-90. [10071-3] Kelvin. 1891-4. [10165-7] Kircher. 1665-78. [10350-4, 10356] La Beche. 1824-63. [10513] Lapworth. 1899. [10668] Lee. 1881. [11117-23] Lyell. 1830-75. [12389] Handwörterbuch der Mineralogie, etc. 1882-7. [12920] Omalius d'Halloy. 1835. [13215-16] Phillips. 1855-85. [13350] Pinto d'Almeida. 1838. [13623] Prestwich. 1886-8. [15033] Stensen. 1671.
- *v. Denudation. Deposition.*
- (HISTORICAL): [7087] Croll. 1875. [9087-8] Heer. 1865-76. [9520] Howorth. 1893. [9955] Jukes-Browne. 1886. [10118] Kerp. 1900. [10656] Lecoq. 1847. [11112-14] Lyell. 1863.
- *v. Alluvium. Geological Cycles. Glacier Theory. Palæontology. Scenery.*
- (PHYSICAL): [8621-2] Green. 1876. [9956] Jukes-Brown. 1892. [10066] Kelvin. 1882-1911.
- *v. Geography (Mathematical and Physical). Hydrogeology.*
- (POPULAR): [1074] Donaldson. 1855. [8385] Giberne. 1894. [9580] Hutchinson. 1890. [11368] Mantell. 1848. [11858-61] Miller. 1857-9. [11903] Milner. 1846. [15191] Symonds. 1872.
- (PRACTICAL): [648] Burr. 1838. [840] Cole. 1893. [4740] Tarr. 1894. [13868] Ramsay. 1852. [S 3200] Cole. 1909. [SS 2665] Brard. 1824.
- *v. Coal Fields. Mining Geology. Prospecting.*
- (STRATIGRAPHICAL): [1373] Forster. 1821. [4573-5] Stensen. 1667-1904. [5391-2] Whitehurst. 1778-86. [8817-18] Hall. 1813-25. [9957] Jukes-Browne. 1912. [10856] Limbird. 1786. [13842] Ramond. 1895. [14502] Roth. 1890. [14799-800] Sedgwick. 1822-8. [15033] Stensen. 1671. [15551] Williams. 1810.
- *v. 'Cone-in-Cone' Structures. Geological Faults. Metamorphism. Mineral Veins. Sedimentation. Silurian System.*
- GEOLOGY (TOPOGRAPHICAL): [2341] La Beche. 1839. [4547] Spratt. 1854. [7815] Favre. 1867. [7927-9] Fitton. 1833-6. [9055] Hayden. 1869. [9139] Hennah. c. 1820. [9346-7] Hochstetter and Petermann. 1864. [9394] Holdsworth. 1857. [9540-2] Hull. 1857-96. [10355] La Beche. 1839. [10435] Lambert. 1873. [10831] Liais. 1872. [11107] Lycett. 1857. [11166] Macculloch. 1819. [11172] McClelland. 1835. [11362-3, 11367] Mantell. 1833-54. [11822] Miall. 1878. [11934-5] Minnesota Geological and Natural History Survey. 1884-95. [12284] Murchison. 1834. [12455] New Jersey. 1880. [12808] Ohio Geological Survey. 1873. [12952-3] Park. 1908-10. [13091] Pengelly. 1862. [13212-14] Phillips (J.). 1829-75. [13243] Phillips (W.). 1818. [13536] Portlock. 1843. [13542] Porter. 1861. [13842] Ramond. 1895. [13863, 13865-6, 13869] Ramsay. 1841-94. [13882] Rance. 1890. [15189] Sykes. 1836. [15315] Topley. 1875. [SS 3264] Geological Survey of Gt. Britain. 1846-1913.
- (WATER SUPPLY)—*v. Water Supply G.*
- , HISTORY OF: [2017] Hull. 1887.
- AND TERRESTRIAL MAGNETISM: [9441] Hopkins. 1844.
- AND THEOLOGY: [5498] Woodward. 1726. [6584-5] Buckland. 1820-36. [8540] Gosse. 1857. [9328] Hitchcock. 1851. [11861] Miller. 1857.
- GEOMETRICAL CONSTRUCTIONS, THEORY OF: [15660] Adler. 1906. [16477-8] Petersen. 1879-92. [16746] Vahlen. 1911.
- DEFINITIONS: [15760] Bonnel. 1870-4.
- DRAWING: [517] Bradley. 1861. [3984] Rheims. 1865. [4049] Robson. 1886. [7816] Fawdry. 1901. [8356] Geometrical Draughtsman. 1892. [15923] Delaistre. 1894. [16056] Glaeser. 1900. [16394] Minifie. 1903. [16519] Rheims. 1865. [16666] Spanton. 1895. [16797] Wilson. 1903.
- *v. Isometrical D. Mathematical Drawing.*
- , LAWS OF: [16596] Schoenflies. 1908.
- ESSAYS AND MEMOIRS: [2812] Mannheim. 1867-77. [5647-9] Adams. 1791-1803.
- FIGURES: [334-5] Bennett. 1837-8. [4247-8] Schemata. 1806-44. [7670] Euclid (Cowley). c. 1768. [11420] Marie. 1835.
- , INTERDEPENDENCE OF: [SS 860] Steiner. 1832.
- , TRAVERSING OF: [S 1328] Wilson. 1905.
- INSTRUMENTS: [9546] Hunäus. 1864. [14765] Schwenter. 1616-18. [16171] Hunäus. 1864. [SS 420] Faulhaber. 1610. [SS 871] Suardi. 1752.
- *v. Compass of Proportion. Conic I. Cyclometer. Goniometer. Helicoidal Apparatus. Horizontal I. Mathematical I. Quadrat. Square. Surveying I.*
- LECTURES: [6947] Clebsch. 1879-80. [15876] Clebsch. 1875-91.
- METHODS: [4344] Serret. 1855. [6830-1] Chasles. 1839-75. [16521] Richard. 1900. [16644] Serret. 1855.
- PARADOXES: [1946-51] Hobbes. 1656-72.
- *v. Circle Squaring. Duplication of the Cube. Perspective P. Trisection of an Angle.*
- PROBLEMS AND EXERCISES: [434-5] Bland. 1827-42. [734] Cavalieri. 1647. [2411] Lamé. 1818. [3438] Palliser. 1871. [3858] Puissant. 1824. [4167] Saccheri. 1693. [4528] Speidell. 1617. [4552] Stainville. 1809. [4698] Swinden. 1786. [5110-11] Viviani. 1677-92. [5745] Amiot.

GEOMETRICAL PROBLEMS AND EXERCISES, *continued* :

1877. [7247] Desboves. 1875. [8285-6]
 Gaskin. 1847. [11382] Marchetti. 1675. [14567]
 Rudd. 1650. [14734-5] Schooten. 1657.
 [14881-2] Simpson. 1755-67. [14989-91]
 Speidell. 1616-27. [15078] Stevinus. 1583.
 [15670. 15673-4] Amiot. 1873-97. [15694-5]
 Aubert et Papelier. 1908-10. [15850-1]
 Catalan. 1872-9. [15863] Charruit. 1897.
 [15911] Dalle. 1912. [15928-9] Desboves.
 1870-5. [16035-6] G.-M. 1896-1912. [16325]
 Lormeau et Merlet. 1909. [16340] McDowell.
 1892. [16477-8] Petersen. 1879-92. [16511-12]
 Reidt. 1894-7. [16529-31] Ritt. 1857-73.
 [16803] Wright. 1865. [SS 926] Viviani. 1674.
 — *v. Inclinations (Problem of).*

— SOLUTIONS, METHODS OF : 16262] Lamé, 1818.

GEOMETROGRAPHY : [10712] Lemoine. 1902.

GEOMETRY (ALGEBRAIC) : [81] Algebra. 1843. [504]

- Bourdon. 1837. [1069] Dodgson. 1860. [2459-60]
 Lardner. 1825-31. [5274-5] Waud.
 1835. [6220] Billy. 1643. [6381] Bourdon.
 1837. [9703] Jacob. 1854. [13753] Puckle.
 1868-1903. [14275] Ritt. 1836-7. [15390]
 Viète. 1646. [15877] Clement-Jones. 1912.
 [16505] Puckle. 1870. [16529] Ritt. 1857.
 [16771] Weitzel. 1910.

— (ANALYTICAL) : [408-9] Biot. 1813-23. [588]

- Briggs. 1891. [593] Briot et Bouquet. 1864.
 [698-9] Carnot. 1806. [832] Comberousse.
 1862. [1023-4] Descartes. 1649. [1375] Fort
 und Schölmilch. 1855. [1661-3] Gregory.
 1845-52. [1760] Hamilton. 1826. [1912]
 Hesse. 1861. [2069-70] Hymers. 1830-6.
 [2549-51] Leroy. 1829-39. [2558-9. 2565]
 Leslie. 1809-21. [2684] Loney. 1904. [2746]
 Macdonald. 1890. [3048] Monge. 1840. [3175]
 Narrien. 1846. [3361] O'Brien. 1844. [3382]
 Olney. 1884. [4186-7] Salmon. 1862-82.
 [4237] Scheffers. 1901-2. [4305] Scott. 1853.
 [4908] Todhunter. 1874. [4954] Turnbull.
 1867. [5137] Vyvyan. 1870. [5184-5] Wallis.
 1657. [5501-2] Woolhouse. 1831-45. [6224]
 Biot. 1843. [6507] Briot et Bouquet. 1878.
 [7256. 7259-61] Descartes. 1637-1886. [8665-
 7] Gregory and Walton. 1845-52. [8677]
 Grelle. 1861. [8854-6] Hamilton. 1827-38.
 [9641] Hymers. 1836-48. [10517] Lardner.
 1827. [10678-9] Lefebure de Fourcy. 1846-71.
 [10730] Leroy. 1843. [10743. 10747] Leslie.
 1811-21. [10990-1] Loney. 1895-6. [12017]
 Monge. 1807. [12775] O'Brien. 1844. [1646-
 8] Salmon. 1865-82. [14734-5] Schooten.
 1657. [15025] Staude. 1905. [15164] Sturm.
 1700. [14541] Wallis. 1656. [15710] Baltzer.
 1882. [15722] Bell. 1910. [15769-70] Boset.
 1878-81. [15779] Bowser. 1905. [15791-3] Briot
 et Bouquet. 1864-90. [15840-1] Carnoy. 1899-
 1905. [15883-5] Combetti. 1896-1901. [15898]
 Cranz. 1891-4. [15960] Dziobek. 1900. [16009-
 11] Fort. 1886-1904. [16043] Ganter and
 Rudic. 1901-6. [16116] Heffter and Koehler.
 1905. [16117] Heger. 1908. [16131-4] Hesse.
 1869-1906. [16199] Kaiser. 1887. [16209]
 Killing. 1900-1. [16271] Laurent. 1906.
 [16314] Loney. 1906-12. [16317] Longchamps.
 1884. [16328] Lübsen. 1908. [16335] Lutz.
 1909. [16341-3] Macé de Lépinay. 1898.
 [16432] Neuberg. 1908. [16447-8] Niewen-
 glowski. 1894-1914. [16464] Papelier. 1907.
 [16485] Picquet. 1882. [16498-9] Prediger.
 1878. [16503] Pruvost. *s.d.* [16540] Runge.
 1908. [16531-2] Salmon. 1882-1915. [16570]
 Schendel. 1874. [16590] Schlotzke. 1891.
 [16619] Schur. 1912. [16622] Schurig. 1898.
 [16645-6] Simon. 1900-1. [16663-5] Sonnet et
 Frontera. 1889-1908. [16677-8] Staude.
 1905-10. [16717] Thompson. 1914. [16736]

GEOMETRY (ANALYTICAL), *continued* :

- Todhunter. 1874. [16739] Tresse et Thybault.
 1904. [S 543] Casey. 1885.
 — *v. Conic Sections (Analytical). Co-ordinate
 Systems.*
 — — —, MODERN IDEAS IN : [16628] Scott. 1894.
 — — — : PROBLEMS AND EXERCISES : [5204]
 Walton. 1851. [14290] Roberts. 1884. [15804]
 Brisse. 1892. [16069] Graefe. 1885-90. [16148]
 Hochheim. 1886-99. [16197] Jubé. 1866.
 [16235] Kochler. 1886-8. [16318-19] Long-
 champs. 1898-9. [16345] Magnus. 1837.
 [16384] Michel. 1900. [16408-9] Mosnat. 1894-
 1910. [16414] Müller. 1890. [16514] Rémond.
 1891-8. [16531] Ritt. 1859. [16763] Walton.
 1851.

— (CROSS-RATIO) : [16388] Milne. 1911.

— (DESCRIPTIVE) : [852] Comberousse. 1862.

- [2372-3] La Gournerie. 1862-85. [2552] Leroy.
 1834. [3049-50] Monge. 1827-38. [7120]
 Cunningham. 1868. [7453] Edgar and Pritchard.
 1880. [7882] Fiedler. 1871. [10208] Klekler.
 1877. [10374] Lacroix. 1829. [10389] La
 Gournerie. 1860-4. [10731] Leroy. 1850.
 [11354] Mannheim. 1886. [12019] Monge.
 1827. [12779] Oeagne. 1896. [15672] Amiot.
 1869. [15683] Antomari. 1904. [15725-6]
 Bernhard. 1905-9. [15785] Breithof. 1875.
 [15802-3] Briot et Vacquant. 1881-7. [15842]
 Caron. 1895-1901. [15863] Charruit. 1897.
 [15873] Chomé. 1898-1904. [15992] Fiedler.
 1883-8. [16001] Follows. 1908. [16037]
 G.-M. 1893. [16049] Geyger. 1906. [16082]
 Gugler. 1880. [16143] Hjelmlev. 1914. [16183]
 Javary. 1893. [16193] Jurisch. 1883. [16206]
 Kies. 1881-2. [16255] La Gournerie. 1880-
 1901. [16283] Lebon. 1882-1901. [16288]
 Lefebure de Fourcy. 1881. [16294] Leroy.
 1888. [16324] Loria. 1913. [16357] Marc.
 1907. [16454] Oeagne. 1896. [16458] Olivier.
 1843-70. [16534] Rohn und Papperitz. 1901-6.
 [16592] Schlotke. 1896-1905. [16594] Schmehl.
 1899. [16606] Schröder. 1901. [16612] Schubert.
 1899. [16698] Sturm. 1900. [16748] Vallois.
 1909. [16791] Wiener. 1884-7. [16796] Wilson.
 1909. [SS 548] Lambert. 1774.

— (DIFFERENTIAL) : [4237] Scheffers. 1901-2.

- [15738-9] Bianchi. 1899-1910. [15811] Burali-
 Forti. 1897. [15969] Eisenhart. 1909. [16004]
 Forsyth. 1912. [16212] Klein. 1907. [16304]
 Lillienthal. 1908-13. [16404] Moore, etc. 1910.
 [16704] Tannenber. 1899. [16717] Thompson.
 1914. [16792] Wilczynski. 1906.

— (ELEMENTARY) : [334] Bennett. 1838. [718]

- Catalan. 1866. [857] Compagnon. 1868.
 [1615] Grandi. 1792. [1940] Hirsch. 1827.
 [2355-6] Lacroix. 1848-72. [2463] Lardner.
 1840. [2546] Lens. 1565. [3456-7] Pardies.
 1683-1705. [3497] Payne. 1768. [3659-61]
 Playfair. 1819-75. [3981] Reynolds. 1868.
 [4026] Rivard. 1738. [4099] Rouché. 1866.
 [4717] Tacquet. 1672. [5237] Watson. 1871-2.
 [5560] Young. 1833. [5745. 5747] Amiot. 1865
 -73. [6318] Bonycastle. 1818. [6365] Bossut.
 1808-9. [10670] Lees. 1826. [11330] Malton.
 1774. [11493] Martin. 1739. [11614] Mauduit.
 1773. [12411] Navigation. 1772. [13174] Petri.
 1591. [14219] Richardson and Ramsey. 1894.
 [14509-10] Rouché et Comberousse. 1873-83.
 [14833] Sfortunati. 1534. [15669-71. 15673-4]
 Amiot. 1865-97. [15680] André. 1906. [15801]
 Briot et Vacquant. 1884. [15886] Combetti.
 1903. [16033] G.-M. *s.d.* [16090] Hadamard.
 1906. [16097] Haller. 1906. [16123-5] Henrici
 et Treutlein. 1882-1901. [16216] Klein. 1895.
 [16371] Moray. 1906. [16741] Vacquant et
 Macé. 1904. [SS 251] Burckhard. 1687.

GEOMETRY (ENUMERATIVE): [16613] Schubert. 1879.

— *v. Characteristics, Method of.*

— (EUCLIDEAN): [83] Alingham. 1700. [921] Cuthbertson. 1874. [1011] Denison. 1840. [1194–1242] Euclid. *v. y.* [3911] Recorde. 1551. [4152–3] Ryff. 1621–65. [4718–19] Tacquet. 1725–8. [4883] Todhunter. 1888–99. [6015] Barrow. 1678. [6202] Besson. 1571. [7609–77] Euclides. *v. y.* [11519] Martin. 1874. [12118] Morgan. 1848. [12224] Moxon. 1677. [13079] Peletier. 1557. [13414–7] Playfair. 1804–36. [13688–91] Proclus. 1560–1792. [14026] Reisch. 1512. [14430] Rondelli. 1719. [15978] Euclid. 1824. [16449–50] Nixon. 1899–1901. [S 542] Casey. 1882–8.

— *v. Euclid vindicated. Pythagorean Theorem.*

— —, BIBLIOGRAPHY OF: [14153] Riccardi. 1887–93.

— (FOUR-DIMENSIONAL): [15809] Brückner. 1894. [16195–6] Jouffret. 1903–6. [16352] Manning. 1914.

— *v. Fourth Dimension.*

— (GENERAL): [160–1] Arnauld. 1683–1711. [335] Bennett. 1837. [989] Deidier. 1739. [1056–7] Digges. 1571–91. [1129] Dürer. 1606. [1620] Grandi. 1741. [3114] Morton. 1830–8. [3964–5] Renaldini. 1670. [4254] Schmid. 1539. [5986–7] Barlow. 1825. [6438] Bradwardine. 1495. [7286–8] Digges. 1571–91. [12232] Moya. 1573. [13886–7] Ramus. 1599–1636. [15911] Dalle et Waele. 1912. [16055] Girod. *s.d.* [16083] Guichard. 1899–1903. [16120] Heis und Eschweiler. 1881–8. [16535–7] Rouché et Comberousse. 1891–1900. [16661] Sondendorfer. 1877–83. [SS 347] Dansie. 1627.

— (GREEK): [4742] Tannery. 1887. [8173] Fryer. 1811. [S 424] Allman. 1889. [S 1218–19] Stewart. 1763.

— (HIGHER)—*v. Geometry (Synthetic).*

— (INFINITESIMAL): [12779] Ocagne. 1896. [16185] Joachimsthal. 1881. [16260] Lamarle. 1861–3. [16454] Ocagne. 1896. [16564] Scheffers. 1901–2. [S 630] Demartres. 1913.

— (META)—[16356] Mansion. *c.* 1895.

— (MODERN)—*v. Geometry (Synthetic).*

— (NATURAL): [15859] Cesàro. 1901.

— (NON-EUCLIDEAN): [8843–5] Halsted. 1899–1905. [12482] Newman. 1841. [15889] Coolidge. 1909. [15975] Engel und Stäckel. 1898–1913. [16021–2] Frischau. 1872–6. [16101] Halsted. 1899–1904. [16176] Issaly. 1902. [16200] Karagiannides. 1893. [16210] Killing. 1885. [16214] Klein. 1893. [16301] Liebmann. 1905. [16353] Manning. 1901. [16660] Sommerville. 1914.

— *v. Parallels (Theory of).*

— (PICTORIAL): [1234] Euclid. 1847. [6128] Bennett. 1837.

— (PLANE): [2569] Leslie. 1828. [6613] Burchett. 1875. [14873–5. 14891] Simpson. 1747–1821. [15682] Angel. *n. d.* [15781] Boyman. 1901–6. [15959] Durell. 1909–10. [16229] Kleyer und Sachs. 1888–97. [16482] Pfleger. 1901. [16670] Spitz. 1875–99.

— *v. Geometry (Elementary). Golden Section.*

— (PRACTICAL): [291] Bartoli. 1564. [334] Bennett. 1838. [481] Bosse. 1665. [644] Burchett. 1869–71. [1055] Digges. 1625. [1123] Dupin. 1813. [1264] Evans. 1897. [2036] Hutton. 1807. [3485] Pasley. 1822. [3535] Penther. 1732. [3911] Recorde. 1551. [4752] Tarn. 1882. [4958] Turner. 1887. [6036–7] Bassi. 1666–1765. [6074] Beaulieu. 1676. [6433] Bradley. 1834. [6613] Burchett.

GEOMETRY (PRACTICAL), *continued* :

1875. [6627] Burn. 1853. [6771–3] Catani. 1546–59. [6940] Clavius. 1604. [7414–15] Dupin. 1822–6. [8032] Forestani. 1682. [8657] Gregory. 1769. [8951] Harrison and Baxandall. 1904. [10630–9] Lazesio. 1518–1629. [11310] Mallet. 1702. [11530] Mascheroni. 1803. [11693] Mayer. 1792–5. [13001] Pasley. 1822. [13560] Potter. 1910. [14567] Rudd. 1650. [14765] Schwenter. 1616–18. [15668] Amiot. 1865. [15693] Atkinson. 1901. [16172] Hunäus. 1882. [16708–9] Tarn. 1871–82. [S 649–50] Digges. 1637–56. [SS 431] Forestani. 1603. [SS 742] Pomodoro. 1599. [SS 776] Recorde. 1574.

— *v. Measuring. Surveying.*

— (PROJECTIVE): [3114] Morton. 1830–8. [3320] Nicholson. 1837. [3698–9] Poncelet. 1822. [7076–7] Cremona. 1875–85. [13490] Poncelet. 1822. [15682] Angel. *n. d.* [15863] Charruit. 1897. [15901–2] Cremona. 1882–5. [15976] Enriques. 1903. [15994] Ferval. 1909. [15996] Filon. 1908. [16056] Glaeser. 1900. [16059] Götler. 1895. [16102] Halsted. 1906. [16112] Hatton. 1913. [16184] Javary. 1903. [16283] Lebon. 1882–1901. [16364] Mathews. 1914. [16404] Moore. 1910. [16436] Nicol. 1900. [16493–4] Poncelet. 1862–6. [16523] Richter. 1908. [16548–9] Sachs. 1900–7. [16792] Wilczynski. 1906.

— *v. Geometry (Synthetic). Geometry of Position. Projection.*

— (PURE): [10362] Lachlan. 1893. [14593] Russell. 1893. [15692] Askwith. 1903. [16250] Lachlan. 1893. [16546–7] Russell. 1893–1908.

— (SOLID): [65–6] Aldis. 1873–86. [2476] Larkin. 1820. [4092] Ross. 1887. [4362] Sharp. 1717. [4443] Smith. 1886. [5537] Wybard. 1650. [5863] Atkinson. 1899. [7599] Erzey. 1764. [7670] Cowley. *c.* 1768. [8169–71] Frost. 1863–87. [10546] Larkin. 1820. [12691] Nixon. 1888. [14835] Sharp. 1717. [15666] Aldis. 1880. [15693] Atkinson. 1901. [15831] Calnon. 1891. [16026–7] Frost. 1886–7. [16158] Holzmtüller. 1900–2. [16222] Kleyer. 1886. [16602] Schoute. 1902–5. [16634] Seipp. 1892. [16671] Spitz. 1890.

— *v. Geometrical Figures.*

— (SYMBOLIC): [8867*] Hamilton. 1849.

— (SYNTHETIC): [763–4] Chasles. 1872. [1757] Halsted. 1892. [3141] Mulcahy. 1852. [6832] Chasles. 1852. [8769] Hablützel. 1875. [10362] Lachlan. 1893. [10693] Lehms. 1838–42. [11177–8] Macdonald. 1890–1904. [12235–7] Mulcahy. 1852–62. [12434–41] Neuberg. 1834–90. [14130] Reye. 1886. [15676] Andoyer. 1900. [15864] Chasles. 1880. [15951] Duporcq. 1912. [15952] Dupuis. 1903. [16058] Godfrey and Siddons. 1908–9. [16166–7] Housel. 1865. [16199] Kaiser. 1887. [16244] Kötter. 1901. [16387] Millet. 1870. [16466] Pasch. 1882. [16601] Schmuë. 1856. [16631] Seeger. 1880. [16654] Smith. 1893. [16681–2] Steiner. 1875–98. [16699] Sturm. 1892–6. [16737–8] Townsend. 1863–5.

— *v. Conic Sections (Synthetic). Equipollences. Geometry (Projective). Geometry of Position. Points. Quantities.*

—, AXIOMS AND HYPOTHESES OF: [14245] Riemann. 1867. [15759] Bonnel. 1899. [15977] Erdmann. 1877. [16321] Loria. 1888. [16524] Riemann. 1892. [16780] Whitehead. 1906–7.

—, DIFFICULTIES OF: [3223. 12482] Newman. 1841.

—, ELEMENTS AND PRINCIPLES OF: [2519–23] Legendre. 1823–76. [2558–9] Leslie. 1809–17. [3153] Münster. 1551. [4020] Ritchie. 1833.

- GEOMETRY, ELEMENTS AND PRINCIPLES OF, *continued*:
 [5298] Wedgwood. 1844. [8842] Halsted.
 1886. [9279] Hilbert. 1902. [10680-1. 10683]
 Legendre. 1794-1876. [10743] Leslie. 1811.
 [12935] Pardies. 1683. [15787] Briot. 1875.
 [15987] Faifoer. 1903. [16098-100] Halsted.
 1886-1911. [16136] Hilbert. 1899. [16164]
 Hôtel. 1867. [16208] Killing. 1893-8. [16277]
 Lazzari and Bassani. 1911. [16289] Legendre.
s.d. [16543-4] Russell. 1897-1901. [16584]
 Schlömilch. 1883-8. [16618] Schur. 1909.
 [16631] Seeger. 1880. [16701] Swinden. 1868.
 [16716] Thieme. 1909. [16745] Vahlen. 1905.
 — *v. Continuity. Lines, Infinitesimal Properties of*.
 —, HISTORY OF: [6830-1] Chasles. 1839-75.
 [10213] Klimpert. 1888. [14130] Reye. 1886.
 [16244] Kötter. 1901. [16371] Meray. 1906.
 [S 582] Chasles. 1870.
 —, USES OF: [14591] Russell. 1878.
 — OF THE COMPASS: [2873. 11529. 11531]
 Mascheroni. 1798-1869. [SS 206] Benedetti.
 1553. [SS 639] Mascheroni. 1797.
 — OF DIRECTION: [4343. 16643] Serret. 1869.
 — OF THE INFINITE: [8021-2] Fontenelle. 1727.
 — OF POSITION: [697] Carnot. 1803. [1352]
 Flauti. 1842. [3979] Reye. 1882-6. [4238]
 Scheffler. 1851. [6740] Carnot. 1803. [14126-8]
 Reye. 1882-6. [15728] Bertrand. 1873.
 [15753] Böger. 1900. [15992] Fiedler. 1883-8.
 [16410] Mouchot. 1892. [16516-18] Reye.
 1877-1910. [16679-80] Staudt. 1847-60.
 [S 1129] Reye. 1881-2. [SS 860] Steiner. 1832.
 — *v. Arithmetic of Position*.
 — OF THE RULER: [6655] Byrne. 1865. [SS 548]
 Lambert. 1774.
 — OF SPACE: [3335] Nixon. 1888. [13437-8]
 Plücker, 1852-69. [14298. 14300. 14316]
 Roberts. 1871-8. [16451] Nixon. 1888. [16491]
 Plücker. 1868-9. [16572-4] Schlegel. 1872-83.
 GEOPHYSICS—*v. Earth. Geography (Mathematical and*
Physical).
 GIRDS: [694] Cargill. 1873. [5016] Unwin. 1868.
 [7746] Fairbairn. 1864. [8077] Fox. 1881.
 GLACIER PERIOD—*v. Geology (Historical)*.
 GLACIER THEORY: [4977] Tyndall. 1872-85.
 [8012-14. 8017] Forbes. 1845-59. [9617]
 Huxley. 1857. [10656] Lecoq. 1847. [12005]
 Molloy. 1888.
 GLASS, ACTION OF ALKALIES ON: [9885] Jones. 1902.
 —, ELECTRIC PROPERTIES OF: [9446. 9450]
 Hopkinson. 1877-8.
 —, PERVIOUSNESS OF: [526. 6411] Boyle. 1673.
 — BLOWING: [4372] Shenstone. 1886.
 — COLOURING: [1005. 7225] Delaval. 1777.
 — *v. Crystalite*.
 — GRINDING—*v. Lenses*.
 — MAKING: [431] Blancourt. 1699. [457] Bolas.
 1898. [1288] Faraday. 1859. [1639] Grebel.
 1843. [2336] Kunckel. 1679. [3524] Pellatt.
 1849. [3721] Porter. 1832. [5812] Arctet. 1766.
 [5847] Artiques. 1811. [7769. 7782] Faraday.
 1830-59. [9018] Haudicquer de Blancourt.
 1718. [10334] Kunckel. 1743. [10789-90]
 Lewis. 1763. [10924] Lobmeyr. 1873. [12419]
 Neri. 1668. [13064-5] Peligot. 1877. [13576]
 Powell. 1661. [S 2998] Asch. 1913. [S 3006]
 Blancourt, *fa.* of 1699. [S 3059] Hovestadt.
 1902. [S 3108] Neri, etc. 1752. [SS 1822]
 Kohlhans. 1663. [SS 2757-8] Dossie. 1758-64.
 [SS 2825] Neri. 1612.
 GLAZES: [1431] Fumival. 1898. [S 2998] Asch.
 1898. [SS 2757-8] Dossie. 1758-64.
 GLISSETTES, GEOMETRY OF: [381] Besant. 1890.
 [6191] Besant. 1870. [16956] Besant. 1890.
 GLOBE-MAKING: [11469] Martin. 1762. [11698]
 Mead. 1717. [12274-5] Müller. 1829.
 GLOBES, USE OF THE: [1326] Ferguson. 1812.
 [1576-7] Globes. 1652-1718. [1793-6] Harris.
 [1731-57. 2014] Hues. 1889. [2145] Jennings.
 1647. [2838] Martin. 1766. [2966] Metius.
 1724. [3090] Morgan. 1845-7. [3123-5] Moxon.
 1659-99. [4711] T. (R.). 1647. [5518] Wright.
 1740. [5640] Adams. 1810. [6279-81] Blunde-
 ville. 1597-1636. [6452] Bransby. 1808.
 [7718] Everett. 1904. [8336] Gemma Frisius.
 1553. [8479] Globes. 1735. [8934-6] Harris.
 1732-68. [9781] Jennings. 1766. * [11469].
 [11474] Martin. 1758-62. [12229-31] Moxon.
 1659-74. [SS 999] Bartsch. 1624. [SS 1202-3]
 Metius. 1626. [SS 1357] Blaeu. 1652.
 — *v. Sphere, Doctrine and Use of the*.
 GLOBULIN: [11734] Mellanby. 1905.
 GLUCOSE: [8096] Frankel. 1881.
 GLUES: [762] Charpentier. 1890. [4556] Standage.
 1907. [7869] Fernbach. 1907.
 GLYCERINE: [14697] Scheele. 1786. [S 3009]
 Carpenter. 1895.
 GLYPHOGRAPHY: [14658-9] Sampson. 1842.
 GNEISS: [9965] Julien. 1879.
 GNOMON: [2800-1] Manfredi. 1736.
 GNOMONICS—*v. Dialling*.
 GOLD: [11393] Marcellii. 1556. [13535] Porta Leone.
 1584. [15091] Streeter. 1878. [S 2731] French.
 1653.
 — *v. Alchemy*.
 —, CHEMISTRY OF: [11320-1] Mallet. 1889-1904.
 [13507] Pope and Gibson. 1907. [SS 2450]
 Brendel. 1671.
 —, MINING AND METALLURGY OF: [1] Aaron.
 1881. [478] Born. 1791. [963] Davison. 1860.
 [2338] Küstel. 1868. [2657] Lock. 1882.
 [2702] Louis. 1894. [3375] O'Driscoll. 1889.
 [3589] Phillips. 1867. [4082] Rose. 1894.
 [6339-42] Born. 1786-91. [7469] Egleston.
 1887-90. [7480-2] Eissler. 1889-96. [9357]
 Hodgson. 1911. [9386] Hofman. 1889.
 [9817] Johnson. 1897. [10660] Lectures. 1852.
 [10930] Lock. 1882. [11003] Longridge. 1905.
 [11031-2] Louis. 1894-9. [11175] McDermott
 and Duffield. 1890. [11236] Maclaurin. 1896.
 [12045] Moon. 1884. [12802] O'Driscoll. 1889.
 [13229] Phillips. 1867. [13858] Rankin. 1901.
 [14476] Rose. 1902. [15576] Wilson. 1901.
 [SS 2912] Davison. 1861.
 — *v. Assaying. Cyanide Practice*.
 — MINES: [920] Curle. 1899. [1807] Hatch and
 Chalmers. 1895. [4226] Sawyer. 1894. [7230-1]
 Denny. 1897-1902. [17341] Gordon. 1894.
 GONIOMETER: [11486] Martin. 1766. [11527]
 Marzari-Pencati. 1811. [13238] Phillips. 1814.
 GONIOMETRY: [16221] Kleyer. 1886.
 GOVERNOR (STEAM): [9482] Hospitalier. *v.y.*
 [14409] Rolland. 1870.
 GRAIN MAGAZINES: [2728] Luther. 1880. [14411]
 Rollet. 1846.
 GRANITE: [6094] Beddoes. 1791. [8930] Harris.
 1888.
 GRAPHIC ARTS: [289-90] Bate. 1634-54. [480]
 Bosse. 1643. [1046-7] Dictionarium. 1735.
 [4193-4] Salmon. 1685-1701. [4315] Sculptura
 Historico-Technica. 1770. [5093] Vine. 1895.
 [5151] Waldow. 1884. [6043-4] Bate. 1634.
 [6644] Burton. 1887. [7285] Dictionarium
 Polygraphicum. 1735. [7587] Engraving. 1747.
 [SS 30] Bate. 1631.
 — *v. Collotype. Electro-Engraving. Glyphography.*
Lithography. Mezzotint Engraving. Photographic
Processes. Photolithography. Water Glass.
Wood-Engraving.

GRAPHIC CALCULUS—*v. Calculus (Graphic).*

— METHODS: [4463] Smith. 1895. [12777]
Ocagne. 1894. [15346] Turner. 1908. [S 3604]
Runge. 1912.

— STATICS—*v. Statics (Graphic).*

— STATISTICS: [13430] Playfair. 1798.

GRAPHITE: [10265] Kokscharow. 1863. [13427]
Playfair. 1860.

GRAPHS, TREATISE ON: [16051] Gibson. 1904.

GRASSMANN'S SPACE ANALYSIS ('AUSDEHNUNGS-
LEHRE'): [8588] Grassmann. 1862. [16072-3]
Grassmann. 1878-96. [16174] Hyde. 1906.
[16397-8] Möbius. 1827-85. [16571] Schendel.
1885. [16572-3] Schlegel. 1872-5.

GRAVITATION: [716] Castel. 1724. [1045]
Dickson. 1859. [1289-93] Faraday. 1839-55.
[2067] Huygens. 1690. [2117] Jallabert. 1731.
[2188] Jordan. 1866-7. [3011] *Miscellanea
Curiosa*. 1705-11. [3256-74] Newton. 1713-
1871. [3747-9] Pratt. 1836-45. [5359] Whewell.
1832. [7777-81] Faraday. 1839-55. [8921]
Harper's Scientific Memoirs. 1900. [9906]
Jordan. 1867. [10500-1] Laplace. 1813.
[11001] Longo. 1832. [11035] Love. 1907.
[12501-33] Newton. 1687-1880. [11943-5]
Miscellanea Curiosa. 1708-27. [13581] Poynting.
1894. [13597-601] Pratt. 1836-45. [14093]
Respighi. 1882. [15447] Wallis. 1675.
[17150-7] Newton. 1777-1900. [17209] Riemann.
1876. [S 1449] Frisi. 1768. [S 1480] Hecker.
1908. [SS 1012-13] Borelli. 1666. [SS 1277]
Roberval. 1644.

— *v. Attraction. Clairaut's Theorem. Motion
(Accelerated). Pendulum Observations.*

— HYPOTHESES: [1984] Hooper. 1903. [2554]
Lesage. 1770. [3251-3] Newton. 1718-30.
[5083] Vince. 1806. [6981] Colden. 1751.
[9163] Herapath. 1847. [9432] Hooke. 1705.
[12539-2] Newton. 1717-30. [12702] Nobili.
1818. [13632-3] Prévost. 1818. [15418]
Vossius. 1685. [15570-1] Wilson. 1746.
[S 2077] Lesage. 1805. [SS 1701] Gerdill. 1754.
[SS 1851] Linguet. 1787. [SS 2123] Varignon.
1690.

— PARADOXES: [3285-6] Gordon. 1719. [3294]
Parkes. 1804. [5953] Baldwin. 1786. [6924]
Clarke. 1818. [10160] Kirby. 1757. [11048-9]
Lovett. 1766-74. [13769] Purshall. 1707
[13978] Reddie. 1862. [SS 2000] Peart. 1791.
[SS 2016] Rabiqueau. 1753.

GRAVITY (SPECIFIC): [1821] Haviland. 1846.
[6421. 6428] Boyle. 1672-90. [9043] Haviland.
1846. [10207] Kirwan. 1785. [13877] Ramsden.
1792. [14109-10] Retgers. 1889. [S 2656]
Buchanan. 1912. [S 2685] Clarke. 1898.

— *v. Hydrometry. Hydrostatic Balance.*

— CENTRE OF: [856] Commandino. 1565.
[1445] Galilei. 1638. [2064] Huygens. 1673.
[2396] La Loubère. 1651. [3360] O'Brien.
1840. [5034] Valerio. 1604. [8212-13] Galilei.
1638-1730. [8544] Gottigniez. 1687. [9628]
Huygens. 1673. [10920] Lobatto. 1849.
[11437] Mariscotti. 1746. [14494] Rosetti.
1668. [15449] Wallis. 1670-1. [16931]
Antomari. 1902. [S 753] Guldin. 1635.
[SS 2121] Valerio. 1661.

— *v. Calculus (Barycentric). Guldin's Theorem.*

GREENSTONE: [6583] Buckland. 1816.

GROUPS (CONTINUOUS): [16297] Lie. 1893.

— (LINEAR): [7292] Dickson. 1901. [13757]
Putnam. 1901.

GROUPS, THEORY OF: [3435] Page. 1897. [7426]
Dyck. 1882. [8841] Galois. 1897. [14573]
Ruffini. 1799. [15321] Burnside. 1897.
[15962] Easton. 1902. [16139] Hilton. 1908.
[16428] Netto. 1908. [16632-3] Séguier.
1904-12.

— *v. Curves, Groups of. Invariants.*

— OF SUBSTITUTIONS: [16193] Jordan. 1870.
[16633] Séguier. 1912.

— *v. Substitutions, Theory of.*

— OF TRANSFORMATION: [12917] Page. 1888.
[16298] Lie und Engel. 1888-93. [16754]
Vivanti. 1904.

— *v. Transformations.*

GUANO: [3201. 12427] Nesbit. 1856.

GULDIN'S THEOREM: [3448-9. 12938] Pappus.
1588-1660.

GUN COTTON: [13907] Ransome. 1847.

— *v. Cordite. Pyroxylic Acid. Smokeless Powder.*

GUNNERY AND ARTILLERY: [418-20] Biringuccio.

1540-59. [765] Chasseloup-Laurat. 1811.

[985] Decker. 1825. [1086-8] Douglas. 1829-60.

[1126] Dupuget. 1771. [1130] Durtubie.

1795. [1407] Fraxno. 1847-8. [1679] Griffiths.

1856. [1684] Grobert. 1795-6. [2680] Lombard.

1787. [2691] Longridge. 1891. [2920]

Mauvillon. 1788. [2955] Metcalfe. 1894.

[3109] Morogues. 1737. [3387] Ordnance

Notes. 1882-3. [3640] Piobert. 1852-9.

[3735] Pomet. 1828. [3809] Projectiles.

1836. [4233] Scharnhorst. 1804-14. [4401-2]

Simpson. 1792-1810. [4525] Spearman. 1828.

[4628] Stone. 1645. [4746-9] Tartaglia.

1546-62. [4792] Tennent. 1864. [5037]

Valturio. 1532. [5397] Whitworth. 1872.

[6012] Barret. 1598. [6228-36] Biringuccio.

1540-1678. [6399] Boxer. 1860. [6460]

Breithaupt. 1868. [6646] Busca. 1598.

[6987-8] Collado. 1586-1641. [7342-4] Douglas.

1820-60. [7362] Dredge. 1892. [7428] Dyer.

1896. [7595] Erdmannsdorff. 1845. [8269]

Garbett. 1897. [8637] Greenhill. 1895. [9290]

Hime. 1904. [9491] Hotchkiss System. 1887.

[9609-11] Hutton. 1786-1812. [9786]

Jerningham. 1851. [10112] Kerigan. 1845.

[10311] Krupp. 1879. [10643] Le Blond.

1766. [10904] Lloyd and Hadcock. 1893.

[11004-5. 11008-9] Longridge. 1860-84.

[11108] Lycoudis. 1896. [11192] Mackinlay.

1883. [11322-3] Mallet. 1856. [11799]

Metcalfe. 1891. [11852] Migout and Bergery.

1849. [11954] Mittheilungen über Artillerie-

und Genie-Wesen. 1871-9. [12018] Monge.

1794. [12064] Mordecai. 1860. [12134]

Morgan. 1892. [12153] Morogues. 1737.

[12270-1] Muller. 1757-68. [12380] Naval

Artillery. 1890. [12712] Noble. 1906.

[12749-50] Norton. 1868-80. [12756-7] Norton.

1628-43. [12829] Ordnance. 1904. [12830]

Ordnance Manual. 1862. [12867] Overstraten.

1863. [12868] Owen. 1865-7. [12870] Owen.

1879. [12900] Paixhans. 1822. [12904]

Palliser. 1863. [13351] Piobert. 1841. [13376]

Place. 1889. [14387] Roerdansz. 1865.

[14523] Roueroy. 1821-5. [14584] Ruscelli.

1583. [14778] Scoffern. 1859. [14780-1]

Scott. 1874-81. [14865-8] Simienowicz.

1651-1729. [15372] Vallier. 1899. [15373-4]

Valturio. 1483-1532. [SS 2126] Venturi. 1815.

[SS 2806] Malthus. 1650. [SS 2845-6] St.-Remy.

1707-41. [SS 2873] Thybourel. 1620.

— *v. Ballistics. Carriages (Military). Fuses.*

GUNPOWDER: [104] Anderson. 1862. [121] Antoni.

1789. [1407] Fraxno. 1847-8. [4746-9]

Tartaglia. 1546-62. [5785] Antoni. 1773.

[6437] Braddock. 1832. [7212] Debus. 1891.

[7595] Erdmannsdorff. 1845. [9290] Hime.

- GUNPOWDER, continued :**
 1904. [12065] Mordecai. 1845. [12270-1]
 Muller. 1757-68. [12717-18] Noble. 1875.
 [12825] Oppert. 1880. [14580] Rumford. c.
 1782. [14868] Simienowicz. 1676. [15418]
 Vossius. 1685. [SS 2711] Antoni. 1765.
 — *v. Saltpetre.*
- GUNTER'S LINES :** [1716-19] Gunter. 1636-73.
 [3211] Neve. 1708. [8745-50] Gunter. 1636-80.
 [10814. 10816] Leybourn. 1676-98. [15589]
 Wingate. 1652. [SS 497] Henrion. 1626.
- GUTTA PERCHA :** [3357] Obach. 1898. [4790]
 Terry. 1907.
- GYROSCOPE :** [5509] Worms. 1862. [16940]
 Barnard. 1872. [16993] Clauzel. 1912.
 [17000-1] Crabtree. 1909-14. [S 291] Foucault.
 1878. [S 1822] Cordeiro. 1913.
 — *v. Spinning Top.*
- HAIL, THEORY OF :** [11338] Manchester Literary and
 Philosophical Society. 1785. [12316] Murray.
 1830.
- HALOS AND CORONÆ :** [570] Bravais. 1847.
 [SS 1601] Chesnecoferus. 1593.
- HARBOUR WORKS :** [2536] Leith Harbour. 1822.
 [4426. 4429-30] Smeaton. 1791-1814. [4851]
 Thunberg. 1776. [5057] Vernon-Harcourt.
 1885. [5968] Balzaretii. 1877. [8899] Harbour
 and Dock Works. 1878. [10559] Latham.
 1903. [11515] Martin. 1839. [12719] Noel.
 1781. [13543] Ports Maritimes. 1874-92.
 [14044-6. 14049] Rennie (J.). 1770-1816.
 [14074-5. 14078-9] Rennie (Sir J.). 1834-54.
 [14222] Richardson and Jaffrey. 1860. [14389]
 Rogers. 1807. [14908. 14913-15. 14926.
 14928-30] Smeaton. 1767-1814. [15073-4]
 Stevenson. 1864.
 — *v. Docks. Lighthouses.*
- HARMONICS (SPHERICAL)—*v. Functions (Harmonic).***
- HEAT (ANIMAL) :** [894] Crawford. 1788
- (ATMOSPHERIC)—*v. Temperature (Atmospheric).*
- (LATENT) : [768] Chemical Reports. 1848.
 [2714-15] Luc. 1772. [6248] Black. 1777.
 [7444] Edinburgh Essays. 1754-71. [8549]
 Graham. 1848. [8694] Griffiths. 1895.
 [10472-3] Landriani. 1781. [12005] Molloy.
 1888. [15620] Edinburgh Essays. 1770-1.
- (MOLECULAR) : [13638] Prévost. 1802.
- (RADIANT) : [4974] Tyndall. 1872. [11430-3]
 Mariotte. 1717-40. [11723] Melloni. c. 1850.
 [13630-1. 13635] Prévost. 1809-22.
 — *v. Radiation (Terrestrial).*
- (SOLAR) : [10484-5] Langley. 1884. [14847]
 Siemens. 1883.
- (SPECIFIC) : [894] Crawford. 1788. [6248]
 Black. 1777. [6681] Callendar and Barnes.
 1899. [7444] Edinburgh Essays. 1754-71.
 [9926-7] Joule. 1846-7. [13583] Poynting.
 1884. [14384] Rodwell. 1882. [14537] Row-
 land. 1880. [15620] Edinburgh Essays. 1770-1.
 — *v. Calorimetry. Water, S. H. of.*
- , ABSORPTION OF : [277] Barrett. 1868. [4970]
 Tyndall. 1861-2.
 — *v. Temperature, Leakage of.*
- , ANALYTICAL THEORY OF—*v. Thermodynamics*
(Analytical).
- , CONDUCTION OF : [13820] Radau. 1862.
 [14974] Soddy and Berry. 1910-11. [15846]
 Carslaw. 1906. [S 1880] Forbes. 1862-5.
 [SS 1637] Dalton. 1799.
 — *v. Metals, Thermal Conductivity of. Recales-*
cence Curves.
- HEAT, DYNAMICAL THEORY OF—*v. Thermo-***
dynamics.
- , ELEMENTARY WORKS ON : [2235-6] Kelland.
 1837. [2464-5] Lardner. 1837. [3379] Oken.
 1808. [4592-3] Stewart. 1871-88. [4839]
 Thomson. 1830. [7457] Edser. 1899. [8471]
 Glazebrook. 1894. [10034] Kelland. 1837.
 [10536] Lardner. 1833. [11105-6] Lunn. 1826.
 [11675-8] Maxwell. 1871-94. [15277] Thomson.
 1830. [17137-8] Maxwell. 1891-1902.
- , EXPERIMENTS ON : [4132-3] Rumford. 1786-92.
 [4367] Shaw. 1886. [5300] Wedgwood. 1791.
 [14698-9] Schutte. 1780-5. [15498] Wedgwood.
 1791-2. [SS 1477-81] Accademia del Cimento.
 1667-91. [SS 2617] Scheele. 1781.
- , GENERAL WORKS ON : [3151] Müller-Pouillet.
 1898. [3520] Pécelet. 1878. [3761] Preston.
 1894. [9473] Hospitalier. *v. y.* [10062] Kelvin.
 1880. [13589] Poynting and Thomson. 1904.
 [13619] Preston. 1894. [17191] Poynting and
 Thomson. 1904. [S 2350] Tait. 1884.
- , LECTURES ON : [4983-9] Tyndall. 1863-90.
- , MATHEMATICAL THEORY OF : [3683-4] Poisson.
 1835-7.
- , MECHANICAL EQUIVALENT OF : [2195] Joule.
 1884-7. [8695] Griffiths. 1901. [9109] Helm-
 holtz. 1847. [9919. 9921. 9924-5] Joule.
 1845-87. [11695] Mayer. 1867. [13890. 13894]
 Rankine. 1863-81. [14537] Rowland. 1880.
 [14809] Seguin. 1839. [16292] Thurston. 1890.
 [S 2023] Joule. 1879.
 — *v. Energy, Conservation of.*
- , MEMOIRS ON : [4136] Rumford. 1804.
 [14845] Siemens. 1889.
- , POLARIZATION OF : [8016] Forbes. 1835.
- , PRACTICAL TREATISES ON : [6398] Box. 1876.
 [9067-8] Heat. 1885.
- ; PROBLEMS AND EXAMPLES : [S 2379] Turner.
 1885.
- , PROPAGATION OF : [2563-4] Leslie. 1804.
 [14255] Riggenbach. 1884. [15124] Stoney.
 1877. [17181] Poincaré. 1895. [SS 1600]
 Chatelet-Lomont. 1744.
- , REFRACTION OF : [8016] Forbes. 1835.
- , REPULSIVE POWER OF : [13573] Powell. 1834.
- , THEORIES OF : [2563-4] Leslie. 1804. [2784]
 Major. 1891. [2817] Marat. 1780. [4407]
 Simpson. 1675. [6310] Bompas. 1817. [8874]
 Hands. 1879. [9431] Hooke. 1665. [9503]
 Hovenden. 1894. [10033] Keir. 1807. [10878]
 Link. 1795-7. [11389-91] Marat. 1780-2.
 [12079] Morgan. 1781. [12703] Nobili. 1822.
 [13630-1. 13637] Prévost. 1792-1809. [13692]
 Proclus. 1825. [14107] Resta. 1786. [14577-9]
 Rumford. 1797-1802. [14810] Seguin. 1865.
 [15498] Wedgwood. 1791-2. [15514] West-
 rumb. 1785-7. [SS 1583-4] Boyle. 1675-6.
 [SS 1600] Chatelet-Lomont. 1744. [SS 2307]
 Magellan. 1780. [SS 2467-8] Curiosities in
 Chemistry. 1691.
- : PARADOXES : [11048-9] Lovett.
 1766-74. [13742] Prusol. 1879. [13960]
 Reade. 1818. [14803] Sedgwick. 1882.
 [15190] Symes. 1771. [SS 2000] Feart. 1791.
 [SS 2016] Rabiqueau. 1753.
- : SPECULATIONS : [14001-3] Reichenbach.
 1850-1.
- , ABSORBED IN CHEMICAL DECOMPOSITIONS :
 [9923] Joule. 1856.
- OF COMBINATION : [5766-7] Andrews. 1841-3.
- OF COMBUSTION : [14204] Richards and Jesse.
 1910.

- HEAT OF EVAPORATION: [14208] Richards and Mathews. 1911. [SS 2020] Regnault. 1847.
- HEATING—*v. Ventilation and Heating.*
- OF BODIES: [SS 2316] Martine. 1792.
- HELICOIDAL APPARATUS: [16295] Leroy. 1890.
- HELIOCHROMY: [7380] Ducos du Hauron. 1874.
- HELIOMETER: [7066] Crawford. 1876–85.
- HELIUM: [3137] Mugdan. 1896. [15109] Stoney. 1897.
- HEREDITY IN MEN OF SCIENCE: [8258] Galton. 1874.
- HIGH VACUA, PHYSICS OF: [903] Crookes. 1879.
- HISTORY OF THE EXACT AND APPLIED SCIENCES: [8] Abercromby. 1687. [40–1] Agrippa. 1575–1676. [199] Babbage. 1830. [251] Baliani. 1638. [923–4] Cuvier. 1827–8. [1756] Halliwell-Phillipps. 1841. [2031–2] Hunt. 1848–9. [2082] Ples. 1900. [4025] Ritter. 1888. [4108] Routledge. 1881. [3670] Poggendorff. 1853. [4503–7. 4510] Somerville. 1849–77. [5343. 5361–5] Whewell. 1837–62. [5519] Wright. 1841. [5667–9] Agrippa. 1575–1694. [5879] Aveyburg. 1882. [6592] Buckley. 1879. [7128] Cuvier. 1828. [8753] Günther. 1901. [8833] Halliwell-Phillipps. 1841. [13576] Powell. 1661. [14687] Savérien. 1766. [S 290] Forbes. 1858.
- *v. Accounting, H. of. Aerial Navigation, H. of. Algebra, H. of. Arithmetic, H. of. Astronomy, H. of. Attraction, H. of. Theory of. Calculus of Variations, H. of. Chaldean Science. Chemistry, H. of. Civil Engineering, H. of. Coal Mining, H. of. Compass (Mariner's), H. of. Discoveries and Inventions. Distillation, H. of. Elasticity, H. of. the Theory of. Electricity, H. of. Elements (Chemical), H. of. Engineering, H. of. Ether Theories, H. of. Geology, H. of. Geometry, H. of. Horology, H. of. Machinery (Early). Magnetism, H. of. Mathematics, H. of. Mechanics, H. of. Meteorology, H. of. Microscope, H. of. the. Mining, H. of. Optics, H. of. Photography, H. of. Physics, H. of. Railways, H. of. Shipbuilding, H. of. Steam Engine, H. of. Steam Engines (Early). Steam Navigation, H. of. Telegraphy (Electric), H. of. Telescope, Early Works on the. Thermodynamics, H. of.*
- HOISTING MACHINERY: [8481] Glynn. 1873. [15502] Weisbach and Hermann. 1893. [S 3403–4] Colyer. 1881–92.
- *v. Cranes.*
- HORARY TABLES: [11143] Lynn. 1827. [15251] Thomson. 1867.
- HORIZON (ARTIFICIAL): [11509] Martin. *n.d.*
- HORIZONTAL INSTRUMENT (OUGHTRED'S): [3407] Oughtred. 1633.
- HOROLOGY: [599] Britten. 1894. [703] Carpenter. 1857. [828–9] Clockmakers' Co. 1825–81. [913] Cumming. 1766. [1015–16] Derham. 1734. [1426] Frodsham. 1862. [1571] Glasgow. 1885. [1682] Grimthorpe. 1860. [1687] Grossman. 1880. [1995] Horological Journal. 1858–1900. [2461] Lardner. *c.* 1850. [2545] Lenormand. 1876. [2866] Martinelli. 1669. [3026] Moinet. 1875. [3199] Nelthropp. 1873. [3575–6] Philippe. 1863–78. [3944–8] Reid. 1826–59. [4029] Robert. 1849. [4217–18] Saunier. 1872–81. [4410] Sire. 1870. [4682] Sully. 1717. [4821] Thomson. 1842. [5235] Watchmaker. 1877–85. [5480] Wood. 1866. [6168–72] Berthoud. 1773–1811. [6515] Britten. 1884. [6661] Cagnoli. 1787. [6744–5] Carpenter. 1843–57. [7175] Dasypodius. 1580. [7861–2] Ferguson. 1778–90. [8465] Glasgow. 1885–93. [8704–5] Grimthorpe. 1850–7. [8957] Harrison. *n.d.* [9392] Holden. 1892. [11972–3] Moinet. 1841–75. [12417–18]
- HOROLOGY, *continued:*
- Nelthropp. 1873. [13292] Piazzini. 1798. [13510] Poppe. 1810. [13576] Powell. 1661. [14678–9] Saunier. 1882–91. [15420] Vulliamy. 1828–30. [S 90] Horlogerie, Journal Suisse de. 1880–6. [S 1377–8] Berthoud. 1787–1802. [S 2430] Yvon Villarceau. 1862. [SS 1360] Britten. 1899. [SS 1363] Camus. 1806. [SS1374–5] Derham. 1696–1700. [SS1405] Hatton. 1773. [SS 3042–3] Mandey and Moxon. 1696–9.
- *v. Chronometers. Clocks. Dialling. Dipleidoscope. Electric Clocks. Magnetic Clock. Pendulum. Teeth of Wheels. Thermochronometer. Watch Balances.*
- , HISTORY OF: [5480] Wood. 1866. [S 1377] Berthoud. 1802. [SS 1374] Derham. 1696.
- 'HORROR VACUÏ': [523. 537–41] Boyle. 1660–82. [3476] Pascal. 1663. [6424. 6429] Boyle. 1662–74. [8801] Hale. 1675. [9177–8] Hero Alexandrinus. 1589–1647.
- HOSPITAL CONSTRUCTION: [11210] Mackintosh. 1909. [12214] Mouat and Snell. 1883.
- HYDRATES: [9867. 9872–3] Jones. 1905–8.
- HYDRATING METHODS: [10384] Ladenburg. 1901.
- HYDRAULIC CURRENT METERS: [4199] Salusbury. 1661. [7996] Fontana. 1696. [12479] Newell. 1903. [14125] Révy. 1874. [SS 1753] Guglielmini. 1690–1. [SS 3046] Michelotti. 1767–71. [SS 3064] Raccolta. 1821.
- ENGINEERING: [324] Bédior. 1737–53. [405] Billings. 1889. [747] Cessart. 1806–9. [2107] Jackson. 1885. [4325] Sempie. 1776. [5400] Wiebeking und Kröncke. 1798–1807. [6045] Pateman. 1884. [6105] Bédior. 1737–53. [7996] Fontana. 1696. [8432] Gilly und Eytelwein. 1809. [8735] Guglielmini. 1739. [8781] Hagen. 1869–70. [6958] Idraulici (Opuscoli). 1824. [9701] Jackson. 1885. [10610. 10612] Law and Burnell. 1852–82. [10769] Leupold. 1724. [13733] Prony. 1790–6. [15144–5] Strukel. 1904. [S 3436] Fanning. 1906. [S 3447] Frizell. 1906. [S 3582] Raccolta (Nuova). 1823. [SS 3064] Raccolta. 1821. [SS 3069] Schuler. 1622.
- *v. Caissons. Drainage. Fascine Works. Harbour Works. Irrigation. Pile Driving Engines. Water Supply E. Waterworks.*
- EXPERIMENTS: [299] Beaufoy. 1834. [666] Caligny. 1883. [4273] Schott. 1657. [6072–3] Beaufoy. 1834. [11830–1] Michelotti. 1767–71. [14143] Reynolds. 1883. [S 3414] Cunningham. 1880–1.
- MOTORS AND MACHINERY: [666] Caligny. 1883. [1268] Ewbank. 1870. [1270] Fabre. 1783. [6287] Bodmer. 1895. [6684] Cambray-Digny. 1766. [7403] Dunkerley. 1907. [7724–5] Ewbank. 1851–70. [10414] La Hire. 1695. [10768] Leupold. 1724. [14356] Robinson. 1893. [15501] Weisbach. 1882. [S 3359] Björling. 1894.
- *v. Fire Engines. Pressing Machinery. Pumps. Turbines (Water). Water-raising Machinery. Water Wheels.*
- PRESS: [12662] Nicholson. 1797–1802.
- PROBLEMS: [4581–2] Stevinus. 1667–8. [S 3402] Coffin. 1897.
- RAM: [7730–1] Eytelwein. 1805. [S 3704] Wrede. 1815.
- TABLES: [3212] Neville. 1860–1. [6065–6] Beardmore. 1852. [7484] Ekin. 1908. [8278] Garrett. 1909. [9697–8] Jackson. 1875–83. [12453–4] Neville. 1853–61. [13734] Prony. 1825. [S 3694] Williams and Hazen. 1911.
- *v. Hydrographical T.*

- HYDRAULICS:** [1093-4] Downing. 1861-75. [5018] Unwin. 1907. [5872] Aubuisson de Voisins. 1840. [6067] Beardmore. 1862. [7354] Downing. 1855. [7402] Dunkerley. 1907-8. [7996] Fontana. 1696. [9697-8. 9701] Jackson. 1875-85. [9962] Jurin. 1732. [10488] Langsdorf. 1794. [11430-5] Mariotte. 1686-1740. [11774-5] Merriman. 1898-1901. [12004] Mollet. 1810. [13148] Pessuti. 1789. [13486] Poncelet. 1832. [14125] Révy. 1874. [14910-11] Smeaton. 1796-1813. [15384-5] Venturoli. 1817-33. [15501] Weisbach. 1882. [17004] Daries. 1906. [S 1727] Boulanger. 1909. [S 3582] Raccolta (Nuova). 1823. [SS 1587-8] Buat. 1786-1816. [SS 1754-5] Guglielmini. 1697-1739. [SS 3064] Raccolta. 1821.
- *v. Liquids, Resistance of.*
- HYDRINDONE:** [10154] Kipping. 1894.
- HYDROCARBONS:** [1288. 7769] Faraday. 1859. [12790] Odling. 1855.
- HYDROCHLORIC ACID:** [968] Davy. 1811. [3159] Murray. 1818. [3790-1] Priestley 1774-7. [6206] Bevan. 1903. [6840] Chenevix. 1802. [9150] Henry. 1812. [13669-70] Priestley. 1772. [15514] Westrumb. 1785-7.
- HYDRODYNAMICS:** [292] Basset. 1880. [350] Bernoulli. 1738. [803] Clare. 1737. [3692] Poleni. 1717. [4425] Smeaton. 1799. [4562] Stanley. 1881. [4916] Torricelli. 1644. [5988-9] Barlow. 1818-22. [6041-2] Basset. 1888-90. [6156] Bernoulli. 1738. [6901-2] Clare. 1747-1802. [10066] Kelvin. 1882-1911. [10489] Langsdorf. 1787. [12768] Nystrom. 1852. [15322-3] Torricelli. 1644. [16943] Basset. 1900. [17103-4] Lamb. 1895-1906.
- *v. Friction (Hydraulic). Jets.*
- (MATHEMATICAL): [10432] Lamb. 1879. [S 1954] Hadamard. 1903.
- HYDROGEN:** [3343] Nodier. 1823. [3800] Priestley. 1791. [14860] Sigaud de la Fond. 1779.
- **FLAME:** [277] Barrett. 1865. [7470] Ehrmann. 1787.
- *v. Oxyhydrogen F.*
- HYDROGENATION:** [14613] Sabatier et Senderens. 1905.
- HYDROGEOLOGY:** [10430] Lamarek. 1802.
- HYDROGRAPHICAL TABLES:** [5915] Bagay. 1829.
- HYDROMECHANICS:** [68. 74-5] Alembert. 1744-70. [382] Besant. 1867. [495] Bouguer. 1757. [2352] Lacroix. 1775. [2993-4] Miller. 1835-43. [5713] Alembert. 1770. [6369] Bouguer. 1757. [8160] Frisi. 1777. [9635-6] Hydro-Mechanics. 1885. [11879] Miller. 1850. [12205-6] Moseley. 1830. [16959] Besant and Ramsey. 1911-13. [17143] Miller. 1850. [17177] Poincaré. 1899-1902.
- *v. Liquids.*
- **PROBLEMS:** [5199. 17267] Walton. 1847.
- HYDROMETRY AND HYDROMETERS:** [6343] Bordier-Marcet. 1812. [8439] Gilpin. 1794. [11507-8] Martin. 1759-62. [13877] Ramsden. 1792.
- *v. Alcoholometry.*
- HYDROSTATIC BALANCE (PICARD'S):** [3617] Picard. 1731.
- **EXPERIMENTS:** [SS 1768] Hauksbee. c. 1735.
- **FIGURES:** [17177] Poincaré. 1902.
- **PARADOX:** [4585. 15082-3] Stevinus. 1586.
- HYDROSTATICS:** [152] Archimedes. 1565. [534] Boyle. 1666. [877-8] Cotes. 1738-47. [2150] Jessop. 1687. [2466-7] Lardner. 1836. [2512] Leechi. 1765. [2830] Mariotte. 1718. [3657] Plateau. 1673. [3727] Potter. 1859. [4416-18] Sinclair. 1672. [4585] Stevinus. 1586. [4748-9] Tartaglia. 1546-54. [5290-3] Webster. 1835-47. [5821-2] Archimedes. 1565. [6192-3] Besant. 1883-91. [6419-20] Boyle. 1666. [7040-4] Cotes. 1738-75. [8472] Glazebrook. 1895. [8616] Greaves. 1902. [8640] Greenhill. 1894. [10537] Lardner. 1831. [12971] Parkinson. 1789. [13401] Plateau. 1873. [14671] Saunderson. c. 1712. [15082-3] Stevinus. 1586. [15515] Wetherald. 1760. [16955] Besant. 1899-1900. [17116] Loney. 1902-4. [17188] Potter. 1859. [S 2864] Cavallo. 1781. [SS 1598] Castelli. 1615. [SS 1706-8] Galilei. 1612. [SS 1732] Grazia. 1613.
- *v. Floating Bodies. Pascal's Law.*
- (MATHEMATICAL): [8629] Green. 1832.
- HYDROXYLAMINE:** [10196] Klein und Trechmann. 1877.
- HYGROMETRICAL TABLES:** [1544] Glaisher. 1863-6.
- HYGROMETRY AND HYGROMETERS:** [182] August. 1830. [555] Boyle. 1674. [929] Dalencé. 1688. [2714-15] Luc. 1772. [4066] Ronketti. 1842. [4134] Rumford. 1787. [4219-20] Saussure. 1783. [5714-16] Alencé. 1688-1753. [6430-1] Boyle. 1674-90. [7165] Daniell. 1823. [8097] Frankenheim. 1899. [9587-8] Hutton. 1792. [10749-50] Leslie. 1813. [11059-60] Luc. 1784-91. [14281] Riva. 1725. [14681-4] Saussure. 1783-8. [14893] Sinclair. 1669. [14916] Smeaton. 1814. [15161-3] Sturm. 1676-85. [S 2500] Daniell. 1820. [S 2516] Foucher. 1686. [SS 1636] Dalton. 1802. [SS 1642] Desaguliers. 1719. [SS 2241] Bunsen. 1830. [SS 2282-3] Lambert. 1774-5. [SS 2990] Dobrzenski. 1659.
- HYPERBOLA:** [2396] La Loubère. 1651. [4916] Torricelli. 1644. [6004] Barlow. c. 1820. [8689] Griffin. 1879. [15322-3] Torricelli. 1644. [16386] Milinowski. 1883.
- *v. Landen's Theorem.*
- HYPERDETERMINANTS:** [4704] Sylvester. 1851.
- HYPOCHLORITES:** [5610] Abel. 1905.
- HYPOPHOSPHITES:** [9932] Jowett. 1898.
- HYPOSULPHITES:** [SS 2460] Children. 1819.
- HYPSOMETRICAL SURVEYING:** [4158] Sabine. 1824. [5014] U.S. Geographical Surveys. 1877.
- **TABLES:** [6225] Biot. 1811.
- HYPSOMETRY:** [3869] Radau. 1881. [4416-18] Sinclair. 1672. [5952] Baldwin. 1786. [6730] Carlini. 1823. [7917] Fischer. 1895. [9519] Howlett. 1859. [10282] Koristka. 1858. [10326] Kühnen. 1908. [11059] Luc. 1784. [11138-9] Luz. 1784. [13607] Prediger. 1860. [SS 1531] Benzenberg. 1831. [SS 2306] Magellan. 1779.
- HYSTERESIS:** [9480] Hospitalier. *v. y.*
- ICE:** [4977] Tyndall. 1872-85. [10411-12] La Hire. 1694. [11305-6] Mairan. 1749-56. [11430-3] Mariotte. 1717-40.
- **AGE—*v. Climatology (Geological).***
- **MAKING MACHINES:** [10665] Ledoux. 1893.
- ICELAND SPAR, PHYSICS OF THE:** [2067] Huygens. 1690. [2841. 11475] Martin. *n. d.* [S 1689] Bartholinus. 1670. [SS 1530] Beccaria. 1764.
- IKOSAEDRON:** [16215] Klein. 1884. [S 851] Klein. 1888.
- ILLUMINATION:** [6109] Bell. 1902. [13060] Péclet. 1827. [14577-8] Rumford. 1797-1802.
- *v. Acetylene. Argand Burner. Carriage Lighting. Coal Gas. Drummond Light. Electric Lamps. Electric Lighting. Gas Lighting. Gas Lighting (Incandescent). Lamps. Lighthouse I.*

- INCLINATIONS, PROBLEM OF: [127. 129] Apollonius. 1770. [5795. 5799-5800] Apollonius. 1607-1779.
- INCOMMENSURABLES, THEORY OF: [15081] Stevinus. 1625. [15084] Stifel. 1544.
- INCREMENTS, METHOD OF — *v. Calculus of Finite Differences.*
- INCUNABULA SCIENTIFICA: [90] Alphontius. 1483. [1199] Euclides. 1482. [1552] Glanville. 1491. [3429-30] Pacioli. 1494. [4170-1] Sacro Bosco. 1488-89. [6293-5] Boethius. 1488-99. [6344-5] Borgo. 1484-8. [6438] Bradwardine. 1495. [6610] Buoniconτρο. 1491. [6702] Canon. 1481. [7618-19] Euclides. 1482. [7619] Firmicus Maternus. 1499. [12912] Pacioli. 1494. [15373] Valturio. 1483. [SS 980] Albumasar. 1489. [SS 1004] Bianchini. 1495. [SS 1265] Regiomontanus. 1496.
- INDIA RUBBER: [4790] Terry. 1907. [8879] Hancock. 1857. [9292] Himly. 1835. [9652] India Rubber. 1909. [S 3129] Rubber Industry. 1915. [SS 2759] Dubosc and Luttringer. 1918.
- INDICATOR DIAGRAMS AND PRACTICE: [2749] McGibbon. 1906. [9126] Hemenway. 1886. [9451] Hopkinson. 1875. [13605] Pray. 1896.
- INDIGO: [14441] Roscoe. 1881. [SS 2849] Scheffer. 1803.
- INDIVISIBLES, METHOD OF: [735] Cavalieri. 1653. [3477] Pascal. 1663. [6015] Barrow. 1678. [6781] Cavalieri. 1653. [8652] Gregorius a Sto. Vincentio. 1647-9.
- INDUCTION COILS: [89] Allsop. 1896. [3040-2] Moncel. 1856-9. [3337] Noad. 1861. [6315] Bonney. 1892.
- INDUSTRIAL CURIOSITIES: [9763] Japp. 1880.
- HYGIENE: [4446] Smith. 1873. [4467] Smith. 1896.
- INFINITES, ARITHMETIC OF: [1169] Emerson. 1767. [7541] Emerson. 1767. [15451] Wallis. 1656.
- INFINITESIMAL CALCULUS—*v. Calculus (Infinitesimal).*
- INFINITY (MATHEMATICAL): [2273] Kepler. 1615. [8885] Hanke and Binder. 1751. [12113] Morgan. 1865. [13845-6] Ralphson. 1702. [15758] Bolzano. 1889. [15893] Couturat. 1896. [15999] Fleury. 1899. [16045] Geissler. 1902.
- INJECTORS: [13766] Pullen. 1900. [14359] Robinson. 1860.
- INKS: [3582] Phillip. 1596. [6257] Blagden. 1787. [12315] Murray. 1829. [SS 2446] Boyle. 1667. [SS 2757-8] Dossie. 1758-64.
- INLAND NAVIGATION—*v. Canal Engineering and Navigation. River Navigation.*
- INSTRUMENT (UNIVERSAL): [12895-6] Ozanam. 1688-1769.
- INSTRUMENTS (SCIENTIFIC): [573] Brewster. 1813. [2094] Instruments de Précision. 1900. [2966] Metius. 1633. [4181] Salleron. 1864. [4298] Scientific Apparatus. 1876. [5590] Zeitschrift. 1881. [6756] Casella. 1871. [8189] Furtenbach. 1644. [8330] Geissler. 1792-8. [12735] Nollet. 1787.
- *v. Acoustic I. Astronomical I. Cartographical I. Chemical Apparatus. Copying I. Electric Machines. Geometrical I. Levelling I. Magnetic I. Mathematical I. Measuring I. Meteorological I. Musical I. Nautical I. Optical I. Physical I. Surveying I.*
- OF PRECISION: [12063] Morandotti. 1886.
- INSURANCE MATHEMATICS—*v. Mathematics (Insurance).*
- INTEGERS, THEORY OF: [15776] Bowden. 1903.
- INTEGRAL, REDUCTION OF THE: [14320] Roberts. 1900.
- CALCULUS—*v. Calculus (Integral).*
- INTEGRALS (ABELIAN): [16434-5] Neumann. 1865-84.
- (DEFINITE): [2526] Legendre. 1825-8. [6215] Bierens de Haan. 1867. [8456] Glaisher. 1876. [12196] Moseley. 1837. [12937] Paoli. c. 1832. [13380. 13383] Plana. 1818. [14595] Russell. 1854. [15740] Bierens de Haan. 1867. [16128-9] Hermite. 1887-92. [16377] Meyer (A.). 1851. [16383] Meyer (G. F.). 1871. [S 923] Lejeune-Dirichlet. 1904.
- (ELLIPTIC): [471] Booth. 1851. [3224] Newman. 1889. [6335-6] Booth. 1851-77. [14227] Richelot. 1837. [14289] Roberts. 1871. [14709] Schellbach. 1864. [16532] Roberts. 1887. [SS 576] Legendre. 1825-8.
- *v. Landen's Theorem.*
- (FOURIER'S): [15721] Beau. 1885. [15846] Carlsaw. 1906.
- *v. Series (Fourier's).*
- (HYPERGEOMETRICAL): [13433] Pochhammer. 1870.
- (INDEFINITE): [10977] Löffler. 1859. [16481] Petit Bois. 1906.
- , TABLES OF: [397-8] Bierens de Haan. 1858-67. [1546] Glaisher. 1870. [1941-3] Hirsch. 1810-23. [2526] Legendre. 1825-8. [6212-13] Bierens de Haan. 1858-67. [9320] Hirsch. 1823. [15740] Bierens de Haan. 1867. [16481] Petit Bois. 1906.
- AND DIFFERENTIALS, RELATIONS BETWEEN: [8892] Hansen. 1865.
- INTEGRATION: [16280] Le Besque. 1904.
- INTEGRATORS (MECHANICAL): [5609] Abdank-Abakanowicz. 1886.
- INTEREST TABLES: [2285] King. 1866. [2750] Macgregor. 1904. [3112-13] Morris. 1735. [3275-6] Newton. 1731-42. [3577-9] Philipps. 1656-76. [4420-1] Smart. 1726. [5211] Ward. 1710. [5672-3] Agucchia. 1613-1765. [8741] Gumersall. 1851-2. [9674] Inwood. 1859. [9886] Jones. 1843. [10143] King. 1804. [10625] Leases. 1735. [10879] Lintern. 1872. [12586-7] Newton. 1742-58. [13203] Philipps. 1721. [13966-9] Recorde. 1632-68. [14750] Schöttel. 1754-6. [15400] Vintéjoux. 1905.
- INTERFERENCE, PRINCIPLE OF—*v. Light, I. of. Sound, I. of.*
- METHODS: [11832] Michelson. 1903. [17041] Gehrcke. 1906.
- INTERPOLATION, METHOD OF: [4607] Stirling. 1764. [5183] Wallis. 1693-9. [5504] Woolhouse. 1865. [14159] Rice. 1899. [15087-90] Stirling. 1730-64.
- *v. Differential Method.*
- FORMULÆ: [7717] Everett. 1900.
- INVARIANTS, ALGEBRA OF: [15934] Dickson. 1914. [16063] Grace and Young. 1903.
- , THEORY OF: [5520] Wright. 1875-9. [6806] Cayley. 1889-98. [8041-2] Forsyth. 1888-1903. [8523] Gordon. 1885-7. [8696] Griffiths. 1901. [15874] Clebsch. 1872. [16062] Gordon. 1885-7. [16379] Meyer. 1909. [16419] Muth. 1895. [SS 170] Aronhold, 1858.
- *v. Covariants. Forms. Quantics. Transformations.*
- INVENTIONS—*v. Discoveries.*
- INVOLUTION AND EVOLUTION: [3315] Nicholson. 1820.

- IODINE AND ITS COMPOUNDS:** [7195] Davy. 1814. [8114] Frankland. c. 1851. [8757] Guthrie. 1857. [9816] Johnson. 1877. [10287] Köthner und Auer. 1904. [11318] Mallet. 1879. [13095] Penny. 1852.
- IONS, THEORY OF:** [4854] Tibbles. 1908. [9868] Jones. 1904. [15532-3. * 15537-8] Whetham. 1892-1900.
- IRIDESCENCE:** [527-9. 6415] Boyle. 1664. [15111] Stoney. 1887.
— *v. Clouds, I. of.*
- IRON (CAST AND WROUGHT):** [4931-4] Tredgold. 1822-46. [6069] Beardslee. 1879. [9351-2] Hodgkinson. 1846. [9980] Kalakoutsky. 1888. [13067] Pellet et Allart. 1877. [13077] Peirce. 1910. [15005] Spretson. 1892.
— (PIG): [11699-700] Meade. 1882.
—, **CHEMISTRY OF:** [10341] Kupferschlaeger. 1860. [13115] Percy. 1873.
—, **CORROSION OF:** [5974] Barff. 1877. [S 3212] Cushman and Gardner. 1910. [S 3231] Friend. 1911. [S 3253] Hudson. 1913.
—, **ELECTROMOTIVE FORCE OF:** [11459] Martens. 1845. [14198] Richards. 1906.
—, **METALLURGY OF:** [327] Bell. 1884. [907] Crookes. 1869. [3398] Osborn. 1869. [3416] Overman. 1854. [3541] Percy. 1864. [4412] Skelton. 1891. [4565] Stansbie. 1907. [4946] Truran. 1862. [4959] Turner. 1895. [5730] Alleyne. c. 1872. [6003] Beddoes. 1791-2. [6108] Bell. 1884. [6461] Bresson et Gruner. 1889. [6918] Clark. 1835. [7381-3] Dudley. 1612-1794. [7477-8] Eisenhüttenwesen. 1902-6. [7747-9] Fairbairn. 1861-9. [8397] Gillot. 1873. [8644] Greenwood. 1900. [9299] Hide. *n. d.* [9307-8] Hiorns. 1895-1903. [9973] Jüptner *v. Jonstorff*. 1885. [10120] Kerpely. 1884. [10545] Larkin. 1887. [10662] Ledebur. 1884. [12319] Mushet. 1840. [12840] Overman. 1850. [13113] Percy. 1864. [13345] Pisani. 1864. [13496] Ponthière. 1897. [14388] Rogers. 1858. [14686] Sauveur. 1912. [15377] Vattier. 1890. [S 3198] Campbell. 1904. [S 3226] Flachat. 1851-2. [S 3247] Hassenfratz. 1812. [S 3253] Hudson. 1913. [S 3257] Iron. 1873-99. [S 3262] Jars. 1774-81. [S 3332] Wedding. 1901. [SS 2627] Swedenborg. 1847. [SS 2961] Turner. 1908.
— *v. Recalescence Curves. Vivianite.*
—, **OVERSTRAINS IN:** [12252] Muir. 1899.
—, **PERCHLORIDE OF:** [11871] Miller, etc. 1860.
—, **PRESERVATION OF:** [S 3212] Cushman and Gardner. 1910.
—, **PROPERTIES OF:** [15166] Styffe. 1869. [S 3198] Campbell. 1904.
— **AT HIGH TEMPERATURE:** [9448] Hopkinson. 1889.
— **ALLOYS:** [8310] Gautier. 1889.
— **ANALYSIS:** [5845] Arth. 1897. [6258] Blair. 1906. [13067] Pellet et Allart. 1877.
— **INDUSTRIES:** [2135] Jeans. 1878. [4858] Timmins. 1866. [4946] Truran. 1862. [5851] Aspin and Ryberg. 1883. [6107] Bell. 1886. [6764] Casson. 1908. [7026] Cort. 1855. [11699-700] Meade. 1882. [13332] Pig-Iron Industry. 1908.
— **ORE:** [15006] Spurr. 1894.
— **PIPES (WROUGHT):** [10889] Litten. 1906.
— **SMELTING, CHEMISTRY OF:** [S 3172] Bell. 1872.
- IRRADIATION:** [13399-13400] Plateau. 1834-9.
- IRRIGATION:** [2180] Johnstone. 1814. [6270] Bligh. 1907. [6543] Brown. 1907. [9702] Jacob. 1867. [11208] Mackenzie. 1910. [11439] Markham. 1867. [11644] Mawson. 1904. [14758] Schuyler. 1905. [14956] Smith. 1806. [15205] Tatham. 1801. [15547-9] Willcocks. 1889-1911. [15582] Wilson. 1906.
- ISOGONAL RELATIONS, THEORY OF:** [9415] Holzmüller. 1882. [16157. 16162] Holzmüller. 1881-2.
- ISOMERISM:** [356] Berthelot. 1865. [13505] Pope. 1895. [14023] Rensen. 1896. [14122] Reuter. 1892.
— *v. Metamerism.*
- ISOMETRICAL DRAWING:** [3320] Nicholson. 1837. [14980] Sopwith. 1834.
- ISOMORPHISM:** [8549] Graham. 1848. [11951-3] Mitscherlich. 1834-47. [12670] Nickles. 1856. [14702-3. 14706] Scheerer. 1748-51.
- ISOPERIMETRICAL PROBLEMS—*v. Calculus of Variations.***
- ISOTHERMS:** [2025] Humboldt. 1817. [6503] Brinkman. 1904. [8620] Greely. 1881. [10203] Kirwan. 1787.
- JAPANING:** [4554] Stalker and Parker. 1688. [SS 2757-8] Dossie. 1758-64.
— *v. Lacquers.*
- JETS, THEORY OF:** [1340] Plateau. 1873.
- JOINTS (RIVETED):** [10090-1] Kennedy. 1881-5.
- JOURNALS (SCIENTIFIC):** [1144] Edinburgh Journal of Science. 1824-9. [1145-7] Edinburgh Philosophical Journal. 1819-44. [2096-8] Intellectual Observer. 1862-71. [2196] Journal de l'Ecole Polytechnique. 1795-1862. [2199] Journal of Science. 1816-27. [2200] Journal (Quarterly) of Science. 1864-80. [2772] Magazine of Science. 1840-6. [3047] Monatsbericht (Bibliographischer). 1892-1906. [3180] Nature. 1870-1904. [3181] Naturwissenschaftliche Rundschau. 1894-1905. [3325-6] Nicholson. 1802-13. [3600-2] Philosophical Magazine. 1814-95. [3706] Popular Science Review. 1862-81. [3969] Repertory of Arts. 1715-21. [3977] Revue de Génie militaire. 1887-1902. [4292-3] Science for All. 1877-82. [4294-5] Science Gossip. 1886-1900. [4299] Scientific Opinion. 1869-70. [4835] Thomson. 1813-18. [6512] British Almanac. 1833-60. [7455] Edinburgh Philosophical Journal. 1819-26. [7891] Figuier. 1858-73. [8272] Garnett. 1801. [8431] Gill. 1822-30. [9910-12] Journal of Science. 1816-30. [9914] Journal de la Société des Sciences physiques et chimiques. 1834-6. [12365] Natural History Review. 1854-60. [12370-1] Nature. 1870-1909. [12662-5] Nicholson's Journal. 1797-1812. [13247-50] Philosophical Magazine. 1798-1900. [13779] Quarterly Journal of Science. 1867-76. [14082-3] Repertory of Arts. 1794-1823. [14545] Royal Institution. 1802. [15205-7] Thomson. 1813-26. [S 52] Edinburgh Journal of Science. 1824-39. [S 121] London Journal of Arts and Sciences. 1820-39. [SS 3223] British Almanac. 1833-60. [SS 3330] Science Progress. 1894-8.
— *v. Astronomical J. Chemical J. Electric J. Engineering J. Geological J. Learned Societies. Mathematical J. Meteorological J. Microscopical J. Mining and Metallurgical J. Naval J. Optical J. Photographic J. Physical J. Technological J.*
- JUPITER (PLANET):** [999] Delambre. 1789. [1448] Galilei. 1653. [8223] Galilei. 1610. [12679] Niessen. 1879. [13152] Perry. 1880-4. [SS 1061] Divini. 1666.

JUPITER'S SATELLITES: [8217. 8223] Galilei. 1610
-13. [SS 1012-13] Borelli. 1666. [SS 1134]
Hirzgarter. 1643. [SS 1375] Derham. 1700.

KALEIDOSCOPE: [574. 6481] Brewster. 1819.
[14249] Netto. 1843.

KEPLER'S LAWS: [2260-1. 2272. 10100-1] Kepler.
1609-19.

— PROBLEM: [8454] Glaisher. 1877. [9517]
Howe. *n.d.*

KERAMIC INDUSTRIES—*v. Pottery.*

KINEMATICS: [320] Bélanger. 1864. [844] Collignon.
1873. [3972] Reuleaux. 1875. [3974] Resal.
1862. [4512] Somoff. 1878. [5433-4] Willis.
1841-70. [9482] Hospitalier. *v. y.* [9767] Jau-
mann. 1905. [10253] Königs. 1897. [11186]
Macgregor. 1887. [14402] Rohault. 1716. [15655]
Villié. 1885-98. [16931] Antomari. 1902.
[16951] Bélanger. 1864. [16975] Burmeister.
1888. [17057] Guichard. 1913. [17073] Heun.
1906. [17085] Jaumann. 1905. [17100] Königs.
1897. [17174] Petersen. 1887. [17177] Poincaré.
1899. [17201] Resal. 1862. [17258] Villié.
1888. [S 2143] Minchin. 1882.

— *v. Machinery, Mechanics of. Mechanism.*

KINETIC THEORY OF GASES—*v. Gases, K. T. of.*

KINETICS: [4424] Smeaton. 1794. [9310] Hirn.
1887. [17220] Saussure. 1902-10. [17277]
Weinstein. 1901-8.

— *v. Dynamics.*

KNOTS, THEORY OF: [16647] Simony. 1881. [16962]
Boeddicker. 1876

— *v. Analysis Situs.*

KRYPTON: [10387] Ladenburg und Krügel. 1900.

KYANETHENE: [10268] Kolbe and Frankland. 1847.

LAC: [9007] Hatchett. 1804.

LACQUERS: [5765] Andres. 1882. [12419] Neri.
1668. [SS 2728] Buonanni. 1786.

— *v. Japanning. Varnishes.*

LACTIC ACID: [14697] Scheele. 1786.

LAGRANGE'S METHOD: [10406-8] Lagrange. 1808-
26. [S 1937] Gilbert. 1884.

LAKES, ORIGIN OF: [10498] Lapi. 1781.

LAMPS (ANCIENT): [10823] Liceti. 1621.

— (PERPETUAL): [13291] Phosphorus. *c.* 1720.

—, MECHANICAL IMPROVEMENTS IN: [S324] Hooke.
1677.

LANDEN'S THEOREM: [2425-6. 10460] Landen.
1780-9.

LATHES—*v. Turning.*

LATITUDE, DETERMINATION OF: [2482] Latitude.
1830-90. [2983] Millar. 1903. [4356] Shadwell.
1854. [5143-4] Waddington. 1763-70. [7066]
Crawford. 1876-85. [7140] Dam. 1715. [9811-
12] Johnson. 1867-84. [10548] La Rue. 1875.
[11198-11201] Mackay. 1793-1810. [12416]
Nell. 1884. [13070] Peirce. *c.* 1845. [13139]
Perrier. 1877-80. [13321] Pidoux. 1900.
[13336-7] Pigott. 1786-90. [14094] Respighi.
1877. [14238-9] Riddle. 1824-42. [14489-90]
Rossel. 1815. [14493] Rosser. 1862. [S 1349]
Albrecht und Wanach. 1903-6.

— *v. Polar Heights.*

—, VARIATIONS OF: [12766] Nytrén. 1893.

LEAD, CHEMISTRY AND METALLURGY OF: [3542]
Percy. 1870. [3860] Pulsifer. 1888. [5243-4]
Watson. 1784-96. [7277] Dibbitts. 1874. [9387]
Hofman. 1904. [13114] Percy. 1870. [13365]
Pisani. 1876. [14482] Rosenhain and Tucker.
1908. [14625] Sage. 1769. [15464-6] Watson.
1791-1800. [S 3201] Collins. 1899-1900.

LEAD (MILLED): [1737] Hale. 1691.

— MINING: [1373] Forster. 1821. [2008] Hough-
ton. 1681. [6992] Combet. 1875. [15439]
Wallace. 1861. [S 3284] Moissenet. 1866.
[S 3302-3] Pryce. 1778.

LEARNED SOCIETIES, PUBLICATIONS OF THE: [39]

Agricultural Society. 1840-92. [178] Atti
della Acc. dei Lincei. 1880-8. [179] Atti della
Acc. di Torino. 1884-1903. [596] British Associa-
tion. 1833-1902. [598] British Astronomical
Association. 1891-8. [641] Bulletin. 1897-1903.
[642] Bulletin. 1883-93. [769-70] Chemical
Society. 1841-1904. [795-6] Civil Engineers.
1836-1905. [1148] Edinburgh Royal Society.
1881-1900. [1338] Fire Prevention Com-
mittee. 1898-1900. [1469] Gas Institute.
1877-1902. [1505] Geological Society. 1845-
1905. [2092-3] Institut de France. 1861-
1904. [2938] Mechanical Engineers. 1847-
1905. [2942-3] Mémoires de Mathématiques
et de Physiques. 1692-1776. [2944] Mémoires
de la Société des Sciences de Bordeaux. 1866-
1903. [2957-9] Meteorological Society.
1861-1906. [2960] Meteorological Society
(Scottish). 1864-1905. [2979] Microscopical
Society. 1853-92. [3046] Monatsbericht der
kgl. preuss. Akademie der Wissenschaften.
1882-1903. [3056-7] Monthly Notices of the
Royal Astronomical Society. 1867-1900. [3172]
Nachrichten der kgl. Gesellschaft der Wissen-
schaften zu Göttingen. 1888-94. [3195]
Naval Architects' Institution. 1860-1906. [3384]
Opuscula Omnia. 1740-1. [3603-4] Philosophical
Transactions of the Royal Society. 1665-1869.
[3608] Photographic Society of London. 1857-
82. [3610-11] Physical Society of London.
1874-1905. [3862] Quekett Microscopical
Club. 1868-91. [4122-3] Royal Society of
Canada. 1883-99. [4469] Smithsonian In-
stitution. 1861-82. [4494-5] Society of Arts.
1783-1906. [4526] Specola Vaticana. 1891-
3. [4683] Surveyors' Institution. 1868-96.
[4788] Telegraph Engineers. 1872-1905. [6513-
14] British Association. 1833-1908. [6802]
Cavendish Society. 1848-70. [6839] Chemi-
sche Gesellschaft (Deutsche). 1896-1901.
[6842-4] Chemical Industry (Society of). 1882-
1908. [6848-50] Chemical Society of London.
1868-1907. [6896-9] Civil Engineers (Insti-
tution of). 1836-1908. [7446] Edinburgh Royal
Society. 1878-1907. [7488-91] Electrical
Engineers (Institution of). 1872-1910. [7495]
Electrical Society (London). 1843. [7502]
Electriciens (Société Internationale des). 1884-
1906. [8280] Gas Engineers (Institution of).
1891-1910. [8281] Gas Engineers (Association of).
1883-1909. [8282] Gas Institute. 1870-
92. [8344-9] Geological Society. 1811-1911.
[8350] Geological Society (Manchester). 1841-
1901. [8354] Geographical Society (Royal).
1855-1910. [9655] Ingenieurs (Kon. Ned.
Institut van). 1848-1908. [9656. 9679-80]
Iron and Steel Institute. 1871-1911. [9671]
Institution (Royal). 1851-92. [9677-8] Irish
Academy (Royal). 1836-86. [10566] Lausanne
(Société des Sciences physiques de). 1784.
[10901] Liverpool Geological Society. 1861-
85. [11336] Manchester Geological Society.
1841-1901. [11337-9] Manchester Literary
and Philosophical Society. 1785-1898. [11564]
Mathematical Society (London). 1865-1913.
[11704-5] Mechanical Engineers (Institution
of). 1847-1912. [11780] Metals (Institute
of). 1909. [11792-6] Meteorological Society.
1861-1913. [11913] Mineralogische Gesellschaft
zu St. Petersburg. 1866-71. [11919] Mining
and Mechanical Engineers (North of England
Institute of). 1852-91. [11920] Mining
and Metallurgy (Institution of). 1906-8. [1 192 2]

- LEARNED SOCIETIES, PUBLICATIONS OF THE, continued:**
 Mining, Civil and Mechanical Engineers (Chesterfield and Derbyshire Institute of). 1871-89. [11924-7] Mining Engineers (Institution of). 1890-1912. [11928-9] Mining Engineers (American Institute of). 1891-1912. [12040] Montpellier (Société Royale des Sciences de). 1766. [12372-3] Naval Architects' Institution. 1860-1912. [13244-5] Philosophical Society of Glasgow. 1867-1912. [13278-9] Photographic Society of London. 1854-9. [13751] Public Analysts. 1876. [14546-7] Royal Society of London. 1665-1912. [14897] Sitzungsberichte. 1896-1910. [14969-71] Society of Arts. 1783-1909. [15616] Astronomical Society. 1822-1909. [S 3] American Philosophical Society. 1771-93. [S 19] Astronomische Gesellschaft. 1891-5. [S 28] Cambridge Philosophical Society. 1822-1916. [S 92] Ingenieurs (Kon. Ned. Instituut van). 1848-1908. [S 183-4] Royal Institution. 1851-1913. [S 3867] Radio Engineers. 1916. [S 3869] Röntgen Society. 1904-17. [SS 3229] Cambridge Philosophical Society. 1891-1911. [SS 3257] Engineers and Shipbuilders (North-East Coast Institution of). 1885-1918. [SS 3266] Irish Academy (Royal). 1893-1917. [SS 3269] Iron and Steel Institute (Staffordshire). 1907-19.
- LEAST ACTION, PRINCIPLE OF:** [2376-8] Lagrange. 1811-55. [2907] Maupertuis. 1756. [7703-5] Euler. 1753-72. [10399-402] Lagrange. 1788-1815. [11637] Maupertuis. 1768.
- **SQUARES, METHOD OF:** [767] Chauvenet. 1868. [876] Cotes. 1722. [1488] Gauss. 1855. [2439] Laplace. 1814-18. [2953-4] Merriman. 1877-86. [3197] Navier. 1848-9. [6833] Chauvenet. 1871. [7038-9] Cotes. 1722. [7294] Dienger. 1857. [8305] Gauss. 1855. [9104] Helmert. 1872. [10272] Koll. 1901. [10503-6] Laplace. 1814-25. [11772] Merriman. 1877. [15749] Bobek. 1890. [15849] Catalan. 1878. [15868] Chauvenet. 1880. [16039] Gauss. 1855. [16122] Helmert. 1907. [16130] Herz. 1900. [16168] Johnson. 1912. [16373] Merriman. 1907. [16625] Scherwing. 1884. [16755] Vogler. 1883. [S 1636] Wright. 1906.
- *v. Errors, Theory of.*
- LECTURES ON SCIENCE:** [827] Clifford. 1879. [1192] Essays. 1874. [1851-2] Helmholtz. 1873-81. [1885-7] Herschel. 1857-67. [2792] Manchester Science Lectures. 1866-79. [2835] Martin. 1743. [4296] Science Lectures. 1878-9. [6961] Clifford. 1886. [9113-15] Helmholtz. 1873-84. [9217] Herschel. 1867. [10071-2] Kelvin. 1891-4.
- LEIDENFROST'S PHENOMENON:** [6390] Boutigny. 1857.
- LENGTH AND WEIGHT, STANDARDS OF:** [6311] Bond. 1887. [11832] Michelson. 1903. [11877] Miller. 1857.
- *v. Measures, Metrology.*
- LENSES:** [458] Bolas and Brown. 1902. [773] Cherubin. 1671. [1073] Dollond. 1834. [1639] Grebel. 1843. [1695] Grunert. 1847. [6360] Boscovich. 1785. [11379] Manzini. 1660. [11518] Martin. 1868. [S 1829] Croullebois. 1882. [SS 1061] Divini. 1666. [SS 1418-19] Maignan. 1648. [SS 1438] Otia Mathematica. 1719. [SS 1623] Coddington. 1830. [SS 1822] Kohlhans. 1663. [SS 1846] Leonori. 1754.
- *v. Achromatism, Photographic L.*
- **SYSTEMS OF:** [450] Bohn. 1880. [3530] Pendlebury. 1884. [7834] Ferraris. 1879. [15027-8] Steinheil. 1891. [17171] Pendlebury. 1884. [SS 1547] Bischoff. 1772.
- *v. Microscopic Objectives.*
- LEONIDS:** [15131-2] Stoney and Downing. 1899-1900.
- LEVELLING:** [2120-1] James. 1861. [3617] Picard. 1731. [4389-92] Simms. 1837-56. [6252] Blakett. 1838. [6765] Castle. 1847. [11436] Mariotte. 1672. [11767-9] Merrett. 1881-93. [12425-6] Nesbit. 1868-75. [13293] Picard. 1692.
- **INSTRUMENTS:** [4564] Stanley. 1901. [5743] Amici. 1829-37. [SS 1837-8] Lambert. 1769.
- LEYDEN JAR:** [9450] Hopkinson. 1877. [15602-3] Winkler. 1746. [S 1720] Bohnenberger. 1784.
- LICHTENBERG'S FIGURES:** [SS 1850] Lichtenberg. 1778-9.
- LIFE, PHYSICO-CHEMICAL THEORY OF:** [10666] Leduc. 1910. [11590] Matteucci. 1847.
- *v. Abiogenesis (Chemical).*
- LIFE-BOATS:** [6463] Bremner. 1809. [10855] Life-Boat Models. 1851.
- LIFE-SAVING APPARATUS:** [5708] Aldini. 1830. [14584] Ruscelli. 1853. [SS 3019] La Chapelle. 1775.
- *v. Rocket-Apparatus.*
- LIFTING MACHINERY—v. Hoisting M.**
- LIGHT, ABSORPTION OF:** [4617] Stokes. 1877. [9999] Kapteyn. 1909.
- **ANOMALOUS REFRACTION OF:** [9960] Julius. 1908.
- **CHEMICAL ACTION OF—v. Actinic Rays.**
- **CONICAL REFRACTION OF:** [8869] Hamilton. 1827-34. [10909] Lloyd. 1833.
- **CURIOSITIES OF:** [392] Bidwell. 1899.
- **DIFFRACTION OF:** [4650] Struve. 1882. [8157] Fresnel. 1866-70. [12046] Moon. 1849. [13639] Prévost. 1798. [13681] Pritchard. *s. d.* [SS 1742-4] Grimaldi. 1665. [SS 1868-9] Marat. 1780-8.
- *v. Diffraction Gratings.*
- **DISCOVERIES ON:** [2816] Marat. 1780. [SS 1869] Marat. 1788.
- **DISPERSION OF:** [2822] Marci de Kronland. 1648. [3243-4] Newton. 1729. [3716] Porta. 1593. [7894] Filon. 1907. [12551-3] Newton. 1729. [13497] Ponton. 1859. [SS 1742-4] Grimaldi. 1665.
- *v. Achromatism, Dispersion (Atmospheric), Rainbow.*
- **DOUBLE REFRACTION OF:** [2067] Huygens. 1690. [3251-5] Newton. 1718-70. [8157] Fresnel. 1866-70. [11164] McCullagh. 1833-6. [11782] Mersenne. 1644-7. [12539-47] Newton. 1717-40. [16927] Aldis. 1870. [S 1689] Bartholinus. 1670. [SS 1530] Beccaria. 1764. [SS 1866] Malus. 1810.
- *v. Iceland Spar.*
- **ELECTROMAGNETIC THEORY OF:** [1854] Helmholtz. 1897. [2923, 2925-7] Maxwell. 1868-92. [3671] Poincaré. 1901. [4950] Tumlirz. 1892. [6308] Boltzmann. 1891. [7124] Curry. 1905. [7775] Faraday. 1846. [9075] Heaviside. 1893. [11679-81] Maxwell. 1873-81. [12445] Neumann. 1863. [13056] Pearson and Lee. 1899. [13457-8] Poincaré. 1890-1901. [16941] Barnard. 1903. [16944] Bateman. 1915. [17178] Poincaré. 1901. [S 308] Gibbs. 1906. [S 1857] Duhem. 1902. [S 1879] Föppel. 1907.
- *v. Electric Waves, Zeeman Effect.*
- **ANTICIPATIONS:** [13025] Paulian. 1768.
- **EMISSION (OR CORPUSCULAR) THEORY OF:** [3249-53] Newton. 1704-30. [11386] Marat. 1784. [12046] Moon. 1849. [12534-63] Newton. 1704-87. [SS 1545] Biot. 1814. [SS 1627-8] Courtivron. 1752. [SS 1642] Desaguliers. 1719. [SS 1869] Marat. 1788.

- LIGHT, INTERFERENCE OF: [3287] Jordan. 1799. [5572-3] Young. 1807. [8157] Fresnel. 1866-70. [13571-2] Powell. 1848. [15118] Stoney. 1901. [15612] Young. 1801. [SS 1651] Dufet. 1900. [SS 1869] Marat. 1788.
- *v. Coloured Shadows. Colours of Thin Plates. Films. Interference Methods. Iridescence. Newton's Rings. Powell's Bands. Talbot's Lines.*
- , MECHANICAL ACTION OF: [7098] Crookes. 1875-6.
- , POLARISATION OF: [411] Biot. 1818. [2067] Huygens. 1690. [2841] Martin. *n. d.* [3205] Neumann. 1863. [3254-5] Newton. 1706-40. [3545] Pereira. 1854. [4544] Spottiswoode. 1874. [7776] Faraday. 1849. [8157] Fresnel. 1866-70. [9236] Herschel. 1820. [10909] Lloyd. 1833. [11475] Martin. *n. d.* [12445] Neumann. 1863. [15001-4] Spottiswoode. 1874-9. [S 1900] Foussereau. 1893. [SS 147] Société d'Arcueil. 1807-17. [SS 1543] Biot. 1846. [SS 1866] Malus. 1810.
- *v. Analyser. Iceland Spar. Microscope (Polarising). Optical Activity. Polariscopes.*
- , PROPAGATION OF: [4850] Thümmig. 1727. [15125] Stoney. 1861. [SS 1644] Euler. 1746.
- , REFLEXION OF: [835] Coddington. 1829. [2779] Maignan. 1648. [5132] Vossius. 1662. [6535] Brougham and Vaux. 1796. [6973] Coddington. 1829. [8869] Hamilton. 1827-34. [13639] Prévost. 1798. [S 1677-8] Bacon. 1614. [SS 1599] Caus. 1612. [SS 1742-4] Grimaldi. 1665. [SS 1789-90] Huygens. 1690.
- *v. Aberration (Spherical). Anamorphoses. Catoptrics. Caustics. Kaleidoscope. Mirror.*
- , REFRACTION OF: [835] Coddington. 1829. [2405] Lambert. 1758. [3243-5] Newton. 1728-9. [6535] Brougham. 1796. [6973] Coddington. 1829. [7256] Descartes. 1637. [7721] Everett. 1903. [9431] Hooke. 1665. [10097] Kepler. 1604. [10981] Logan. 1739. [13634] Prévost. 1821. [17040] Gauss. 1841. [S 1677-8] Bacon. 1614. [SS 1418-19] Maignan. 1648. [SS 1742-4] Grimaldi. 1665. [SS 1789-90] Huygens. 1690. [SS 1838] Lambert. 1772. [SS 2136] Vossius. 1662.
- *v. Aberration (Spherical). Caustics. Dioptrics. Mirage. Refraction (Atmospheric).*
- , THEORIES OF: [3379] Oken. 1808. [4407] Simpson. 1675. [5132, 5135-6] Vossius. 1662-6. [5300] Wedgwood. 1791. [6310] Bompas. 1817. [6377] Boulliau. 1638. [7566] Engel. 1800. [8874] Hands. 1879. [9431-2] Hooke. 1665-1705. [11261] Maevicar. 1833. [11386] Marat. 1784. [11648] Maurolio. 1613. [11967, 11969] Moigno. 1847-73. [13692] Proclus. 1825. [14810] Seguin. 1865. [15498] Wedgwood. 1791-2. [15612] Young. 1801. [S 1793] Chérbuliez. 1863. [SS 1530] Beccaria. 1764. [SS 1601] Chesnecofferus. 1593. [SS 1652] Duhamel. 1660. [SS 1658-9] Euclide. 1573. [SS 1664] Euler. 1746-51. [SS 1851] Linguet. 1787. [SS 1895] Montalto. 1606. [SS 1972-4] Peckham. 1504-42. [SS 2125-6] Venturi. 1814.
- *v. Vision, Theory of.*
- : PARADOXES—*v. Optical Paradoxes.*
- : SPECULATIONS: [14001-3] Reichenbach. 1850-1.
- , TREATISES ON—*v. Optics (General).*
- , VELOCITY OF: [13950] Rayleigh. 1883. [S 291] Foucault. 1878. [S 2432] Young. 1881. [SS 1375] Derham. 1700.
- , WAVE THEORY OF: [62] Airy. 1866. [2067] Huygens. 1690. [2438] Laplace. 1810. [2649-51] Lloyd. 1841-73. [2816] Marat. 1780.
- LIGHT, WAVE THEORY OF, *continued*: [5686, 5700] Airy. 1842-66. [8157] Fresnel. 1866-70. [8922] Harper's Scientific Memoirs. 1900. [9218-20, 9243] Herschel. 1827-33. [10060] Kelvin. 1904-5. [10097] Kepler. 1604. [10905-6, 10908] Lloyd. 1841-73. [11164] McCullagh. 1833. [13568] Powell. 1841. [15125] Stoney. 1861. [16925] Airy. 1877. [17040] Knochenhauer. 1839. [S 1776] Cauchy. 1815. [S 2038] Kelvin. 1884. [S 2292] St.-Venant. 1872. [SS 1664] Euler. 1750. [SS 1742-4] Grimaldi. 1665.
- *v. Rays, Systems of.*
- WAVES: [11832] Michelson. 1903.
- LIGHTHOUSE ILLUMINATION: [1298-9] Faraday. 1860-1. [5707] Aldini. 1823. [6006] Barlow. 1837. [7022] Cornaglia. 1874. [7787-8] Faraday. 1861. [8157] Fresnel. 1866-70. [9408] Holman. *c.* 1863. [15051, 15054-6] Stevenson (A.). 1835-50. [15064-5] Stevenson (D.). 1859-60. [15075] Stevenson (T.). 1859. [15176] Swan. 1868.
- LIGHTHOUSES: [4428] Smeaton. 1793. [4579-80] Stevenson. 1848. [5641-2] Adams. 1870-91. [7459] Edwards. 1882. [11936] Mitchell. 1848. [14917-22] Smeaton. 1791-1812. [15050, 15052-3, 15056] Stevenson (A.). 1833-50. [15067, 15072] Stevenson (R.). 1806-24. [15199] Talbot. 1913.
- LIGHTING—*v. Illumination.*
- LIGHTNING: [2709] Lozeran du Fesc. 1727. [4558] Stanhope. 1779. [6127] Bennet. 1789. [8024-5] Fonvielle. 1868-9. [8125-8] Franklin. 1754-74. [8760] Gütle. 1804. [12005] Molloy. 1888. [12008] Moncel. 1875. [14863] Silber-schlag. 1784. [15011-12] Stanhope. 1779-81. [15602-3] Winkler. 1746.
- *v. Electric Oscillations.*
- CONDUCTORS: [102-3] Anderson. 1879-85. [1798] Harris. 1843. [2635] Lightning Rod Conference. 1882. [2672] Lodge. 1892. [3468] Parnell. 1882. [4558] Stanhope. 1779. [4866] Toaldo. 1778. [5756] Anderson. 1885. [8125-8] Franklin. 1754-74. [8760] Gütle. 1804. [8944-6] Harris. 1843-8. [9131] Hemmer. 1786. [9764] Jarriant. 1884. [10474] Landriani. 1784. [11741] Melsens. *c.* 1863. [11891-2] Mills. 1770-3. [12005] Molloy. 1888. [12316] Murray. 1830. [12318] Musgrave. 1779. [14861-2] Sigaud de la Fond. 1785. [15011-12] Stanhope. 1779-81. [15300-1] Toaldo. 1778. [15345] Turnbull. 1853. [15574] Wilson. 1777. [15620] Edinburgh Essays. 1770-1. [SS 2016] Rabiquet. 1753.
- *v. Electric Conductors (Pointed).*
- LIME—*v. Calcium Monoxide.*
- INDUSTRY: [S 3041] Gillmore. 1902.
- LIMESTONE: [8004] Forbes. 1857. [14495] Rossi. *c.* 1865.
- LIMITING VALUES: [10466] Landau. 1910. [10792-3] L'Hospital. 1716.
- LIMITS, METHOD OF: [5349] Whewell. 1838. [8085] Franchini. 1794.
- LINE GEOMETRY: [16810] Zindler. 1902-8. [S 504] Brianchon. 1817.
- LINES, INFINITESIMAL PROPERTIES OF: [12051] Moore. 1911.
- OF FORCE (MAGNETIC) — *v. Electromagnetic Field of Force.*
- LINKAGES: [2254] Kempe. 1877. [4265] Schooten. 1646. [10054] Kempe. 1877. [12438] Neuberg. 1886. [14736] Schooten. 1646.
- LIQUIDS, COMPRESSIBILITY OF: [S 1813] Colladon. 1837.
- *v. Water, Compressibility of.*

- LIQUIDS, CONDUCTIVITY OF: [15329] Tower. 1905.
- , EXPANSION OF: [6022] Bartoli. 1884. [SS 1636] Dalton. 1802.
- , PRESSURE OF: [725] Cauchy. 1826-30. [3476] Pascal. 1663.
- , RESISTANCE OF: [S 1652] Aëmbert, etc. 1777. [1852] Duchemin. 1842.
- , THEORY OF: [S 2759] Heen. 1888.
- , THERMAL EFFECTS OF: [2043] Kelvin and Joule. 1853-62.
- LITHIUM: [10722] Leonhard und Vogel. 1818. [11319] Mallet. 1856. [12794] Odling. 1859.
- LITHOGRAPHY: [2019] Hullmandel. 1835. [3905] Raucourt. 1832. [4634] Straker. 1867. [6458] Brégeaut. 1827. [9548-9] Hullmandel. 1824-33. [13930-2] Raucourt. 1820-32. [14229] Richmond. 1880. [14710-11] Schenck. 1850-7. [14818] Senefelder. 1819.
- LITHOLOGY: [7034] Cotta. 1866. [7144] Dana. 1888. [7178] Daubrèe. 1859. [7325] Doelter. 1906. [10131] Kinahan. 1873. [11167] Macculloch. 1821. [11212] McMahon. 1897. [11770] Merrill. 1897. [12748] Northampton. 1821. [13264] Phipson. 1857. [13550] Pott. 1753. [14501] Roth. 1883-7. [14607] Rutley. 1879. [11374] Rutley. 1904.
- LOCUS: [6958] Clifford. 1878. [9508] Howard. 1798. [12892] Ozanam. 1687. [14734-5] Schooten. 1657. [S 437] Apollonius. 1749.
- LOCK AND SAFE MAKING: [790] Chubb. 1850. [8704] Grimthorpe. 1857. [10617] Lawton. 1825. [13647] Price. 1856. [SS 144-6] Schott. 1666-7. [SS 2966-7] Bramah. 1787-1815. [SS 2980] Chubb. 1875.
- LOCOMOTIVE COMPOUNDING: [8196] Gairns. 1907.
- , ENGINES: [2670] Locomotive Tests. 1905. [3443-4] Pambour. 1836. [4323] Sekon. 1899. [4642] Stretton. 1893. [5482] Weed. 1838. [5655] Adcock. 1839. [5831] Armstrong. 1839. [6001-2] Barlow. 1836-51. [6019] Barry and Brainwell. 1876-82. [6387] Bourne. 1846. [6980] Colburn. 1871. [8246] Galloway. 1834. [8524] Gordon. 1836. [8612-13] Gray. 1825. [9078-9] Hebert. 1837. [9255] Heusinger v. Waldegg. 1882. [9349] Hodge. 1849. [10495] Lapage. 1889. [10942] Locomotive. 1904. [11582-3] Mathias. 1844. [12925-8] Pambour. 1836-40. [13889] Rankine. 1828. [14234] Ricour. 1869. [14408] Rolland. 1889. [15334] Trevithick. 1872. [17358] Volkert. 1898-1900. [S 3458] Gouin et Le Chatelier. 1845.
- , *v. Valve Gears.*
- , (COMPRESSED AIR): [11353] Mann. 1830.
- LOGARITHMIC CURVE: [1617] Grandi. 1701. [12676] Nicholas. 1696-7.
- , TRANSCENDENTS: [14993] Spence. 1809.
- LOGARITHMS: [876] Cotes. 1722. [1165] Elliot. 1856-72. [2222] Kaufmann. 1668. [2844-5] Martin. 1740-72. [2877] Maseres. 1791-1807. [3066] Moore. 1660. [3182-3. 3185-7] Napier. 1614-1889. [4527] Speidell. 1688. [5181] Walmsley. 1879. [5214-15] Ward. 1740-62. [5473] Wolstenholme. 1888. [6335] Booth. 1873-7. [6354] Borne. 1795. [6676] Caldani. 1782. [7038-9] Cotes. 1722. [7519-20] Elliot. 1872-3. [7323] Ellis. 1881. [8323] Gehler et Ludwig. 1776. [8453] Glaisher. 1873. [9096] Hellins. 1788. [9601-3] Hutton. 1785-1811. [11478-80] Martin. 1740-72. [11534-5] Maseres. 1760-1807. [11592] Matthews. 1890. [11943-5] *Miscellanea Curiosa*. 1708-27. [12336. 12338] LOGARITHMS, *continued*: [14750] Schöttel. 1754-6. Napier. 1658-1889. [15437-8] Wallace. 1808-23. [15596] Wingate. 1648. [15888] Compton. 1904. [16366] Matthews. 1896. [16655] Snowball. 1885. [16710] Tarnier. 1853. [S 1026. 1028] Napier. 1620-1915.
- , *v. Differential Method.*
- , (ANTR.): [1070] Dodson. 1742. [1635] Gray. 1876. [7329] Dodson. 1742. [7893] Filipowski. 1849. [8610-11] Gray. 1865-76.
- , (LOGISTIC): [10982] Logarithms. c. 1780. [15136] Streete. 1663.
- , *v. Sexagesimal Tables.*
- , (NATURAL): [3185-7] Napier. 1614-1889. [5465] Wolfram. 1788. [5994-6004] Barlow. 1814-20. [9095] Hellins. 1796. [S 1026. 1028] Napier. 1620-1915. [SS 472] Gudermann. 1833. [SS 550-1] Lambert. 1770-98.
- , TABLES OF: [200-1] Babbage. 1831-44. [224] Bagay. 1829. [395] Bièrens. 1873. [585-6] Briggs. 1628-33. [619] Bruhns. 1870. [667] Callet. 1829-43. [927] Dale. 1905. [1464] Gardiner. 1742. [1635] Gray. 1876. [2106] Jackson. 1881. [2262-3] Kepler. 1624-5. [2392] Lalande. 1844. [2409] Lambert. 1770. [2678] Logarithms. 1750. [2903] Matthews. 1890. [4205] Sang. 1871. [4269] Schrön. 1865. [4362] Sharp. 1717. [4559] Stanley. 1849. [4777-8] Taylor. 1792. [5021] Ursin. 1827. [5043-5] Vega. 1794-1840. [5450] Wingate. 1633. [5585] Zech. 1863. [5894-5] Babbage. 1834-41. [6491-2] Briggs. 1624-8. [6549] Bruhns. 1900. [6682] Callet. 1821-51. [7213] Decker. 1626. [7305] Farley. 1859. [8270] Gardiner. 1770. [8610-11] Gray. 1865-76. [9695] Jackson. 1881. [10256] Köhler. 1862. [10421-2] Lalande. 1802-39. [12770-2] Norwood. 1667-96. [14835] Sharp. 1717. [14992] Speidell. 1628. [15720] Bauschinger. 1910-11. [15833] Callet. 1861. [16257-8] Lalande. 1872-6. [16607-9] Schrön. 1875-1900. [16722] Thoman. 1867. [16749] Vega. 1888. [SS 350] Decker. 1626. [SS 432-3] Forti. 1863. [SS 550-1] Lambert. 1770-98. [SS 818-19] Schütz. 1857-8. [SS 826] Schulze. 1778. [SS 915] Vassal. 1872. [SS 918] Vega. 1896.
- , *v. Mathematical Tables. Trigonometrical Tables.*
- LOGIC: [982] Day. 1876. [2151. 2155] Jevons. 1864-74. [2295] Kircher. 1669. [3778] Prideaux. c. 1645. [4843-5] Thomson. 1854-75. [9802-7] Jevons. 1864-83. [10164] Kircher. 1659. [13294] Piccolomini. 1552. [13955] Read. 1878. [15448] Wallis. 1763. [15613] Zabarella. 1608. [SS 347] Dansie. 1627.
- , *v. Syllogism.*
- , (FORMAL): [465] Boole. 1854. [2281] Keynes. 1887. [3089] Morgan. 1847. [7324] Dodgson. 1887. [10126] Keynes. 1894. [11183] Macfarlane. 1879. [12108-9. 12127] Morgan. 1847-50. [15383] Venn. 1894. [15761] Boole. 1847. [16605] Schröder. 1890-1. [16751-2] Venn. 1881-94.
- , *v. Algebra, Logic of.*
- , OF SCIENCE: [1110] Duhamel. 1865-70. [2152-4. 9803-4] Jevons. 1874-83. [13547] Poste. 1850. [15645] Jevons. 1879. [15648] Natorp. 1910. [16240] König. 1914.
- LOGICAL INSTRUMENTS: [15015] Stanhope. 1879.
- LONGITUDE, DETERMINATION OF: [239] Baily. 1824. [896] Crisp. 1827. [1411] French. 1715. [1952] Hobbs. 1714. [2187] Jordan. 1885. [2846] Martin. 1768-9. [2934-5] Mayer. 1770. [2983] Millar. 1903. [3650] Plantamour et Hirsch. 1864. [5143] Waddington. 1763. [5384] Whiston. 1738. [5726] Älimari. 1715. [5786-9]

LONGITUDE, DETERMINATION OF, continued:

- Apianus. 1533-74. [5861] Astronomisch-geodätische Arbeiten. 1895. [5932] Baily. 1824. [6039] Baudet. 1875. [6085] Becker und Valentiner. 1906. [6201] Besson. 1569. [7053] Courtauvauz. 1768. [7066] Crawford. 1876-85. [8049] Foster. 1826. [8336] Gemma Frisius. 1553. [8567] Gould. 1869. [8624-5] Green. 1877-80. [8891] Hansen. 1836. [8953] Harrison (T. and J.). 1788. [8955-6, 8962, 8965-6] Harrison (J.). 1737-1869. [7811-12] Johnson. 1867-84. [10047] Kelly. 1796. [10548] La Rue. 1875. [11143-4] Lynn. 1827-43. [11198-201] Mackey. 1793-1810. [11477] Martin. *n. d.* [11542-4, 11549-50] Maskelyne. 1767-1802. [11690-1] Mayer. 1770. [12416] Nell. 1884. [12723-5] Norie. 1807-16. [12832] Orff. 1888-94. [13139] Perrier. 1877-80. [13200] Phillippes. 1674. [13336-7] Pigott. 1786-90. [13451] Pogson. 1884. [13739] Proposals. 1719. [14106] Respighi e Celoria. 1882. [14238-9] Riddle. 1824-42. [14391] Rogers and McLeod. 1886. [14489-90] Rossel. 1815. [14493] Rosser. 1862. [14530] Rowe. 1725. [14631] St. Leger. 1776. [15101] Stone. 1766. [15418] Vossius. 1685. [SS 1375] Derham. 1700. [SS 3162] La Coudraye. 1785.
- *v. Chronometer.*
- PARADOXES: [4548-9] Squire. 1742-3. [13769] Purshall. 1707. [14505] Roubais de Tourcoin. 1721.
- SCALE: [4822] Thomson. 1823.
- LOOM (PNEUMATIC): [12882, 12918] Page. 1864.
- LOXODROMIC TABLES: [4484] Snell van Royen. 1624. [15077] Stevinus. 1608.
- LUBRICANTS: [S 3009] Carpenter. 1895.
- LUNAR ECLIPSES: [7837] Ferguson. 1767. [14497] Rost. 1727.
- *v. Eclipses and Occultations.*
- OBSERVATIONS: [57] Airy. 1848-59. [6222] Binks. 1861.
- RADIATION: [4472] Smyth. 1858.
- ROTATION PARADOX: [2488] Laurie. 1847. [4967] Tyerman. 1885. [7847] Ferguson. 1748. [13130, 13134] Perigal. 1846-91.
- TABLES: [889-90] Cowper. 1766. [2842] Martin. 1765. [2934-5] Mayer. 1770. [3146] Muliers. 1611. [4357] Shadwell. 1860. [4772-3] Taylor. 1834. [5581-2] Zach. 1809. [6711] Capello. 1737. [7699] Euler. 1772. [8893] Hansen. 1857. [9069] Heath. 1760. [11054] Loys des Cheseaux. 1754. [11690-1] Mayer. 1770. [12468] Newcomb. 1876. [12859] Oudemans. 1859. [15251] Thomson. 1867. [SS 1048] Damoiseau. 1828. [SS 1664] Euler. 1746-51.
- THEORY: [35] Adams. 1900. [604] Brown. 1896. [1258] Euler. 1772. [1580-1] Godfray. 1859-85. [1652] Gregory. 1702. [1772-3] Hansen. 1838. [1913] Hevelius. 1647. [1999] Horrocks. 1678. [2710] Lubbock. 1833. [2940] Melanderhjelm et Frisi. 1769. [3219-20] Newcomb. 1878. [3256-69] Newton. 1713-1871. [3647] Plana. 1832-57. [4398-9] Simpson. 1757. [4602] Stewart. 1761. [5651] Adams. 1853. [5691] Airy. 1886. [5762] Andoyer. 1902. [6440] Brahe. 1648. [7703-5] Euler. 1753-72. [8491-3] Godfray. 1853-71. [9257] Hevelius. 1647. [11692] Mayer. 1767. [12476-7] Newcomb. 1878-1909. [12501-24] Newton. 1687-1871. [13387] Plana. 1832-57. [13491] Pontécoulant. 1829-46. [14884-5] Simpson. 1757. [16813] Adams. 1900. [16846] Godfray. 1871. [S 1402-3] Clairaut. 1765. [S 1508] Kugler. 1900. [SS 981] Alembert. 1754-6. [SS 1038] Clairaut. 1752. [SS 1271-2] Riccioli. 1651.
- *v. Three Bodies, Problem of.*

- MACHINE DRAWING AND DESIGN: [4312] Scott-Moncrieff. 1897. [5015] Unwin. 1886-8. [5436] Wilme. 1846. [6223] Binns. 1869-71. [8794] Haindl. 1852. [9343] Hobbs. 1907. [9755] Jamison. 1905. [9827] Johnson. 1860. [9883-4] Jones. 1899-1902. [9900] Jones and Jones. 1893. [10640] Le Blanc. 1830. [11044-5] Low. 1896-1906. [14008] Reid. 1898. [14938] Smith and Marx. 1905. [15359-61] Unwin. 1877-1909. [17348] Low and Bevis. 1903. [17357] Unwin. 1902-3. [17359] Wells. 1905.
- *v. Marine Engineering Design. Steam Engines, Design of.*

- ELEMENTS: [9327] Hiscox. 1900. [9482] Hospitalier. *v. y.* [17332] Bach. 1903.
- *v. Mechanism.*

- GUNS: [10417] Lake. c. 1896. [12709] Nordenfelft. 1884.

- SHOP PRACTICE: [2257] Kennedy. 1907.

- TOOLS: [6123] Benjamin. 1895. [6580-1] Buchanan. 1842-52. [14169] Richard. 1895-6. [SS 3092] Van Dervoort. 1904.
- *v. Mining Machinery and Tools. Steel (Tool), Tool Making.*

- MACHINERY (AGRICULTURAL): [8243] Gallo. 1572. [13561] Pouillet. 1834.

- *v. Silos.*

- (EARLY): [289-90] Bate. 1634-54. [444] Böckler. 1662. [560] Branca. 1629. [672-3] Camus. 1722. [677] Capra. 1678. [729] Caus (I. de). 1659. [730] Caus (S. de). 1615. [1875-7] Hero Alexandrinus. 1575-1601. [3714, 3717] Porta. 1601-6. [3881-2] Ramelli. 1588-1620. [4273, 4277] Schott. 1657-64. [4581-2] Stevinus. 1668. [5101-6] Vitruvius. 1567-1800. [5413-18] Wilkins. 1648-91. [5505-6] Worcester. 1663-1825. [5596-8] Zonca. 1607-56. [5599] Zucchi. 1649. [6043-4] Bate. 1634. [6203-4] Besson. 1582. [6284] Böckler. 1662. [6700] Camus. 1732. [6777] Caus. 1704. [8244] Gallon. 1735-77. [8708-9] Grollier. 1719. [9175-81] Hero Alexandrinus. 1575-1866. [10767] Leupold. 1724-1802. [13533-4] Porta. 1601-6. [14747-9] Schott. 1664-87. [15387] Veranzio. c. 1595. [15409-11] Vitruvius. 1511-1649. [15559-63] Wilkins. 1648-91. [S 3419] Dobrzanski. 1657. [SS 3024-5, 3032] Hero Alexandrinus. 1592-1601.

- (MINING)—*v. Mining Machinery.*

- GENERAL WORKS ON: [132] Appleby. 1863. [226] Bailey. 1772. [1726-7] Hachette. 1809-1819. [3895] Rankine. 1869. [6001] Barlow. 1836. [6352] Borgnis. 1818-23. [7228] Dempsey. 1852-6. [8244] Gallon. 1735-77. [8794] Haindl. 1852. [9826] Johnson. 1856. [13561] Pouillet et Le Blanc. 1834. [13899] Rankine. 1873.

- , ECONOMY OF: [192-3] Babbage. 1832.

- *v. Fuel Economy.*

- , LOST WORK IN: [15296] Thurston. 1898.

- , MECHANICS OF: [2256] Kennedy. 1886. [3121] Motte. 1727. [5310-13] Weisbach. 1847-1901. [8772] Hachette. 1811. [9651] Imison. 1794. [10089] Kennedy. 1886. [12074] Morgan. 1770. [13983] Redtenbacher. 1852. [14113-14] Reuleaux. 1876. [14907-11] Smeaton. 1794-1813. [15196-7] Taffe. 1835-9. [17187] Poncelet. 1874-6. [17353] Reuleaux. 1876.
- *v. Kinematics. Mechanics (Engineering).*

- , OSCILLATIONS OF: [S 3512] Léauté. 1885.

- , THEORY OF: [5599] Zucchi. 1649. [12203] Moseley. 1841.

- *v. Mechanics (Theoretical).*

- MACHINERY CONSTRUCTION : [2450] Lanz and Bétancourt. 1820. [3971] Reuleaux. 1872. [5221-2] Watt. 1851. [12405-7] Navier. 1826-64. [14112] Reuleaux. 1875. [17354] Reuleaux. 1899.
- REPAIR AND MAINTENANCE : [S 3345] Barber. 1895.
- MACHINES (RELATIONAL AND DIFFERENTIAL) : [14936] Sinee. 1851.
- MACLAURIN'S THEOREM : [2761-3] Maclaurin. 1742. [4607] Stirling. 1764. [11231-5] Maclaurin. 1742-1801. [15087-90] Stirling. 1730-64.
- MAGEBURG HEMISPHERES : [1698-9. 8730] Guericke. 1672.
- MAGIC LANTERN : [2294] Kircher. 1671. [3782] Pringle. 1899. [10161] Kircher. 1671. [12009] Moncel. 1855.
- *v. Optics (Projective).*
- SQUARES AND CUBES : [5096] Violle. 1837-8. [5768] Andrews. 1908. [11406] Marci. 1744. [15567] Willis. 1909. [15681] Andrews. 1908. [15690] Arnoux. 1894. [16023-4] Frolow. 1884-6. [16270] Latoon. 1895. [16495] Portier. 1902. [16567] Scheffler. 1882.
- MAGNE-CRYSTALLIC ACTION : [4997] Tyndall. 1870. [13436] Plücker. 1854.
- MAGNESIUM AND ITS COMPOUNDS : [970] Davy. 1808. [4232] Schaffer. 1774. [6248] Black. 1777. [7444] Edinburgh Essays. 1754-71. [11404] Marchand und Scheerer. 1850. [11419] Marggraf. 1767-8. [12794] Odling. 1859. [14211] Richards and Parker. 1896. [15268] Thomson. 1831. [15620] Edinburgh Essays. 1770-1.
- MAGNETIC ATTRACTION : [5982-4] Barlow. 1823-4.
- CIRCUIT : [453] Bois. 1896. [6300-1] Bois. 1894-6.
- CLOCK : [SS 1835] Léotaud. 1668.
- DISTURBANCES : [13028] Paulson. 1892. [SS 2294] Lefroy. 1855.
- FIELD—*v. Electromagnetic Field of Force.*
- INDUCTION—*v. Electromagnetic Induction.*
- INFLUENCE OF SOLAR RAYS : [6877] Christie. 1826.
- INSTRUMENTS : [14237] Riddell. 1844.
- MEASUREMENT : [9480] Hospitalier. *v. y.* [14410] Roller. 1907. [S 2408] Weber. 1853.
- MEDIA : [9321] Hirst. 1855.
- NEEDLE : [1314] Fenwick. 1822. [6126] Bennet. 1792. [7830] Fenwick. 1861. [10880] Lintern. 1887. [15180-1] Swinden. 1784.
- *v. Compass (Mariner's).*
- OBSERVATIONS : [49] Airy. 1843-50. [2654] Lloyd. 1849. [3208] Neumayer. 1867. [4159-66] Sabine. 1843-53. [5781-2] Antarctic Expedition. 1840-1908. [6544] Brown. 1893. [6816] Chambers. 1881-3. [6873] Chree. 1903. [8308] Gauss and Weber. 1837. [8648-9] Greenwich Observations. 1875-1910. [9420] Hoogewerff. 1890. [9705] Jacob. 1884. [10910] Lloyd. 1849. [11452] Marsh. 1895. [12431] Neumayer. 1867. [13026. 13029] Paulsen. 1892-6. [14237] Riddell. 1844. [14556] Royal Society of London. 1840-2. [14618-19] Sabine. 1837-41. [14794] Secchi. 1860. [S 2477] Brown. 1849. [SS 2294] Lefroy. 1855.
- PERMEABILITY : [13075] Peirce. 1910.
- POLARITY : [15160] Sturgeon. 1832.
- MAGNETIC SURVEYS AND CHARTS : [7517] Elliot. 1851. [12219-20] Moureaux. 1886-90. [12430] Neumayer. 1891. [14565-6] Rücker. 1889-96. [SS 1906-7] Musschenbroek. 1729. [SS 2294] Lefroy. 1855.
- TABLES : [6298] Boileau. 1850. [15434] Walker. 1794.
- TESTING : [13076] Peirce. 1910.
- VARIATION : [1314] Fenwick. 1822. [2700-1] Lorimer. 1795. [3011] *Miscellanea Curiosa*. 1705-7. [8339] Gellibrand. 1635. [9668] Innes. 1894. [10715-16] Le Monnier. 1781-8. [11049] Lovett. 1766. [11198-201] Mackay. 1793-1810. [11943-5] *Miscellanea Curiosa*. 1708-27. [15434-5] Walker. 1794. [SS 1652] Duhamel. 1660.
- MAGNETISM (ANIMAL)—*v. Electro-Biology.*
- (ELEMENTARY) : [1799] Harris. 1850. [6005] Barlow. 1820.
- *v. Electricity and Magnetism (Elementary).*
- (EXPERIMENTAL) : [5984] Barlow. 1824. [6091] Becquerel. 1834-40. [6126] Bennet. 1792. [SS 2071-2] Sigaud de la Fond. 1775-84.
- (GENERAL) : [61] Airy. 1870. [312] Becquerel. 1855-6. [740] Cavallo. 1795. [1111] Duhem. 1888. [2244-6] Kelvin. 1872-84. [2418] Lamont. 1867. [2656] Lloyd. 1874. [2700-1] Lorimer. 1795. [3532] Penrose. 1753. [4303] Scoresby. 1839. [6795] Cavallo. 1787. [10074-5] Kelvin. 1872-84. [10210] Kleyer. 1885. [13288] Pianciani. 1840. [15156-7] Sturgeon. 1850. [15434-5] Walker. 1794. [16947] Beer. 1865. [17106] Lamont. 1867.
- *v. Diamagnetism. Electricity and Magnetism (General).*
- (POPULAR)—*v. Electricity and Magnetism (Popular).*
- (PRACTICAL)—*v. Electricity and Magnetism (Practical).*
- (ROTATORY) : [6000] Barlow. 1825. [6878-9] Christie. 1825.
- (TERRESTRIAL) : [270] Barlow. 1824. [425] Black. 1905. [1289-92] Faraday. 1839-55. [1985] Hopkins. 1851. [5982-4 5998] Barlow. 1823-31. [6246] Black. 1905. [7777-81] Faraday. 1839-55. [8399-8402] Gilbert. 1600-1901. [10163] Kircher. 1654. [10210] Kleyer. 1885. [11581] Mathias. 1897. [12220-2] Moureaux. 1886-9. [13783. 13786-7] Quet. 1882-4. [13808-10] Quételet. 1840-1. [14533-4] Rowell. 1840-87. [14616-17. 14620] Sabine. 1838-62. [14755] Schumacher. 1843. [S 1480] Hecker. 1908. [S 1921] Gauss. 1833. [S 2597] Walker. 1866. [SS 1835] Léotaud. 1668.
- *v. Compass. Electricity (Atmospheric). Geology and T. M. Magnetic Influence of Solar Rays. M. Needle. M. Variation.*
- , BIBLIOGRAPHY OF : [SS 1901] Murhard. 1797. [SS 2039] Ronalds. 1880.
- , DICTIONARIES OF—*v. Electricity and Magnetism, Dictionaries of.*
- , EARLY WORKS ON (TO 1700) : [659] Cabeo. 1629. [928] Dalencé. 1687. [1526-8] Gilbert. 1600-1893. [2218] Kast. 1683. [2296-7] Kircher. 1641-67. [3544] Peregrius. 1902. [5038] Vallemont. 1692. [8399-8402] Gilbert. 1600-1901. [10163-4] Kircher. 1654-9. [13105] Peregrius. 1906. [13517-24] Porta. 1558-1658. [13578] Power. 1664. [15198] Taisnier. 1562. [SS 1583-4] Boyle. 1676. [SS 1593-4] Cabeo. 1629. [SS 1719] Gilbert. 1628. [SS 1742-4] Grimaldi. 1665. [SS 1760] Hale. 1695. [SS 1835] Léotaud. 1668. [SS 2443] Boyle. 1673.

- MAGNETISM, EFFECT OF TEMPERATURE ON: [925] Curie. 1895. [6875] Christie. 1825.
- , HISTORY OF: [311] Becquerel. 1858. [15544] Wilcke. 1764.
- , MATHEMATICAL THEORY OF—*v. Electricity and Magnetism, Mathematical Theory of.*
- : PARADOXES: [6924] Clarke. 1818. [15047-8] Stevenson. 1846-9. [SS 2000] Peart. 1791.
- : SPECULATIONS: [14001-3] Reichenbach. 1850-1.
- , THEORIES OF: [3767] Prévost. 1788. [5998] Barlow. 1831. [9480] Hospitalier, *v. y.* [12703] Nobili. 1822. [SS 1664] Euler. 1751.
- AND ELECTRICITY COMPARED: [13171] Peletin. 1802. [15180-1] Swinden. 1784. [SS 1484. 1486] Aepinus. 1758. [SS 1592-4] Cæbeo. 1629.
- OF CRYSTALS: [13436] Plücker. 1854.
- OF GASES: [13436] Plücker. 1854.
- OF IRON SHIPS—*v. Compass Deviation.*
- OF METALS: [7773] Faraday. 1839. [14795] Seebeck. 1828.
- MAGNETS AND MAGNETIZING: [9480] Hospitalier, *v. y.* [11827] Michell. 1751. [12671] Nickles. 1855. [SS 1792-6] Ingenhousz. 1782-9. [SS 1906-7] Musschenbroek. 1729.
- MALIC ACID: [14697] Scheele. 1786.
- MALTING: [1369] Ford. 1862. [2575-6] Levesque. 1845-53. [3528] Peltz and Habich. 1876. [3645] Pitt. 1859. [4572] Steel. 1881. [4629] Stopes. 1885. [10458] Lancaster. 1908. [10777] Levesque. 1847. [10783] Lévy. 1899. [10875-6] Ling. 1902-8. [14149-50] Reynoldson. 1808-9.
- *v. Brewing.*
- MANGANESE AND ITS COMPOUNDS: [8175] Fuchs. 1791. [9905] Jordan. 1878. [11951-3] Mitscherlich. 1834-47. [14697] Scheele. 1786.
- MANOMETERS AND MANOMETRY: [1698-9] Guericke. 1672. [6502] Brinkman. 1904. [8730] Guericke. 1672. [13933] Ravenek. 1884.
- MANUFACTURING INDUSTRIES: [1637] Great Industries. 1878-80. [2814] Manufacturing Industries. 1877. [6001] Barlow. 1836. [9660] Industrial Arts. 1876. [11371] Manufacturer. 1780.
- MANURES (ARTIFICIAL)—*v. Fertilisers.*
- MANUSCRIPTS ON SCIENTIFIC SUBJECTS: [426] Black. *c.* 1770. [8214. 8218. 8233] Galilei. *n. d.* [8955. 8957. 8960-2. 8966] Harrison. 1710-1869. [10738] Lesow. 1713-14. [11372-7] Manuscript. *Sec.* xv.—*c.* 1760. [11378] Manuscripts. *Sec.* xvii. [12611] Manuscript. *Sec.* xviii. [12624] Saunderson. 1742. [14671. 14676] Saunderson. 1712-42. [14879] Simpson. 1730-58. [15001] Spottiswoode. *v. d.*
- MARINE ENGINEERING: [3924] Redman. 1877. [5195] Wannan. 1898. [6616] Burgh. 1867. [11654-5] Maw. 1884. [12381] Marine Engineering. 1893-1910. [14612] Ryder. 1852. [14791] Seaton and Rounthwaite. 1894. [14978] Somerscales. 1909. [15313-14] Tompkins. 1904-14. [15545] Wilda. 1901. [S 3738] Engineering Congress. 1894.
- *v. Boilers (Marine), Electric Ships, Screw Propeller.*
- DESIGN: [4519] Sothorn. 1908.
- ENGINES: [2427] Langmaid and Gaisford. 1893. [2749] McGibbon. 1906. [4333-5] Sennett. 1885-1900. [5862] Atherton. 1851. [9661] Industriel. 1826. [10486] Langmaid and Gaisford. 1893. [11303] Main and Brown. 1855.
- *v. Turbines (Steam).*
- MARS (PLANET): [1359] Fontana. 1646. [3584] Phillips. 1865. [5684] Airy. 1858. [6596] Bugge. 1789. [7999-8001] Fontana. 1646. [10863] Lindenau. 1811. [11050-1] Lowell. 1896. [12680] Niesten. 1878. [S 1527] Lowell. 1908. [SS 1134] Hirtzgarer. 1643.
- *v. Atmospheres (Planetary).*
- MARSH GAS—*v. Methane.*
- MASONRY CONSTRUCTION: [246] Baker. 1890. [7316-17] Dobson. 1849.
- MAST MAKING: [7900] Fincham. 1829. [8034-5] Forfait. 1788. [11553] Masts. 1797.
- MATERIALS OF CONSTRUCTION—*v. Building Materials.*
- MATHEMATICAL CONGRESSES: [S 600] Congress. 1913.
- CORRESPONDENCE LESSONS: [15815] Burckhardt and Blank. *c.* 1900. [16111] Hartwig. 1904-6. [16771-2] Weitzel. 1910-14.
- CURIOSITIES: [11639] Maupin. 1893. [16013] Fourtey. *s. d.*
- CYCLOPÆDIAS AND DICTIONARIES: [78] Alembert. 1784-5. [271] Barlow. 1814. [958] Davies and Peck. 1855. [1183] Encyclopædia Metropolitana. 1848. [2045-7] Hatton. 1796-1815. [3122] Moxon. 1692. [3422] Ozanam. 1691. [4270-1] Schott. 1661-77. [4623] Stone. 1726. [5109] Vitale. 1690. [5992-3] Barlow. 1814. [7568] Encyclopædia of Pure Mathematics. 1848. [7569] Encyclopædie der mathematischen Wissenschaften. 1898-1909. [9597-600] Hutton. 1795-1815. [10224] Klügel. 1803-36. [12029] Montferrier. 1845. [12225-7] Moxon. 1679-1701. [12388] Handbuch der Mathematik. 1879-81. [12933] Pappiani. 1747. [13750] Psellus. 1647. [13847] Ralphson. 1702. [15099-100] Stone. 1726-43. [15442] Walter. 1762. [15844] Carr. 1886. [15917] Davies. 1857-75. [16149] Hoffmann. and Natani. 1858-67. [16217] Kleyer. 1883-1909. [16230] Klügel. 1803-36. [16403] Montferrier. 1835-40. [16416] Müller. 1900. [16585-6] Schlömilch. 1879-1904. [16662] Sonnet. 1867. [16767-8] Weber and Wellstein. 1903-12. [SS 377] Encyclopædie der mathematischen Wissenschaften. 1898-1914.
- DRAWING: [11909] Minchin and Dale. 1906. [16155-6] Holzmüller. 1886. [16393] Minchin and Dale. 1906.
- *v. Geometrical Drawing.*
- ESSAYS: [1847] Hellins. 1789. [1962] Hoffmann. 1838. [2211] Kaestner. 1771. [2398] Lambert. 1765-72. [2423-4] Landen. 1755. [3918] Ribiere. 1893. [4397-8] Simpson. 1740. [4690] Suzzi. 1723. [6835] Chelini. 1881. [7335] Donn. 1769. [9096] Hellins. 1788. [14728] Schubert. 1898. [14876-8. 14880] Simpson. 1740-3. [15513] West. 1762. [15920] Davison. 1915. [16404] Moore and Wilczynski. 1910.
- FORMULÆ: [4415] Smalley. 1862. [5833] Arnett. 1873. [6523] Brooks. 1829. [10865] Linders. 1905. [16165] Houël. 1868. [16269] Laska. 1888-94. [16302] Ligowski. 1893. [S 1182] Seaver. 1907.
- INSTRUMENTS: [162] Arnold. 1832. [406-7] Bion. 1723-58. [1055] Digges. 1625. [1716-19] Gunter. 1636-73. [1841] Heather. 1877. [2595] Leybourn. 1672. [4037] Robertson. 1747. [4392] Simms. 1844-50. [4560-1] Stanley. 1868-88. [5295] Webster. 1768. [5644. 5647-9] Adams. 1787-1803. [6203-4] Besson. 1582. [9073] Heather. 1849. [11465-7] Martin. 1745-1819. [11765] Meredith. 1791. [11803] Metius. 1632-3. [12227] Moxon. 1701. [12819] Olyver. 1601. [14338-41] Robertson. 1747-75. [14774] Scott. 1733. [15491-3] Webster. 1739-68. [15637] Dyck. 1892-3. [15639] Galle. 1912. [15641] Heather. 1888-92. [16170] Hulme.

MATHEMATICAL INSTRUMENTS, *continued* :

1895. [16724] Thornton. 1906. [S 433-4] Apianus. 1532-41. [S 3354-5] Besson. 1578. [SS 431] Forestani. 1603. [SS 512-14] Hulsius. 1603-15.

— *v. Calculating Machines. Compass of Proportion. Copying I. Cross Staff. Dividing Engines. Geometrical I. Gunter's Line. Instrument (Universal). Mecometer. Panorganon. Parallel Ruler. Perspective Drawing I. Quadrat (Universal). Quadrant of Proportion. Ring (Mathematical). Scale. Sector. Slide Rule. Square. Surveying I.*

— JOURNALS : [388] Bibliotheca. 1891-3. [668] Cambridge Mathematical Journal. 1839-41. [1134] Eagle. 1858-1903. [2197] Journal de Mathématiques élémentaires et spéciales. 1877-88. [2198] Journal des Mathématiques pures et appliquées. 1848-63. [2889] Mathematician. 1845-50. [2890] Mathématiciens. 1896. [5740] American Journal of Mathematics. 1891-5. [5741] American Mathematical Society. 905-7. [6685-8] Cambridge Mathematical Journal. 1841-54. [6689] Cambridge and Dublin Mathematical Journal. 1846. [9673] Intermédiaire des Mathématiciens. 1894-9. [9915] Journal für die reine und angewandte Mathematik. 1859-70. [11558] Mathematical Journal. 1846-52. [11559] Mathematical Magazine. 1761. [11561-2] Mathematical Questions. 1872-96. [11564] Mathematical Society (London). 1865-1913. [11565-6] Mathematician. 1847-56. [11567] Mathématiciens (Intermédiaire des). 1894-1902. [11568-9] Mathematics, Quarterly Journal of. 1857-1902. [11571-2] Mathematik, Jahrbuch über die Fortschritte der. 1868-1900. [11573] Mathématiques, Nouvelles Annales de. 1854-60. [11783-4] Messenger of Mathematics. 1878-99. [14124] Revue Semestrielle. 1893-1910. [S 129] Mathematical Gazette. 1901-14. [S 130] Mathematical Monthly. 1859. [SS 3278-9] Mathematische Annalen. 1869-1904. [SS 3285] Mathematical Questions. 1872-1917.

— LECTURES : [2308] Klein. 1894. [2375] Lagrange. 1898. [8737] Guglielmini. 1815. [10398] Lagrange. 1898. [12054] Moore, etc. 1910. [16243] Königs. 1892.

— MEMOIRS AND PAPERS : [745] Cayley. 1889-98. [1049] Diderot. 1748. [1866] Henrici. 1613. [2241] Kelvin. 1882-90. [2383] La Hire. 1694. [2942-3] Mémoires de Mathématiques. 1692-1776. [3865] Quesetlet et Garnier. 1825-38. [4555] Stancari. 1713. [6806] Cayley. 1889-98. [6957] Clifford. 1882. [6969] Cockle. 1864-7. [10411-12] La Hire. 1694. [11054] Loys des Cheseaux. 1754. [11742] Mémoires. 1750-86. [12683] Nieuport. 1794-9. [S 362] Memoirs. 1832-98. [S 3862] Mathematical Papers. 1867-87.

— MISCELLANIES : [7557] Emerson. 1776. [8051-2] Foster. 1659. [13325] Pierce. 1891. [S 545] Catala. 1868-88. [SS 348] Dary. 1669. [SS 421] Faulhaber. 1622.

— PARADOXES : [336] Benson. 1868-79.

— *v. Circle Squaring. Duplication of the Cube. Geometrical P. Trisection of an Angle.*

— PROBLEMS AND EXERCISES : [204] Bachet. 1624. [669] Cambridge Problems. 1821. [725] Cauchy. 1826-30. [862] Caraccioli. 1755. [1040] Diarian Repository. 1774. [1193] Etten. 1627. [1428] Frost. 1849. [1503] Gent. 1734-5. [1551] Glaisher. 1879. [1595] Goodwin. 1862-3. [2041] Hutton. 1775. [2161] Joannet et Dauriac. 1847. [2583] Leybourn. 1806-17. [2886] Mathematical Problems. 1837. [2887] Mathematical Questions and Solutions. 1888. [3232] Newth. 1861. [4401-2] Simpson. 1792-1810. [4795] Thacker. 1743. [5242] Watson and Routh. 1860. [5474-6] Wolstenholme,

MATHEMATICAL PROBLEMS AND EXERCISES, *continued* :

1878-91. [5521-2] Wrigley. 1852-83. [6690-3] Cambridge Problems. 1821-57. [6874] Christie. 1866. [7059] Coytier. 1811. [7274] Diarian Repository. 1774. [7874] Ferrers and Jackson. 1851. [8167] Frost. 1849. [8352] Gentleman's Mathematical Companion. 1824. [8460] Glaisher. 1879. [8519-21] Goodwin. 1847-62. [8639] Greenhill. 1876. [9318-19] Hirsch. 1827-46. [9741] Jameson. 1851. [10391] Ladies' Diaries. 1705-73. [10392] Lady's and Gentleman's Diary. 1844-6. [10654] Le Coite. 1685. [10693] Lehmus. 1838-42. [10802] Leybourn. 1817-18. [11560] Mathematical Problems. 1836. [11561-3] Mathematical Questions. 1872-96. [11897-9] Milne. 1885-8. [11946] Miscellanea Curiosa. 1734-5. [12269] Muller. 1736. [12903] Palladium. 1770-6. [14374] Robson. 1889. [14734-5] Schooten. 1657. [14879. 14886-8] Simpson. 1730-1810. [15352] Turner. 1750-2. [15357] Unger. 1830-4. [15772] Bouasse et Turriere. 1912. [15983-4] Fabry. 1910-13. [16044] Geigenmüller. 1907-8. [16256] Laisant. 1893-6. [16282] Lebon. 1898. [16357] Marc. 1907. [16361-3] Martus. 1901-6. [16389-91] Milne. 1885-91. [16617] Schulze und Pfahl. 1908. [16675] Steggall. 1882. [16762] Wallentin. 1906-8. [16779] Wolstenholme. 1891. [16804] Wrigley. 1888-9. [S 942] Lonchampt. 1865. [S 1112] Radford. 1915. [SS 348] Dary. 1669. [SS 496] Henrici. 1621.

— *v. Algebra, P. and E. Arithmetical P. and E. Calculus : Applications and Examples. Geometrical P. and E. Geometry (Analytical), P. and E. Mechanics, P. and E. Pillow Problems. Trigonometrical P. and E.*

— PSYCHICS : [7443] Edgeworth. 1881. [15947] Drobisch. 1850.

— RECREATIONS : [204] Bachet. 1624. [1193] Etten. 1627. [1722-3] Guyot. 1769-86. [1809] Hatton. 1728. [1867] Henrici. 1659. [1962] Hoffmann. 1838. [1978-9] Hooper. 1774-87. [2049] Hutton. 1814. [2597] Leybourn. 1694. [3170] Mydorge. 1630. [3424-5] Ozanam. 1708-1803. [4004] Riecke. 1867-73. [5963] Ball. 1892. [7604-8] Etten. 1628-69. [8798] Halcken. 1767. [9012] Hatton. 1728. [9434-7] Hooper. 1774-94. [9607-8] Hutton. 1803-44. [10770-4] Leurechon. 1630-74. [12888-90] Ozanam. 1708-1803. [14728] Schubert. 1898. [15661-2] Ahrens. 1901. [15705-7] Ball. 1892-1911. [15709] Bachet de Méziriac. 1874. [16332] Lucas. 1883-94. [16614-15] Schubert. 1907-9. [SS 232] Boissière. 1556. [SS 872] Suardi. 1764.

— *v. Arithmetical R. Magic Squares.*

— SPECULATIONS : [330-1] Benedetti. 1585-99. [5607] Abbott. 1884.

— SYMBOLS AND NOTATION : [460] Bombelli. 1572. [1716-19] Gunter. 1636-73. [3408] Oughtred. 1652. [3429-32] Pacioli. 1494-1523. [3913] Recorde. 1557. [3927-8] Regiomontanus. 1533-61. [4584-5] Stevinus. 1608-84. [4605] Stifel. 1554. [5063-4] Vieta. 1646. [5886] Babbage. 1826. [11806] Meyer. 1838. [12113] Morgan. 1865. [13963] Recorde. 1605. [14028] Renaldini. 1655. [14250] Riese. 1605. [15084] Stifel. 1544. [15390. 15394] Vieta. 1591-1646. [15678] André. 1909.

— TABLES : [272] Barlow. 1875. [486] Bottomley. 1890. [561] Brancker. 1668. [608] Brown. 1830. [1434] Galbraith. c. 1860. [2042-4] Hutton. 1785-1822. [2751] Mackay. 1804. [4227] Sawyer. 1878. [4362] Sharp. 1717. [4375-6] Sherwin. 1717-61. [5566] Young. 1839. [5994-9] Barlow. 1814-40. [6710] Cape. 1847. [6814] Chambers. 1897. [7075] Crelle. 1897. [7121] Cunningham. 1900. [7330-1]

MATHEMATICAL TABLES, *continued*:

- Dodson. 1747. [7347] Douglas. 1809. [8197]
Galbraith and Haughton. 1860. [8378] Gheb-
lino. 1568. [8525] Gordon. 1896. [9252]
Hartzer. 1864. [9407] Holman. 1896. [9601-5]
Hutton. 1785-1860. [9674] Inwood. 1859.
[9706-7] Jacobi. 1839. [10112] Kerigan.
1845. [14835] Sharp. 1717. [14997] Spinola.
1562. [15657] Wrapson and Gee. 1898.
[16165] Höel. 1868. [S 618] Dale. c. 1910.
[S 753] Guldin. 1635. [S 827] Hutton. 1781.
[S 1339] Zimmermann. 1904. [SS 233]
Brown. 1718. [SS 337-8] Crelle. 1857-99.
[SS 352-3] Degen. 1817-24. [SS 509] Hülse.
1849. [SS 826] Schulze. 1778.
- *v. Difference Tables. Engineering Aid-Book*
and T. Factor Tables. Fractions (Vulgar)
as Decimals. Functions, T. of. Hydraulic T.
Integrals, T. of. Interest T. Logarithms, T. of.
Mercantile T. Metric T. Multiplication T.
Percentage T. Ready Reckoner. Roots, T. of.
Sexagesimal T. Squares and Cubes, T. of.
Surveying T. Traverse T. Trigonometrical T.

— TERMINOLOGY (GREEK): [3149] Müller. 1860.

- TRACTS: [50-3] Airy. 1831-58. [603]
Brougham. 1860. [1172] Emerson. 1793.
[1175] Encke. 1888-9. [2050-1] Hutton. 1812.
[4398-9] Simpson. 1757. [4602] Stewart. 1761.
[5520] Wright. 1875-9. [5685-9] Airy. 1826-58.
[6106] Bell. 1834. [6536] Brougham and Vaux.
1860. [9609-11] Hutton. 1786-1812. [14345]
Robins. 1761. [S 254] Cambridge Tracts.
1905-16. [SS 496] Henrion. 1621.

- WORKS (COLLECTED): [6-7] Abel. 1839-81.
[67] Alembert. 1780. [280] Barrow. 1860.
[351] Bernoulli (Jacques). 1744. [353-4] Bernoulli
(Jean). 1742. [720] Catalan. 1840-7. [814]
Clavius. 1612. [1168] Ellis. 1863. [1328]
Fermat. 1679. [1519-20] Giannini. 1773.
[1641] Green. 1871. [1660] Gregory. 1865.
[1716-18] Gunter. 1662-73. [2419] Lamy.
1734. [2832] Marolois. 1633. [2888] Mathe-
matici Veteres. 1693. [2915] Maurolycus. 1575.
[3448-9] Pappus. 1588-1660. [4714-15]
Tacquet. 1669. [5063-4] Viète. 1646. [5183-5]
Wallis. 1656-99. [5611-12] Abel. 1839-81.
[6013] Barrow. 1860. [6151-2] Bernoulli (Jean).
1742. [7527] Ellis. 1863. [7906-7] Fine. 1587.
[8627] Green. 1871. [8745-9] Gunter. 1653-80.
[10724] Leonardo Pisano. 1857-62. [11442]
Marolois. 1628. [11646-7] Maurolico. 1575.
[11932] Minkowski. 1911. [12938-9] Pappus.
1660-1871. [14241] Riemann. 1876. [15390]
Viète. 1646. [15451] Wallis. 1656. [16331]
Lübsen. 1899-1904. [16397] Möbius. 1885.
[16524] Riemann. 1892. [S 833] Jacobi. 1846-
51. [S 1204] Smith. 1894. [SS 151] Tacquet.
1707. [SS 230] Borchardt. 1888. [SS 463]
Grassmann. 1894-1902. [SS 483] Hesse. 1897.
[SS 519] Jacobi. 1881-4. [SS 652] Möbius.
1885-8. [SS 813] Schwarz. 1890.]

MATHEMATICIANS (GREEK AND ROMAN): [122-30]

- Apollonius Pergæus. 1566-1896. [143-52]
Archimedes. 1544-1897. [154] Aristarchus
Sarnius. 1688. [1062-3] Diophantus. 1621-70.
[1194-1242] Euclides. *v. y.* [2888] Mathematici
Veteres. 1693. [2946] Menelaus. 1707. [3448-
9] Pappus. 1588-1660. [3786-7] Proclus. 1792.
[4409] Simson. 1812. [4800-3] Theon Smyrnæus.
1644-1892. [5112-14] Viviani. 1659-1701. [5183]
Wallis. 1693-9. [5794-800] Apollonius Pergæus.
1607-1779. [5813-22] Archimedes. 1565-1807.
[5825-6] Aristarchus Sarnius. 1572. [6292-5]
Boethius. 1488-1546. [7300-2] Diophantus.
1621-70. [7609-7707] Euclides. *v. y.* [11751]
Menelaus. 1758. [12938-9] Pappus. 1660-
1871. [13688-93] Proclus. 1560-1875.
[15213] Taylor. 1816. [15229-30] Theodosius

MATHEMATICIANS (GREEK AND ROMAN), *continued*:

- Tripolita. 1558-86. [15686] Apollonius. 1896.
[S 437] Apollonius. 1749. [S 480] Boetius.
1867. [S 637] Diophantus. 1893-5. [S 1075]
Pappus. 1876-8.

— *v. Geometry (Greek). Mathematics (Greek).*

MATHEMATICS (APPLIED): [16662] Sonnet. 1867.

- (ARTILLERY): [389] Bézout. 1800. [1909]
Hertenstein. 1737. [2510] Le Blond. 1748.
[2891-2] Mathematics. 1853. [6195] Bézout.
1797.

— (CHEMICAL)—*v. Chemical M.*

- (ELEMENTARY): [374] Bertrand. 1778. [1010]
Denison. 1840. [11592-4] Goodwin. 1853-66.
[1629] Gravesande. 1727. [2346] La Caille.
1770. [2717] Ludlam. 1785. [2857] Martin.
1736. [2893] Mathématiques. 1725. [3618]
Pickering. 1710. [4671-3] Sturm. 1695-1700.
[5212-15] Ward. 1719-62. [5555-6] Young.
1861-2. [8259] Galtruchius. 1668. [9416]
Holzmüller. 1894-5. [10965] Lodge. 1905.
[11071-2] Ludlam. 1785-90. [14135] Reynau.
1714. [14282] Rivard. 1765. [15164-5] Sturm.
1702. [15458-9] Ward. 1713-34. [15499]
Weidler. 1736. [15504] Wells. 1723-31. [15998]
Fischer. 1891. [16160-1] Holzmüller. 1894-
1904.

- (ENGINEERING): [15967] Egerer. 1913. [16159]
Holzmüller. 1897-8. [16417-18] Mussat. 1889.
[16756-7] Vogt. 1904-9.

— *v. Calculus (Infinitesimal) for Engineers.*

- (FINANCIAL): [760] Charlon. 1869. [7372]
Dubost. 1818. [15861-2] Charlon. 1878.
[16080] Grossmann. 1886-1900. [16151]
Holzinger. 1898. [16182] Janson-Durville. 1887.
[16358] Marie. 1890. [16579] Schlimbach.
1902. [16723] Thoman. 1891.

— *v. Wealth, Mathematical Theory of.*

- (GENERAL): [325-6] Béliidor. 1725-57. [503]
Bourdoin. 1661. [671] Camus. 1768. [715]
Castel. 1728. [719] Catalan. 1857-8. [749]
Ceulen. 1615. [804] Clark. 1682. [1038]
Deschales. 1690. [1054] Digges. 1579. [1081]
Doria. 1722. [1272] Fagnano. 1750. [2037-40]
Hutton. 1820-49. [2217] Kaschube. 1718.
[2225] Keckermann. 1621. [2283] Kimber.
1864-5. [2502] Leybourn. 1690. [2795] Mandey.
1729. [2891-2] Mathematics. 1853. [3068] Moore.
1681. [3091-3] Morgan. 1835-6. [3319] Nichol-
son. 1823. [3393] Orr. 1854. [4274] Schott.
1668. [4322] Segner. 1756-68. [4774] Taylor.
1687. [5036] Vallejo. 1840. [5459-60] Wolf.
1730-41. [5463] Wolf. 1870-2. [6708-9] Cape.
1847-50. [6746] Carr. 1880. [7909] Fine.
1556. [8514-18] Goodwin. 1846-66. [9594-6]
Hutton. 1837-49. [10009] Kästner. 1790-1801.
[10015] Keckermann. 1661. [10129-30] Kimber.
1876-83. [10254] Koenigsberger und Zeuner.
1865-9. [10371] Lacroix. 1802-6. [10796-7]
Library. 1836. [11489] Martin. 1759. [12057]
Moore. 1681. [12885] Ozanam. 1712. [15836]
Capito. 1913. [15914-15] Daries. 1905. [15985-
6] Fabry. 1909-11. [16811] Zoretto. 1914.
[SS 936] Vols. 1718. [SS 972] Wolff. 1746-54.

— (GREEK): [S 745] Gow. 1884.

- (HIGHER): [6134] Bergbohm. 1891. [12998]
Pascal. 1898-1900. [15741] Biermann. 1895.
[15746] Blutel. 1914. [15816] Burg. 1832-3.
[15968] Egerer. 1908. [16020] Fricke. 1900.
[16044] Geigenmüller. 1907-8. [16088] Haag.
1914. [16092] Hagen. 1891-1905. [16121]
Helm. 1910. [16348] Mangoldt. 1911-14.
[16374] Merriman and Woodward. 1902.
[16469-70] Pascal. 1900-10. [16611] Schrutka.
1912. [16684] Stoffaes. 1904. [16756-7] Vogt.
1904-9. [16722] Weitzel. 1914.

— *v. Analysis (Mathematical).*

MATHEMATICS (INSURANCE): [235-8] Baily. 1808-64.

[1830] Hayes. 1746. [2183] Jones. 1843. [2876] Maseres. 1783. [3001] Milne. 1815. [3099] Morgan. 1779. [3774-7] Price. 1772-1812. [4394] Simpson. 1742. [4420-1] Smart. 1726. [4808] Thoman. 1878. [5925-9] Baily. 1808-66. [6058] Baylis. 1844. [6519] Broggi. 1907. [8503] Gompertz. 1825. [8525] Gordon. 1896. [8905] Hardy. 1840. [9669] Institute of Actuaries. 1832. [9850-2] Jones. 1843-4. [10916] Lobatto. 1864. [11902] Milne. 1837. [11983] Moivre. 1752. [12080-2] Morgan (W.). 1791-1821. [12092] Morgan (A. de). 1839-41. [13648-50] Price. 1772-1812. [14170] Richard. 1911. [14871] Simpson. 1773. [16081] Grossmann. 1902. [16151] Holzinger. 1898. [16201] Karup. 1885. [16522] Richard et Petit. 1908. [16723] Thoman. 1891. [S 850] King. 1887. [SS 158-9] Actuaries. 1882-7. [SS 491] Hayes. 1727. [SS 662] Moser. 1839.

— v. *Statistics* (*Vital*).

— (JAPANESE): [14941] Smith and Mikami. 1914.

— (MODERN), MYSTICISM IN: [S 467] Berkeley. 1910.

— (PHYSICAL)—v. *Physics* (*Mathematical*).

— (PRACTICAL): [203] Babinet. 1857. [1124-5] Dupin. 1827-54. [2004] Hoste. 1769. [5294] Webster. 1730. [7057] Cracknell. 1900. [7895] Filonzi. 1775. [8673] Gregory and Law. 1862. [14691] Saxeby. 1905. [15848] Weber, etc. 1907. [15985-6] Fabry. 1909-11. [16497] Practical Mathematics. 1903.

— (PURE): [1395-6. 8089] Francœur. 1829-34. [10301] Krebs. 1889. [14729] Schultz. 1790. [S 780] Hardy. 1908.

— (SEXAGESIMAL): [12337] Napier. 1839.

— v. *Logarithms* (*Logistic*). *Sexagesimal Tables*.

— BIBLIOGRAPHY OF: [393] Bierens. 1883. [3985] Ricciardi. 1887-93. [4497] Sohneke. 1854. [SS 219] Beugheim. 1688. [SS 664] Müller. 1821-3.

— v. *Geometry* (*Euclidean*), *B. of*.

— HISTORY OF: [259-60] Ball. 1888-9. [388] Bibliotheca. 1891-3. [394] Bierens. 1878-87. [482-3] Bossut. 1803-10. [516] Boyer. 1900. [665] Cajori. 1894. [675] Cantor. 1880. [998] Delambre. 1810. [1512] Gerhardt. 1877. [2609] Libri. 1838-41. [2827] Marie. 1883. [3060-1] Montucla. 1799-1802. [3786-7] Proclus. 1792. [3887-8] Ramus. 1569-99. [4182] Sallusti. 1846. [4767] Taylor. 1881. [4886-90] Todhunter. 1861-5. [5131] Vossius. 1650. [5461] Wolf. 1731. [5593] Zeuthen. 1902. [5964-5] Ball. 1888-1901. [6209] Bibliotheca Mathematica. 1887-93. [6364] Bossut. 1803. [6706] Cantor. 1880-1901. [8084] Franchini. 1821-4. [8373] Gerhardt. 1877. [8835-8] Halliwell-Phillipps. 1839-41. [8886] Hankel. 1869. [9362] Hoefler. 1879. [10007-8] Kästner. 1796-1800. [10822] Libri. 1838-41. [11421-2] Marie. 1883-8. [12042-3] Montucla. 1799-1802. [12116] Morgan. 1842. [14941] Smith and Mikami. 1914. [15099-100] Stone. 1726-43. [15338] Tropfke. 1902-3. [15835] Cantor. 1900-8. [16086] Günther. 1908. [16727] Todhunter. 1865. [16788] Wieleitner. 1911. [S 424] Allman. 1889. [S 745] Gow. 1884. [S 1338] Zeuthen. 1903. [SS 479] Günther. 1876. [SS 494-5] Heilbronner. 1742. [SS 938] Vossius. 1650.

— v. *Algebra*, *H. of*. *Arithmetic*, *H. of*. *Calculus of Variations*, *H. of*. *Geometry*, *H. of*. *Mechanics*, *H. of*. *Probabilities*, *Theory of*, *H. of*.

— METHOD IN: [1315] West. 1886. [3091-4] Morgan. 1836-98. [15916] Dauge. 1896. [16354] Mannoury. 1909.

— v. *Porisms*.

MATHEMATICS, PHILOSOPHY AND PRINCIPLES OF:

[957] Davies. c. 1850. [1381] Foucher. [1758] [1456-7] Galtruchius. 1661-8. [1765] Hamilton. 1853. [2234] Kelland. 1843. [14761] Schwarz. 1853. [15711] Baltzer. 1879-83. [15724] Berkeley. 1910. [15754] Bois-Reymond. 1882. [15894] Couturat. 1905. [16213] Klein. 1909-11. [16354] Mannoury. 1909. [16545] Russell. 1903. [16775] Wenck. 1872. [16782] Whitehead and Russell. 1910-13. [16802] Worms. 1908. [16805] Wronski. 1811. [SS 938] Vossius. 1650.

— v. *Algebra*, *E. and P. of*. *Algebra*, *Logic of*. *Arithmetic*, *P. and E. of*. *Arithmetic*, *Psychology of*. *Calculation*, *Principles of*. *Calculus*, *Philosophical Principles of*. *Geometry*, *Axioms of*. *Geometry*, *E. and P. of*. *Infinity* (*Mathematical*). *Mechanics*, *P. and E. of*. *Negative Quantities*.

—, 'ROMANCE' OF: [8872] Hampson. 1886.

— TEACHING AND STUDY OF: [4782] Teaching. 1902. [4877] Todhunter. 1873. [9368] Höfler. 1910. [10128] Killing und Hovestadt. 1910. [10373] Lacroix. 1816. [12122-3] Morgan. 1831-3. [13162] Perry. 1901. [S 1336] Young. 1908.

— v. *Algebra*, *Teaching of*.

—, USES OF: [284] Barrow. 1734. [911] Crousaz. 1715. [957] Davies. c. 1850. [4645] Strong. 1723. [4914-15] Torricelli. 1715. [7335] Donn. 1769.

— AND THEOLOGY: [1622-3] Grandi. 1710-13. [2105] Jack. 1747. [5888-9] Babbage. 1838. [6864] Cheyne. 1715. [SS 462] Grandi. 1710-13.

MATTER, PROPERTIES OF: [4736] Tait. 1885. [8608] Gray. 1901. [13586] Poynting and Thomson. 1902. [17045] Glazebrook. 1893. [17052] Gray. 1901. [17189] Poynting and Thomson. 1902. [17236] Tait. 1885.

—, STATES OF: [108] Andrews. 1869. [533] Boyle. 1668. [10789-90] Lewis. 1763. [17013] Duhem. 1891.

— v. *Boiling Point*. *Colloidal State*. *Crystalloid State*. *Electrotonic State*. *Evaporation*. *Freezing Point*. *Phase Rule*. *Solid State*. *Spheroidal State*. *State*. *Change of*. *Vaporization*. *Volatilization*.

—, THEORIES OF: [279] Barlow. 1885. [421] Birks. 1862. [1072] Dolbear. 1892. [1122] Duncan. 1905. [2673] Lodge. 1903. [6239] Birks. 1862. [6906] Clark. 1907. [7398] Duncan. 1907. [8874] Hands. 1879. [10060. 10071-2] Kelvin. 1891-1905. [10892] Living. 1885. [10970] Lodge. 1903. [11408] Marckwald. 1888. [11584] Mathieu. 1799. [12211] Mossotti. 1836. [13756] Puschl. 1869. [14767] Schyanoff. 1868. [14802-3] Sedgwick. 1882-96. [15257] Thomson. 1904. [S 2074-5] Larmor. 1900. [S 2611] Avogadro. 1837-41.

— v. *Atomic Theories*. *Corpuscular Theory*. *Electron Theory*. *Vortex Theory*.

— AND ENERGY: [4991] Tyndall. 1873. [6260] Blaise. 1902. [10452] Laming. 1851.

MAXIMA AND MINIMA: [895] Cresswell. 1817. [3880] Ramchundra. 1859. [5114] Viviani. 1659. [9508] Howard. 1798. [14873-4] Simpson. 1747-60. [15513] West. 1762.

MAXWELL'S THEORY OF ELECTRICITY — v. *Light*, *Electromagnetic Theory of*.

MEANS (ARITHMETICO-GEOMETRICAL): [SS 230] Borchard. 1888.

— v. *Arithmetical Means*.

MEASURES (STANDARD): [5396] Whitworth. 1858. [S 3687] Whitworth. 1872.

— v. *Length and Weight*. *Metrology*.

MEASURING (TECHNICAL): [8571] Gramberg. 1905.

— AND VALUING: [837-8] Coggeshall. 1729-85. [2036. 2052-3] Hutton. 1770-1812. [4501] Solski. 1688. [5846] Artificer's Work. 1843. [7318-19] Dobson. 1852-8. [7543] Emerson. 1770. [7827] Fenning. 1772. [9047-50] Hawney. 1730-75. [9467] Hornton. 1862. [9592-3. 9612-14] Hutton. 1770-1812. [10963] Lodge. 1905. [11340-1] Mandey. 1727. [11577] Matheson. 1893. [12425-6] Nesbit. 1868-75. [12645] Nicholson. 1827. [13092] Penna. 1643. [13203] Philipps. 1721.

— INSTRUMENTS: [4261-2] Schneiter. 1848-52. [11801] Metius. 1611. [SS 296] Chauvet. 1855.
— *v. Balance. Bathometer. Dynamometer. Gauging Rod. Goniometer. Hydraulic Current Meter. Hydrostatic Balance. Instruments of Precision. Micrometer. Pedometer. Saccharometer. Sensitometry. Tachometry. Telemeter.*

MECHANICAL DRAWING — *v. Machine Drawing.*

— ENGINEERING: [2638] Lineham. 1904. [2862] Martin. 1818. [8799] Haldane. 1890. [10869-71] Lineham. 1894-1904. [12642] Nicholson. 1825. [14033. 14040] Rennie (G.). 1825-60. [14978] Somerscales. 1909. [17083] Jamieson. 1903-5.

— *v. Machinery. Planes (True).*

— NOTATION: [5887] Babbage. 1826.

— PARADOX: [7845] Ferguson. 1764.

— PARADOXES: [3745] Pratt. 1862. [13978] Reddie. 1862.

— THESES: [4340] Serret. 1847.

MECHANICS (AMATEUR): [2719] Lukin. 1872. [4539] Spon. 1886. [11076-8] Lukin. 1870-80.

— (ANALYTICAL): [727] Cauchy. 1868. [1255] Euler. 1736. [1873] Hermann. 1716. [2302] Kirchhoff. 1877. [2376-8] Lagrange. 1811-55. [2446-8] Laplace. 1814-21. [3522] Peirce. 1855. [3685-7] Poisson. 1833-42. [3747-9] Pratt. 1836-45. [3843-4] Prony. 1800-15. [4668] Sturm. 1861. [5477] Wood. 1884. [7697-8. 7706-7] Euler. 1736-1853. [9171] Hermann. 1716. [10399-402] Lagrange. 1788-1815. [10510-11] Laplace. 1814-32. [10693] Lehms. 1838-42. [13353] Piola. 1825. [13474-6] Poisson. 1833-42. [13597-601] Pratt. 1836-45. [16422] Navier. 1858. [16942] Barton. 1911. [16970] Bowser. 1905. [17035] Fuhrmann. 1882-1904. [17043] Gilbert. 1891. [17101] Lagrange. 1888-9. [17140] Michie. 1905. [17193] Pratt. 1845. [17199] Rausenberger. 1893. [17211] Ritter. 1899. [17263-4] Volkman. 1900-13. [17286] Wood. 1900. [17294] Ziwet and Field. 1912. [S 2144] Moigno. 1868.

— (ANIMAL): [473] Borelli. 1710. [2752] McKendrick. 1892. [2781] Mairan. 1741. [2826] Marey. 1895. [2936-7] Mayow. 1674-81. [4573] Stensen. 1667. [9021-2] Houghton. 1863-73. [11416-18] Marey. 1874-95. [13178] Pettigrew. 1874. [17063] Houghton. 1873. [SS 1557] Borelli. 1686.

— (APPLIED): [853] Combes, etc. 1867. [883] Cotterill and Slade. 1891. [2778] Mahistre. 1858. [3196] Navier. 1833-8. [3893] Rankine. 1885. [5718] Alexander. 1880. [6352] Borgnis. 1818-23. [7035-6] Cotterill. 1892-5. [9482] Hospitalier. *v. y.* [12207-8] Moseley. 1834-9. [13154-5] Perry. 1897-1909. [13896-7] Rankine. 1873-91. [16998-9] Cotterill. 1894-1902. [17083] Jamieson. 1903-5. [S 3367] Bresse. 1865-8.

— (ELEMENTARY): [462] Bonnet. 1858. [485] Bossut. 1763. [573] Bresson. 1842. [1394] Francœur. 1800. [2777] Magnus. 1885-9.

MECHANICS (ELEMENTARY), continued:

[3103-4] Morin. 1855-60. [3230] Newth. 1879. [3463-4] Parkinson. 1861-3. [3573] Phear. 1850. [3728] Potter. 1848-59. [4485] Snowball. 1845. [4920] Traubaud. 1741. [5160] Walker. 1830. [5350-8] Whewell. 1819-47. [5880] Aveling. 1888. [5990-1] Barlow. 1818. [6744-5] Carpenter. 1843-57. [8332] Geldard. 1893. [8472] Glazebrook. 1895. [10524] Lardner. 1863. [10966] Lodge. 1904. [11874] Millington. 1830. [12197] Moseley. 1839. [13555] Potter. 1846. [13767] Pullen. 1902. [13906] Rankine and Bamber. 1875. [15384-6] Venturoli. 1817-33. [15414-15] Voigt. 1889-1901. [16967] Bouchardat. 1861. [16986] Combette. 1899. [17004] Daries. 1906. [17032] Franklin and Macnutt. 1909. [17038] Garcet. 1861. [17049] Goodeve. 1893. [17067] Helm. 1884. [17126] Lüben. 1876. [17241] Tesar. 1909. [17252] Todhunter. 1890. [17260] Voigt. 1901.

— (ENGINEERING): [5310-13] Weisbach. 1847-1901. [5369] Whewell. 1841. [6889] Church. 1894. [7414-15] Dupin. 1822-6. [11773] Merriman. 1901. [12201-2] Moseley. 1843-55. [13484-5. 13488-9] Poncelet. 1839-45. [15501-3] Weisbach. 1882-97. [16357] Marc. 1907. [16423] Navier. 1878. [17027] Föppl. 1900-3. [17279] Weisbach. 1877. [S 3456] Goodran. 1912-13. [SS 2049] Sarrau. 1903.

— *v. Machinery, M. of.*

— (EXPERIMENTAL): [253. 5955] Ball. 1871. [SS 1768] Hauksbee. *c.* 1735.

— (GENERAL): [703] Carpenter. 1857. [807] Clark. 1764. [988] Deidier. 1741. [1106-8] Duhamel. 1845-63. [1621] Grandi. 1739. [1667] Gregory. 1826. [2219] Kater. 1832-5. [5041] Varignon. 1725. [5514] Wright. 1890. [6595] Buff. 1871-3. [7385-6] Duhamel. 1845-54. [7554] Emerson. 1769. [8160] Frisi. 1777. [10011-12] Kater and Lardner. 1830-7. [10744-6] Leslie. 1823-9. [12970-1] Parkinson. 1785-9. [14085] Rééal. 1872-81. [14368-70] Robison. 1822. [15836] Capito. 1913. [16932-3] Appell. 1905-12. [16969] Boussinesq. 1889. [16981] Cellérier. 1892. [16996-7] Collignon. 1873-1903. [17012] Duhamel. 1862-3. [17023-4] Fernet et Faivre-Dupaigre. 1904-11. [17059] Guillot. 1911. [17186] Poisson. 1833. [17198] Rankine and Bamber. 1884. [17202-4] Rééal. 1873-95. [17232] Sturm. 1905. [17283-4] Wernicke. 1900-3.

— *v. Dynamics.*

— (MOLECULAR): [297. 6060. 16945] Bayma. 1866.

— (PHYSICAL): [16928] Andrade. 1898. [16965] Bouasse. 1912.

— (PRACTICAL): [1325] Ferguson. 1773. [1586-7] Goodeve. 1883-92. [2796-7] Mandey and Moxon. 1698. [3100-1] Morin. 1858-64. [3117-18] Moseley. 1834-43. [3126-9] Moxon. 1677-1703. [3313] Nicholson. 1825. [4753] Tate. 1853. [4964-6] Twisden. 1863-86. [5050] Venturoli. 1823. [5321] Wells. 1902. [6651] Byrne. 1872. [7861-2] Ferguson. 1778-90. [8188] Furtenbach. 1662. [12991] Partington. 1825. [15386] Venturoli. 1822-3. [SS 3042-3] Mandey and Moxon. 1696-9.

— (PRE-NEWTONIAN): [158] Aristoteles. 1812. [251] Baliani. 1638. [330-1] Benedetti. 1589-99. [1445] Galilei. 1638. [4273] Schott. 1657. [5188] Wallis. 1670. [10414] La Hire. 1695. [12034-5] Monte. 1577-81. [14743] Schott. 1657. [15449-50] Wallis. 1670-1.

— (RATIONAL): [1003-4] Delaunay. 1856-66. [2206] Jullien. 1855. [3557] Petrovitch. 1906. [5068] Vieille. 1851. [5433-4] Willis. 1841-70.

MECHANICS (RATIONAL), *continued* :

- [5802-3] Appell. 1893-6. [9969-72] Jullien. 1855-67. [16935-6] Appell. 1902-10. [17006] Delaunay. 1873. [17025] Finger. 1901. [17088] Jullien. 1866-7. [17109] Laurent. 1889. [17217] St. Germain. 1877-89.
- (STATISTICAL) : [1924] Gibbs. 1902.
- (THEORETICAL) : [475] Borgnis. 1821. [2109] Jackson. 1827. [5311] Weisbach. 1872. [5594-5] Ziwet. 1893-4. [7558-61] Emerson. 1758-94. [9771] Jeans. 1906. [11037] Love. 1897. [15655] Villié. 1835-98. [17087] Johnson. 1910. [17124] Love. 1906. [17249] Thornton. 1905. [17268] Walton. 1876. [17278-9] Weisbach. 1877-96. [17291] Zech. 1891. [17293] Ziwet. 1908.
- *v. Machinery, Theory of.*
- (VECTOIAL) : [17225] Silberstein. 1913.
- , CYCLOPÆDIAS AND DICTIONARIES OF : [711] Cassell. 1900. [1182] Encyclopædia Metropolitana. 1848. [2316] Knight. 1877-84. [4537-8] Spon. 1869-81. [10229] Knight. 1877-84. [17343] Hiscox. 1905. [17346] Knight. 1877-84.
- , HISTORY OF : [10481] Lange. 1886. [11189] Mach. 1893. [17127] Mach. 1901. [S 2105] Mach. 1904.
- , LECTURES ON : [5572-6] Young. 1807-45. [12404] Navier. 1841. [14671] Saunderson. c. 1712. [16972] Briot. 1861.
- , PRINCIPLES AND ELEMENTS OF : [5073] Vignoli et Jacquier. 1774. [8848] Hamilton. 1772. [9248-9] Hertz. 1892. [9994] Kant. 1746. [10481] Lange. 1881. [13895] Rankine. 1856. [16963] Boltzmann. 1897-1904. [17285] Willis. 1870. [S 2147] Morin. 1855. [S 2386] Vieille. 1882.
- *v. Vis Viva.*
- : PROBLEMS AND EXERCISES : [3108] Morland. 1685. [5076] Villié. 1835-90. [5198. 5200-3] Walton. 1842-76. [5951] Balassi. 1768. [6666] Calandrelli. 1789. [7005] Conti. 1838. [9969-72] Jullien. 1855-67. [12157-8] Morland. 1685. [12644] Nicholson. 1812. [16979] Caronnet. 1898. [17035] Fuhrmann. 1882-1904. [17057] Guichard. 1913. [17088] Jullien. 1866-7. [17217-18] St.-Germain. 1877-89. [17268] Walton. 1876. [17291] Zech. 1891.
- MECHANISM : [7404-5] Dunkerley. 1905-7. [14759] Schwamb and Merrill. 1904. [17288] Woods. 1905. [17343] Hiscox. 1905. [S 3353] Benjamin. 1892.
- *v. Machine Elements.*
- MECOMETER : [S 796-7] Henrion. 1630-77.
- MEGAPHONE : [2383. 10411-12] La Hire. 1694.
- MENSURATION—*v. Measuring.*
- MERCANTILE TABLES : [3483-4] Pasi. 1521-40. [4724] Tagliente. 1570. [5706] Aleciati. 1532. [6026] Bartoli. 1866. [8134] Frazioni Decimale. 1811. [8268] Garatti. 1686. [11380] Manzoni. 1553. [11425] Mariani. 1567. [11541] Maskelyne. 1800. [12834] Oriani. 1801. [13000] Pasi. 1503. [13020] Pathway of Knowledge. 1596.
- *v. Metric Tables. Ready Reckoner.*
- MERCURY, CHEMISTRY AND METALLURGY OF : [7469] Egleston. 1887-90. [13062] Pedler. 1889. [14195] Richards. 1902.
- , CONGELATION OF : [6255] Blagden. 1784.
- , SPECIFIC RESISTANCE OF : [9888] Jones. 1891.
- (PLANET) : [10775] Le Verrier. 1843. [14900] Smeaton. 1787. [SS 1134] Hirzgarther. 1643.
- *v. Transit of Mercury.*

MERIDIAN CIRCLE : [8988] Harzer. 1905.

- CONFERENCE (INTERNATIONAL) : [1938] Hirsch et Oppolzer. 1883. [11766] Meridian Conference. 1884.
- DIAL : [5468] Wollaston. 1793.
- MEASUREMENT : [997] Delambre. 1799. [1000] Delambre et Méchain. 1806-21. [2349-50] La Condamine. 1751-4. [3617] Picard. 1731. [3619] Pictet-Turrettini. 1791. [11630-5] Maupertuis. 1738-42. [SS 1015] Bouguer. 1749. [SS 1150] Juan y Ulloa. 1773.
- OBSERVATIONS : [1537] Gill. 1884. [1880] Herschel. 1826.
- MESITILOLE : [9371] Hofmann. c. 1848.
- MESITYLENE : [9421] Hoogewerf. 1868.
- MESOLABE : [4419] Sluze. 1668. [8653] Gregorius a Sto. Vincentio. 1668.
- METABOLISM : [7397] Dumas. 1842. [13030-1] Pavy. 1894-5.
- METALLIC ALLOYS : [1934] Hiorns. 1890. [2333] Krupp. 1889. [8734] Guettier. 1865. [11136] Lutschaunig. 1878. [11600-2. 11604. 11606] Matthieson. 1857-61. [14322-4. 14326-7. 14334] Roberts-Austen. 1884-99. [14482] Rosenhain and Tucker. 1908. [14779] Scoffern. 1857-66. [17007] Dessau. 1910. [SS 2900] Brantt. 1896.
- *v. Iron Alloys.*
- SURFACES : [5396] Whitworth. 1858.
- METALLOGRAPHY : [8497] Goerens. 1911.
- METALLOGICAL INDUSTRY : [14643] Saladin et Charpy. 1906.
- LABORATORIES : [14480] Rosenhain. 1908.
- PROCESSES : [14180] Richards. 1898.
- METALLURGY : [36-8] Agricola. 1550-1621. [418-20] Biringuccio. 1540-59. [906] Crookes and Röhrig. 1868-70. [1970] Holland. 1831-4. [3538] Percy. 1861-80. [3585-7] Phillips (J. S.). 1852-74. [3591] Phillips (J. A.). 1873. [3995] Richardson. 1790. [4031] Roberts-Austen. 1898. [4302] Scoffern, etc., 1857. [5098] Virlet. 1837. [5286] Webster. 1671. [5664-6] Agricola. 1556-1621. [6228-36] Biringuccio. 1540-1678. [7104-5] Crookes and Röhrig. 1868-99. [7314] Ditte. 1891. [7592] Ereker. 1629. [8333] Gellert. 1758. [8466-7] Glauber. 1689-94. [8568] Gower. 1888. [9397] Holland. 1831-4. [10115] Kerl. 1852. [10165-7] Kircher. 1665-78. [10983-4] Löhneys. 1619-90. [13110-14] Percy. 1852-70. [13179-82] Pettus. 1683-6. [13221-3. 13225-8. 13230] Phillips. 1852-87. [14704] Scheerer. 1848. [14725] Schnabel. 1898. [14779] Scoffern. 1857-66. [14845] Siemens. 1889. [15309] Tomlinson. 1859. [S 3157] Agricola. 1657. [S 3164] Balling. 1885. [S 3165-7] Barba. 1738-40. [S 3184] Biringuccio. 1572. [S 3262] Jars. 1774-81. [S 3316] Sexton. 1911. [SS 2883] Barba. 1674. [SS 2940] Phillips. 1891. [SS 2944] Percy. 1864-7.
- *v. Amalgamation Processes. Assaying. Electro-Metallurgy. Fuel. Furnaces. Ore Dressing. Refractory Materials. Smelting.*
- METALS (CANADIAN) : [14325] Roberts-Austen. 1898.
- , DIFFUSION OF : [14329] Roberts-Austen. 1896.
- , ELECTRODYNAMIC QUALITIES OF : [10064] Kelvin. 1856.
- , STRUCTURE OF : [12837] Osmond and Roberts-Austen. 1896.
- , THERMAL CONDUCTIVITY OF : [SS 1792-6] Ingenhousz. 1782-9.
- , WORKING OF : [S 3217] Demuth. 1907

- METAMERISM: [15604] Wislicenus. 1889.
— *v. Isomerism.*
- METAMORPHISM: [7178-82] Daubrée. 1858-9.
[10144] King. 1881. [10239] Knop. 1873.
[14502] Roth. 1890. [15375] Van Hise. 1904.
- METEORITIC HYPOTHESIS: [2666. 10956] Lockyer.
1890.
— *v. Nebular Hypothesis.*
- METEOROLOGICAL ATLAS: [S 2459] Bartholomew and
Herbertson. 1899.
- CORRESPONDENCE: [6782] Cavalli. 1785.
[9132] Hemmer. 1780-7.
- CYCLES: [2753] Mackenzie. 1821. [4868-9]
Toaldo. 1770-97. [9513] Howard. 1842.
[11205-6] Mackenzie. 1818-29. [14260] Rijcke-
vorsel. 1908. [15302-8] Toaldo. 1770-97.
- ESSAYS: [930-2, 3011] *Miscellanea Curiosa*.
1705-7. [7148-52] Dalton. 1793-1834. [7162-6]
Daniell. 1823-45. [8828-30] Halley. 1708-27.
[11943-5] *Miscellanea Curiosa*. 1708-27. [14685]
Saussure. 1796-1803. [15299] Toaldo. 1802.
[SS 2358-60] Stancari. 1713.
- INSTRUMENTS: [2570] Leslie. 1813-20. [3194]
Negretti and Zambra. 1864. [4309] Scott. 1875.
[9740] James. 1860-1. [10742] Leslie. 1820.
[14594] Russell. 1895. [SS 2277] Hemmer.
1782.
- *v. Anemometers. Barometry. Hygrometry. Rain
Gauge. Thermometry.*
- JOURNALS: [2957-9] *Meteorological Society*.
1861-1906. [2930] *Meteorological Society*
(Scottish). 1864-1905. [2961] *Meteorological*
Record. 1881-92. [4705-9] Symons. 1867-99.
[11791] *Meteorological Record*. 1882-1909.
[11792-6] *Meteorological Society*. 1861-1913.
[15183-7] Symons. 1863-1913.
- LECTURES: [9516] Howard. 1843. [9986]
Kämtz. 1840.
- OBSERVATIONS: [49] Airy. 1843-50. [930-2]
Dalton. 1793-1834. [2125] James. 1860.
[2147] Jenyns. 1858. [2962-3] *Meteorological*
Observations. 1864-80. [3034] Molesworth.
1880. [3208] Neumayer. 1867. [3871] Rad-
cliffe Observatory. 1858-80. [3908] Read.
1791-2. [5781-3] Antarctic Expedition. 1840-
1908. [5975] Barker. 1785-9. [6129] Bent.
1804. [6600] Buijs Ballot. 1872-3. [6816]
Chambers. 1881-3. [7054] Cowe. 1889. [7148-
52] Dalton. 1793-1834. [7162-6] Daniell.
1823-45. [7475] Eiffel. 1900. [7936-7] Fitzroy.
1857-9. [8448-50] Glaisher, etc. 1870-1.
[8648-9] Greenwich Observations. 1875-1910.
[9510-12] Howard. 1818-33. [9560] Hum-
boldt. 1814-29. [9740] James. 1860-1. [9775.
9777] Jelinek. 1850-69. [9785] Jenyns. 1858.
[11138-9] Luz. 1784. [11753] Menzell, etc.
1858-73. [11758-90] *Meteorological Observa-
tions*. 1880-1903. [11992] Molesworth. 1880.
[12838] Osservazioni Meteorologiche. 1880.
[13808-9] Quetelet. 1841. [13821] Radcliffe
Observatory. 1885-1910. [13956] Read. 1792.
[14096] Respighi. 1875. [14237] Riddell. 1844.
[14288] Roberts. 1886. [14498-9] Rotch.
1887-9. [14555-8] Royal Society of London.
1788-1842. [15299] Toaldo. 1802. [15317]
Toronto Magnetical Observatory. 1864. [15461]
Washington Astronomical and Meteorological
Observations. 1878-85. [S 141] *Meteorological*
Observations. Sydney. 1867-77. [S 2477]
Broun. 1849. [SS 1906-7] Musschenbroek.
1729. [SS 2256] Dalton. 1802.
- OBSERVATORIES: [2501-2] Lawson. 1844-6.
- TABLES: [4202*] Sandeman. 1857. [6208]
Boileau. 1850.
- *v. Hygrometrical T. Hypsometrical T.*
- METEOROLOGY: [138] Arago. 1855. [626] Buchan.
1868. [947] Daniell. 1845. [1347] Flammarion.
1873. [1372] Forster. 1823. [1720] Günther.
1889. [1752] Halley. 1705. [1889] Herschel.
1862. [2457] Lardner. 1841-4. [2713-15]
Luc. 1772-87. [2783] Majocchi. 1824. [1031]
Miscellanea Curiosa. 1705-7. [3111] Morris.
1866. [3150-1] Müller-Pouillet. 1896. [3395]
Orr. 1860. [3734] Pouillet. 1858. [4040]
Robertson. 1808. [4308] Scott. 1883. [4867-9]
Toaldo. 1770-97. [5150] Waldo. 1893. [6092]
Bequerel. 1847. [6573] Buchan. 1868.
[6663] Calandrelli. 1785. [6697] Campbell.
1865. [7046] Cotte. 1774. [7162-6] Daniell.
1823-45. [7364] Drew. 1855. [8018] Forbes.
1841. [8039-40] Forster. 1815-23. [8444]
Glaisher. 1869. [8645] Greg. 1855. [8983]
Harvey. 1833. [9224-5] Herschel. 1861-2.
[9554] Humboldt. 1843. [9581-2] Hutchinson.
1835. [9933-4] Kämtz. 1831-45. [10428-9]
Lamareck. 1806-8. [10526] Lardner. 1853.
[11017] Loomis. 1868. [11057-8] Luc. 1787.
[11447] Marriot. 1904. [12059] Moore. 1910.
[12168] Morris. 1866. [12262-3] Müller.
1847-62. [13740] Prout. 1834. [13958] Reclus.
1873. [14594] Russell. 1895. [14722] Schmid.
1860. [15252] Thomson. 1849. [15299].
[15302-8] Toaldo. 1770-1802. [17387] Börnstein.
1906. [17388] Davis. 1894. [17391] Hann.
1911. [17394] Moore. 1910. [S 2502] Davy.
1866. [S 2507] Dove. 1837. [S 2546] Loomis.
1885-9. [SS 1906-7] Musschenbroek. 1729.
- *v. Air. Atmospheric. Barometry. Climatology.
Clouds. Dew. Fog. Frosts. Hail. Halos. Hygrom-
etry. Lightning. Moon's Influence on Weather.
Oceanography. Rain. Thermometry. Thunder.
Weather. Wind.*
- (ASTROLOGICAL): [8490] Goad. 1686. [12686]
Nifo. 1614. [12781] Oderico. 1653. [15299].
15302-8] Toaldo. 1770-1802.
- (DYNAMIC): [S 2449] Abbe. 1910. [S 2510]
Ferrel. 1860.
- *v. Air Currents. Storms. Winds.*
- (OCEAN): [2188-92] Jordan. 1866-85. [7905]
Findlay. 1887. [9162] Hepworth. 1907. [9906.
9908] Jordan. 1867-77. [11347] Mangin. 1870.
[11651-2] Maury. 1860-1. [15330-1] Toynebe.
1872-82.
- *v. Oceanography.*
- (POPULAR): [1521] Giberne. 1891. [3842]
Prout. 1834. [7940-1] Flammarion. 1872-3.
[8383] Giberne. 1890.
- (TOPOGRAPHICAL): [6277] Bloxam. 1860
[6576] Buchanan. 1899. [6604] Buist. 1843
[6815] Chambers. 1878. [12192] Mossman.
1896-1902. [13265] Phipson. 1857.
- BIBLIOGRAPHY OF: [9097] Hellmann. 1883.
- EARLY WORKS ON: [140] Aratus. 1828.
[155. 157] Aristoteles. 1505-1601. [472] Borelli.
1670. [670] Camerarius. 1536. [3333] Nifo.
1540. [4276] Schott. 1697. [4693] Swan. 1665.
[4850] Thümmig. 1727. [5435] Willford. 1658.
[5810] Aratus. 1880. [5827-9] Aristoteles.
1562-1870. [6418] Boyle. 1692. [6442] Brahe.
1876. [8490] Goad. 1686. [9167] Herbinus.
1678. [9902] Jonston. 1632. [11706-9]
Medina. 1555-1609. [12686] Nifo. 1614. [12781]
Oderico. 1653. [12931] Panarolo. 1642.
[13513] Porta. 1610. [14108] Resta. 1644.
[14744] Schott. 1662. [15389] Vieri. 1582.
[S 1941] Gilbert. 1651. [S 2456-7] Aristoteles.
1562-1631. [SS 1151] Kalender (Deutscher).
1522. [SS 2223-5] Aristoteles. 1522-51.
- HISTORY OF: [10428] Lamareck. 1806. [11446]
Marriot. 1903. [SS 2369] Tagliini. 1736.
- AND CHOLERA: [8446] Glaisher. 1855.

- METEORS:** [137] Arago. 1865. [3605] Phipson. 1867. [3879] Ramboson. 1869. [4407] Simpson. 1675. [5793] Apjohn. 1837. [6166] Bertholon. 1787. [6226] Biot. 1803. [6244] Björn. 1816. [7179-80] Daubrée. 1866-8. [7833] Ferrari. 1873. [8241] Galle. 1868. [8907] Hare. 1836. [9186] Herschel. 1867. [9302] Hinrichs. 1905. [9928] Joule. 1848. [11238] Maclean. 1840. [11451] Marsh. 1863. [11547] Mackelyne. 1783. [11800] Meteors. 1895. [12026] Montanari. 1676. [12190] Moschick. 1909. [12364] Natural History Museum. 1881-5. [12494] Newton. 1888. [13357] Pisani. 1864. [13445] Plummer. 1901. [13448] Poey. 1864. [13795] Quetelet. 1839-41. [13856-7] Rammelsberg. 1870-9. [14281] Riva. 1725. [14590] Russell. 1894-5. [14883] Silberschlag. 1764. [15114. 15126] Stoney. 1879-1902. [SS 1346] Zoboli. 1619. [SS 2377-8] Troili. 1766-7.
- *v. Leonids.*
- , **ELECTRICITY OF:** [368] Bertholon. 1787.
- METHANE AND ITS DERIVATIVES:** [5130] Volta. 1778. [5878] Austin. 1789. [9151] Henry. 1821.
- *v. Paraffin.*
- METHOD OF SCIENCE:** [2152-4] Jevons. 1874-9. [2964] Method. 1906. [9803-4] Jevons. 1874-83. [14957] Smith. 1770. [15141] Strong. 1906. [15645] Jevons. 1879. [S 375-6] Poincaré. 1909-14.
- *v. Chemical M. Geometrical M. Mathematics, M. in. Universal Science.*
- METHYLENE (POLY-) SERIES:** [11761] Menshutkin. 1906.
- METRIC SYSTEM:** [1000] Delambre et Méchain. 1806-21. [9483] Hospitalier. *v. y.* [9699] Jackson. 1882.
- *v. Decimal System.*
- (EGYPTIAN): [9182] Hero Alexandrinus. 1851.
- **TABLES:** [1092. 7353] Dowling. 1864-72.
- METROLOGY:** [784] Chisholm. 1877. [1149] Edser. 1899. [5717] Alexander. 1850. [7079] Cristiani. 1760. [7349] Doursther. 1840. [8118] Franklin Institute. 1834. [9016] Hassler. 1832. [9212. 9244] Herschel. 1863. [9699-700] Jackson. 1876-82. [10039] Keith. 1791. [11541] Maskelyne. 1800. [11782] Mersenne. 1644-7. [14628-9] Saigey. 1834. [SS 1990] Poids et Mesures. 1881-8.
- *v. Decimal Measures. Interference Methods. Length and Weight. Magnetic Measurement. Measures. Mercantile Tables. Scales of Equal Parts. Torsion Meters.*
- MEZZOTINT ENGRAVING:** [6836] Chelsum. 1786. [SS 2757-8] Dossie. 1758-64.
- MICA:** [13855] Rammelsberg. 1880.
- MICROCHEMICAL ANALYSIS:** [315] Behrens. 1899. [6102-3] Behrens (H.). 1895-6. [6104] Behrens (T. H.). 1881. [10209] Klement et Renard. 1866.
- MICROMETER:** [2062] Huygens. 1659. [3617] Picard. 1731. [5923] Baily. 1824. [5966] Balthasar. 1710. [6790-1] Cavallo. 1791-3. [11482] Martin. 1740. [13512] Porro. 1858. [15608] Wollaston. 1813. [SS 1837-8] Lambert. 1769. [SS 2198] Chaulnes. 1768. [SS 2219] Weickert. 1811.
- MICROMETRY (ASTRONOMICAL):** [13341-2] Pihl. 1891-3. [13746] Przybyllok. 1908.
- MICRO-PHOTOGRAPHY—*v. Photography (Micro-).***
- MICROSCOPE (THE) AND MICROSCOPY:** [244-5] Baker. 1742-53. [304] Beck. 1865. [773] Cherubin d'Orléans. 1671. [1359] Fontana. 1646. [1981] Hooke. 1745. [2836. 2847] Martin. 1742-86. [2902] Matthews and Lott. 1889. [3037] Molyneux. 1692. [3545] Pereira. 1854. [5236] Watkins. 1754. [5646] Adams. 1787-98. [5966] Balthasar. 1710. [7114] Cuff. 1743. [7999-8001] Fontana. 1646. [8725] Grunert. 1846-51. [9286] Hill. 1752. [9389-90] Hogg. 1867. [9431] Hooke. 1665. [10223] Klügel. 1778. [11352] Mann. *c.* 1750. [11490-1. 11495] Martin. 1759-70. [12006] Molyneux. 1709. [12191] Moser. 1839. [13578] Power. 1664. [13679-80] Pritchard. 1838-45. [13780] Quekett. 1852. [15161-3] Sturm. 1676-85. [16980] Carpenter. 1901. [17005] Davis. 1889. [17076] Hogg. 1911. [17228-9] Spitta. 1907-9. [S 324] Hooke. 1678. [S 1949] Gregory. 1715. [S 2437-8] Zahn. 1685-1702. [SS 1555] Borel. 1655-6. [SS 1618] Ciampini. 1686. [SS 1822] Kohlhans. 1663. [SS 2067-9] Selva. 1787. [SS 2185-7] Adams. 1746-71. [SS 2192-3] Baker. 1743-4. [SS 2195] Brewster. 1837. [SS 2196-7] Buonanni. 1699. [SS 2198] Chaulnes. 1768. [SS 2199] Dollond. *c.* 1765. [SS 2202] Gründel. 1687. [SS 2207-8] Hooke. 1667.
- *v. Water, M. of.*
- (POLARISING): [S 2964] Cloizeaux. 1864.
- *v. Analyser. Polariscopes.*
- (SOLAR): [5966] Balthasar. 1710. [6451] Brander. 1767. [7114] Cuff. 1743. [11352] Mann. *c.* 1750. [SS 2185-7] Adams. 1746-71. [SS 2200] Dollond. *c.* 1775. [SS 2210] Martin. 1774.
- (ULTRA-): [7047] Cotton et Mouton. 1906.
- , **HISTORY OF THE:** [14151] Rizzi. 1852. [SS 2188] Adams. 1787. [SS 2196-7] Buonanni. 1699.
- , **THEORY OF THE—*v. Optics (Microscopical).***
- MICROSCOPIC JOURNALS:** [2979] Microscopical Society. 1853-92. [3862] Quekett Microscopical Club. 1868-91. [11836-7] Microscopical Journal. 1869-77. [11838-40] Microscopical Society. 1878-1910. [11841] Microscopical Science. 1853-68. [13781] Quekett Microscopical Club. 1868-70.
- **OBJECTIVES:** [1802] Harting. 1898. [SS 1061] Divini. 1666.
- *v. Lenses, Systems of.*
- **OPTICS—*v. Optics (Microscopical).***
- **VISION:** [15121] Stoney. 1896. [SS 2184] Abbe. 1904.
- MICROSCOPY (CHEMICAL):** [3901] Raspail. 1833
- (TECHNICAL): [2637] Lindner. 1901. [2744] Macdonald. 1875. [2902] Matthews and Lott. 1889. [2965] Mez. 1898. [S 3045] Hanausek. 1907.
- MICRO-SPECTROSCOPY—*v. Spectroscopy (Micro-).***
- MICROTOMY:** [2515] Lee. 1893.
- MILITARY SCIENCES:** [1054] Digges. 1579. [5037] Valturio. 1532. [5046-7] Vegetius. 1532-1607. [6012] Barret. 1598. [14375] Robson. 1763. [15373-4] Valturio. 1483-1532. [15379-80] Vegetius. 1585.
- *v. Ballistics. Fire Arms. Fortification. Gunnery and Artillery. Gunpowder. Mining (Military). Surveying (Military). War Engines.*
- MILK AND ITS ANALYSIS:** [2146] Jensen. 1903. [2569] Pfeiffer. 1887. [4142] Russell. 1899. [8684] Grew. 1679. [11656] May and Rothenfusser. 1908. [15280] Thorpe. 1909.
- MILKY WAY:** [4648] Struve. 1847. [5516-17] Wright. 1750. [8223] Galilei. 1610. [16920] Wolf. 1908.

- MILL ENGINEERING: [627] Buchanan. 1841-50. [1270] Fabre. 1783. [1276] Fairbairn. 1864-5. [3895] Rankine. 1869. [4423-5] Smeaton. 1760-96. [4599] Stewart. 1767. [4588] Stevinus. 1884. [5601-2] Zyl. 1761-70. [6577. 6579] Buchanan. 1814-50. [7712] Evans. 1853. [7750-1] Fairbairn. 1864-78. [12641-2] Nicholson. 1825-30. [13899] Rankine. 1873. [14068] Lambert. c. 1784. [14411] Rollet. 1846. [14906-12. 14916] Smeaton. 1760-1814. [15171] Sutcliffe. 1816. [15387] Veranzio. c. 1595. [SS 1363] Camus. 1806. [SS 3000] Faulhaber. 1617.
- *v. Machinery (Early).*
- MILLS, THEORY OF: [3493] Paucton. 1768.
- MINE ACCOUNTS AND MANAGEMENT: [6540] Brown. 1899. [10613] Lawn. 1904. [14525] Roy. 1876.
- DRAINAGE: [11828-9] Michell. 1881-99.
- *v. Drainage.*
- ENGINEERING: [1647-8] Greenwell. 1870-89. [3736] Poussig. 1900. [8642] Greenwell. 1855. [14116] Reumaux. 1889. [S 3211] Curr. 1797.
- *v. Cornish Pumping Engine. Pit Props. Tunnelling. Winding Machinery.*
- EXPLOSIONS: [1972] Holmes. 1816. [8271] Garforth. 1909. [10257] Köhler. 1886. [10455] Lamprecht. 1901. [15286] Thorpe. 1892. [S 3324] Stuart. 1894.
- *v. Safety Lamp.*
- SURVEYING: [602] Brough. 1888. [1314] Fenwick. 1822. [2008] Houghton. 1881. [6332-3] Brough. 1899-1902. [7830] Fenwick. 1861. [10879-80] Lintern. 1872-87. [11131] Lupton. 1902. [15500] Weisbach. 1873. [S 3187] Brough. 1913.
- VALUATION: [9468] Hoskold. 1905.
- VENTILATION: [1739] Haales. 1743. [1972] Holmes. 1816. [3069] Moore. 1859. [3556] Petit. 1900. [4306] Scott. 1868. [5138] Wabner. 1903. [5481] Wood. 1853. [14525] Roy. 1876. [15238] Thomas. 1878.
- WATERS: [13230] Phillips. 1874.
- MINERAL ANALYSIS: [6739] Carnot. 1904. [13251] Phipson. *s. d.* [14625] Sage. 1769. [15273. 15278] Thomson. 1831-6. [SS 2658] Accum. 1808. [SS 2660] Bergman. 1784.
- DEPOSITS: [13361-2] Pisani. 1864-70. [15364] U. S. Geological Survey. 1883-94.
- *v. Ore Deposits.*
- INDUSTRY: [9653] Industrie Minérale. 1883. [11910] Mineral Industry. 1893-4. [12721] Nordenström. 1883. [14898] Skalkovsky. 1878.
- VEINS, FORMATION OF: [6637-8] Burr. 1836-7. [15508] Werner. 1802. [15551] Williams. 1810.
- WATERS (MEDICAL): [6747] Carrère. 1785. [9882] Jones. 1816. [10201] Kirwan. 1799. [11394] Marcet. 1811. [11937] Mitchell. 1913. [12692] Noad. 1844. [13220] Phillips. 1873. [14892] Simpson. 1670. [S 2671] Boyle. 1685.
- *v. 'Soda' Water.*
- MINERALOGICAL COLLECTIONS: [10898] Lobanoff. 1897. [12364] Natural History Museum. 1881-5. [15424] Wagner. 1818.
- GLOSSARY: [5719] Allan. 1808. [6511] Bristow. 1861.
- MINERALOGY: [36-8] Agricola. 1550-1621. [45] Aikin. c. 1820. [378] Berzelius. 1814. [631] Buckland. 1858. [830] Cloizeaux. 1862-74. [845] Collini. 1776. [939-41] Dana. 1857-82. [991] Delafosse. 1867. [1105] Dufrénoy. 1844-5. [1820] Haüy. 1822-3. [2298-9] Kircher. 1665-78. [2303] Kirwan. 1794. [2307] Klaproth. 1801. [2930] Mawe. 1816. [2997] Miller. 1857-60. [3015] Mitchell. 1864. [3119] Moses
- MINERALOGY, continued: and Parsons. 1895. [3394] Orr. 1860. [3417] Overman. 1854. [3597] Phillips. 1852. [3916] Readwin. 1867. [4947] Tschermak. 1884. [5329] Werner. 1846-50. [5664-6] Agricola. 1556-1621. [6047-8] Bauerman. 1881-4. [6139] Bergman. 1783. [6188-9] Berzelius. 1814-19. [6194] Beudant. 1830-2. [6278] Blum. 1866. [6520] Brongniart. 1807. [6527] Brooke. 1830. [6584] Buckland. 1836. [6851] Chemistry. 1810-43. [7088] Cronstedt. 1788. [7144-5] Dana. 1855-88. [7809] Faujas de St. Fond. 1784. [8755] Gürich. 1899. [8977] Hartmann. 1843. [9694] Jackson. 1849. [9742-5] Jameson. 1816-20. [9757. 9759-60] Jannettaz. 1874-1910. [10127] Kidd. 1809. [10165-7] Kircher. 1665-78. [10199-200] Kirwan. 1784-96. [10250-1] Kobell. 1838-41. [10263] Kokscharow. 1857. [10343-5] Kurr. 1858-60. [11689] Mayer. 1839-40. [11865] Miller. 1906. [12050] Moor. 1909. [12366-7] Naumann. 1871-7. [12389] Handwörterbuch der Mineralogie. 1882-7. [13239-42] Phillips. 1818-52. [13326] Pilla. 1841. [13359. 13366] Pisani. 1875-6. [13920] Rath. 1873-4. [14713] Schmeisser. 1794. [14812] Selle. 1878. [15278] Thomson. 1836. [15629] Cesi. 1636. [17362-3] Bauerman. 1902-3. [17375] Sauer. 1908. [SS 2659] Allan. 1834. [SS 2660] Bergman. 1784. [SS 2661] Beudant. 1824. [SS 2663] Boetius de Boot. 1647. [SS 2665] Brard. 1824. [SS 2667] Dana. 1872. [SS 2672. 2677] Jameson. 1817-21. [SS 2690] Mawe. 1818. [SS 2693] Schmidt. 1855.
- *v. Diallage. Lithology. Oryctognozy.*
- (CHEMICAL): [13860] Rammelsberg. 1841-53.
- (TOPOGRAPHICAL): [510] Bourmon. 1823. [1305] Farey. 1815. [2645] Liversidge. 1888. [3845] Pryce. 1778. [6677-8] California. 1888-1899. [8003] Forbes. 1854. [9081] Hedde. 1901. [9125] Helwing. 1717. [9394] Holdsworth. 1857. [10056] Kendall. 1816. [10057] Kennigott. 1866. [10264] Kokscharow. 1861-9. [10903] Liversidge. 1882. [12883] Palachi. 1909. [SS 2689] Manual. 1828.
- SYSTEMS OF: [15509] Werner. 1817. [SS 2660] Bergman. 1784. [SS 2661] Beudant. 1824.
- MINERALS (ARTIFICIAL): [506] Bourgeois. 1884. [14138] Reynolds and Ball. 1878.
- *v. Gems (Artificial).*
- MINES (SUBMARINE): [6594] Bucknill. 1889. [SS3152] Fulton. 1812.
- MINING: [36-38] Agricola. 1550-1621. [959-61] Davies. 1880-8. [1378] Foster. 1903. [1715] Gumpertz et Lebrun. 1805. [2008] Houghton. 1881. [2028] Hunt. 1884. [2279] Kern. 1772. [2298-9] Kircher. 1665-78. [2660] Lock. 1892. [2679] Löhneys. 1690. [3399] Osborn. 1888. [3417] Overman. 1854. [3591] Phillips. 1873. [3914] Raymond. 1871. [4094] Rössler. 1700. [4393] Simonin. 1868. [4515] Sopwith. 1833. [4775] Taylor. 1829. [5170] Wallace. 1890. [5664-6] Agricola. 1556-1621. [6611] Burat. 1871-4. [6636-7] Burr. 1835-7. [6956] Clifford. 1873. [7183-6] Davies. 1886-92. [7339] Dorion. 1893. [7537] Emmons. 1882-3. [8501] Goldmann. 1895-6. [8786-7] Hague. 1870-8. [9440] Hoover. 1909. [9469] Hoskold. 1863. [9494] Houghton. 1699. [9569] Hunt. 1884. [10116] Kern. 1772. [10165-7] Kircher. 1665-78. [10547] Larnach. 1887. [10862] Linden. 1750. [10983-4] Löhneys. 1619-90. [11862] Miller. 1897. [11918] Mining. 1900. [12457] New Zealand. 1887. [12836] Osborn. 1888. [13205] Philipps. 1858. [13232] Phillips and Darlington. 1857. [15139] Stretch. 1900. [S 3157] Agricola. 1657. [S 3188] Budge. 1825. [S 3195] Barrow and Thomas. 1893. [S 3196] Caillaux. 1875. [S 3197] Callon. 1876-86.

- MINING, *continued* :
 [S 3203] Combes. 1845-7. [S 3210] Crane. 1910. [S 3229-30] Foster. 1904-10. [S 3246] Hardy. 1762. [S 3262] Jars. 1774-81. [S 3302-3] Pryce. 1778.
 — *v. Blasting. Coal M. Mineral Deposits. Ore Deposits. Prospecting. Quarrying.*
 — (CORNISH) : [881] Cornwall. 1855. [3845] Pryce, 1778.
 — (HYDRAULIC) : [17347] Longridge. 1901-2.
 — (MILITARY) : [6988] Collado. 1586. [10462] Landmann. 1815. [11356] Manningham. 1752. [12193] Mouzé. 1804. [12268] Muller. 1747.
 — *v. Explosives. Tunnelling.*
 —, ELECTRICITY IN : [5162] Walker. 1907. [10821] Libert. 1900.
 —, HISTORY OF : [13183-4] Pettus. 1670-1706.
 — ACCIDENTS : [S 3156] Abel. 1889. [S 3313] Sawyer. 1886.
 — CONGRESSES : [11916] Mines. 1900.
 — GEOLOGY : [12954] Park. 1906. [S 3302-3] Pryce. 1778.
 — *v. Mineral Deposits. Mineral Veins. Ore Deposits.*
- MINING AND METALLURGICAL JOURNALS : [2099-2100] Iron and Steel Institute. 1869-1905. [3005] Mineral Industry. 1893. [3006] Mining Engineers (Institution of). 1891-1905. [3007] Mining and Mechanical Engineers (North of England Institute of). 1871-1904. [3008] Mining Magazine. 1872. [3978] Revue Universelle des Mines. 1876-7. [7477-8] Eisenhüttenwesen. 1902-6. [9656. 9679-80] Iron and Steel Institute. 1871-1911. [9913] Journal des Mines. 1794-1830. [11780] Metals (Institute of). 1909. [11910] Mineral Industry. 1893-4. [11911-12] Mineral Resources. 1906-8. [11919] Mining and Mechanical Engineers (North of England Institute of). 1852-91. [11920] Mining and Metallurgy (Institution of). 1896-8. [11921] Mining and Quarries. 1905. [11922] Mining, Civil, and Mechanical Engineers (Chesterfield and Derbyshire Institute of). 1871-89. [11924-7] Mining Engineers (Institution of). 1890-1912. [11928] Mining Engineers (American Institute of). 1891-1912. [11930-1] Mining Students. 1879-1912. [S 147] Mining and Smelting Magazine. 1862-4. [S 181] Reports of the Inspectors of Mines. 1882-91. [S 189] School of Mines Quarterly. 1880-91. [S 3257] Iron. 1873-99. [S 3280] Mineral Industry. 1893-1902. [SS 3269] Iron and Steel Institute (Staffordshire). 1907-19. [SS 3280] Mineral Industry. 1893-1907.
 — LAW : [3591] Phillips. 1873. [9494] Houghton. 1699. [11218] MacSwiney. 1884. [13183-4] Pettus. 1670-1706. [14986] Spon. 1673. [S 3165-7] Barba. 1738-40.
 — LECTURES : [3920. 13973] Records. 1852-3.
 — MACHINERY AND TOOLS : [5763] André. 1877-8. [6262] Blake. 1871. [10931] Lock. 1890. [12138] Morgans. 1871.
 — ROYALTIES : [14982] Sorley. 1889.
 — AND METALLURGICAL TERMS : [2098] Houghton. 1681. [3845] Pryce. 1778. [5666] Agricola. 1558. [9494] Houghton. 1699. [13179-82] Pettus. 1683-6. [13953] Raymond. 1881. [S 3165-7] Barba. 1738-40. [S 3246] Hardy. 1762.
- MIRAGE : [1696] Grunert. 1849. [4272] Schott. 1677. [13628-9. 13636] Prévost. 1832-4. [14740-1] Schott. 1657-9.
- MIRRORS (CONCAVE) : [150. 5817] Archimedes. 1807. [11282] Magini. 1611. [13761] Ptolemæus. 1548. [SS 1822] Kohlhaus. 1663. [SS 1862] Magini. 1628.
- MIRRORS (PARABOLIC) : [7055] Cowper-Coles. 1904-5.
- MIXTURES, NATURE OF : [8684] Grew. 1679.
- MNEMONICS : [2722] Lullius. 1517. [9432] Hooke. 1705.
- MOLECULAR THEORY : [10060. 10066. 10068. 10071-2] Kelvin. 1882-1911. [11259-60] Macvicar. 1861-75. [13143] Pearson. 1843. [S 2038] Kelvin. 1884.
 — *v. Chemistry (Molecular). Crystals, Molecular Tactics of. Current within Liquids.*
 — VOLUMES (ORGANIC) : [11027] Lossen. 1889. [13177] Pettersen. 1873. [14752] Schröder. 1843-4.
 — WEIGHTS : [13911-12] Raoult. 1894-8.
- MOLYBDENUM AND ITS COMPOUNDS : [9006] Hatchett. 1796. [13322] Pierce. 1909. [14697] Scheele. 1786.
- MOON : [1783] Harley. 1898. [1913] Hevelius. 1647. [3177] Nasmyth. 1874. [3198] Neison. 1876. [3820] Proctor. 1873. [4257] Schmidt. 1878. [4279. 4281] Schröter. 1791. [7063] Crampton. 1863. [7214] Decuppio. 1840. [8223] Galilei. 1610. [8912] Harley. 1886. [9193] Herschel. 1787. [9257] Hevelius. 1647. [10105] Kepler. 1898. [10947. 10949] Loewy. 1897-1904. [10985] Lohrmann. 1892. [11267] Mädler. 1839. [12360] Nasmyth and Carpenter. 1874-1903. [12414] Neison. 1876. [13314] Pickering. 1903. [13411] Plutarch. 1911. [13703-5] Proctor. 1873-8. [13748] Przybyllok. 1908. [15554-8] Wilkins. 1638-84. [SS 1002] Beer und Mädler. 1837. [S 1134] Hirzgarter. 1643.
 — *v. Lunar.*
 — (HARVEST) : [7846] Ferguson. 1747.
 —, METEOROLOGICAL INFLUENCE OF THE : [2913] Maurice. 1732. [4868-9] Toaldo. 1770-97. [8443] Glaisher. 1867. [9578] Hutchinson. 1782. [10428] Lamarck. 1806.
 —, OPTICAL PHENOMENA OF THE : [14543] Rowning. 1737. [15418] Vossius. 1685.
 — AND EARTH COMPARED : [16852] Günther. 1911.
 — HOAX : [1908] Herschel. 1836. [13708-9] Proctor. 1878-89.
 — LORE : [1784] Harley. 1885.
- MORTAR : [10393-4] La Faye. 1777-8. [11823] Michaélis. *s. d.* [13082] Pelouze. 1828. [S 3041] Gillmore. 1902. [SS 2776] Hassenfratz. 1825.
- MOTION : [1072] Dolbear. 1892. [3482] Pascoli. 1723. [3724] Porzio. 1704. [8874] Hands. 1879. [11427] Marini. 1804. [11888] Mills. 1873. [14767] Schyanoff. 1868. [15001] Spottiswoode. *n. d.* [16929] Andrade. 1911.
 — *v. Dynamics. Force. Kinetics. Velocities.*
 — : PARADOXES : [11864] Miller. 1781. [13742] Prusol. 1879. [13769] Purshall. 1707.
 — (ACCELERATED) : [180] Atwood. 1784. [338] Benzenberg. 1804. [875] Cotes. 1770. [1445] Galilei. 1638. [2064] Huygens. 1673. [4746-9] Tartaglia. 1546-62. [5869-70] Atwood. 1784. [6665. 6667] Calandrelli. 1779-85. [7037] Cotes. 1770. [8212-13. 8224] Galilei. 1638-1730. [9628] Huygens. 1673. [12074] Morgan. 1770. [15322-3] Torricelli. 1644. [15449] Wallis. 1670-1. [SS 1557] Borelli. 1686. [SS 2110] Tartaglia. 1537.
 — (RECTILINEAR) : [180. 5869-70] Atwood. 1784.
 — (ROLLING) : [12204] Moseley. 1851.
 — (ROTARY) : [180] Atwood. 1784. [3675-6] Poinsot. 1834-51. [4411] Sire. 1862. [5869-70] Atwood. 1784. [8081] Français. 1813. [8319] Geer. 1872. [9019] Houghton.

MOTION (ROTARY), *continued*:

1849. [10395] Lafon. 1860. 13461-3. 13465-7] Poincot. 1834-61. [14851] Siemens. 1866. [14906-11] Smeaton. 1760-1813. [15001] Spottiswoode. *n. d.* [15523] Whewell. 1823. [16940] Barnard. 1872. [17289] Worthington. 1906. [SS 3042-3] Mandey and Moxon. 1696-9.

— (VISIBLE AND INVISIBLE): [2696. 11020. 17120] Lorentz. 1902.

— GEOMETRY OF: [16349] Mannheim. 1894. [16599] Schoenflies. 1893.

— OF POINTS: [14484] Rosochatius. 1877. [14507] Rouché. 1854. [14568] Rudio. 1886. [14661] Sandeman. 1850.

— OF SYSTEMS: [13461-3] Poincot. 1842-61.

MOTIVE POWERS: [6307] Bolton. 1895.

MOTOR VEHICLES: [3529] Pemberton. 1907. [6075] Beaumont. 1906. [6077] Beavan. 1903. [8744] Gum. 1910. [10230] Knight. 1902. [12024] Montagu of Beaulieu. *n. d.* [S 3382] Butler. 1912. [S 3396] Clark. 1911-17. [S 3554] Pagé. 1916.

— *v. Cycles (Motor).*

MOTORS (SMALL): [9093] Hall. 1878.

— (THERMO-): [9477] Hospitalier. *v. y.*

MOUNTAINS, DEGRADATION OF: [5811] Arcet. 1776.

MUDARINE: [7393] Duncan. 1831.

MULTIPLICATION TABLES: [13596] Pratica. *s. a.*

MULTIPLICITY, THEORY OF: [15834] Cantor. 1877. [16598] Schönflies. 1910.

MUNICIPAL ENGINEERING: [2931] Maxwell. 1904. [6379-80] Boulnois. 1883-92. [11685] Maxwell and Brown. 1910.

MUSIC, MATHEMATICAL THEORY OF: [13627] Prévost. 1862.

—, PHYSICAL THEORY OF: [1853] Helmholtz. 1885. [2300] Kircher. 1650. [3853-4] Ptolemæus. 1682. [4461-2] Smith. 1749-59. [4588] Stevinus. 1884. [4780] Taylor. 1883. [5830] Aristoxenus. 1562. [6268] Blaserna. 1883. [6292] Boethius. 1546. [7702] Euler. 1739. [8961] Harrison. *c.* 1770. [9111-12] Helmholtz. 1870-5. [9314] Hirn. 1878. [10168] Kircher. 1650. [11646-7] Maurolico. 1575. [11726-7] Meibom. 1652. [11782] Mersenne. 1644-7. [12088] Morgan. 1858. [13759] Ptolemæus. 1682. [14026] Reisch. 1512. [15248] Thompson. 1890. [17069] Helmholtz. 1896. [17230] Starke. 1908. [S 480] Boetius. 1867.

—: SPECULATIONS: [10100-3] Kepler. 1619-22.

MUSICAL INSTRUMENTS: [2300. 10168] Kircher. 1650. [SS 1613] Chladni. 1821. [SS 2055] Schneider. 1834.

— *v. Arabian Harp. Bell-ringing. Electric Harpsicord. Organs. Phonograph.*

—, TEMPERAMENT OF: [6794] Cavallo. 1788. [15116] Stoney. 1883.

NAPHTHA BASES: [9369] Hofmann. 1844.

NAPHTHALENE: [261] Ballo. 1870. [1288. 7769. 7783] Faraday. 1826-59. [10573] Laurent. 1843.

NAPIER'S BONES: [3188] Napier. 1617. [5031] Ursinus. 1623. [12339-42] Napier. 1617-22. [SS 347] Dansie. 1627. [SS 546] Lambert. 1772. [SS 671] Napier. 1623. [SS 831] Schott. 1668.

NAUTICAL CALCULATION: [1702] Guilhaumon. 1891.

— EXPERIMENTS: [299. 6072-3] Beaufoy. 1834.

NAUTICAL INSTRUMENTS: [5147-8] Wakely. 1741-59. [9979] Kaiser. 1880-3. [11825] Micheli. 1776. [SS 871] Suardi. 1752.

— *v. Compass. Horizon (Artificial). Longitude Scale. Quadrant. Sextant.*

— SURVEYING — *v. Surveying (Nautical).*

— TABLES AND RULES: [314] Bedford. 1888. [2905] Matthies. 1897. [3193] Nautical Almanac. 1770-1876. [3351-2] Norwood. 1631-85. [4015-16] Rios. 1805-9. [5147-8] Wakely. 1741-59. [10112] Kerigan. 1845. [11194] Mackay. 1804. [11549] Maskelyne. 1802. [13200] Phillippes. 1674. [14262] Rios. 1801.

— *v. Astronomical T. Ephemerides. Horary T. Hydrographical T. Loxodromic T. Traverse T.*

— TERMS AND NAVAL DICTIONARIES: [117] Anstruther. 1894. [1278] Falconer. 1771. [1774] Harbord. 1883. [4051] Røding. 1794-8. [4479] Smyth. 1867. [7763] Falconer. 1830. [10735] Lescallier. 1777. [12878] Paasch. 1894. [S 3720] Bonnefou et Paris. 1848.

NAVAL ARCHITECTURE — *v. Shipbuilding.*

— DICTIONARIES — *v. Nautical Terms and Naval Dictionaries.*

— ENGINEERING — *v. Marine Engineering.*

— JOURNALS: [12372-3] Naval Architects' Institution. 1860-1912. [12385] Naval Science. 1872-5. [S 3822] Société Maritime de Paris. 1844. [S 3829-30] United Service Institution. 1858-1908.

— TACTICS: [820] Clerk. 1790-7. [3110] Morogues. 1768. [6153] Bernoulli (Jean). 1742. [7340] Douglas. 1858. [12720] Noel. 1874.

NAVIGATION AND SEAMANSHIP: [177] Atkinson. 1718. [495-7] Bouguer. 1746-57. [515] Boyd. 1860. [843] Collier. 1729. [847] Collins. 1659. [849-50] Colson. 1749-64. [1113] Dulague. 1849. [1257] Euler. 1749. [1277] Fairfax. *c.* 1690. [1501] Gellibrand. 1695. [1611] Gower. 1808. [1797] Harris. 1730. [1805] Haselden. 1784. [1888] Herschel. 1859. [1956] Hodgson. 1706. [2090] Inman. 1849. [2134] Jeans. 1868-70. [2252] Keith. 1810. [2514] Ledieu. 1877. [2788] Malham. 1795. [2846] Martin. 1768-9. [2863] Martin. 1888. [2950-1] Merrifield and Evers. 1868. [2966] Metius. 1624. [3154] Murdoch. 1741. [3162] Murray. 1765. [3221] New-House. 1708. [3306] Nicholson. 1792. [3327] Nicholson. 1784. [3348] Norie. 1868. [3891] Raper. 1849. [4036] Robertson. 1805. [4138] Rümker. 1850. [4198] Saltonstall. 1636. [4484] Snell van Royen. 1624. [4675-6] Sturmy. 1679-1700. [4860] Timmouth. 1845. [5139] Wagenaer. 1588. [5144] Waddington. 1770. [5567] Young. 1855. [5737-8] Alston. 1860-1902. [6279-81] Blundeville. 1597-1636. [6369-71] Bouguer. 1746-57. [6653] Byrne. 1875. [7215] Dee. 1577. [7390-1] Duhamel du Monceau. 1747-69. [7409] Dunraer. 1908. [7701] Euler. 1749. [8188-9] Furtenbach. 1644-62. [8429] Gill. 1898. [8693] Griffiths. 1824. [8995] Haselden. 1759. [9069] Heath. 1760. [9432] Hooke. 1705. [9947-8] Juan. 1771-83. [10040-1] Keith. 1820-45. [10066. 10071-2] Kelvin. 1882-1911. [10112] Kerigan. 1845. [10650-2] Lecky. 1881-1904. [11520] Martin. 1888. [11614] Mauduit. 1772. [11649] Maury. 1854. [11706-9] Medina. 1555-1609. [11782] Mersenne. 1644-7. [11875] Miremont. 1905. [12216] Montaine. 1761. [12292] Murdoch. 1741. [12317] Murray. 1765. [12411] Navigation. 1772. [12724-5] Norie. 1810-16. [12770-1] Norwood. 1667-96. [13200] Phillippes. 1674. [13375] Pitot. 1743.

NAVIGATION AND SEAMANSHIP, *continued* :

[13913-14] Raper. 1857-82. [14238-9] Riddle. 1824-42. [14419] Romme. 1787. [14491] Rossar. 1879. [15026] Stebbing. 1896. [15457] Ward. 1742. [15634] Nuñez. 1592. [16867] Jeans. 1876-84. [S 3716] Blundeville. 1594. [S 3721] Bouguer. 1706. [S 3757] Kelvin. 1876. [SS 1202-3] Metius. 1626. [SS 3124] Atkinson. 1749. [SS 3139-41] Colson. 1711-16.

— *v. Compass. Latitude. Longitude. Pilotage. Rigging. Sailing Directions. Sailmaking. Ships. Speed Measurement of.*

— (SUBMARINE): [5413-18] Wilkins. 1648-91. [6621] Burgoyne. 1903. [8194] Gaget. 1901. [15312] Tonassi. 1817. [15559-63] Wilkins. 1648-91. [SS 3135] Castéra. 1810. [SS 3145] Diving Vessel. c. 1775.

NEBULE AND STAR CLUSTERS: [7514] Ellery. 1885. [8223] Galilei. 1610. [8566] Gould. 1897. [9195-6. 9202] Herschel (Sir William). 1786-91. [9235] Herschel (Sir John). 1847. [10304] Kretz. 1900. [10308] Krueger. 1865. [10554] Lassell. 1867. [14295-7] Roberts. 1894-1902. [14488] Rosse. 1844. [S 1598] Roberts. 1894-9.

— *v. Milky Way. Orion N.*

NEBULAR HYPOTHESIS (KANT-LAPLACE): [2435-7] Laplace. 1813-35. [4563] Stanley. 1895. [6820] Chambers. 1845. [10500-3] Laplace. 1809-24.

— *v. Meteoritic Hypothesis.*

NEGATIVE QUANTITIES: [2874] Maseres. 1758. [5234] Warren. 1828. [11532. 11536-7] Maseres. 1758-1800.

NEPTUNE (PLANET): [2574] Le Verrier. 1848. [3309] Nichol. 1848. [5650] Adams. 1846. [8382] Gibb. 1909. [10614] Lawson. 1847. [10776] Le Verrier. 1846. [12636] Nichol. 1848.

NEWTON'S DISCOVERIES, COMMENTARIES ON: [3280] Castel. 1743. [3283] Domckius. 1730. [3285-6] Gordon. 1719. [3287] Jordan. 1799. [3288-92] Maclaurin. 1748-75. [3293] Martin. 1754. [3294] Parkes. 1804. [3295-7] Pemberton. 1728. [3300] Rosenberger. 1895. [3301] Voltaire. 1738. [11220-2] Maclaurin. 1748-75. [11492. 11494-6. 11502-4] Martin. 1747-88. [11629] Maupertuis. 1742. [12590] Algarotti. 1737. [12591] Bloch. 1908. [12600] Domcke. 1730. [12603] Fragmens. *n. d.* [12605] Hartsoeker. 1722. [12606] Horne. 1753. [12608-10] Maclaurin. 1748-55. [12617-20] Pemberton. 1728. [12625] Voltaire. 1738. [12626] Wilson. 1754.

—: PARADOXES: [6993] Cominale. 1754-6. [11864] Miller. 1781. [12163] Morrison. 1868. [12604] Gordon. 1719. [12612] Mercier. 1806.

— PRINCIPIA AND ITS COMMENTATORS: [1171] Emerson. 1770. [1631] Gravesande. 1728. [2754-5] Maclaurin. 1748-75. [3256-74] Newton. 1713-1871. [3278] Ball. 1893. [3281] Clarke. 1730. [3299] Rigaud. 1838. [3302] Wright. 1833. [5388] Whiston. 1716. [6538] Brougham and Vaux. 1855. [6927] Clarke. 1730. [12501-33] Newton. 1687-1880. [12501-33] Newton. 1687-1880. [12597] Brougham and Routh. 1855. [12600] Domcke. 1730. [12608-10] Maclaurin. 1748-55. [12617-20] Pemberton. 1728. [12622] Rigaud. 1838. [12624] Sanderson. 1742. [12627] Young. 1787. [12629-30] Wright. 1833. [15530] Whiston. 1716. [17056] Groth. 1912. [17150-9] Newton. 1777-1900.

— RINGS: [5693] Airy. 1832.

NICKEL AND ITS COMPOUNDS: [3027] Moissan et Ouyard. 1896. [8007] Forbes. 1853. [11993] Mond. 1891. [14201] Richards. 1897-9. [14330] Roberts-Austen. 1898.

NITRAGIN: [7209] Dawson. 1899. 

NITRATES: [6356] Bortier. 1863. [8554] Graham. 1837. [11834] Mignot de Montigny. 1776. [12001] Möller. 1904.

— *v. Saltpetre.*

NITRIC ACID PRODUCED FROM AIR: [6798] Cavendish. 1788.

— OXIDE: [13669-70] Priestley. 1772.

NITROGEN: [4516] Sorel. 1902. [4532] Spiegel. 1905. [9004] Hasselberg. 1885. [9714] Jacquerod et Bogdan. 1905. [13870] Ramsay. 1881. [14698-9] Scheele. 1780-5.

— *v. Ammonia.*

— (ATMOSPHERIC) ABSORBED BY PLANTS: [5074] Ville. 1853. [6393] Boussingault. 1838. [SS 2639] Ville. 1857.

— DIOXIDE: [3790-1. 3798] Priestley. 1774-7.

— MONOXIDE: [3790-1] Priestley. 1774-7. [7202] Davy. 1800.

— COMPOUNDS: [2351] Lacote. 1880. [S 3092] Martin and Barbour. 1915.

— *v. Nitrates. Saltpetre.*

NITROGENOUS ORGANIC COMPOUNDS: [7456] Edinger. 1892.

NOBEL PRIZES: [12700] Nobel. 1905-11.

NOMOGRAPHY: [12780] Oeagne. 1891. [16453. 16455] Oeagne. 1899-1908.

NUCLEATION (ATMOSPHERIC): [6027-8] Barus. 1906-7.

NUMBERS (ALGEBRAIC): [16509] Reid. 1910. [16764] Weber. 1891.

— (AMICABLE): [SS 1664] Euler. 1750.

— (COMPLEX): [10328-31] Kummer. 1860-70. [10704] Lejeune-Dirichlet. 1844. [16104] Hankel. 1867. [16249] Krüger. 1891.

— (GEOMETRICAL): [14732-3] Schoner. 1614.

— (GOLDEN): [6098] Bedford. 1743.

— (GREAT), LAW OF: [3682. 16492] Poisson. 1837.

— (IMAGINARY): [13149] Pessuti. 1777. [16249] Krüger. 1891.

— (MYSTIC): [461] Bongo. 1591. [3726] Potter. 1642. [13554] Potter. 1677. [SS 421] Faulhaber. 1622.

— (PERFECT): [721] Cataldi. 1603. [11782] Mersenne. 1644-7.

— (POLYGONAL): [S 642] Diophantus. 1890.

— (PRIME): [477] Bork. 1885. [1997] Horsley. 1773. [14121] Reuschle. 1875. [16263] Landau. 1909. [16568] Scheffler. 1880.

— (PROPORTIONAL): [SS 347] Dansie. 1627.

— (TRANSCENDENTAL): [16346] Maillet. 1906.

— (TRIGONAL): [2182] Joncourt. 1762.

— GEOMETRY OF: [11933] Minkowski. 1896. [16396] Minkowski. 1910.

— NATURE AND MEANING OF: [15921-2] Dedekind. 1909-11.

— PARTITION OF: [5209] Warburton. 1847.

— THEORY OF: [268] Barlow. 1811. [572] Brennecke. 1840. [1062-3] Diophantus Alexandrinus. 1621-70. [1245] Euler. 1849. [1328] Fermat. 1679. [1414] Frenicle. 1676. [2525] Legendre. 1830. [2538] Lejeune-Dirichlet. 1863. [2610] Libri. 1820. [2819] Marchand. 1877. [2875] Maseres. 1795. [3085] Morgan. 1836. [3477] Pascal. 1665. [4465] Smith. 1835. [4744] Tartaglia. 1556-60. [5903-5] Bachmann. 1872-4. [6220] Billy. 1643. [6775]

NUMBERS, THEORY OF, *continued*:

- Cauchy. 1830. [7300-2] Diophantus Alexandrinus. 1621-70. [8306] Gauss. 1807. [10682] Legendre. 1830. [10705] Lejeune-Dirichlet. 1863. [11213. 11215-7] MacMahon. 1890-1907. [11718. 11720-1] Meissel. 1884-8. [11782] Mersenne. 1644-7. [14760] Schwarz. 1855. [15108] Stolz und Gmeiner. 1900-2. [15213] Taylor. 1816. [15701-4] Bachmann. 1872-1910. [15828] Cahen. 1900. [15867] Châtelet. 1913. [15921] Dedekind. 1901-9. [16040] Gauss. 1807. [16126] Hensel. 1913. [16278-9] Le Besgue. 1859-62. [16290-1] Legendre. 1830-93. [16292-3] Lejeune-Dirichlet. 1871-94. [16333] Lucas. 1891. [16365] Mathews. 1892. [16506] Pund. 1899. [16624] Schwarz. 1855. [16659] Sommer. 1907. [16690] Stolz und Gmeiner. 1911-12. [16703] Tannery. 1895. [16740] Tscheytscheff. 1902. [16759] Voigt. 1911. [16776-9] Wertheim. 1887-1902. [S 727] Gauss. 1801. [S 911] Legendre. 1808. [S 3866] Poinot. 1845. [SS 208] Bentz. 1621.
- *v. Congruences. Diophantine Problem. Dirichlet's Principle. Divisors. Equations (Indeterminate). Forms. Magic Squares. Residues. Series. Variables.*

— — —, PRINCIPLES OF THE: [S 1085] Poinot. 1845.

NUMERICAL TABLES, ADJUSTMENT OF: [5504] Woolhouse. 1865.

NUTATION — *v. Precession.*

OBSERVATIONS, ERRORS OF — *v. Errors, Theory of.*

— — —, MEAN RESULTS OF: [2652] Lloyd. 1849. [5515] Wright. 1884. [14884-5] Simpson. 1757.

OCCCLUSION (CHEMICAL): [14207. 14210. 14212] Richards, et al. 1893-1901.

OCCULTATIONS—*v. Eclipses.*

OCCULTISM IN SCIENCE: [3171] Mythographi Latini. 1681. [4276] Schott. 1697. [4729-30] Taisnier. 1562. [5843-4] Artemidorus. 1584-1603. [6414] Boyle. 1691. [10706] Lemnius. 1628. [11086] Lullius. 1567. [13517] Porta. 1558. [14640] Salverte. 1846. [14744] Schott. 1662. [14819] Sennert. 1637. [SS 128-31] Porta. 1558-60.

— *v. Alchemy. Divining Rod. Supernatural in Nature. Superstition and Science.*

OCEAN CHARTS: [5139] Wagenaer. 1588.

— *v. Wind and Current C.*

— — —, TEMPERATURES: [13624] Prestwich. 1874.

OCEANOGRAPHY: [1752] Halley. 1705. [2188-92] Jordan. 1866-85. [2916-19] Maury. 1851-81. [3011] Miscellanea Curiosa. 1705-7. [3053] Montanari. 1715. [3967] Rennell. 1832. [4791] Telesio. 1570. [8828-30] Halley. 1708-27. [9906. 9908] Jordan. 1867-77. [11347] Mangin. 1870. [11456] Marsigli. 1725. [11650-2] Maury. 1856-61. [12025] Montanari. 1715. [13958] Reclus. 1873. [14031] Rennell. 1832. [14848] Siemens. 1876. [15068] Stevenson. 1816. [17393] Kayser. 1911. [S 2465] Boguslawski und Krümmel. 1884-7. [S 2510] Ferrel. 1860.

— *v. Bathometer. Coast Erosion. Meteorology (Ocean). Saltness of the Sea. Tidal. Tides. Wind and Current Charts.*

— — —, PARADOXES: [SS 2231] Berga. 1579.

OCTONIONS: [11157. 16336] McAulay. 1898.

OHM'S LAW: [3372-3. 12809-11] Ohm. 1827-87. [15517] Wheatstone. 1843.

OIL PAINTING: [3903] Raspe. 1781.

OILS—*v. Fats and Oils.*

OILS (ESSENTIAL): [1529] Gildemeister and Hoffmann. 1900. [2287] Kingzett. 1888. [9987] Kane. 1838. [10396] La Garaye. 1745. [12977] Parry. 1899. [13392-3] Plat. 1653. [14412] Romburgh. 1900. [SS 2619] Senebier. 1782. — *v. Eucalyptus. Perfumery. Terebenes. Terpenes. Volatile Organic Bodies.*

OPERA GLASSES: [2306. 10189] Kitchiner. 1824.

OPERATIONS, CALCULUS OF—*v. Calculus of Operations.*

— (ANALYTICAL), THEORY OF: [12300] Murphy. 1837.

— (SYMBOLIC): [8457] Glaisher. 1878.

OPTICAL ACTIVITY: [8976] Hartley. 1873. [9236] Herschel. 1820. [12852] Oudemans. 1872. [13021] Patterson and Stevenson. 1910. [13508] Pope and Read. 1908. [14381] Rodger and Watson. 1895. [S 2807] Landolt. 1899. [SS 1651] Dufet. 1900.

— *v. Crystallography (Chemical).*

— CONTROVERSIES: [2209] Jurin. 1739.

— CONVENTIONS: [12826] Optical Convention. 1913.

— DISTURBANCES, PROPAGATION OF: [17064] Havelock. 1914.

— EXPERIMENTS: [SS 1768] Hauksbee. c. 1735.

— INDUSTRIES: [5874] Auerbach. 1903.

— INSTRUMENTS: [3-4] Abbe. 1874-86. [400] Biese. 1894. [773] Chérubin. 1671. [1329] Ferraris. 1877. [2006] Houdaille. 1894. [2334] Leiss. 1899. [2848-9] Martin. 1740-70. [3389] Orford. 1896. [6855] Chevalier. 1848. [7132] Czapski. 1893. [7551] Emerson. 1768. [7834] Ferraris. 1879. [9492] Houdaille. 1894. [10223] Klügel. 1778. [12833] Orford. 1896. [13556] Potter. 1847. [17197] Raibaud. 1910. [17227] Southall. 1910. [17281] Whittaker. 1907. [S1839] Czapski. 1904. [SS 420] Faulhaber. 1610. [SS 1623] Coddington. 1830. [SS 2067-9] Selva. 1787.

— *v. Analyser. Camera Lucida. Diorama. Heliometer. Kaleidoscope. Lenses. Magic Lantern. Microscopic Objectives. Microscope. Mirrors. Photographic Objectives. Polariscopes. Reflector (Prismatic). Searchlights. Spectacles. Stereoscope. Telescope.*

— JOURNALS: [12826] Optical Convention. 1913. [12827] Optical Journal. 1901-2.

— LECTURES: [3243-5] Newton. 1728-9. [4995-6. 4999-5004] Tyndall. 1870-85. [12551-3] Newton. 1729. [14671] Saunderson. c. 1712. [SS 2022-3] Rampinelli. 1760.

— MEMOIRS AND PAPERS: [578] Brewster. 1822-45. [11969] Moigno. 1847-50. [13950] Rayleigh. 1883. [S 2199-201] Optical Papers. 1831-99.

— PARADOXES: [1792] Harris. 1876. [6924] Clarke. 1818. [7450] Eeles. 1771. [10160] Kirby. 1757. [10346] Kyan. 1838. [12324] Muston. 1830. [13742] Prusol. 1879. [13769] Purshall. 1707. [13960] Reade. 1818. [14803] Sedgwick. 1882. [15190] Symes. 1771.

— PROJECTION—*v. Optics (Projective).*

— PROPERTIES OF SOLIDS: [SS 1651] Dufet. 1899.

— RESEARCHES: [1089-90] Dove. 1853-9. [2033-4] Hunt. 1844-54. [8725] Grunert. 1846-51.

— THEORIES—*v. Light, Theories of.*

OPTICS (ARTISTIC): [13482] Pollock. 1903.

OPTICS (ELEMENTARY): [834] Coddington. 1825. [1174] Emtage. 1896. [1572] Glazebrook. 1894-5. [3729] Potter. 1851. [4618-19] Stokes. 1884-7. [4735] Tait. 1884. [4919] Traubaud. 1753. [5995-6. 6005] Barlow. 1819-23. [6971] Coddington. 1825. [7458] Edser. 1902. [7551] Emerson. 1768. [8473] Glazebrook. 1883. [10525] Lardner. 1856. [11872] Millikan and Mills. 1908. [13103] Percival. 1899. [13556] Potter. 1847. [14543] Rowning. 1737. [14830] Settele. 1818-19. [15433] Walker. 1679. [17019] Emtage. 1903. [17033] Franklin and Macnutt. 1909. [17046] Glazebrook. 1898-1907.

— (GENERAL): [576-7] Brewster. 1831-5. [1655] Gregory. 1735. [1675-6] Griffin. 1838-42. [2869] Mascart. 1889-93. [3024] Moigno. 1847-50. [3243-5. 3249-55] Newton. 1704-40. [3465-7] Parkinson. 1866-84. [4459-60] Smith. 1738-67. [10361] La Caille. 1808. [10568] Laurance. 1908. [11482] Martin. 1740. [11734-53] Newton. 1740-87. [13824] Radicke. 1830. [17011] Drude. 1906. [17131] Mascart. 1889-93. [17166-7] Parkinson. 1870-84. [17196] Preston. 1901. [17235] Tait. 1900. [S 1949] Gregory. 1715. [SS 1627-8] Courtivron 1752. [SS 2067-9] Selva. 1787.

— *v. Light.*

— (GEOMETRICAL): [1838-9] Heath. 1887-95. [5701] Airy. 1870. [6263] Blakesley. 1903. [8489] Gleichen. 1902. [8659] Gregory. 1663. [9070-1] Heath. 1887-97. [9168] Hernan. 1900. [12014] Mongiardiini. 1759. [13199] Phelps. 1835. [16926] Airy. 1870. [17048] Gleichen. 1902. [17065-6] Heath. 1895-7. [17227] Southall. 1910. [17266] Wallon. 1900. [SS 1358] Bonhomo. 1758. [SS 1547] Bischoff. 1772. [SS 1601] Chesnecopherus. 1593. [SS 1658-9] Euclide. 1573. [SS 2047] Santini. 1645.

— (HIGHER): [6099-6100] Beer. 1853. [11349] Mann. 1902. [16948-9] Beer. 1882.

— (MAGNETO-): [S 2440] Zeeman. 1913.

— *v. Light, Electromagnetic Theory of Zeeman Effect.*

— (MATHEMATICAL): [591-2] Briot. 1864. [1655] Gregory. 1735. [6505] Briot. 1864. [8656] Gregory. 1726. [15027-8] Steinheil und Voit. 1891. [16971] Briot. 1864. [16989] Classen. 1901. [17179] Poincaré. 1889-92. [SS 1545-6] Biot. 1814. [SS 1739] Gregory. 1695.

— *v. Rays, Systems of.*

— (MICROSCOPICAL): [4] Abbe. 1886. [13697] Proctor. 1862. [SS 2184] Abbe. 1904.

— *v. Microscopic Vision.*

— (PHOTOGRAPHIC): [841] Cole. 1899. [2981] Miethé. 1893. [3020] Moessard. 1898. [3045] Monckhoven. 1867. [4518] Soret. 1891. [9815] Johnson. 1909. [11083] Lummer. 1900. [11833] Miethé. 1896. [14404] Rohr. 1899. [17145] Monckhoven. 1867.

— (PHYSICAL): [306] Becquerel. 1867-8. [402-3] Billet. 1858-9. [1573] Glazebrook. 1886. [1779] Hardy. 1856. [1907] Herschel. 1829-33. [2681] Lommel. 1888. [5055] Verdet. 1869. [6088] Becquerel. 1867-8. [6218-19] Billet. 1858-9. [8473] Glazebrook. 1883. [9218-20. 9231. 9243] Herschel. 1827-33. [10986] Lommel 1875-88. [13557] Potter. 1856. [17011] Drude. 1906. [17046] Glazebrook. 1898-1907. [17257] Turpain. 1913. [17287] Wood. 1911. [S 1698] Basset. 1892.

— (PHYSIOLOGICAL): [16] Abney. 1897. [31] Adams. 1789. [187] Ayscough. 1755. [1025] Descartes. 1662. [1850] Helmholtz. 1867. [2213] Kaiser. 1872. [4547] Stammeshaus. 1877. [5171-2] Wallace. 1836-50. [5326] Wells. 1792-1818. [5572-7] Young. 1793-1845. [7173] Darwin. 1786. [9110] Helmholtz. 1867. [9720] Jago. 1856. [9814] Johnson. 1901.

OPTICS (PHYSIOLOGICAL), *continued*:

[9893] Jones. 1851. [11648] Maurolico. 1613. [13398-9] Plateau. 1829-34. [13564-5] Powell. 1834-5. [14718] Scheiner. 1619. [17068] Helmholtz. 1896. [S 1971-2] Helmholtz. 1867. [S 2294] Scheffer. 1869. [S 2792] Kühne. 1878. [S 3841-2] Agnillon. 1613. [SS 1623] Coddington. 1829-30. [SS 1895] Montalto. 1606. [SS 1953] Ott. 1670-1.

— *v. Colour Vision, Colours, Physiology of, Microscopic Vision, Spectacles, Telescopic Vision, Vision, Theory of.*

— (POPULAR): [2933. 11665-6] Mayer and Barnard. 1878. [15247] Thompson. 1897.

— (PRACTICAL): [2848-9] Martin. 1740-70. [8474-5] Glazebrook and Shaw. 1885-94. [10568] Laurance. 1908. [11482] Martin. 1740. [17227] Southall. 1910. [15027-8] Steinheil und Voit. 1891.

— (PROJECTIVE): [17020] Engel und Schellbach. 1861. [17165] Parinaud. 1904. [SS 1972] Peckham. 1504-42.

— *v. Magic Lantern.*

— (THEORETICAL): [3762] Preston. 1890. [8656] Gregory. 1713. [10223] Klügel. 1778. [10907] Lloyd. 1849. [13620-1] Preston. 1890-5. [17179] Poincaré. 1889-92. [17196] Preston. 1901. [SS 1851] Drude. 1902. [SS 2298] Schuster. 1904.

— *EARLY WORKS ON*: [43-4] Aguilon. 1613. [82] Alhazen. 1572. [283] Barrow. 1669. [773] Chérubin. 1671. [1023] Descartes. 1662. [2067] Huygens. 1690. [2265-6] Kepler. 1611-53. [2293-4] Kircher. 1646-71. [2822] Marci de Kronland. 1648. [3009] Mirami. 1582. [3037] Molyneux. 1692. [3169] Mydorge. 1639. [3716] Porta. 1593. [4272] Schott. 1677. [5132] Vossius. 1662. [7256] Descartes. 1637. [7614. 7626] Euclides. 1557-8. [8659] Gregory. 1663. [9340] Hobbes. 1658. [10097-8] Kepler. 1611-53. [10161] Kircher. 1671. [11379] Manzini. 1660. [11648] Maurolico. 1613. [12006] Molyneux. 1709. [14718] Scheiner. 1619. [14740-1] Schott. 1657-9. [15405] Vitellio. 1535. [15433] Walker. 1679. [15628] Caus. 1612. [S 1677-8] Bacon. 1614. [S 1689] Bartholinus. 1670. [S 1866] Euclides. 1604. [S 2437-8] Zahn. 1685-1702. [SS 1504] Ango. 1682. [SS 1601] Chesnecopherus. 1593. [SS 1649] Dominis. 1611. [SS 1652] Duhamel. 1660. [SS 1658-9] Euclide. 1573. [SS 1739] Gregory. 1695. [SS 1742-4] Grimaldi. 1665. [SS 1822] Kohlhaus. 1663. [SS 1891] Mersenne. 1651. [SS 1895] Montalto. 1606. [SS 1953] Ott. 1670-1. [SS 1972-4] Peckham. 1504-42. [SS 2017] Ramus. 1606. [SS 2025] Rheita. 1645. [SS 2047] Santini. 1645. [SS 2061] Scriptoris Optici. 1823.

— *v. Catoptrics, Dioptrics.*

— *HISTORY OF*: [3805-6] Priestley. 1772. [5406] Wilde. 1838-43. [13620-1] Preston. 1890-5. [13664-5] Priestley. 1772. [14740-1] Schott. 1657-9. [SS 1658-9] Euclide. 1573. [SS 2125-6] Venturi. 1814.

ORBITS (PLANETARY AND COMETARY): [1489-90] Gauss. 1809-57. [3374] Oppolzer. 1882-80. [8307] Gauss. 1857. [12823] Oppolzer. 1886. [15625] Bauschinger. 1906. [S 263] Darwin. 1911.

— *v. Astronomy (Cometary), Planetary Theory.*

ORE DEPOSITS: [882] Cotta. 1870. [1872] Henwood. 1843. [2555] Leonhard. 1826. [3590] Phillips. 1896. [6612] Burat. 1870. [6638] Burr. 1836. [10052] Kemp. 1893. [10123] Kerr and Hanna. 1893. [13183-4] Pettus. 1670-1706. [13218] Phillips (J.). 1837. [13231] Phillips (J. A.). 1884. [13544] Pošepny. 1893-4. [14232] Ricketts. 1883. [S 3287] Ore Deposits. 1896-1903.

— *v. Mineral Deposits, Mineral Veins, Pyrites.*

- ORE DRESSING: [3639] Pini. 1779-80. [10931] Lock. 1890. [14178] Richards. 1905. [S 3233] Graetschmann. 1864-72. [S 3305] Rittinger. 1867-71. [SS 2950] Richards. 1905-9.
- ORGANS: [9306] Hinton. 1909. [10788] Lewis. 1911.
- ORGANIC COMPOUNDS, PREPARATION OF: [7918] Fischer. 1907.
- , DECOMPOSITION OF: [5471] Wolny. 1897.
- RADICALS—*v. Radicals (O).*
- ORGANO-METALS: [8104. 8108-9. 8111] Frankland. 1852-60.
- ORION NEBULA: [4657] Struve. 1862. [6312] Bond. 1867. [9534] Huggins. 1865. [SS 1054-5] Cysat. 1919.
- ORNAMENT, GEOMETRICAL LAW OF: [6216] Billings. 1851. [9053] Hay. 1843.
- *v. Beauty, Mathematical Theory of. Phyllotaxis.*
- OROGRAPHY: [9553] Humboldt. 1843.
- ORRERIES: [1732] Hagelganss. 1736-44. [1788] Harris (John). 1729. † [1793-6] Harris (Joseph). 1731-57. [2145] Jennings. 1747. [2837] Martin. 1771. [6489-90] Bridges. 1763-73. [7237] Desaguliers. 1734-44. [7844. 7846. 7861-2. 7865-6] Ferguson. 1746-90. [8051-2] Foster. 1659. [8790] Hahn and Mylius. 1791. [8934-6] Harris. 1732-68. [9762] Janvier. 1812. [9781] Jennings. 1766. [9896-9] Jones. 1784-99. [11469. 11471] Martin. 1762-71. [13333] Pigeon. 1714. [SS 979] Adams. 1741. [SS 1000] Bausse. c. 1710. [SS 1642] Desaguliers. 1719.
- ORYCTOGNOSY: [10721] Leonhard. 1826.
- OSCILLATION: [875] Cotes. 1770. [2064. 9628] Huygens. 1673. [13072] Peirce. 1908.
- *v. Electric Oscillation.*
- TRANSFORMERS: [7958] Fleming. 1905.
- OSMOSIS: [1744-6. 8806-7] Hales. 1731-40. [10786] Lewis. 1908. [12169-84] Morse, etc. 1906-11. [S 1932] Graham. 1854.
- *v. Dialysis. Diffusion. Endosmosis. Solution.*
- OVALS (DESCARTES'S): [14308] Roberts. 1870.
- OVOIDS: [10655] Leconte. 1890.
- OWENS COLLEGE, MANCHESTER: [12876-7] Owens College. 1852-93.
- OXALIC ACID AND ITS SALTS: [8554] Graham. 1837. [8976] Hartley. 1873. [14348] Robinson and Jones. 1912. [14697] Scheele. 1786.
- OXIDIZATION: [545] Boyle. 1674. [7581] Engler and Weissberg. 1904. [9877] Jones. 1910. [9991] Kappers. 1872.
- OXYGEN: [3161] Murray. 1893. [3421] Oxygen. 1785. [3790-6. 3800] Priestley. 1774-91. [4134] Rurnford. 1787. [4229. 4231] Scheele. 1785-6. [10038] Keiser. 1888. [11241] McLeod. 1886. [12309-10] Murray. 1890-4. [13654. 13658] Priestley. 1775-9. [14697-9] Scheele. 1780-6.
- (LIQUID): [10894] Liveing. 1895.
- GIVEN OFF BY PLANTS: [2084-7. 9665-6] Ingenhousz. 1779-90.
- OXYHYDROGEN BLOWPIPE: [8756] Gurney. 1823.
- FLAME: [1153-4] Ehrmann. 1786-7. [3421] Oxygen. 1785.
- *v. Hydrogen F.*
- OZONE: [955] Daubeny. 1867. [7773. 7789] Faraday. 1853-9. [8078] Fox. 1873. [10386] Ladenburg. 1901. [14727] Schönbein. 1840. [14784] Scoutetten. 1865.
- *v. Eudiometry. Oxygen.*
- π (VALUE OF): [748] Ceulen. 1619. [4359] Shanks. 1853. [6768] Cataldi. 1612. [8458] Glaisher. 1874. [9894] Jones. 1706.
- *v. Circle. Circle Squaring.*
- PAINTS AND COLOURS: [1701] Guignet. 1888. [4009] Riffault, etc. 1874. [14614] Sabin. 1906. [14945] Smith. 1723.
- PALÆONTOLOGY: [11365-6] Mantell. 1850-1. [11454-5] Marsh. 1878-80. [11842] Middleton. 1732. [11935] Minnesota Geological and Natural History Survey. 1895. [12287] Murchison. 1840. [12389] Handwörterbuch der Mineralogie, etc. 1882-7. [12650-1] Nicholson. 1878-9.
- PALLADIUM: [8557] Graham. 1869. [14332] Roberts-Austen. 1869.
- PANAMA CANAL: [5] Abbot. 1905. [S 3343] Bakenhuc, etc. 1915.
- PANCRATIC TUBE: [2306. 10189] Kitchener. 1824.
- PANORGANON (LEYBOURN'S): [10820] Leybourn. 1672.
- PANTOGRAPH: [4241-2] Scheiner. 1631. [14719-20] Scheiner. 1653. [15336] Troili. 1683.
- PAPER MAKING: [3447] Paper. 1898. [5546] Yates. 1843. [9185] Herring. 1855. [9388] Hofmann. 1873. [12315] Murray. 1829. [13729] Proteaux. 1866. [14894] Sindall. 1908. [S 3021] Cross and Bevan. 1916. [S 3068] Lande. 1761.
- MATERIALS: [14522] Routledge. 1875. [S 3022] Cross, etc. 1911.
- *v. Cellulose.*
- PARABOLA: [810] Clarke. 1852. [4916] Torricelli. [5034] Valerio. 1606. [6335] Booth. 1873-7. [8689] Griffin. 1879. [12074] Morgan. 1770. [13761] Ptolemæus. 1548. [15322] Torricelli. 1644. [SS 2121] Valerio. 1660.
- PARACHUTE: [15387] Veranzio. c. 1595.
- PARADOXES OF SCIENCE: [3078] Morgan. 1872. [7311-12] Direks. 1869. [12090-1] Morgan. 1872. [13233-4] Phillips. 1818-21. [15633] Morgan. 1915.
- *v. Astronomical P. Astronomy (Cometary) P. Barometry P. Capillarity P. Chemical P. Circle Squaring. Cohesion P. Colour Theory P. Combustion P. Cosmogonic Hypothesis P. Duplication of the Cube. Dyes and Dyeing P. Dynamical P. Earth's Rotation P. Earth's Theory P. Electricity, P. on Theories of. Electrolysis P. Energy, Conservation of, P. on. Ether Theories, P. on. Flat Earth P. Geography (Mathematical and Physical) P. Geological P. Geometrical P. Gravitation P. Heat Theories P. Longitude P. Lunar Rotation P. Magnetism, P. on. Mathematical P. Mechanical P. Motion P. Newton P. Oceanography P. Optical P. Perpetual Motion. Perspective P. Philosophy of Science P. Physics, Principles of, P. on. Planetary Theory P. Solar P. Tides, Theory of, P. on. Trisection of an Angle. Vision, Theory of, P. on. Water, Composition of, P. on.*
- PARAFFIN: [9885] Jones, 1902. [14737-8] Schorlemmer. 1872-80. [15291] Thorpe and Young. 1872.
- *v. Methane.*
- PARALLAXES (DOUBLE): [1177] Encke. 1850.
- (STELLAR): [1535] Gill. 1893. [2883-4] Maskelyne. 1765-74. [4648] Struve (F.G.W.) 1847. [4652] Struve (L.) 1883. [4656] Struve (O.W.) 1859. [6669] Calandrelli. 1806. [7510] Elkin. 1880. [7539] Encke. 1842. [8414] Gill. 1893. [8427] Gill and Elkin. 1884. [9136-7] Henderson. 1839-42. [10001] Kapteyn. 1888. [10370] Krueger. 1863. [11301] Main. 1840. [12480] Newkirk. 1902. [12858] Oudemans. 1889. [13379] Plana. 1858. [13682-3] Pritchard. 1889-92. [15102] Stone. 1758. [15151-3] Struve. 1850-9.

- PARALLAXES OF THE SOLAR SYSTEM: [154] Aristarchus. 1688. [889-90] Cowper. 1766. [1176] Encke. 1822-4. [1324] Ferguson. 1761. [1533-4. 1539] Gill. 1881-98. [2422] Landen. 1771. [4600] Stewart. 1763. [5825-6] Aristarchus. 1572. [5865] Atkinson. 1824. [7066] Crawford. 1876-85. [12291] Murdoch. c. 1750. [S 1479] Harkness 1891. [SS 1271-2] Riccioli. 1651.
— *v. Transits.*
- PARALLEL RULER (DOUBLE): [S 374] Dolland. c. 1780.
- PARALLELISM: [7216] Dee. 1573. [9254] Hessel. 1853.
- PARALLELOGRAM OF FORCES: [4583-5] Stevinus. 1586-1684. [5041] Varignon. 1725. [11611] Matzka. 1856. [12020] Monge. 1846.
— *v. Triangle of Forces.*
- PARALLELS, THEORY OF: [2026] Hume. 1853. [4151] Ryan. 1866. [8885] Hanke et Binder. 1751. [10911] Lobatschewsky. 1892. [12481] Newman. 1841. [15755] Bolyai. 1896. [15940] Dodgson. 1895. [15974] Engel and Stäckel. 1895. [16000] Flye Ste-Marie. 1871. [16308-9] Lobatschewsky. 1866-91. [16670] Spitz. 1875. [16798] Withers. 1905. [SS 663] Muller. 1826.
— *v. Geometry (Non-Euclidean).*
- PARGASITE: [464] Bonsdorff. 1816.
- PASCAL'S LAW: [3476] Pascal. 1663.
- PATENTS AND PATENT LAW: [2163] Johnson. 1890. [4030] Roberts. 1903. [6389] Bousfield. 1884. [7306. 7310. 7313] Dircks. 1869. [8773] Haddan. 1911. [9818-19] Johnson. 1884-90. [11093] Lunge. 1910. [13017] Patent Journal. 1846-7. [13018] Patents. 1849.
- PEARLS: [10337] Kunz. 1890. [SS 2678] Jeffries. 1750.
- PEDOMETER: [SS 512] Hulsius. 1615.
- PEDRAL: [7303] Diplock. 1902.
- PENDULUM: [1445] Galilei. 1638. [2064] Huygens. 1673. [3329] Nicolai. 1772. [4868] Toaldo. 1770. [5509] Worms. 1862. [5930] Baily. 1824. [7037] Cotes. 1770. [8029] Fordyce. 1793. [8212] Galilei. 1638. [8957] Harrison. *n.d.* [9628] Huygens. 1673. [10039] Keith. 1791. [13368] Pisatie Pucci. 1883. [14286] Robert. *s.d.* [16940] Barnard. 1872. [SS 1549] Bessel. 1828.
— CLOCK: [2064. 9628] Huygens. 1673.
— OBSERVATIONS AND EXPERIMENTS: [1998] Horsley. 1774. [3617] Picard. 1731. [3649] Plantamour. 1866-72. [4157] Sabine. 1825. [5676] Airy. 1856. [5924] Baily. 1832. [10327] Kühnen and Furtwangler. 1906. [10975] Loesch. 1902. [11950] Mitford. 1851. [12331] Nagaoka, etc. 1902. [12831] Orff. 1883. [13088] Pendulum Observations. 1879. [13169] Peters. 1880-1. [13381] Plana. 1859. [14766] Schwerebestimmungen. 1895. [S 291] Foucault. 1878. [SS 1477-81] Accademia del Cimento. 1667-91.
— *v. Earth, Density of the.*
- PENTATHIONIC ACID: [7212] Debus. 1887.
- PERCENTAGE TABLES: [7832] Fergusson. 1901. [S 702] Fergusson. 1912.
- PERCUSSION: [474] Borelli. 1667. [4424] Smeaton. 1794. [4914-15] Torricelli. 1715. [10414] La Hire. 1695. [11430-3] Mariotte. 1717-40. [14907-11. 14916] Smeaton. 1794-1814. [15320-1] Torricelli. 1715. [15449] Wallis. 1670-1. [SS 1557] Borelli. 1686.
— *v. Billiards.*
- PERFUMERY: [3631] Piesse. 1855. [4014] Rimmel. 1868. [4193-4] Salmon. 1685-1701. [8317] Gauthier. 1819. [9464] Hornot. 1788. [12977] Parry. 1899. [13329-30] Piesse. 1855-91. [14695] Sawyer. 1892. [SS 2753] Déjean. 1759.
— *v. Oils (Essential). Smell, Chemistry of.*
- PERIODIC LAW: [2971-2] Meyer. 1883-8. [3222] Newlands. 1884. [8279] Garrett. 1909. [9020] Haughton. 1888. [9858] Jones. 1905. [11812-14] Meyer. 1872-88. [12481] Newlands. 1884. [17302] Garrett. 1909. [S 2932] Venable. 1898.
- PERMUTATIONS—*v. Combinations and P.*
- PERPETUAL MOTION PARADOX: [444] Böckler. 1662. [682] Caraccioli. 1755. [729] Caus. 1659. [1064] Dircks. 1861. [2864] Martin. 1821. [5413-18] Wilkins. 1648-91. [6211] Biehringer. 1875. [6284-5] Böckler. 1662. [6777] Caus. 1704. [7237] Desaguliers. 1734-44. [7307-9] Dircks. 1861-70. [7427] Dye. 1895. [8242] Galli. 1694. [8394] Gillard. 1804. [14747-9] Schott. 1664-87. [15559-63] Wilkins. 1648-91. [S 3419] Dobrzanski. 1657.
- PERSPECTIVE: [481] Bosse. 1665. [888] Courtonne. 1725. [1101-3] Dubreuil. 1679-1765. [1315] Ferguson. 1803. [1918] Highmore. 1763. [2113] Jacquier. 1755. [2401] Lambert. 1759. [2420] Lamy. 1701. [2984] Miller. 1759. [3130-1] Moxon. 1670. [3531] Pennethorne. 1878. [3801] Priestley. 1780. [4003*] Rider. 1836. [4116] Roy. 1756. [4153] Ryff. 1665. [4263-4] Schooten. 1659-60. [4758-61] Taylor. 1715-49. [5604] Abbott. 1853. [6433] Bradley. 1834. [7244] Desargues. 1686. [7375-6] Dubreuil. 1726-39. [7410] Dupain-Montesson. 1750. [7420-1] Dürer. 1605. [7551] Emerson. 1768. [7663] Euclides. 1662-3. [7804] Farish. 1820. [7836] Ferguson. 1778. [8591-2] Gravesande. 1711-24. [8857] Hamilton. 1738. [10014] Keatinge. 1812. [10159] Kirby. 1755. [10361] La Caille. 1808. [11329] Malton. 1778. [11648] Maurolico. 1613. [12019] Monge. 1827. [12228] Moxon. 1670. [12578] Newton. 1748. [12646] Nicholson. 1841. [12713] Noble. 1771. [13144] Perspective. 1828-30. [13204] Phillips. 1786. [13477] Polak. 1907. [13590-1] Pozzo. 1707. [13659-60] Priestley. 1770-80. [14026] Reisch. 1512. [15209-10] Taylor. 1715-49. [15419] Vredeman. 1633. [15628] Caus. 1612. [16047] Gennerich. 1865. [16113] Hatton. 1903. [16114] Hauck. 1910. [16476] Peschka. 1888-9. [16487] Pillet. 1901. [16603] Schreiber. 1886. [S 1677-8] Bacon (R.). 1614. [SS 161] Alberti. 1568. [SS 239-40.] Bosse. 1648. [SS 366] Dürer. 1532. [SS 548-9] Lambert. 1768-74.
— PARADOXES: [4109] Rowbotham. 1864.
- DRAWING INSTRUMENTS: [13040] Peacock. 1785. [15336] Troili. 1683. [SS 161] Alberti. 1568. [SS 366] Dürer. 1532.
- PERTURBATIONS, THEORY OF: [47-8] Airy. 1834-85. [1009] Denison. 1842. [5683] Airy. 1834. [5908] Backlund. 1884. [2710] Lubbock. 1832. [8766] Gylden. 1871. [10868] Lindstedt. 1883. [11961] Moebius. 1843. [12021] Mönnichmeyer. 1893. [12471] Newcombe. 1891. [14583] Runkle. 1855. [15132] Stoney and Downing. 1899. [16814] Airy. 1884. [S 1382] Bohlin. 1896. [SS 1661] Euler (J. A.). 1762. [SS 1664] Euler (L.). 1746-51.
- PETROLEUM, FLASHING POINT OF: [10004] Kast. 1896. [10926] Lobry de Bruyn. 1896.
- INDUSTRY: [4811] Thompson. 1904. [8367-8] Gesner. 1861-5. [8674] Gregory. 1835. [11884] Mills. 1877. [13059] Peckham. 1885. [13984-5] Redwood. 1894-6. [15253] Thomson and Redwood. 1901.

- PPAFF'S PROBLEM:** [S 1081] Pfaff. 1797.
PHAKOLITE: [5760] Anderson. 1842.
PHASE RULE: [2860] Martin. 1905. [4070] Roozeboom. 1901-4. [7902] Findlay. 1904.
 — *v. Chemical Equilibrium.*
PHENOL: [6683] Calvert. 1867. [8162] Fritzsche. 1857. [12782] Odermatt. 1878.
 — *v. Picric Acid.*
PHENOMENA (NATURAL): [6245] Black. 1906. [10237] Knoll. 1786-8. [13799] Quetelet. 1835. [14808] Seguin. 1861.
PHILOSOPHY AND PRINCIPLES OF EXACT SCIENCE:
 [155-8] Aristoteles. 1505-1812. [196-7] Babbage. 1837-8. [210-15] Bacon. 1629-1878. [396] Bierens. 1863. [532] Boyle. 1686. [567] Branniss. 1858. [1026-7] Descartes. 1644-58. [1072] Dolbeur. 1892. [1095] Draper. 1887. [1122] Duncan. 1905. [1477] Gassendi. 1668. [1665] Gregory. 1792. [1901] Herschel. 1830. [2022-4] Humboldt. 1845-65. [2152-4] Jevons. 1874-9. [2528] Le Grand. 1694. [2554] Lesage. 1770. [3513] Pearson. 1892. [3559] Petty. 1674. [3672] Poincaré. 1902. [4791] Telesio. 1570. [5097] Virginia. 1784. [5121] Vogt. 1901. [5366. 5368. 5371-4] Whewell. 1847-62. [5748] Ampère. 1834-43. [5827-9] Aristotle. 1562-1870. [6410. 6417] Boyle. 1686-8. [6554-8] Bruno. 1582-91. [6959] Clifford. 1835-98. [7255-6] Descartes. 1637-54. [7290] Dickinson. 1702. [7398] Duncan. 1907. [8461] Glanvill. 1665. [8668-70] Gregory. 1796-8. [9105-6] Helmont. 1685. [9232] Herschel. 1830. [9453-4] Hoppus. 1827. [9495] Houllevigue. 1909. [9502] Hovenden. 1909. [9803-4] Jevons. 1874-83. [9995] Kant. 1794. [10661] Le Dantec. 1904. [13053] Pearson. 1892. [13187] Petty. 1674. [14767] Schvanoff. 1868. [14798] Sedgwick. 1850. [14967] Snyder. 1903. [15117. 15127-8] Stoney. 1885-99. [15638] Enriques. 1910. [15648] Natop. 1910. [15649-50] Pearson. 1900-11. [S 258] Case. 1888. [S 261] Clifford. 1879. [S 273-4] Descartes. 1649-68. [S 375] Poincaré. 1912. [S 1941] Gilbert. 1651. [SS 16-19. 21-22] Aristoteles. 1549-81. [SS 23] Bacon. 1620. [SS 51-3] Descartes. 1650-64. [SS 1293] Savonarola. 1596.
 — *v. Action at a Distance. Algebra, E. and P. of Analytical Theorems. Arithmetic, P. and E. of Astronomy, P. of Calculus, P. of Causality. Classification of S. Correlation (Physical). Continuity. Descartes and Newton reconciled. Free Will. Geometry, Axioms and Hypotheses of Geometry, Elements and Principles of Horror Vacui. Infinity. Logic of S. Mathematics, P. and Principles of Matter, Theories of Mechanics, P. and E. of Physics, Principles of Relativity, Theory of Space. Universal Science.*
 — — —: PARADOXES: [7417] Duran. 1847.
 — — —: MATHEMATICALLY DEMONSTRATED: [10702] Leibniz. 1728.
PHLOGISTON THEORY AND CONTROVERSY: [303] Becher. 1738. [1916] Higgins. 1786. [2304] Kirwan. 1787. [3206-7] Neumann. 1759. [3796. 3799] Priestley. 1788-9. [4550] Stahl. 1746-7. [5328] Wolt. 1701. [6084] Becher. 1738. [6411] Boyle. 1673. [6572] Bucci. 1783. [8030] Fordyce. 1792. [8055-7] Fourcroy. 1785. [9264] Higgins (B.). 1786. [9270] Higgins (W.). 1799. [9587-8] Hutton. 1792. [10202] Kirwan. 1787-9. [10589] Lavoisier. 1783. [12452] Neumann. 1773. [13317] Pictet. 1791. [13549] Pott. 1738. [14715] Scheffer. 1779. [15009] Stahl. 1723. [SS 2530] Harrington. 1804.
 — *v. Chemistry (Phlogistic).*
- PHONETICS, MECHANISM OF:** [1857] Helmont. 1667. [SS 1816] Kempelen. 1791.
PHONOGRAPH: [3760] Prescott. 1878. [8680-1] Gretschel. 1878-83. [15516] Wheatstone. 1879.
PHOSPHATES: [4516] Sorel. 1902. [7181] Daubrée. 1868. [8554. 8558-9] Graham. 1833-7. [13604] Pratt. 1868.
PHOSPHIDE OF SODIUM, CHEMICAL ACTION OF: [10756] Letts and Collie. 1881.
PHOSPHINES: [S 2782-3] Hofmann. 1861.
PHOSPHORESCENCE: [3160] Murray. 1826. [3606] Phipson. 1862. [5437] Wilson. 1775. [6088] Becquerel. 1867-8. [10190] Klatt und Lenard. 1889. [11590] Matteucci. 1847. [12313] Murray. 1826. [13094] Penny. 1855. [13259. 13266-7] Phipson. 1858-75. [13291] Phosphorus. c. 1720. [13676] Pring. 1850. [15572] Wilson. 1775. [S 2618] Beccari. 1768.
PHOSPHORESCENT SULPHIDES: [10720] Lenard etc. 1909.
PHOSPHORUS AND ITS COMPOUNDS: [4523] Spallanzani. 1796. [5437] Wilson. 1775. [6407-9] Boyle. 1680-2. [11419] Marggraf. 1767-8. [12955] Moore and Zepharovich. 1885. [13270] Phipson. 1856. [13291] Phosphorus. c. 1720. [13640] Prideaux. 1911. [14474] Rose. 1833. [14585] Russell. 1903. [15289-90] Thorpe and Tutton. 1890-2. [15572] Wilson. 1775. [S 2618] Beccari. 1768.
 — *v. Calcium Phosphide. Hypophosphites.*
 — — —: BETAINES: [10753] Letts. 1881.
PHOTOGENIC DRAWING: [15201] Talbot. 1839.
PHOTOGRAPHIC CHEMICALS: [2509] Leaper. 1891.
 — — —: DICTIONARIES: [4688] Sutton. 1858. [4689] Sutton and Dawson. 1867. [9089] Heighway. 1880-4.
 — — —: JOURNALS: [3607] Photographic News. 1863-75. [3608] Photographic Society of London. 1857-82. [6094] Camera. 1887-9. [13275] Photographic Journal (Liverpool and Manchester). 1857-8. [13276] Photographic News. 1862-75. [13277] Photographic Notes. 1856-60. [13278-9] Photographic Society of London. 1854-9.
 — — —: LENSES AND OBJECTIVES: [945] Dallmeyer. 1899. [2006] Houdaille. 1894. [4057] Rohr. 1899. [5178] Wallon. 1891. [7138] Dallmeyer. 1876. [9492] Houdaille. 1894. [14404] Rohr. 1899.
 — — —: MANIPULATIONS: [3773] Price. 1858.
 — — —: PLATES: [851] Colson. 1897. [4214] Sassi. 1899.
 — — —: PRINTING: [9066] Hearn. 1874.
 — — —: PROCESSES: [2033-4] Hunt. 1844-54. [4374] Sheppard and Mees. 1907. [9211] Herschel. 1840. [9572-3] Hunt. 1844-54. [10051] Kemp. 1863. [10688] Le Gray. 1853. [11461] Martin. 1852. [12276] Muller. 1856.
 — *v. Bromine P. Calotype. Collodion P. Daguerreotype. Emulsion P. Ferrotype. Heliochromy. Photogenic Drawing. Photogravure. Photolithography. Platinotype. Retouching. Silver Printing. Telautography.*
 — — —: RECEIPTS: [4215] Sassi. 1899.
PHOTOGRAPHY: [11. 14-15] Abney. 1897-1905. [91] American. 1896-1902. [118] Anthony. 1898-1902. [430] Bland. 1863. [601] Brothers. 1899. [605-6] Brown. 1900-1. [620] Brunel. 1896. [661] Caffin. 1902. [1001] Delamotte. 1853. [1059] Dillay. 1899. [1189] English. 1901. [1542] Gioppi. 1893. [1955] Hodges. 1901. [2029-30] Hunt. 1853-7. [2088] Inglis. 1897. [2165-6] Johnson and Chatwood. 1895. [2683]

PHOTOGRAPHY, continued :

- Londe. 1896. [4046] Robinson. 1869. [4517] Soret. 1894. [4859] Tindall. 1901. [4861-2] Tissandier. 1874-6. [4944] Trutat. 1879. [5118-19] Vogel. 1876-8. [5167] Wall. 1896. [5301] Wedgwood. 1903. [5483] Woodbury. 1896. [5618-20. 5622. 5624] Abney. 1874-82. [5752] Anderson. 1872. [6059] Bayly. 1906. [6644] Burton. 1887. [7452] Eder. 1884-6. [9090] Haightway. 1879. [9570-3] Hunt. 1841-54. [9854] Jones. 1891. [10146] Kleffel. 1863. [10309] Krüger. 1858. [10357] La Blanchère. 1860. [10686-8] Le Gray. 1850-3. [10997] Long. 1854. [11969] Moigno. 1847-50. [13280] Photography. 1866. [13686-7] Pritchard. 1882-3. [14350-5] Robinson. 1879-96. [SS 2697] Belloc. 1855. [SS 2722] Bradley. 1855. [SS 2738] Chevalier. 1854.
- *v. Actinic Rays. Camera Obscura. Chemistry (Photographic). Colour P. Daguerreotype. Electricity (Photo-). Optics (Photographic). Photogenic Drawing. Retouching. Telautography. Telephotography.*
- (ASTRONOMICAL): [10549] La Rue. 1860. [10945-6] Loewy. 1893-1902. [11410] Marcuse. 1896. [13315] Pickering. 1895. [13850] Rambaut. 1896. [14296] Roberts. 1894.
- (INSTANTANEOUS): [11417-18] Marey. 1894-5. [14354] Robinson. 1889.
- (MICRO-): [1513] Gerlach. 1863. [2789] Malley. 1885. [2898] Mathet. 1899. [3204] Neuhaus. 1890.
- (STEREOSCOPIC): [1077] Donnadien. 1892. [2899] Mathet. 1899. [4472] Smyth. 1858. [5639] Ackland. 1859.
- , CHEMISTRY OF—*v. Chemistry (Photographic).*
- , HISTORY OF: [9572-3] Hunt. 1844-54. [10309] Krüger. 1858.

PHOTOGRAVURE: [1008] Denison. 1894.

PHOTOLITHOGRAPHY: [SS 2697] Belloc. 1855.

PHOTOMETRY: [494. 498] Bouguer. 1729-60. [610] Brown. 1883. [1041] Dibdin. 1889. [1803] Hartley. 1879. [2404] Lambert. 1760. [2707] Lovibond. 1893. [3437] Pilaz. 1894. [4131] Rumford. 1794. [6100] Beer. 1854. [6109] Bell. 1902. [6366-7] Bouguer. 1729. [6540] Brown. 1883. [7097] Crookes. 1868. [7279] Dibdin. 1889. [8192] Fyfe. 1842. [10097] Kepler. 1604. [10424] Lambert. 1760. [11041] Lovibond. 1893. [13306] Pickering. 1882. [14144] Reynolds. 1876.

— (STELLAR): [2321] Kobold. 1906. [10861] Lindemann. 1884. [13307-8] Pickering. 1881-5. [13684-5] Pritchard. 1885.

— *v. Stellar Luminosity.*

PHYLLOTAXIS, GEOMETRY OF: [6885] Church. 1904.

— *v. Trefoil (Mathematical).*

PHYSICAL CONGRESSES: [S 1820] Congrès International de Physique. 1900.

— CONSTANTS: [809] Clarke. 1897. [7133] Czöglér. 1889. [7504] Erdmann and Köthner. 1905. [7719-20. 7722] Everett. 1875-91. [S 340] Kaye and Laby. 1911.

— *v. Units.*

— ESSAYS: [341-2] Bergman. 1788. [603] Brougham. 1860. [1962] Hoffmann. 1838. [2111] Kaestner. 1771. [2708] Loys de Chéseaux. 1743. [5638] Acharh. 1784. [6140-1] Bergman. 1781-91. [7444] Edinburgh Essays. 1754-71. [10594-7] Lavoisier. 1776-1801. [15514] Westrumb. 1785-7.

— EXPERIMENTS—*v. Physics (Experimental).*

— FORMULÆ: [4415] Smalley. 1862. [10049] Kelsey. 1901.

PHYSICAL INSTRUMENTS AND APPARATUS: [2530]

Lehmann. 1885. [2570] Leslie. 1813. [6482] Brewster. 1813. [11272] Magellan. 1780. [12735. 12745] Nollet. 1738-87. [SS 2071-2] Sigaud de la Fond. 1775-84.

— *v. Air Pump. Hydrometers. Manometers.*

— JOURNALS: [3610-11] Physical Society of London. 1874-1905. [5775] Annales de Chimie et de Physique. 1836-47. [8045] Fortschritte der Physik. 1852. [10566] Lavoisier (Société des Sciences physiques de). 1784. [11743] Mémoires. 1807-17. [13281-3] Physical Laboratory (National). 1905-11. [13284-7] Physical Society of London. 1874-1913. [14768-71] Science Abstracts. 1898-1912. [S 6] Annalen der Physik und Chemie. 1873-1914.

— LABORATORIES: [3609] Physical Laboratories. 1906.

— LECTURES: [1321-3] Ferguson. 1799-1825. [1860-1] Helsham. 1739-43. [2232] Keill. 1733. [4914-15] Torricelli. 1715. [5387] Whiston. 1726. [5572-6] Young. 1807-45. [6822] Chappuis et Berget. 1899-1900. [7239-40] Desaguliers. 1717. [7850-6] Ferguson. 1764-1823. [9123-4] Helsham. 1739-43. [9322] Hirst. 1853. [10028-30] Keill. 1719-41. [11184] McGauley. 1840. [13419] Playfair. 1812-14. [15320-1] Torricelli. 1745.

— MEMOIRS AND PAPERS: [107] Andrews. 1889. [2241] Kelvin. 1882-90. [2383] La Hire. 1694. [2492-3] Lavoisier. 1774-1801. [2643] L'Isle. 1738. [2653] Loyd. 1877. [2942-3] Mémoires de Mathématiques et de Physique. 1692-1776. [3865] Quetelet. 1825-38. [4492] Société Chimique. 1889-92. [10411-12] La Hire. 1694. [10715-16] Le Monnier. 1781-8. [11742] Mémoires. 1750-86. [11743] Mémoires. 1807-17. [12877] Owens College. 1893. [15203] Templeman. 1753-4. [S 406] Thomson. 1912. [S 2207] Physical Memoirs. 1891. [S 2208-10] Physical Papers. 1870-1902. [S 2211] Physical Phenomena. 1885-98. [S 3863] Physical Papers. 1822-63.

— OBSERVATIONS: [416] Biot. 1821. [3617] Picard. 1731. [5781-2] Antarctic Expedition. 1840-1908. [7876] Feuillée. 1714-25. [14555-6] Royal Society of London. 1840-2.

— PHENOMENA: [1713-14] Guillemin. 1868-77. [10865] Linders. 1905. [S 2211] Physical Phenomena. 1885-98.

— RECREATIONS—*v. Mathematical Recreations.*

— RESEARCHES: [1288] Faraday. 1859. [1613] Graham. 1876. [7769] Faraday. 1859. [8548] Graham. 1876. [13281-3] Physical Laboratory (National). 1905-11.

— SPECULATIONS: [330-1] Benedetti. 1585-99. [531] Boyle. 1676. [3934. 14001. 14003] Reichenbach. 1850. [14767] Sch्यानoff. 1868.

— TABLES: [10470-1] Landolt und Börnstein. 1883-1905. [15657] Wrapson and Gee. 1898. [S 1945] Gray. 1896.

— THEORIES: [17014] Duhem. 1905-6. [17324] Reychler. 1903.

— TRACTS: [4602] Stewart. 1761. [6106] Bell. 1834. [6536] Brougham and Vaux. 1860. [7997-8] Fontana. 1784. [9609-11] Hutton. 1786-1812. [10472-3] Landriani. 1781.

PHYSICS (AGRICULTURAL): [6392] Boussingault. 1843-4. [10141] King. 1878. [15445] Wallerius. 1766.

— (ARISTOTELIAN): [155-8] Aristoteles. 1505-1812. [218] Bacon (R.). 1859. [687-92] Cardano. 1550-80. [3333] Nifo. 1540. [3494]

PHYSICS (ARISTOTELIAN), *continued*:

- Paulus Venetus. 1525. [3711-12] Porta. 1585-1644. [3886] Ramus. 1565. [4056] Ross. 1645. [4746-9] Tartaglia. 1546-62. [5827-9] Aristoteles. 1562-1870. [5913] Bacon (R.). 1750. [6554] Bruno. 1588. [6702] Canon. 1481. [6721-3] Cardano. 1654-80. [8288] Gassendi. 1649. [10989] Lones. 1912. [11728] Melancthon. 1550-4. [13517-24] Porta. 1558-1658. [14026] Reisch. 1512. [S 387] Reisch. 1508. [SS 16-19. 21-2] Aristoteles. 1549-81. [SS 128-30] Porta. 1558. [SS 140] Reisch. 1599.
- (Cosmic): [2022-4] Humboldt. 1845-58. [2310] Klein. 1870. [3148] Müller. 1872. [9557-8] Humboldt. 1845-65. [10066] Kelvin. 1882-1911. [14148] Reynolds. 1903. [16820-1] Arrhenius. 1903-7. [16833] Clerke. 1903. [16850] Gore. 1893. [16893] Müller. 1894.
- (ELEMENTARY): [164-7] Arnott. 1827-76. [296] Bayle. 1703. [1033-7] Deschales. 1873. 1901. [1321-3] Ferguson. 1799-1825. [1461-3] Ganot. 1890-1901. [1540] Giorgius. 1707. [1818-19] Haiüy. 1803-7. [2560-2] Leslie. 1823-9. [3014] Mitchell. 1864. [3164-5] Musschenbroek. 1734-44. [3231] Newth. 1872. [3323-4] Nicholson. 1782-90. [3521] Peddie. 1892. [4594] Stewart. 1870. [5711] Aldous. 1900. [5784] Anthony, etc. 1897. [5839-41] Arnott. 1833-67. [7570] Enfield. 1809. [8193] Gage. 1902. [8265-6] Ganot. 1883-90. [8671] Gregory. 1808. [9041-2] Haiüy. 1806-7. [9855] Jones. 1893. [9992] Karsten, etc. 1869. [10522-3] Lardner. 1856-63. [10936] Locke. 1750. [12262-3] Müller. 1847-62. [12323] Musschenbroek. 1734. [12639] Nichols and Franklin. 1896. [12659-61] Nicholson. 1787-96. [12990] Partington. 1828. [15599] Winkler. 1757. [17036-7] Ganot. 1894-1905. [17160] Nichols. 1896-1908. [17161] Oettingen. 1910. [17213] Russner. 1903. [S 1646] Aldous. 1907.
- (EXPERIMENTAL): [32] Adams. 1799. [414-15] Biot. 1816-29. [549-53] Boyle. 1663-71. [1017-18] Desaguliers. 1734-44. [1288] Faraday. 1859. [1698-9] Guericke. 1672. [1811] Hauksbee. 1709. [1982] Hooke. 1726. [1986] Hopkins. 1890. [2337] Kundt. 1903. [2530] Lehmann. 1885. [2851-2] Martin. 1738-65. [3167-8] Musschenbroek. 1729-56. [3311] Nichols. 1894. [3346] Nollet. 1743-8. [3694] Polinière. 1734. [3734] Pouillet. 1856. [5307-8] Weinhöhd. 1875-81. [5524-6] Wüllner. 1874-99. [5626] Abraham. 1904. [6414. 6427] Boyle. 1664-91. [6792] Cavallo. 1803. [7239-40] Desaguliers. 1717-44. [7468] Egger. 1829. [8159] Erick. 1878. [8728] Guadagni. 1764. [8730] Guericke. 1672. [9023-7] Hauksbee. 1709-19. [9172] Hermstädt. 1786. [9443] Hopkins. 1890. [9982] Kämtz. 1839. [10335] Kundt. 1903. [12217] Mousson. 1879-82. [12735. 12739-45] Nollet. 1738-87. [13303] Pickering. 1874. [13663] Priestley. 1794. [14859] Sigaud de la Fond. 1787. [150083] Stahl. 1731. [15162-3] Sturm. 1678-85. [15182] Swinden. 1786. [17290] Wüllner. 1895-9. [SS 1477-81] Accademia del Cimento. 1667-91. [SS 1640. 1642] Desaguliers. 1719-45. [SS 1900] Müller. 1721. [SS 1906-7] Musschenbroek. 1729. [SS 2071-2] Sigaud de la Fond. 1775-84.
- (GENERAL): [414-15] Biot. 1816-29. [946] Daniell. 1884. [1185] Enfield. 1783. [2130] Jamin. 1863-9. [2248-50] Kelvin. 1867-95. [2456] Lardner. 1855-6. [3150] Müller-Pouillet. 1897-1902. [3166] Musschenbroek. 1739. [3662-4] Playfair. 1812-19. [4114] Rowning. 1772. [4148-50] Rutherford. 1743-8. [4604] Stewart. 1899-1903. [5250] Watson. 1899. [5463] Wolf. 1870-2. [7146-7] Daniell. 1884-95.

PHYSICS (GENERAL), *continued*:

- [7267-70] Deschanel. 1886-1903. [8185] Funke. 1804-6. [8608] Gray. 1901. [8800] Handbuch der Physik. 1905-8. [8883] Handwörterbuch. 1842-50. [9753-4] Jamin. 1882-1906. [9945] Jude. 1899. [10078-81] Kelvin. 1867-83. [10214] Klimpert. 1889. [10436] Lamé. 1837-8. [10798-800] Library. 1829-38. [11494-501] Martin. 1735-88. [12390-1] Handbuch der Physik. 1891-4. [13586-9] Poynting and Thomson. 1899-1909. [13799] Quetelet. 1835. [14544] Rowning. 1767. [14859] Sigaud de la Fond. 1787. [16966] Bouasse. 1907-9. [16973] Brisse et André. 1894. [16988] Chwolson. 1902-5. [17010] Drincourt. 1896. [17052] Gray. 1901. [17055] Grimsehl. 1909. [17060-1] Handbuch der Physik. 1891-1909. [17075] Höffer, etc. 1904. [17084] Jamin. 1885-1906. [17091-2] Kayser. 1900-8. [17119] Lorentz. 1906-7. [17147-8] Müller-Pouillet. 1897-1909. [17207-8] Riecke. 1905-12. [17259] Violle. 1883-92. [17272] Watson. 1905. [S 1802-4] Chwolson. 1909-10.
- (HIGHER): [10348] Kunzek. 1856.
- (MATHEMATICAL): [724] Cauchy. 1840-7. [750] Challis. 1873. [903] Crookes. 1879. [1627-8. 1630] Gravesande. 1731-46. [2747] Macfarlane. 1885. [3256-74] Newton. 1713-1871. [8593-6] Gravesande. 1721-60. [8707] Grinvis. 1867. [9163] Herapath. 1847. [10626] Leatham. 1905. [10865] Linders. 1905. [11585] Mathieu. 1873. [12501-33] Newton. 1687-1883. [14086] Résal. 1887-8. [14378] Roche. 1844. [15767] Borel. 1914. [15771] Bouasse. 1911. [16369] Mellor. 1905. [16424-5] Nernst. 1907-10. [16565-6] Scheffers. 1911. [16756-7] Vogt. 1904-9. [17067] Helm. 1884. [17080] Houstoun. 1912. [17134] Mathieu. 1873-90. [17146] Müller. 1875. [17150-7] Newton. 1777-1900. [17205] Resal. 1887-8. [17269] Wand. 1871. [S 254] Cambridge Tracts. 1905-16. [S 362] Memoirs. 1832-98. [SS 1906-7] Musschenbroek. 1729. [SS 1910. 1930-1] Newton. 1687-1759.
- (MEDICAL): [1332] Fick. 1858. [5839-41] Arnott. 1833-67. [7146-7] Daniell. 1884-95. [7509] Eliot. 1782. [15486] Weber. 1780.
- (MOLECULAR): [2317] Knight. 1748. [3341-2] Nobili. 1818-19. [3559] Petty. 1674. [3657] Plateau. 1873. [3892] Rankine. 1881. [4974] Tyndall. 1872. [12211] Mossotti. 1836. [13187] Petty. 1674. [13401] Plateau. 1873. [13890] Rankine. 1881. [14181] Richards. 1911. [15401-2] Violle. 1883-4. [17111] Lehmann. 1888-9. [17195] Preston. 1875. [S 1860] Edser. 1911. [S 2611] Avogadro. 1837-41.
- *v. Dynamics (Molecular). Films. High Vacua. Leidenfrost's Phenomenon. Matter, Properties of. Mechanics (Molecular).*
- (NEW): [1122] Duncan. 1905. [4373] Shennstone. 1906. [5341] Whetham. 1904. [7398] Duncan. 1907. [8978] Hartmann. 1902. [12368] Naville. 1884. [17130] Manville. 1908. [17280] Whetham. 1904.
- (PICTORIAL): [1441] Eckhardt. 1882.
- (POPULAR): [625] Bryan. 1806. [1246] Euler. 1795. [1787] Harrington. 1774. [2204] Joyce. 1821-4. [2818] Marcet. 1820. [2855-6] Martin. 1772-82. [3458] Paris. 1833. [5192] Wandelaincourt. 1778. [7246] Desbeaux. 1891. [11398] Marcet. 1858. [11510] Martin. 1772.
- (PRACTICAL): [278] Barrett and Brown. 1892. [1704-6] Guillemin. 1874-7. [2322] Kohlrausch. 1873. [2850] Martin. 1747. [3403] Ostwald. 1894. [4289] Schuster. 1896. [4595-6] Stewart

PHYSICS (PRACTICAL), *continued*:

and Gee. 1885-1904. [4647] Stroud. 1899. [5249] Watson. 1904. [5402] Wiedemann und Ebert. 1899. [6926] Clarke. 1903. [7875] Ferry and Jones. 1908. [8474-5] Glazebrook and Shaw. 1885-94. [10258-62] Kohlrausch. 1884-1905. [11856] Miller. 1903. [12843] Ostwald. 1890. [17047] Glazebrook and Shaw. 1893. [17098] Kohlrausch. 1905.

— (PRE-NEWTONIAN): [1020-2] Descartes. 1664-92. [1698-9] Guericke. 1672. [3933] Regnault. 1729-31. [4053-5] Rohault. 1672-1729. [4117] Roy. 1661. [4272. 4276-7] Schott. 1664-97. [4331] Senguerd. 1685. [4332] Sennert. 1684. [4670] Sturm. 1685-1701. [7262-4] Descartes. 1664-77. [8730] Guericke. 1672. [8987] Harvey. 1663. [10653] Le Clerc. 1705. [13998] Regnault. 1731. [14397-401] Rohault. 1671-1729. [14740-2] Schott. 1657-9. [14819] Sennert. 1637. [15161-3] Sturm. 1676-85. [S 1941] Gilbert. 1651.

— *v. Physics (Aristotelian).*

— (THEORETICAL): [2247-50] Kelvin. 1867-95. [5123] Volkmann. 1900. [10076-81] Kelvin. 1867-83. [15416] Voigt. 1895-6. [16984-5] Christiansen. 1897-1910. [17095] Kelvin and Tait. 1873. [17176] Planck. 1910. [17263-4] Volkmann. 1900-13.

—, BIBLIOGRAPHY OF: [5572-6] Young. 1807-45.

—, CYCLOPEDIAS AND DICTIONARIES OF: [8321-2] Gehler. 1825-45. [14740-1] Schott. 1657-9. [14857] Sigaud de la Fonde. 1781-2.

—, HISTORY OF: [512] Bouty. 1882. [1846] Heller. 1882-4. [2827] Marie. 1883. [3669] Poggenorff. 1879. [3739] Powell. 1834. [3932] Regnault. 1734. [4733-4] Tait. 1876. [5341] Whetham. 1904. [7823] Fechner. 1832. [9363] Hofer. 1872. [10885] L'Isle. 1738. [11421-2] Marie. 1883-8. [13449] Poggenorff. 1879. [13569-70] Powell. 1824. [14278] Ritter. 1806. [14368-70] Robison. 1822. [15099-100] Stone. 1726-43. [15534] Whetham. 1904. [S 2299] Schuster. 1911.

— *v. Mathematics, H. of. Physics (New).*

—, PRINCIPLES AND ELEMENTS OF: [181] Atwood. 1784. [766] Châtelet. 1741. [2190] Jordan. 1885. [3256-74] Newton. 1713-1871. [3364-5] Ode. 1726-7. [3514] Peart. 1789. [5084] Vince. 1793. [8978] Hartmann. 1902. [8982] Hartsocker. 1706-10. [9432] Hooke. 1705. [9895] Jones. 1762. [9959] Julius. 1880. [10645] Le Boulenger. 1824. [10878] Lind. 1795-7. [12501-33] Newton. 1687-1883. [17056] Groth. 1912. [S 1826] Crew. 1910.

—: PARADOXES: [8630] Green. 1712. [11048-9] Lovett. 1766-74.

—: PROBLEMS AND EXERCISES: [14756-7] Schuster. 1901-5. [16983] Chevallier et Müntz. 1885. [17089] Kahl. 1874. [17128] Maclean. 1900. [17146] Müller. 1875.

—, TEACHING OF: [4442] Smith and Hall. 1902.

— AND THEOLOGY: [5345] Whewell. 1834. [6412-13] Boyle. 1674. [6864] Cheyne. 1715. [9893] Jones. 1851.

PHYSIOGRAPHY—*v. Geography (Physical).*

PICOLINE: [13872] Ramsay. 1876-7.

PICRIC ACID: [8161] Fritzsche. 1857.

PILE-DRIVING ENGINES: [7439] Eassie. 1866.

PILOW PROBLEMS: [15940] Dodgson. 1895.

PILOTAGE: [496] Bouguer. 1753.

PIN MAKING: [S 3068] Réaumur. 1761.

PINE, CHEMISTRY OF THE—*v. Terebinthes.*

PIONEER ENGINEERING: [7315] Dobson. 1877.

PIT PROPS: [4796] Thélu. 1878.

PLANES (TRUE): [S 3687] Whitworth. 1882.

PLANETARIUM—*v. Orreries.*

PLANETARY ATMOSPHERES: [4279-80] Schröter. 1792-5. [15109] Stoney. 1897.

— DISTURBANCES—*v. Perturbations, Theory of.*

— OBSERVATIONS: [58] Airy. 1845. [11998] Möller. 1870-3.

— SYSTEMS: [7366] Dreyer. 1906.

— TABLES: [6711] Capello. 1733-7. [9685] Iwanow. 1899. [15587] Wing. 1700.

— *v. Ephemerides. Lunar T.*

— THEORY: [492] Bouguer. 1748. [777-8] Cheyne. 1862-70. [1259] Euler. 1744. [1489-90] Gauss. 1809-57. [1999] Horrocks. 1678. [2504] Leadbetter. 1729. [3308] Nichol. 1838. [3628] Piccolomini. 1568. [5075] Villemot. 1707. [5216] Ward. 1653. [6596] Bugge. 1789. [6862] Cheyne. 1870. [6981] Colden. 1751. [8307] Gauss. 1857. [9685] Iwanow. 1899. [10663] Ledger. 1882. [11779] Merz. 1862. [12631] Newton (John). 1657. [12635] Nichol. 1838. [13295] Piccolomini. 1568. [14393] Rohde. 1797. [14884-5] Simpson. 1757. [15515] Wetherald. 1760. [15520] Whewell. 1820. [16838] Cheyne. 1883. [16843] Frischauf. 1903. [16845] Gauss. 1865. [SS 981] Alembert. 1754-8. [SS 1012-13] Borelli. 1666. [SS 1014] Boscovich. 1756. [SS 1017] Brahe. 1610. [SS 1067] Euler. 1760. [SS 1661] Euler. 1762. [SS 2025] Rheita. 1645.

— *v. Orbits (Planetary). Perturbations. Three Bodies, Problem of.*

—: PARADOXES: [10382] Lacy. 1779. [13775] Pye. 1766.

PLANETODS: [5906] Backlund. 1892. [11997] 12000] Möller. 1870-9. [12021] Männichmeyer. 1893. [13850] Rambaut. 1896. [15421-2] Wackerbarth. 1866.

PLANETS (ULTRA-NEPTUNIAN): [8009] Forbes. 1880.

—, FIGURE OF THE: [14378] Roche. 1844.

—, ORIGIN AND GROWTH OF THE: [8682] Grew. 1911. [16818] André. 1909.

PLANISPHERE: [247] Baker. 1686. [499] Boulanger. 1650-1. [951-2] Danti. 1569-72. [1732] Hagelgans. 1736-44. [2131] Janvier. 1812. [3419] Oxley. 1830. [3856] Ptolemeus. 1558. [4771] Taylor. 1853. [7168] Danti. 1569. [10431] Lamb. 1673. [12036] Monte. 1579. [12819] Olyver. 1601.

— (TERRESTRIAL): [6658] Busby. 1827.

PLANTS, CHEMISTRY AND PHYSIOLOGY OF: [1744-6] Hales. 1731-40. [2084-7] Ingenhousz. 1779-86. [3143] Mulder. 1849. [5074] Ville. 1853. [5584] Zallinger. 1769. [6393] Boussingault. 1838. [8371] Geubel. 1845. [8806-7] Hales. 1731-5. [8810] Hall. 1905. [13102] Pepsys. 1843. [13136-7] Perrault. 1721. [14968] Snyder. 1903. [SS 2619] Senebier. 1782.

PLATINOTYPE: [3646] Pizzighelli and Hübl. 1886.

PLATINUM AND ITS COMPOUNDS: [1297. 7785-6] Faraday. 1861-5. [8364] Gerhardt. 1850. [10789-90] Lewis. 1763. [14715] Scheffer. 1779. [15609] Wollaston. 1828. [SS 2899] Bossi. 1791.

— (SPONGY): [9149] Henry. 1824.

PLÜCKER'S EQUATIONS: [13438] Plücker. 1839.

- PLUMBING: [1848] Hellyer. 1900. [6574] Buchan. 1883. [9101-3] Hellyer. 1882-7. [10586] Lawler. 1896. [11276] Maguire. 1890. [S 3639] Sutcliffe. 1907.
- PLURALITY OF WORLDS: [1362] Fontenelle. 1702. [2065-6] Huygens. 1698-9. [3515] Peat. 1856. [3823-4] Proctor. 1870-82. [4347] Serviss. 1902. [5168] Wallace. 1904. [5375-6] Whewell. 1853-4. [5411-12] Wilkins. 1640-84. [6476-7] Brewster. 1854-70. [7283] Dick. c. 1845. [7044-5] Flammarion. 1864-5. [8023] Fontenelle. 1737. [9629-34] Huygens. 1698-1722. [11866] Miller. 1883. [13712-14] Proctor. 1872-86. [15553-8] Wilkins. 1638-1708. [S 1527] Lowell. 1908. [SS 1080. 1083] Fontenelle. 1733-60.
- PNEUMATIC DISPATCH TUBES: [3635] Pilbrow. 1844. — *v. Railways (Atmospheric).*
- MACHINES: [6854] Chevalier. 1847.
- TROUGH: [13669-70] Priestley. 1772.
- PNEUMATICS: [877-8] Cotes. 1738-47. [1875-6] Hero Alexandrinus. 1575. [2466-7] Lardner. 1836. [3714] Porta. 1601. [4273] Schott. 1657. [5997] Barlow. 1823. [7040-4] Cotes. 1738-75. [8484] Gmelin. 1784. [9175-9] Hero Alexandrinus. 1575-1851. [10537] Lardner. 1831. [11782] Merenne. 1644-7. [13533] Porta. 1601-6. [14893] Sinclair. 1669. [15515] Wetherald. 1760. — *v. Aerodynamics. Aerometry. Air.*
- POETRY OF SCIENCE: [13172] Petit. 1876-9.
- POINTS, THEORY OF: [16399] Monteil. 1912. [16808] Young and Chisholm. 1906.
- POISONS (ANIMAL): [1312. 7812] Faust. 1906.
- POLAR DISTANCES: [12466] Newcomb. c. 1885. — *v. Zenith Distances.*
- EXPLORATION: [5781-3] Antarctic Expedition. 1840-1906. [12306] Murray. 1901. [15035] Steen. 1887.
- HEIGHTS: [12765] Nyrén. 1873. [13832] Rahmenführer. 1908.
- POLARISCOPE: [10468] Landolt. 1882. [10551] Lassaulx. 1878. [14407] Rolfe. 1905. — *v. Analyser. Microscope (Polarising). Optical Activity.*
- POLARITY, CAUSES OF: [1045] Dickson. 1859. [6906] Clark. 1907.
- POLARIZATION—*v. Heat, P. of. Light, P. of.*
- POLARS (RECIPROCAL): [15989-90] Ferrers. 1861-90. [16493-4] Poncelet. 1862-6. — *v. Duality.*
- POLYATOMIC COMPOUNDS: [2703] Lourenço. 1863.
- POLYGONS (STAR): [6438] Bradwardine. 1495. [15945] Dostor. 1880. — AND POLYHEDRA: [4362] Sharp. 1717. [10887] Listing. 1862. [15810] Brückner. 1900. [15963] Eberhard. 1891. [16493-4] Poncelet. 1862-6. [SS 274] Cataldi. 1620.
- POLYTROPE: [4411] Sire. 1862.
- POPULAR SCIENCE: [1450] Gall. 1895. [2861] Martin. 1822. [3592-4] Phillips. 1833-73. [5152] Walker. 1799. [6468] Brewer. 1872. [7859] Ferguson. 1823. [9916] Joyce. 1840. [13101] Pepper. 1869. [13432] Plüchê. 1740.
- PORCELAIN: [431] Blancourt. 1699. [2336] Kunckel. 1679. [3721] Porter. 1832. [S 2998] Asch. 1913. [S 3066] Blancourt. *fs. of* 1699. [S 3168] Neri, etc. 1752. [SS 2757-8] Dossie. 1758-64.
- PORISMS: [1585] Gompertz. 1850. [3448-9] Pappus. 1588-1660. [4601] Stewart. 1746. [6376] Boulliau. 1657. [12938] Pappus. 1660. [13418] Playfair. 1792. [15866] Chasles. 1860. [SS 840] Simson. 1812. [SS 860] Steiner. 1832.
- POROSITY OF BODIES: [530. 539. 6416] Boyle. 1684.
- PORTRAITS OF SCIENTISTS: [3723] Portraits. c. 1680. [5315] Weld. 1860. [7793-4] Faraday. *n. d.* [8019] Forbes. *n. d.* [8877-8] Hanbury. *n. d.* [8963] Harrison, *n. d.* [9117-18] Helmholtz. *n. d.* [9619-21] Huxley. *n. d.*
- POTASSIUM AND ITS COMPOUNDS: [1498. 8314-15] Gay-Lussac and Thénard. 1811. [8718] Groth. 1902. [11135] Lupton. 1876. [13094] Penny. 1855.
- POTENTIAL (ELECTRIC): [4336] Serpieri. 1884 [4949] Tumlirz. 1889. — (THERMODYNAMIC): [7392] Duhem. 1886. —, THEORY OF THE: [1642. 8628] Green. 1828. [10283] Korn. 1899-1901. [12447] Neumann. 1877. [14241] Riemann. 1876. [14377] Roch. 1862. [15147] Strutt. 1900. [16078] Grimsehl. 1905. [16524] Riemann. 1892. [17081] Hovestadt. 1890. [17254-5] Tumlirz. 1884-9. [17269] Wand. 1871. [17270] Wangerin. 1909. [S 1807] Clausius. 1870. [S 2138] Mathieu. 1865-6. — *v. Function (Potential).*
- POTENTIOMETER: [1344] Fisher. 1897.
- POTHENOT'S PROBLEM: [8374] Gerling. 1840.
- POTTERY, TECHNICS OF: [2336] Kunckel. 1679. [5812] Arcet. 1766. [8576] Granger. 1905. [8739] Guignet. 1899. — *v. Enamelling. Porcelain.*
- POWELL'S BANDS: [13571-2] Powell. 1848.
- POWER GAS PRODUCTION: [14376] Robson. 1908. — PLANTS: [9586] Hutton. 1906. — PRODUCTION: [1590] Goodrich. 1904. — TRANSMISSION: [9482] Hospitalier. *v. y.* [10121] Kerr. 1902. [15358] Unwin. 1894. — *v. Belting.*
- POWERS (MATHEMATICAL): [16223] Kleyer. 1883.
- PRECESSION AND NUTATION: [70] Alembert. 1749. [776] Cheyne. 1867. [3360] O'Brien. 1840. [4398-9] Simpson. 1757. [5085] Vince. 1787. [5540] Ximenes. 1776. [5580] Zach. 1812. [6861] Cheyne. 1867. [7444] Edinburgh Essays. 1754-71. [10000] Kapteyn. 1901. [11670] Maxwell. 1857. [12466-7. 12469] Newcomb. 1885-98. [12762-3] Nyrén. 1872-6. [12744] O'Brien. 1840. [13167] Peters. 1843. [14267] Ristenpart. 1892. [14884-5] Simpson. 1757. [15150] Struve. 1842. [16940] Barnard. 1872. [S 2491] Darwin. 1877-89. [SS 981] Alembert. 1754-6. — *v. Polar Distances. Spinning Top.*
- PRECIOUS METALS: [9704] Jacob. 1831. — STONES: [1817] Haüy. 1817. [2137] Jeffries. 1871. [2930] Mawe. 1815. [4097] Rothschild. 1890. [4639] Streeter. 1877. [7425] Dutens. 1777. [9018] Haudicquer de Blancourt. 1718. [9040] Haüy. 1817. [10337-40] Kunz. 1890-1903. [15629] Cesi. 1636. [SS 2663] Boetius de Boot. 1647. [SS 2664] Boyle. 1672. [SS 2666] Brard. 1808. [SS 2668] Emanuel. 1867. [SS 2678] Garnier. 1750. — *v. Diamond. Garnet.*
- PRECIPITATION, MECHANICAL CAUSES OF: [SS 1583-4] Boyle. 1675.
- PRESSING MACHINERY: [S 3403-4] Colyer. 1881-92. — *v. Hydraulic Press.*

- PRIESTLEY'S RINGS: [13668] Priestley. 1769.
- PRIMUM MOBILE: [13844] Raimondo. 1589' [SS 1240] Pighius. 1522. [SS 1262] Ricci. 1521.
- PRINCIPLES OF SCIENCE—*v. Philosophy of Science.*
- PRINTING AND PRINTING MACHINERY: [10252] Koenig. 1883. [S 3069] Legros. 1916. [S 3695] Wilson and Grey. 1888.
- PROBABILITIES (GEOMETRICAL): [15905] Czuber. 1884.
- , THEORY OF: [352] Bernoulli (Jacques). 1713. [371] Bertrand. 1889. [885] Cournot. 1843–64. [1328] Fermat. 1679. [2363–4] Lacroix. 1883–64. [2439] Laplace. 1814–18. [2607] Liagre. 1879. [2711] Lubbock and Bethune. 1830. [3029] Moivre. 1756. [3086–7] Morgan. 1838. [3477] Pascal. 1665. [3682] Poisson. 1837. [3864] Quetelet. 1835. [4400] Simpson. 1792. [4535] Spinoza. 1884. [4886–7] Todhunter. 1865. [6149–50] Bernoulli (Jacques). 1713. [6210] Biquille. 1805. [6566] Bryan. 1897. [6916–17] Clark. 1758. [7048] Cournot. 1843. [8250] Galloway. 1839. [9852] Jones. 1844. [10379] Lacroix. 1822. [10499. 10505–6] Laplace. 1814. [10575] Laurent. 1873. [10795] Liagre. 1879. [11805] Meyer. 1874. [11984–8] Moivre. 1718–56. [12106. 12121. 12127. 12129–30] Morgan. 1836–50. [13456] Poincaré. 1896. [13802–3. 13811] Quetelet. 1846–53. [14734–5] Schooten. 1657. [15382] Venn. 1876. [15700] Bachelier. 1912. [15727] Bernoulli. 1899. [15732] Bertrand. 1889. [15748–9] Bobek. 1890. [15762] Boole. 1862. [15765–6] Borel. 1909–10. [15854] Carvalla. 1912. [15891–2] Cournot. 1843–9. [15899] Crepeœur. 1902–8. [15909–10] Czuber. 1903–10. [16091] Hagen. 1882–4. [16130] Herz. 1900. [16248] Kries. 1886. [16253–4] Lacroix. 1864. [16274] Laurent. 1873. [16360] Markoff. 1912. [16378] Meyer. 1879. [16401] Moivre. 1756. [16402] Montessus. 1908. [16406] Morgan. 1838. [16489] Poincaré. 1896. [16492] Poisson. 1837. [16727] Todhunter. 1865. [16750] Venn. 1888. [16784–6] Whitworth. 1886–1901. [16800] Woodward. 1906. [SS 353] Degen. 1824. [SS 709] Parisot. 1810.
- , *v. Combinations and Permutations. Errors, Theory of, Games of Chance, Least Squares, Numbers (Great), Law of, Wealth, Mathematical Theory of.*
- PROBLEMS AND QUESTIONS IN SCIENCE: [436] Bland. 1830. [9824] Johnson. 1735. [15638] Enriques. 1910. [S 392] Scientia. 1899–1914.
- PRODUCER GAS: [7355] Dowson and Larter. 1906. [14826] Sexton. 1903.
- PROGRESSIONS (ARITHMETICAL AND GEOMETRICAL): [16218] Kleyer. 1884.
- PROJECTION (ORTHOGRAPHIC): [6223] Binns. 1869–71.
- (STEREOGRAPHIC): [14338–41] Robertson. 1747–75.
- , THEORY OF: [15989–90] Ferrers. 1861–90. [16184] Javary. 1903. [SS 860] Steiner. 1832.
- PROPORTION (DUPLICATE): [3559. 13187] Petty. 1674.
- , COMPASS OF—*v. Compass of P.*
- , RULE OF—*v. Rule of P.*
- , THEORY OF: [329] Belli. 1573. [1167] Ellis. 1877. [2821] Marchetti. 1695. [6121–2] Belli. 1573–95. [6649] Byrne. 1841. [7550] Emerson. 1763. [16137] Hill. 1914. [16169] Huebner. 1895. [SS 926] Viviani. 1674.
- , *v. Numbers (Proportional).*
- PROSPECTING (MINERAL): [96] Anderson. 1889. [11862] Millor. 1897. [15139] Stretch. 1900. [S 3207] Cox. 1912.
- PROTEIDS, CHEMISTRY OF: [3142. 12247] Mulder. 1847.
- PROUT'S HYPOTHESIS: [4833] Thomson. 1825. [4835] Thomson. 1813–18. [13236] Phillips. 1839. [15021] Stas. 1860. [15265–7. 15269] Thomson. 1813–26. [SS 2626] Stas. 1865.
- PSYCHIC MEASUREMENTS: [2641] Lipps. 1906.
- PSYCHOLOGY OF EXACT SCIENCE—*v. Arithmetic, P. of, Free Will, Mathematical Theory of, Mathematical Psychics, Space and Time, P. of.*
- PTOMAINES: [7024] Corput. 1855.
- , *v. Toxines.*
- PUMICE STONE: [10245] Knox. 1822.
- PUMPS AND PUMPING MACHINERY: [1875–6] Hero Alexandrinus. 1575. [2853] Martin. *n.d.* [3108] Morland. 1685. [5398–9] Wicksteed. 1841. [6242–3] Björling. 1902–5. [6769] Castelli. 1808. [7327] Donaldson. 1883. [8242] Galli. 1694. [8785] Hague (C. A.). 1907. [8788] Hague (J.). 1837. [9175–9] Hero Alexandrinus. 1575–1851. [11505] Martin. *c.* 1767. [12157–8] Morland. 1685. [13148] Pesutti. 1789. [15503] Weisbach and Hermann. 1893. [17336] Davey. 1900. [S 3248] Hauer. 1879. [S 3358] Björling. 1890.
- , *v. Air Pumps, Cornish Pumping Engine, Fire Engines, Water-raising Machines.*
- PYRANOL SALTS: [13123] Perkin, *etc.* 1908.
- PYRITES: [S 3249] Henckel. 1757.
- PYROMETRY: [2406] Lambert. 1779. [3168] Musschenbroek. 1756. [4431] Smeaton. 1754. [5299] Wedgwood. 1786. [9473] Hospitalier. *v. y.* [10425] Lambert. 1779. [10489] Langsdorf. 1787. [14902. 14916] Smeaton. 1754–1814.
- , *v. Calorimetry.*
- PYROTECHNICS: [289–90] Bate. 1634–54. [418–20] Biringuccio. 1540–59. [3071] Morel. 1818. [3549] Perrinet d'Orval. 1757. [5873] Audot. 1825. [5898–9] Babington. 1635. [6043–4] Bate. 1634. [6228–36] Biringuccio. 1540–1678. [6987–8] Collado. 1586–1641. [7604–8] Etten. 1628–69. [8188–9] Furtenbach. 1644–62. [9890–2] Jones. 1766–76. [10770–4] Leurechon. 1630–74. [11328] Malthus. 1640. [12069] Morel. 1800. [12188–9] Mortimer. 1824–*n.d.* [12888–9] Ozanam. 1708–50. [14416] Romain. 1611. [14865–8] Simienowicz. 1651–1729. [15135] Stövesandt. 1757. [15539] White. 1677. [SS 30] Bate. 1631. [SS 98. 103] Leurechon. 1653–72. [SS 2751] Cutbush. 1825. [SS 2806] Malthus. 1650. [SS 2831] Perrinet d'Orval. 1745. [SS 2838] Ravichio de Peretsdorf. 1824. [SS 2861–3] Smith. 1740–99. [SS 2873] Thybourel et Hanzelet. 1620.
- PYROXYLIC ACID: [7003] Connell. 1837.
- PYTHAGOREAN THEOREM: [9367] Hoffmann. 1821. [12330] Naber. 1908.
- QUADRANT: [846. 848] Collins. 1658–9. [849–50] Colson. 1749–64. [1055] Digges. 1625. [1271] Fabri. 1598. [1716–19] Gunter. 1636–73. [1729–31] Hadley. 1750–61. [2547] Leoni. 1699. [3355] Nuis. 1686. [5448] Wing. 1700. [5484] Woodford. 1756. [5778] Angles. 1897. [5790–1] Apianus. 1532–3. [6704] Cantone. 1670. [6995] Collins. 1658. [8051–2] Foster. 1659. [8199] Galgemail. 1616. [8214. 8218] Galilei. *n.d.* [8745–50] Gunter. 1636–80. [8777–8] Hadley. 1734–50. [10134] Kinckhuysen. 1643. [10249] Köbel. 1563. [10630–9] Lazesio. 1518–1629. [10809. 10820] Leybourn. 1672–1771. [11070] Ludlam. 1790. [11272] Magellan. 1780. [11331] Mampieri. 1856. [11509] Martin. *n.d.* [11530] Mascheroni. 1803. [11548] Maskelyne. 1772. [12422–4] Nesbit. 1847–77. [12722] Norie. 1796. [12786] Oddi. 1625. [14660] San Giovanni. 1686.

- QUADRANT, continued:**
 [14905] Smeaton. 1788. [15587] Wing. 1700.
 [SS 512-14] Hulsius. 1603-15. [SS 1358]
 Bonhomo. 1758. [SS 1361] Brown. 1671.
 [SS 1369-70] Collins. 1659-1710. [SS 1387]
 Foster. 1675. [SS 2174] Woodford. 1756.
 — *v. Sextant.*
 — (FLUID): [14530] Rowe. 1725.
 — (HORIZONTAL): [993] Delamaine. 1631.
 — OF PROPORTION: [11026] Lorgna. 1768.
 — *v. Compass of Proportion.*
- QUADRANTS (MURAL):** [6238] Bird. 1768. [6439]
 Brahe. 1602.
- QUADRAT (UNIVERSAL):** [4611-12] Stirrup. 1655.
 [S 434] Apianus. 1541. [SS 512-14] Hulsius.
 1603-15.
 — *v. Square.*
- QUADRATURE (GEOMETRICAL):** [14281] Riva. 1725.
 — (MECHANICAL): [14159] Rice. 1899.
 — OF THE CIRCLE—*v. Circle Squaring.*
- QUALITIES, CHEMICAL DOCTRINE OF:** [531] Boyle.
 1676.
- QUANTICS:** [6808] Cayley. 1854-78. [15971-2]
 Elliott. 1895-1913.
 — *v. Invariants.*
- QUANTITIES (COMPLEX):** [9493] Houël. 1867-74.
 — (POLYDIMENSIONAL): [16568] Scheffler. 1880.
 —, THEORY OF: [16135] Hessenberg. 1906. [16173]
 Huntington. 1901. [16239-40] König. 1903-14.
 [16597] Schoenflies. 1908-13.
- QUANTITY SURVEYING:** [10607] Leaming. 1886.
 [11767-9] Merrett. 1881-93. [15040] Stephen-
 son. 1910.
- QUARRYING:** [1378] Foster. 1903. [S 3229-30]
 Foster. 1904-10.
- QUARTZ:** [11289] Malaise. 1866-8. — [13922] Rath.
 1872. [14119] Reusch and Rath. 1873.
- QUATERNIONS:** [1762-4] Hamilton. 1853-66.
 [2181] Joly. 1905. [2237] Kelland and
 Tait. 1873. [2388] Laisant. 1877. [2742]
 McAulay. 1893. [3031-3] Molenbroek. 1891-3.
 [4731-2] Tait. 1867-73. [8867] Hamilton. 1853.
 [8887] Hankel. 1867. [9291] Hine. 1894.
 [9842] Joly. 1902. [10035-6] Kelland and
 Tait. 1873-82. [10416] Laisant. 1881. [13391]
 Plarr. 1874. [15001] Spottiswoode. *n.d.* [16070]
 Graefe. 1883. [16103] Hamilton. 1899-1901.
 [16104] Hankel. 1867. [16140] Hine. 1894.
 [16190] Joly. 1905. [16204-5] Kelland. 1873-
 1904. [16702-3] Tait. 1873-90. [S 451] Baker.
 1911. [S 779] Hardy. 1881.
 — *v. Algebra (Double). Complex Quantities.*
Octonions. Vector Analysis.
 —, BIBLIOGRAPHY OF: [11181] Macfarlane. 1904.
- QUININE AND ITS SALTS:** [3142] Mulder. 1847.
 [7278] Dibbits. 1873. [12247] Mulder. 1847.
- RADIATION (TERRESTRIAL):** [13630-1] Prévost. 1809.
 — AND RADIANT MATTER: [487] Bottono. 1898.
 [902-3] Crookes. 1873-8. [1096] Draper. 1878.
 [2079] Hyndman. 1898. [2101] Ienthal and
 Ward. 1901. [7090-1. 7101-2] Crookes. 1873-
 84. [8920. 8926] Harper's Scientific Memoirs.
 1900-1. [10340] Kunz. 1903. [10692] Leh-
 mann. 1898. [13825-6] Radiology. 1905-6.
 [17054] Greichacher. 1909. [17149] Neesen.
 1904. [S 1828] Crookes. 1877. [S 3867] Radio
 Engineers. 1916.
 — *v. Becquerel Rays. Cathode Rays. Electron
 Theory. Electrons. Heat (Radiant). X-Rays.*
- RADICAL THEORY:** [1397] Frankland. 1877. [1674]
 Griffin. 1858. [10266] Kolbe. 1859. [10573]
 Laurent. 1843.
- RADICALS (ORGANIC):** [8105. 8114] Frankland. 1849-
 51. [11052] Löwig. 1850.
- RADIOACTIVITY AND RADIOACTIVE SUBSTANCES:**
 [4147] Rutherford. 1905. [10066] Kelvin.
 1882-1911. [11407] Marckwald. 1904. [14601-
 4] Rutherford. 1904-6. [14973] Soddy. 1904.
 [15257] Thomson. 1904. [17129] Mackower.
 1908. [S 1639] Abraham et Langevin. 1905.
 [S 1836] Curie. 1904. [S 2914] Soddy. 1911-14.
 — *v. Atomic Disintegration. Radium.*
- RADIOMETER:** [902-3. 7090-1. 7096] Crookes. 1873-
 8. [14144] Reynolds. 1876. [S 1828] Crookes.
 1877.
- RADIUM:** [9858] Jones. 1905. [15146] Strutt. 1904.
 [15281] Thorpe. 1908. [15476] Watts. 1904.
- RAILROADS:** [S181-2] Fulton. 1796.
- RAILWAY (MONORAIL):** [12922] Palmer. 1824.
 — ACCIDENTS: [4643] Stretton. 1887. [12816]
 Oliver. 1846.
 — BRAKES: [9399] Holleman. 1891. [9478]
 Hospitalier. *v. y.*
 — BRIDGES—*v. Bridge Building.*
 — CARRIAGES: [8036] Forney, etc. 1884. [8246]
 Galloway. 1834.
 — *v. Carriage and Coach Building.*
 — CURVES: [4390-1] Simms. 1846-56. [5946-7]
 Baker. 1848-51. [6765] Castle. 1847 [10779]
 L'Veillé. 1847. [12816] Olivier. 1846.
 — *v. Curve Tracing.*
 — ENGINEERING: [29-30] Acworth. 1889-90
 [220] Badnall. 1833. [249] Baker. 1848. [571]
 Brees. 1837. [1007] Dempsey. 1847. [1392]
 Foxwell. 1889. [1806] Haskoll. 1863-4. [3543]
 Perdonnet. 1865. [3874] Railways. 1840. [3877]
 Railway Structures. 1881. [4324] Sekon. 1895.
 [4542-3] Spooner. 1871. [4741] Tanner. 1840.
 [4935] Tredgold. 1835. [5017] Unwin. 1869.
 [5072] Vignoles. 1889. [5277] Weale. 1844-9.
 [5381] Whishaw. 1837. [5482] Wood. 1838.
 [5652-3] Adams. 1837-62. [5772] Angell. 1853.
 [5808] Arcana. 1831. [5885] Baader. 1829.
 [5946-7] Baker. 1848-51. [6018-19] Barry.
 1876-82. [6077] Beavan. 1903. [6838] Chemins
 de Fer. 1879-80. [6982] Cole. 1890. [7229]
 Dempsey. 1850-6. [7762] Fairlie. 1872. [7947]
 Flachet-Mony et Bonnet. 1835. [8077] Fox.
 1881. [8366] Gerstner. 1842-3. [8386] Gibon.
 1845. [8524] Gordon. 1836. [8612-13] Gray.
 1825. [9078-9] Hebert. 1837. [9535] Hughes.
 1846. [9738] James. 1861. [9967] Julien. 1845.
 [10048] Kelly. 1847. [10649] Le Chatelier.
 1845. [10658] Lecount. 1839. [10664] Ledoux.
 1874. [10976] Loeve and Meyer. 1898. [11191]
 Mackay. 1896. [12015] Monkswell. 1911.
 [12400-1] Navier. 1835. [12422] Nesbit. 1847.
 [12821] Oppermann. 1873. [12922] Palmer.
 1824. [12968] Parkin. 1836. [12969] Parkinson.
 1902. [13562] Poussin. 1836. [13603] Pratt and
 Alden. 1898. [13833] Railway. 1823. [13834]
 Railway Magazine. 1835-9. [13837-8] Railways.
 1835-40. [13889] Rankine. 1828. [14035]
 Rennie (G.). 1836-50 [14071] Rennie (Sir J.).
 c. 1837. [14657] Sampite. 1888. [15333]
 Tratman. 1901. [S 3211] Curr. 1797. [S 3385]
 Camp. 1904.
 — *v. Channel Railway. Dam Construction. Earth-
 work. Electric Railways. Locomotive. Tramways.*
 * * A large collection of such works will be
 found in Messrs. Sotheran's Bibliotheca Vaticana.
- SCHEMES:** [8570] Grainger and Miller. 1828.
 [10900] Liverpool and Manchester Railway.
 1826. [13104] Perdonnet, etc. 1832. [13835]
 Railway Prospectuses. 1830-6. [13836] Rail-
 ways. 1837. [14805] Seguin. 1826. [15037]
 Stephenson and Bidder. 1838.

- RAILWAY SIGNALLING: [3633] Rigg. 1898. [7012] Cooke. 1839. [13579] Power. 1855. [13608] Preece. 1874. [13915-16] Rapier. 1874. [15333] Tratman. 1901. [SS 2986] Cooke. 1842.
- SURVEYING: [9405] Holliday. 1838. [S 3519] Lavis. 1908.
- RAILWAYS (ATMOSPHERIC): [3635] Pilbrow. 1844. [4201] Samuda. 1842. [4577] Stephenson. 1844. [5277] Weale. 1844-9. [7370] Dubern. 1846. [8886] Gibon. 1845. [9901] Jones. 1845. [9968] Julien et Valério. 1845. [14663-4] Samuda. 1841-2. [15041-2] Stephenson. 1844.
- *v. Pneumatic Dispatch Tubes.*
- (ELECTRIC)—*v. Electric R.*
- (UNDERGROUND): [13835] Sub-Railways. 1835.
- , DICTIONARY OF: [12898] Palaa. 1864.
- , HISTORY, WORKING, AND MANAGEMENT OF: [1082] Dorsey. 1887. [1334] Findlay. 1889. [1683] Grinling. 1905. [3376] Ogan. 1855. [3873] Railway. 1853. [4643] Stretton. 1887. [6118] Belpaire. 1847. [8095] Francis. 1851. [8875] Haney. 1908. [10188] Kirkman. 1903. [10534] Lardner. 1850. [10685] Legoyt. 1845. [12983] Parsloe. 1878. [13087] Pendleton. 1894. [14269] Ritchie. 1846. [14285] Roads and Railroads. 1839. [14428] Roney. 1868. [14464-6] Roscoe and Leconte. 1838-9. [14632] St. Léon. 1845. [15328] Tourasse et Mellet. 1828.
- , INFLUENCE OF: [14809] Seguin. 1839.
- RAIN, THEORY OF: [1988. 1992] Hopkins. 1852-4. [2054] Hutton. 1792. [4113] Rowell. 1859. [4450] Smith. 1872. [5953] Baldwin. 1786. [8848] Hamilton. 1772. [9587-8] Hutton. 1792. [13839] Sogno Filosofico. 1753. [14533-5] Rowell. 1840-87. [SS 2228-30] Barlow. 1715-22.
- *v. Droughts. Nucleation (Atmospheric).*
- RAINBOW: [2347] Chambers. 1650. [2822] Marci de Kronland. 1648. [3243-4] Newton. 1729. [4535] Spinoza. 1884. [6869] Chiminello. 1803. [7256] Descartes. 1637. [11648] Maurolico. 1613. [12074] Morgan. 1770. [12534-53] Newton. 1704-87. [15389] Vieri. 1582. [15405]. Vitellio. 1535. [S 1677-8] Bacon. 1614. [SS 1601] Chesnecephorus. 1593. [SS 1649] Dominis. 1611. [SS 1742-4] Grimaldi. 1665. [SS 1869] Marat. 1788. [SS 2060] Scherffer. 1761.
- RAINFALL: [4705-7] Symons. 1867-99. [13674] Prince. 1886. [15183-5] Symons. 1863-1913.
- RAIN GAUGE: [10472-3] Landriani. 1781.
- RANCIDITY—*v. Butyric Acid.*
- RANGE-FINDER—*v. Telemeter.*
- RARE EARTHS: [14334] Roberts-Austen. 1895. [S 3066] Johnstone. 1915.
- RATIOS, ALGEBRA OF: [615] Browning. 1849. [3239] Newton. 1769.
- RAYS, SYSTEMS OF: [8869] Hamilton. 1827-34. [16238] Kommerell. 1911.
- RAZORS: [10148] Kingsbury. 1806. [14152] Rhodes. 1809.
- READY RECKONER: [42] Agucchia. 1613. [274-6] Barrême. 1703-40. [2594] Leybourn. 1727. [5672-3] Agucchia. 1613-1765. [6009-11] Barrême. 1673-1752. [6715] Capuano. 1621.
- REAGENTS (CHEMICAL): [25] Accum. 1818. [4320] Seelig. 1892. [10298-9] Krauch. 1902-7. [SS 2403-5] Accum. 1816-20. [SS 2551] Lassaigne. 1839.
- *v. Colour Reactions.*
- RECALESCENCE CURVES: [14481] Rosenhain. 1908.
- RECEIPTS (PRACTICAL): [8093] Francis. 1854.
- *v. Workshop Receipts.*
- RECIPROCAL FIGURES: [15903] Cremona. 1885. [S 2125] Maxwell. 1870.
- POLARS: [3698-9] Poncelet. 1822. [6335] Booth. 1873-7. [11516] Martin. 1860.
- *v. Duality, Principle of.*
- RECIPROCITY, PRINCIPLE OF—*v. Duality.*
- RECREATIONS (SCIENTIFIC): [2] Abat. 1763. [204] Bachet de Méziriac. 1624. [1193] Etten. 1627. [8603] Tissandier. 1885. [5395] Whiting. 1797-8. [5538] Wyde. 1861. [5901] Bachet de Méziriac. 1884. [6472-3] Brewster. 1832-3. [7604-8] Ellen. 1628-69. [8198] Gale. 1797. [9434-7] Hooper. 1774-94. [10237] Knoll. 1786-8. [10770-4] Leurechon. 1630-74. [12947-49] Paris. 1842-61. [13928] Rational Recreations. 1825. [15539] White. 1677. [15550-63] Wilkins. 1648-91. [15658] Wright. 1892. [SS 97-8. 103] Leurechon. 1626-71. [SS 142] Schwenter. 1636-92. [SS 144-6] Schott. 1666-7.
- *v. Arithmetical R. Chemical R. Mathematical R.*
- REFLECTOR (PRISMATIC): [5742] Amici. 1836.
- REFRACTION (ATMOSPHERIC): [82] Alhazen. 1572. [2332] Kramp. 1799. [3716] Porta. 1593. [4762] Taylor. 1715. [5864] Atkinson. 1825. [8191] Fuss. 1872. [10289] Kowalski. 1878. [10872] Linemann. 1634. [10948] Loewy et Puisseux. 1891. [12979] Parry, etc. 1826. [13386] Plana. 1828. [13850] Rambaut. 1896. [14880] Simpson. 1743. [SS 1287] Scheiner. 1615-17.
- *v. Halos. Rainbow. Sun (Elliptic). Twinkling.*
- TABLES: [2112] Jacoby. 1890.
- REFRACTIVE ANALYSIS: [7119] Cunæus. 1899. [8375] Gerrits. c. 1905.
- INDICES: [8881] Handl und Weiss. 1858. [10468] Landolt. 1882. [10477] Lang. 1881. [11848] Miers and Isaac. 1906. [13812] Quincke. 1879. [15177] Swan. 1844. [SS 2198] Chaulnes. 1768.
- *v. Crystallography (Chemical). Optical Activity.*
- REFRACTORY MATERIALS: [3540] Percy. 1875. [4350] Sexton. 1897. [8577] Granger. 1910. [13112] Percy. 1875.
- REFRIGERATION: [1523] Giffard. 1875. [2697] Lorenz. 1896. [5177] Wallis-Taylor. 1902. [5755] Anderson. 1908. [11557] Masters. 1844. [S 3407] Cooper. 1905. [S 3430] Ewing. 1908.
- *v. Cryometry. Freezing Mixtures. Ice-making Machines.*
- REGISTERING APPARATUS (MECHANICAL): [7730-1] Eytelwein. 1805.
- RELATIVITY, EINSTEIN-MINKOWSKI THEORY OF: [11832] Michelson. 1903. [16978] Carmichael. 1913. [17003] Cunningham. 1914. [17107] Lane. 1911. [17121-2] Lorentz, etc. 1913. [17224] Silberstein. 1914. [S 2074-5] Larmor. 1904.
- *v. Space and Time.*
- REFSOLD'S UNIVERSAL INSTRUMENT: [3414] Oudemans. 1852.
- RESEARCH (SCIENTIFIC), METHOD OF: [3780] Priest. 1905. [8532-3] Gore. 1878. [12258] Muir. 1884. [SS 70] Gore. 1878.
- —, REFERENCES TO: [S 306] Fernald. 1903.
- RESIDUES, THEORY OF: [2485] Laurent. 1865. [2525. 10682] Legendre. 1830. [SS 69] Gauss. 1870-1906. [SS 519] Jacobi. 1881-4. [SS 937] Lindelöf. 1905.
- *v. Numbers (Theory of).*
- RESPIRATION, PHYSIOLOGY OF: [2936] Mayow. 1674-81. [4330] Senebier. 1807. [11399. 11401] Marcet. 1890-7. [11697] Mayow. 1907. [13671] Priestley. 1776.
- RETENE: [8164] Fritzsche. 1860.

- RETOUCHING: [6643] Burrows and Colton. 1876.
— *v. Photography.*
- REVOLVER: [5779] Anquetil. 1854-5.
- RIGGING OF SHIPS: [1370] Forfait. 1780. [2556-7] Lescaillier. 1791. [2573] Lever. 1808. [8034-5] Forfait. 1788. [10733-4] Lescaillier. 1791. [11553] Masts. 1797. [14256] Rigging. 1806.
— *v. Sailmaking.*
- RING (MATHEMATICAL): [992] Delamaine. 1630.
- RIPPLES: [7971] Fleming. 1902. [9323] Hirst. 1861.
- RIVER NAVIGATION AND IMPROVEMENT: [4027] Rivers. 1888. [4060] Romano. 1815. [4360] Shannon. 1839. [5059] Vernon-Harcourt. 1882. [5732] Allnut. 1805. [7080] Cristiani. 1795. [7516] Ellet. 1853. [7870-1] Feroni. 1732. [7996] Fontana. 1696. [8735] Guglielmini. 1739. [11257] Maganzini. 1877. [11351] Mann. 1881. [12025] Montanari. 1715. [12136] Morozzi. 1762-6. [12999] Pascoli. 1740. [13153] Perry. 1721. [13541] Porter. 1799. [14057-61. 14066] Rennie (J.). 1809-18. [14075-7] Rennie (Sir J.). 1837-9. [14125] Révy. 1874. [14349] Robinson. 1848. [14574] Ruffner. 1886. [14864] Silberschlag. 1769. [14901. 14927-31] Smeaton. 1767-1814. [15057-8. 15060-1] Stevenson (D.). 1845-72. [15207] Tatham. 1803. [S 3582] Raccolta (Nuova). 1821. [SS 3002] Frisi. 1818. [SS 3045] Michelini. 1664. [SS 3064] Raccolta. 1821. [SS 3118-19] Yarranton. 1677.
*** *A large number of such works will be found in Messrs. Sotheran's Bibliotheca Viatica.*
- RIVERS, CHEMISTRY OF: [11063] Lucas. 1908.
—, ORIGIN OF: [285] Bartholinus. 1703. [4977] Tyndall. 1872-85. [5135] Vossius. 1666. [8643] Greenwood. 1866. [13940-1] Ray. 1693-1721. [14864] Silberschlag. 1769. [SS 2254] Dalton. 1799.
— *v. Lakes, O. of. Springs, O. of.*
- ROAD MAKING: [3994] Richardson. 1905. [6378] Boulnois. 1895. [6648] Byrne. 1892. [7418] Durand-Claye et Mars. 1885. [7454] Edgeworth. 1813. [7947] Flachet-Mony et Bonnet. 1835. [8395] Gillespie. 1874. [8438] Gillmore. 1876. [8929] Harris and Wakelam. 1909. [9419] Homer. 1767. [10559] Latham. 1903. [10611-12] Law and Burnell. 1850-82. [11151-4] McAdam. 1820-3. [11326] Malo. 1886. [12398-9. 12402] Navier. 1830-3. [13483] Polonceau. 1844. [14944] Smith. 1909. [15070] Stevenson. 1824. [SS 2983-4] Congleton. 1833. [SS 2992] Edgeworth. 1817. [SS 3003] Fry. 1820.
— *v. Asphalt. Gates and Wickets.*
*** *A large collection of such works will be found in Messrs. Sotheran's Bibliotheca Viatica.*
- TRACTION AND TRANSPORT: [3350] Norris. 1906. [7303] Diplock. 1902. [7412] Dupuit. 1837. [7978-9] Fletcher. 1891. [10618] Layritz. 1900. [12729] Norris. 1906. [14285] Roads and Railroads. 1839.
- ROCKETS AND ROCKET APPARATUS: [11335] Manby. 1812. [12030] Montgéry. 1826. [12058] Moore. 1813. [S 3730-1] Congreve. 1814-27.
- ROCKS—*v. Lithology.*
— (VOLCANIC): [8910] Harker. 1889.
—, FOLIATION OF: [8002] Forbes. 1855.
- ROOFS: [2897] Matheson. 1873. [5016] Unwin. 1868. [6642] Burri. 1849. [7029] Cosatti. 1743. [7229] Dempsey. 1850-6. [8077] Fox. 1881. [10737] Le Seul, etc. 1743. [11578] Matheson. 1873. [11776] Meriman and Jacoby. 1894-7. [14276] Ritter. 1879. [S 3664] Walmisley. 1888.
- ROOTS (IMAGINARY): [3236-9] Newton. 1707-69. [8187] Fürstenau. 1867. [12554-63] Newton. 1707-69.
- ROOTS (MATHEMATICAL): [722] Cataldi. 1613. [8334] Gemma. 1567. [10921] Lobatto. 1842. [10939] Lockhart. 1821. [13293] Picard. 1692. [16223] Kleyer. 1883. [SS 222] Beyer. 1603.
— (SQUARE AND CUBE), TABLES OF: [2182] Joncourt. 1762. [5898-9] Babington. 1635. [9721] Jahn. c. 1845. [SS 224] Boebert. 1812.
- ROPE MAKING: [9525] Huddart. 1815.
- ROSOLIC ACID: [14946] Smith. 1857.
- ROTATION—*v. Motion (Rotary).*
— APPARATUS: [9091] Heinen. 1857.
— *v. Polytrope.*
- ROULETTES, GEOMETRY OF: [381. 6191. 16956] Besant. 1870-90.
- ROYAL SOCIETY OF LONDON: [199] Babbage. 1830. [417] Birch. 1756. [4546] Spratt. 1734. [4838] Thomson. 1812. [5314-15] Weld. 1848-60. [5893] Babbage. 1830. [6016] Barrow. 1849. [6237] Birch. 1757. [7716] Everest. 1839. [8293] Gassiot. 1870. [8582] Granville. 1836. [9288] Hill. 1780. [9533] Huggins. 1906. [14548-56] Royal Society of London. 1784-1901. [15276] Thomson. 1812.
- RULE (CARPENTER'S): [1055] Digges. 1625. [6205] Bevan. 1832. [14732-3] Schoner. 1614. [S 647-50] Digges. 1556-1656.
— *v. Slide Rule.*
— OF PROPORTION: [15597] Wingate. 1645. [16456-7] Olbricht. 1891-3.
- SACCHARIC ACID: [15514] Westrumb. 1785-7.
- SACCHARINE: [7740] Fahlberg. 1887.
- SACCHAROMETER AND SACCHAROMETRY: [3996] Richardson. 1805. [9061] Hayman. 1819. [11968] Moigno. 1853. [13584] Poynting. 1880. [14220] Richardson. 1777.
— *v. Sugar.*
- SAFETY LAMP (MINER'S): [977] Davy. 1825. [7203] Davy. 1818. [12485] Newman. 1835. [15036] Stephenson. 1817. [S 3214] Davy. 1816.
- SAILING DIRECTIONS: [12726] Norie. 1829. [13375] Pilot. 1743. [14342] Robertson. 1855.
- SAILMAKING: [1370] Forfait. 1780. [6825] Chapman 1794. [10158] Kipping. 1851. [14630] Sail-Making. 1796. [SS 3158] Heathcote. 1824.
— *v. Rigging of Ships.*
- SAL AMMONIAC: [8564] Götting. 1782. [11957] Model. 1758.
- SALT WORKS: [6547] Brownrigg. 1748. [6684] Cambay-Digny. 1766. [7399] Dundonald. 1785. [7825] Fehling. 1847.
- SALTNESS OF THE SEA: [555. 6430-1] Boyle. 1674-90. [14437] Rosaccio. 1604.
- SALTPETRE: [6374] Botté de Toulmon et Riffault des Hêtres. 1813. [6404-6] Boyle. 1661-9. [11834] Mignot de Montigny. 1776. [14868] Simienowicz. 1676. [15485. 15487] Weber. 1779-80. [S 2687] Clarke. 1670. [SS 2611] Reuss. 1783-6.
— *v. Ammonia and its Compounds. Gunpowder. Nitrates.*
- SALTS (CRYSTALLIZED), DEHYDRATION OF: [14184] Richards. 1897.
—, THEORY OF: [1567] Glauber. 1659. [4329] Sendivogius. 1669-71. [6384] Bourguet. 1762. [10247] Koene. 1854. [11361] Mansfield. 1865. [12789] Odling. 1860. [14223] Richardson and Watts. 1863-7. [15009-10] Stahl. 1723-71. [15192-3] Tachen. 1669-71. [15396] Vigenère. 1642.
- SANDSTONE (RED): [9590] Hutton. 1830.
- SANITARY ENGINEERING AND SANITATION: [1848] Hellyer. 1900. [2480] Latham. 1873. [5058] Vernon-Harcourt. 1907. [5231-2] Waring. 1867-76. [5823] Armellini. 1859. [6373]

- SANITARY ENGINEERING AND SANITATION, *continued* :
 Boston. 1899. [6379-80] Boulnois. 1883-92. [6821] Chapin. 1901. [7019] Corfield. 1885. [7241] Denton. 1877. [8252-4] Galton. 1880-93. [8360-2] Gerhard. 1884-99. [9101-3] Hellyer. 1882-7. [9783-4] Jensen. 1901-8. [10355-8] Latham (B.). 1873-8. [10360] Latham (F.). 1898. [11276] Maguire. 1890. [12053] Moore. 1898. [12302] Murphy. 1883. [14007] Reid. 1892. [14952] Smith. 1854. [S 3542] Moore. 1909. [S 3639] Sutcliffe. 1907.
 — *v. Bacterial Decomposition. Disinfectants. Pluming. Sewage Disposal. Sewer Gas. Smoke Abatement. Ventilation.*
- SATURN (PLANET) : [999] Delambre. 1810. [2062] Huygens. 1659. [3828] Proctor. 1905. [5516-17] Wright. 1750. [6597] Bugge. 1786. [9204. 9206-8] Herschel. 1790-4. [11629] Maupertuis. 1742. [11673] Maxwell. 1859. [12857] Oudemans. 1888. [13715-16] Proctor. 1865-82. [SS 1054-5] Cysat. 1619. [SS 1060] Dionis du Séjour. 1776.
- SCALE (DIAGONAL) : [SS 1370] Collins. 1710.
 — (GUNTER'S) : [1716-19] Gunter. 1636-73. [8745-50] Gunter. 1636-80.
 — (MATHEMATICAL) : [14990-1] Speidell. 1616-17.
 — (PLANE) : [4610] Stirrup. 1651. [13954] Rea. 1717. [15098] Stone. 1728. [SS 3138] Collins. 1659.
 — *v. Sector.*
- SCALES OF EQUAL PARTS : [1973. 9411-12] Holtzapffel. 1838.
- SCENERY, GEOLOGICAL CAUSES OF : [11209] Mackintosh. 1909.
- SCIENCE (NEW) : [3616] Picard. 1905. [15636] Duncan. 1909. [17042] Gibson. 1909.
 — *v. Chemistry (New). Physics (New).*
 —, NEGLECT OF : [13158] Perry. 1900.
 —, PLEASURES OF : [6537] Brougham and Vaux. 1860.
- SCIENTIFIC MEMOIRS AND PAPERS : [2143] Jenkin. 1887. [3921] Recueil des Pièces. 1752-77. [9794] Jenkin. 1887. [11744-5] Memoirs (Scientific). 1837-53. [11746] Memoirs of Science. 1798. [14772] Scientific Memoirs 1837-52. [14854-5] Siemens. 1892-5. [17070] Helmholtz. 1882-95 [S 394] Scientific Memoirs. 1795-1838.
 — TERMS : [4630] Stormonth. 1879.
- SCREW (ARCHIMEDEAN) : [3493] Pauton. 1768. [10242] Knowles. 1871.
 — CUTTING TABLES : [7065] Crawford. 1878.
 — PROPELLER AND PROPULSION : [508] Bourne. 1867. [4571] Steam Navigation. 1858. [6385-6] Bourne. 1855-67. [6618] Burgh. 1869. [7402] Dunkerley. 1907-8. [8172] Froude. 1877 [9634] Isherwood. 1859. [10145] King. 1875. [10242] Knowles. 1871. [12768] Nystrom. 1852. [12946] Paris. 1855. [13034] Peabody. 1912. [13890] Rankine. 1881. [13937] Rawson. 1851. [14790] Seaton. 1909. [17337] Dreihardt. 1906. [17356] Taylor. 1907.
 — THREADS : [5396] Whitworth. 1858. [9773] Jeffcott. 1907. [S 3687] Whittaker. 1882.
- SCREWS, THEORY OF : [5962] Ball. 1876. [16937] Ball. 1900.
- SEA-BREEZE : [962] Davis. 1890.
- SEAMANSHIP—*v. Navigation.*
- SEARCHLIGHTS : [12421] Nerz. 1907.
- SECRETS (SCIENTIFIC) : [3711-12] Porta. 1585-1644. [5296-7] Wecker. 1651-60. [13517-24] Porta. 1558-1658. [15496] Wecker. 1662. [SS 30] Bate. 1631. [SS 66] Fioravanti. 1564. [SS 128-31] Porta. 1558-60.
 — *v. Chemical Secrets. Steel Manufacture, S. of.*
- SECTION (GEOMETRICAL) : [128] Apollonius Pergæus. 1706. [5796-9] Apollonius Pergæus. 1706-73. [14958] Snell. 1608.
 — (GOLDEN) : [3568] Pfeifer. 1885.
- SECTOR : [1716-19] Gunter. 1636-73. [3067] Moore. 1673. [8745-50] Gunter. 1636-80. [13954] Rea. 1717. [14338-41] Robertson. 1747-75. [15098] Stone. 1728. [S 764-5] Gunter. 1623.
 — *v. Scale (Plane).*
- SEDIMENTATION : [9846] Joly. 1901.
- SEISMOLOGY : [1351] Flamsteed. 1750. [1738] Hales. 1750. [2001] Horton. 1750. [2331] Krakatoa. 1888. [2646] Little. 1829. [2941] Meldola and White. 1885. [2978] Michell. 1760. [3508] Peacock. 1882. [3719] Ponton. 1888. [3906] Ray. 1692. [4407] Simpson. 1675. [4665] Stukeley. 1750. [4791] Telesio. 1570. [8598] Gray. 1796. [9432] Hooke. 1705. [10241] Knott. 1899. [10293-4] Krakatoa. 1888. [11826] Michell. 1760. [11895] Milne. 1886. [12806] Oldham. 1890. [12907-8] Palmieri. 1872-3. [13498] Ponton. 1888. [13940-1] Ray. 1693-1721. [14570] Rudzki. 1899. [15155] Stukeley. 1750. [15354] Turnor. 1792. [15584] Winchelsea. 1669. [S 2556] Mallet. 1846. [S 2598] Walker. 1913. [S 2607] Zucher and Margollé. 1868.
 — *v. Volcanology.*
- SELENIUM AND ITS COMPOUNDS : [11951-3] Mitscherlich. 1834-47.
- SEMAPHORE—*v. Signalling.*
- SENSITOMETRY : [11713] Mees and Sheppard. 1904.
- SERIES : [2690] Longfield. 1872. [3030] Moivre. 1730. [3988*] Riccati. 1756. [4754-5] Tate. 1845. [10461] Landen. 1781-3. [11024-5] Lorgna. 1779. [11989-91] Moivre. 1750. [12128] Morgan. 1865. [13487] Poncelet. 1833. [15852] Catalan. 1860. [16057] Godefroy. 1903. [16542] Kunze. 1904.
 — *v. Binomial Theorem. Differential Method.*
 — (FOURLER'S) : [655] Byerly. 1893. [1388] Fourier. 1822. [8068] Fourier. 1878. [8496] Gouffroy. 1900. [15824] Byerly. 1893. [15846] Carslaw. 1906. [16145] Hobson. 1907.
 — (GAUSS'S) : [14242] Riemann. 1857. [SS 69] Gauss. 1870-1906.
 — (INFINITE) : [352] Bernoulli (Jacques). 1713. [501] Boulliau. 1682. [1169] Emerson. 1767. [1254] Euler. 1797. [1616. 1618. 1622-3] Grandi. 1699-1713. [1629] Gravesande. 1727. [4781] Taylor. 1823. [5082] Vince. 1791. [5184-5] Wallis. 1657. [5224] Waring. 1791. [6149-50] Bernoulli (Jacques). 1713. [9609] Hutton. 1786. [12579-83] Newton. 1736-40. [13845-6] Raphson. 1702. [15805-6] Bromwich. 1908. [16439] Nielsen. 1909. [16783] Whittaker. 1902. [S 1041] Newton. 1737.
 —, SUMMATIONS OF : [4607] Stirling. 1764. [5504] Woolhouse. 1865. [14880] Simpson. 1743. [15087-90] Stirling. 1730-64.
 — (LAGRANGE'S) : [14508] Rouché. 1861. [S 1081] Pfaff. 1797.
 — (SELF-REPEATING) : [5209] Warburton. 1854.
 — (TRIGONOMETRICAL) : [10919] Lobatto. 1827. [15721] Beau. 1885. [16281] Lebesgue. 1906.
- SEWAGE ANALYSIS : [8073] Fowler. 1902.
 — DISPOSAL AND TREATMENT : [869] Corfield. 1887. [1590] Goodrich. 1904. [4001-2] Rideal. 1901-6. [4222] Savage. 1895. [6020] Barwise. 1899. [6623] Burke. 1873. [6976] Coffy. c. 1800. [7020-1] Corfield. 1871-87. [7528] Ellis. 1862. [7990] Folwell. 1898. [8103] Frankland. 1877. [9383] Hofmann and Frankland. 1859. [11355] Manning. 1864. [11684] Maxwell. 1898. [11763] Menzies. 1865.

- SEWAGE DISPOSAL AND TREATMENT, *continued*:
 [12800] Odling. 1858. [13771] Purvis. 1907.
 [13828] Rafter and Baker. 1894. [14357-8]
 Robinson. 1882-96. [15460] Waring. 1891.
 [S 3413] Crimp. 1890. [S 3506] Kershaw. 1915.
 [S 3597] Robinson. 1905. [S 3661] Wardle.
 1893.
 — *v. Bacterial Decomposition. Deodorisers. Sani-
 tary Engineering.*
- SEWER GAS: [3983] Reynolds. 1876. [14147]
 Reynolds. 1872. [14385] Roechling. 1898.
- SEWING MACHINERY: [5028] Urquhart. 1881.
- SEXAGESIMAL TABLES: [4776] Taylor. 1780. [6154]
 Bernoulli (Jean). 1779.
 — *v. Logarithms (Logistic).*
- SEXTANT: [1729-31] Hadley. 1750-61. [2776]
 Magnaghi. 1875. [3637] Pinar. 1867-95.
 [5742] Amici. 1836. [8778] Hadley. c. 1750.
 [11070] Ludlam. 1790. [11275] Magellan.
 1775. [11477] Martin. *n.d.* [12722] Norie.
 1796. [14536] Rowland. 1834. [SS 1837-8]
 Lambert. 1769.
 — *v. Quadrant.*
- SHEDS (STEEL-FRAMED): [S 3615] Spencer. 1915.
- SHEFFIELD SCIENTIFIC SCHOOL [U.S.A.]: [11034]
 Lounsbury. 1879.
- SHIPBUILDING: [497] Bouguer. 1746. [757]
 Chapman. 1781. [1257] Euler. 1749. [1737]
 Hale. 1691. [1915] Heywood. 1637. [2352]
 Lacroix. 1775. [2736] Lutschauing. 1885.
 [3162] Murray. 1765. [3536] Pepsy. 1690.
 [3695] Polinière et Dubebout. 1890-4. [3696-7]
 Pollock. 1884-1905. [3909] Read. 1847.
 [4143] Russell. 1864-5. [4378] Shipbuilding.
 1866. [4553] Stalkart. 1781. [5390] White.
 1882. [5454] Witsen. 1671. [5837] Art de Bâtir.
 1719. [6251] Blackburn. 1836. [6370-1]
 Bouguer. 1746. [6754] Carson. 1880. [6824]
 Chapman. 1781. [7356] Doyère. 1895. [7388-
 9] Duhamel du Monceau. 1752-8. [7414.
 7416] Dupin. 1822-55. [7449] Edey. 1832.
 [7508] Elgar. 1907. [7574] Engineering. 1893.
 [7678-80. 7701] Euler. 1779-90. [7899-7901]
 Fincham. 1821-52. [7923] Fishbourne. 1874.
 [8188-9] Furtenbach. 1644-62. [8529] Gordon.
 1784. [8569] Gower. 1811. [8768] Haack.
 1900. [8964] Harvey. 1834. [9034-5] Hauser.
 1886. [9947-8] Juan. 1771-83. [10369-70]
 Lacroix. 1775. [10733-4] Lescallier. 1791.
 [11174] McDermaid. 1911. [11211] Mackonochie.
 1805. [12023] Montagu. 1852. [12303-4]
 Murray (A.). 1861-3. [12317] Murray (M.).
 1765. [12374-9] Naval Architecture. 1792-
 1865. [12967] Parkin. c. 1800. [12992]
 Partington. 1826. [13481] Pollard et Dubebout.
 1890-4. [13987] Reed. 1869. [14032-3.
 14042] Rennie (G.). 1818-60. [14762] Schwarz
 und Halle. 1902. [14780-1] Scott. 1874-81.
 [14804] Seguier. 1848. [14838-9] Shipwrights'
 Vade-mecum. 1805. [15172-3] Sutherland.
 1717-29. [15232] Thevenard. 1800. [15344]
 Tupinier. 1830. [17360] White. 1894. [S 3738]
 Engineering Congress. 1894. [S 3753] Griffiths.
 1850. [S 3821] Simpson. 1904. [S 3824] Steele.
 1917. [SS 3127] Blackburn. 1817. [SS 3154]
 Griffiths. 1856. [SS 3161] Knowles. 1822.
 [SS 3202] Sutherland. 1784. [SS 3331] Ship-
 builder. 1906-18.
 — *v. Anchor. Copper Sheathing. Life-Boats.
 Marine Engineering. Mast-making. Rigging.
 Sailmaking. Tonnage. Ventilation of Ships.
 Warships. Yachts.*
- , HISTORY OF: [7896-8] Fincham. 1851.
 [14426] Rondelet. 1820.
- SHIP'S LIGHTS: [10095] Kenward. 1893.
- SHIPS (IRON): [1275] Fairbairn. 1865. [3925] Reed.
 1869. [7754] Fairbairn. 1865. [7986] Foden.
- SHIPS (IRON), *continued*:
 1900. [8294] Gatewood. 1886. [12900]
 Paixhans. 1822. [12945] Paris. 1863.
 — *v. Warships.*
- (SAILING): [3427*] Ozanne. c. 1780. [10349]
 Laas. 1908.
- (UNsinkable): [6695] Campbell. 1873. [15463]
 Watson. 1827. [15539] White. 1677.
- , ELECTRIC INSTALLATIONS ON: [14386] Roedder.
 1903.
- *v. Electric Ships.*
- , RAISING OF SUNKEN: [2999] Milne. 1828.
 [4748-50] Tartaglia. 1746-54. [S 3839] Zusto.
 1789.
- , RESISTANCE OF: [7402] Dunkerley. 1907-8.
 [17356] Taylor. 1907.
- , RIGGING OF—*v. Rigging of S.*
- , ROLLING OF: [6177] Bertin. 1877-80.
- , SPEED MEASUREMENT OF: [4223] Savérien.
 1750. [4422] Smeaton. 1754. [14899. 14916]
 Smeaton. 1754-1814.
- , STABILITY OF: [5867] Atwood. 1796. [12201-
 2] Moseley. 1843-55.
- OF ALL TIMES AND NATIONS: [873] Coronelli.
 1687. [4484] Snell van Royen. 1624. [5916]
 Baif. 1541. [12383-4] Naval Mobilization.
 1889. [14716-17] Scheffer. 1654. [15418]
 Vossius. 1685. [S 3795-6] Paris. 1841-84.
 [SS 3143] Deslandes. 1768.
- SHIPS' BOATS: [6955] Clifford. 1855.
- BOTTOMS: [10862] Linden. 1750.
 — *v. Copper Sheathing.*
- SIDEROSTAT: [13441-2. 13444] Plummer. 1901.
- SIGNALLING: [8263-4] Gamble. 1795-7.
 — *v. Railway Signalling.*
- SILICATION: [10319] Kuhlmann. 1858.
- SILICON AND ITS COMPOUNDS: [8789] Hahn. 1874.
 [9847] Joly. 1901. [12797] Odling. 1859.
 [13550] Pott. 1753. [14372] Robison and
 Kipping. 1908. [S 2998] Asch. 1913.
- SILK: [3722] Porter. 1831. [5217] Wardle. 1908.
 [7422-3] Dusuzeau. 1881-3. [12061] Morand.
 1891. [14343-4] Robinet. 1843-56. [S 3117]
 Paulet. 1763-89.
 — (ARTIFICIAL): [S 3142] Süvern. 1900.
 — FINISHING: [9566] Hurst. 1892.
- SILKWORMS, DISEASES OF: [13010-11] Pasteur. 1870.
- SILOS: [13559] Potter. 1886.
- SILURIAN SYSTEM: [12285-6. 12288-9] Murchison.
 1839-72.
- SILVER, METALLURGY OF: [478] Born. 1791. [2338]
 Küstel. 1868. [3589] Phillips. 1867. [4679]
 Suess. 1893. [6339-42] Born. 1786-91.
 [7469] Egleston. 1887-90. [13229] Phillips.
 1867. [3165-7] Barba. 1738-40. [S 3201-2]
 Collins. 1899-1900. [SS 2883] Barba. 1674.
 — *v. Assaying.*
- , POROSITY OF: [SS 1477-81] Accademia del
 Cimento. 1667-91.
- PRINTING: [5625] Abney and Robinson. 1881.
 [5849] Ashman. 1888. [10854] Liesegang.
 1881.
 — *v. Photographic Processes.*
- SINGULAR SOLUTIONS: [2374. 10397] Lagrange.
 1806. [16095] Leibniz. 1768. [11265] Madison.
 1898. [16189] Johnson. 1910. [S 621] Darboux.
 1883.
- *v. Equations (Differential). Equations (Partial
 Differential).*
- SLIDE RULE: [386] Bevan. 1822. [837-8] Cogges-
 hall. 1729-85. [1379] Foster. 1652. [1716-19]
 Gunter. 1636-80. [1944] Hoare. 1875. [3407]

SLIDE RULE, *continued* :

Oughtred. 1633. [6698] Campbell. 1886. [6977] Coggeshall. 1732. [7714-15] Everard. 1721-7. [8745-50] Gunter. 1636-80. [10814, 10816] Leybourn. 1676-98. [11195-7] Mackay. 1799-1802. [11472] Martin. *n. d.* [11802] Metius. 1626. [12995] Partridge. 1692. [14395] Roget. 1828. [14708] Scheffelt. 1699. [14811] Selden. 1694. [14838-9] Shipwright's Vademecum. 1805. [14840] Shircliffe. 1740. [15098] Stone. 1728. [S 830] Hunt. 1697. [SS 403] Everard. 1684.

— *v. Gunter's Line. Rule (Carpenter's).*

SMELL, CHEMISTRY OF: [8684] Grew. 1679.

— *v. Perfumery.*

SMELTING: [1153-4] Ehrmann. 1786-7. [3052] Monnet. 1775. [3812] Arcet. 1766. [7470] Ehrmann. 1787. [10862] Linden. 1750. [11598] Matthey. 1892. [SS 2998] Borchers. 1897.

— *v. Iron Smelting.*

SMOKE ABATEMENT: [5423] Williams. 1841. [14951] Smith. 1857.

SMOKELESS POWDER: [2691] Longridge. 1891.

SNOW CRYSTALS: [2275] Kepler. 1611.

— LINE: [2025] Humboldt. 1820.

SOAP BUBBLES: [6435-6] Boys. 1890-2. [13401] Plateau. 1873.

— *v. Bubble Formation. Films.*

— MAKING: [3737] Poutet. 1828. [8295] Gathmann. 1899. [9567] Hurst. 1907. [S 3009] Carpenter. 1895. [S 3098] Morfit. 1871.

SODA INDUSTRY: [S 3085] Lunge. 1909.

— *v. Alkalies. Chlorate Industry.*

'SODA' WATER: [2773] Magellan. 1783. [3789] Priestley. 1774. [7411] Duplais. 1858. [9477] Hospitalier. *v. y.* [11137] Luz. 1784. [11273-4] Magellan. 1777. [11937] Mitchell. 1913. [13652-4, 13669-70] Priestley. 1772-4.

— *v. Aeration. Mineral Waters.*

SODIUM AND ITS COMPOUNDS: [1498] Gay-Lussac et Thénard. 1811. [4260] Schneeberger. 1562. [6922] Clarke. 1820. [8314-15] Gay-Lussac et Thénard. 1811. [13255] Phipson. *c.* 1863. [13504-5] Pope. 1892-5. [13640] Prideaux. 1911.

SOLAR ECLIPSES: [1142] Eclipse Expedition. 1870-1. [1545] Glaisher. 1858. [2466] La Rue. 1862. [3614] Piazzzi. 1789. [3692] Poleni. 1717. [3890] Ranyard. 1879. [4207] Santini. 1872. [4498-9] Solar Eclipses. 1880-1906. [4871] Todd (D. P.). 1880. [4873] Todd (M. L.). 1894. [5184-5] Wallis. 1657. [5541] Ximenes. 1781. [5935-6] Baily. 1811-21. [7030] Cossali. 1791. [7535] Emanuelli. 1910. [7837] Ferguson. 1767. [9192] Herschel. 1794. [9297] Hind. 1870. [10715-16] Le Monnier. 1781-8. [10962] Lockyer and Schuster. 1878. [11162] McClean, etc. 1908. [11619, 11623-4] Maunder. 1898-1900. [12474] Newcomb. 1879. [12853, 12855] Oudemans. 1871-2. [13164] Perry. 1889. [13910] Ranyard. 1879. [14095, 14099] Respighi. 1872. [14497] Rost. 1727. [15148] Struve. 1861. [S 1546] Maunder. 1901. [SS 1158] Kepler. 1605.

— PARADOXES: [3439] Palmer. 1798. [6531] Brothers. 1801. [7086] Croes. 1858. [13775] Pye. 1766.

— PARALLAX—*v. Parallaxes of the Solar System.*

— PHYSICS:—*v. Sun.*

— RESEARCHES: [9274] Higgins. 1852.

— SPECTRUM—*v. Spectrum (Solar).*

— SYSTEM—*v. Planetary Theory.*

— TABLES: [889-90] Cowper. 1766. [2842] Martin. 1765. [2934-5] Mayer. 1770. [3146-7] Muliers. 1611. [5583] Laplace. 1809. [5680] Airy. 1827. [6711] Capello. 1737. [9069]

SOLAR TABLES, *continued* :

Heath. 1760. [10548] La Rue. 1875. [11054] Loys des Cheseaux. 1754. [11690-1] Mayer. 1770. [SS 1664] Euler. 1746-51.

— THEORY: [2966] Metius. 1633. [6440] Brahe. 1648. [8215-17] Galilei. 1613. [10000] Kapteyn. 1901. [11803] Metius. 1632-3. [SS 1708] Galilei. 1612.

SOLENOID: [13788-90, 13792-3] Quet. 1883-4. [14435] Rosa. 1907.

SOLID STATE, THEORY OF THE: [17321] Nemst. 1914.

SOLUBILITIES (CHEMICAL), DICTIONARY OF: [15103] Storer. 1864.

SOLUTION, THEORY OF: [170] Arrhenius. 1887.

[7137] Dalfsen. 1904. [8548] Graham. 1876. [8758] Guthrie. 1875-6. [8916] Harper's Scientific Memoirs. 1899. [9253] Herz. 1903. [9575] Hunt. 1854. [9859, 9862-3, 9869] Jones. 1893-1912. [9975] Kahlenberg. 1898. [10317] Kuenen. 1911. [10669] Lee. 1900. [11018] Loomis. 1893-4. [11134] Lupton. 1891. [11140] Lyle and Hosking. 1902. [11722] Melcher. 1909. [11760] Menschutkin. 1900. [12254] Muir. 1877. [12666-7] Nicol. 1882-3. [12847] Ostwald. 1891. [13021] Patterson and Stevenson. 1910. [13312] Pickering. 1886. [13814] Quincke. 1901. [14186, 14195, 14214] Richards. 1902-11. [14642] Sakurai. 1908. [15533, 15535-6] Whetham. 1895-1902. [S 2656] Buchanan. 1912.

— *v. Cryoscopy. Osmosis.*

SOMBRERITE: [13271] Phipson. *n. d.*

SOUND, DISSIPATION OF: [3665] Plessner. 1885.

—, DYNAMICAL THEORY OF: [S 2058] Lamb. 1910.

—, INTERFERENCE OF: [13948] Rayleigh. 1902.

—, PITCH OF: [13782] Quesneville. 1879.

— *v. Tuning Fork.*

—, PROPAGATION OF: [4794] Testa. 1787. [9438] Hoorweg. 1876. [14406] Roiti. 1877. [SS 1664] Euler. 1750.

—, VELOCITY OF: [3036] Molkenbeck. 1823. [8672] Gregory. 1824. [9929] Joule. 1847. [10433] Lamb. 1898. [14545] Royal Institution. 1802. [15470] Watson. 1748. [S 1813] Colladon. 1837.

— *v. Acoustics.*

— AND COLOUR, ANALOGIES OF: [2745] Macdonald. 1869.

— WAVES: [5698] Airy. 1871. [6025] Bartoli. 1680.

SPACE (ABSOLUTE): [16413] Müller. 1911.

— (HYPER-): [16002-3] Fontené. 1892.

— AND GEOMETRY: [16344] Mach. 1906. [16562] Sauvage. 1893. [16692] Study. 1914.

— AND TIME, PSYCHOLOGY OF: [15635] Cyon. 1908.

—, THEORIES OF: [1936] Hirn. 1889.

[13461-3] Poinset. 1842-61. [13706-7] Proctor. 1883-6. [13845-6] Ralphson. 1702. [15001] Spottiswoode. *n. d.* [15646-7] Lechalas. 1896-1909. [15653] Robb. 1914. [15656] Warrain.

1907. [16828] Black. 1910.

— *v. Relativity, Theory of.*

— ANALYSIS (GRASSMANN'S)—*v. Grassmann's S. A.*

SPEAKING TRUMPET: [2294] Kircher. 1671. [3053] Montanari. 1715. [10161] Kircher. 1671.

[12025] Montanari. 1715.

— *v. Ear Trumpet. Megaphone.*

— TUBE: [10770-4] Leurechon. 1630-74.

SPECTACLES: [187-8] Ayscough. 1750-5. [2306]

Kitchiner. 1824. [2846] Martin. 1758. [4435]

Smees. 1854. [6852] Chevalier. 1841. [10189]

Kitchiner. 1824. [10568] Laurance. 1908.

[11476] Martin. 1757. [S 2294] Scheffler. 1869.

- SPECTRUM OF ELECTRIC LIGHT: [14365] Robinson. 1862.
 — OF GASES: [14339] Plücker and Hittorf. 1864.
- SPECTROMETRY: [2517] Lefèvre. 1896.
- SPECTROSCOPY (ASTRONOMICAL): [4059] Rollwryn. 1871. [5773] Angström. 1868. [7357-60] Draper. 1879-84. [9529. 9531-2. 9534] Huggins. 1865-81. [10139] King. 1909. [10178-80] Kirchhoff. 1861-6. [10955. 10957. 10961] Lockyer. 1878-1903. [11084] Lunt. 1900. [11163] McClean. 1908. [11622] Maunder. 1886. [13304] Pickering. 1890. [14088. 14100-2] Respighi. 1870-85. [15110] Stoney. 1891. [16832] Campbell. 1913.
- (CHEMICAL): [13770. 13772] Purvis. 1907-9. [15178] Swan. 1856. [15481-2] Watts. 1873-1906. [S 1664] Angström et Thalén. 1875.
- (GENERAL): [616] Browning. 1882. [679] Capron. 1877. [903] Crookes. 1883. [2224] Kayser. 1883. [2518] Lefèvre. 1896. [2667. 2669] Lockyer. 1873-8. [3831] Proctor. 1888. [4071-5] Roscoe. 1869-85. [4243-6] Schellen. 1871-85. [5272-3] Watts. 1872-89. [6546] Browning. 1882. [6714] Capron. 1877. [7102] Crookes. 1884. [7276] Dibbits. 1863. [8783] Hagenbach et Konen. 1905. [8914] Harper's Scientific Memoirs. 1898. [9004-5] Hasselberg. 1878-85. [9865-6. 9874-6. 9878-9] Jones. 1907-12. [9974] Kahlbaum. 1888. [10136-8] King. 1908-9. [10178-80] Kirchhoff. 1861-6. [10893-6] Liveing. 1895-1901. [10958. 10960] Lockyer. 1873-94. [11869-70] Miller. 1862-3. [12978] Parry. 1885. [13260. 13262] Phipson. 1869. [13499] Ponton. 1860. [14104] Respighi. 1886. [14448-50] Roscoe. 1870-85. [15223-5] Thalén. 1868-85. [15476-82] Watts. 1872-1906. [15620] Edinburgh Essays. 1770-1. [16939] Baly. 1905. [17090] Kayser. 1900-12. [S 1699] Baur. 1907.
- *v. Fraunhofer's Lines. Optics (Magneto-). Zeeman Effect.*
- (MICRO-): [4680] Suffolk. 1873. [7099] Crookes. 1869.
- SPECTRUM (SOLAR): [2822] Marci de Kronland. 1648. [3249-55] Newton. 1704-40. [7444] Edinburgh Essays. 1754-71. [12534-53] Newton. 1704-87.
- *v. Fraunhofer's Lines. Light, Dispersion of.*
- , CHEMICAL EFFECT OF THE: [1143] Eder. 1883.
- SPECULATIONS (SCIENTIFIC): [14802-3] Sedgwick. 1882-96. [15140] Stromeayer. 1911.
- *v. Astronomical S. Crystallization, S. on. Electricity, Theory of, S. on the. Ether Theories. Fourth Dimension. Gravitation, Hypotheses of Light, Theory of, S. on the. Magnetism, S. on. Heat, Theory of, S. on the. Mathematical S. Music, Theory of, S. on the. Physical S. Polarity, Causes of. Space and Time.*
- SPHERE, GEOMETRY OF THE: [4916] Torricelli. 1644. [9508] Howard. 1798. [14129] Reve. 1885. [15229-30] Theodosius Tripolita. 1558-86. [15322-3] Torricelli. 1644. [15831] Calinon. 1888. [15991] Fielder. 1882. [16117] Heger. 1908. [SS 890-1] Theodosius. 1558.
- (CELESTIAL), DOCTRINE AND USE OF THE: [499] Boulanger. 1650-1. [952] Danti. 1572. [2914] Mauro. 1550. [3910] Recorde. 1556. [5456] Witty. 1734. [7948] Flamsteed. 1680. [10099] Kepler. 1618. [11469] Martin. 1762 [11642-3] Mauro. 1550. [11646] Maurolico. 1575. [12346] Naibod. 1580. [13693. 13696] Proclus. 1536-73. [14284] Rivard. 1804. [14379] Rochemore. 1769. [15096] Stöffer. 1534. [15457] Ward. 1742. [S 1362] Autolycus. 1885. [SS 1011] Blundeville. 1597. [SS 1016] Boulenger. 1628. [SS 1032-3] Cavalieri. 1682-90. [SS 1185] Micalori. 1626. [SS 1341] Wright. 1613. [SS 1357] Blaeu. 1632.
- *v. Cosmography.*
- SPHERE (EIGHTH CELESTIAL), MOTION OF THE—*v. Primum Mobile.*
- , PROJECTION OF THE: [3088] Morgan. 1836. [7552. 7562] Emerson. 1749. [10040-1] Keith. 1820-45. [10360] La Caille. 1750. [12107] Morgan. 1836. [12353] Narrien. 1845. [15352] Turner. 1750-2. [16523] Richter. 1908.
- *v. Dialling.*
- SPHEROIDAL STATE: [6390] Boutigny. 1857.
- SPINNING: [5705] Alcan. 1864-5. [6755-6] Carter. 1904-7. [10684] Leggatt. 1893. [11150] M. (J.). 1832. [12031] Montgomery. 1836. [13576] Powell. 1661. [15171] Sutcliffe. 1816. [S 3145] Walmley. 1893.
- *v. Carding. Cotton. Silk. Textile Fibres.*
- JENNY: [5596-9] Zona. 1607-56.
- TOP, THEORY OF THE: [10195] Klein und Sommerfeld. 1897-8. [11670] Maxwell. 1857. [13160] Perry. 1890. [17000-1] Crabtree. 1909-14.
- *v. Gyroscope.*
- SPIRAL (LOGARITHMIC): [4916] Torricelli. 1644. [12676] Nicolas. 1696-7. [15322-3] Torricelli. 1644.
- SPIRALS: [6376] Boulliau. 1657. [10491] Lancken Matthes. 1857. [13196] Pfaff. 1832.
- *v. Helicoidal Apparatus.*
- SPODUMENE: [9966] Julien. 1879.
- SPRINGS (HOT)—*v. Thermal S.*
- , ORIGIN OF: [285] Bartholinus. 1703. [4977] Tyndall. 1872. [13940-1] Ray. 1693-1721. [SS 2228-30] Barlow. 1715-22. [SS 2254] Dalton. 1799.
- *v. Lakes, O. of. Rivers, O. of.*
- SQUARE (CARPENTER'S): [14732-3] Schoner. 1614.
- (GEOMETRICAL): [1055] Digges. 1625. [3563] Peuerbach. 1516. [4275] Schott. 1669. [8051-2] Foster. 1659. [S 647-50] Digges. 1556-1656. [SS 496] Henrion. 1621. [SS 512-14] Hulsius. 1603-15. [SS 648] Merliers. 1579. [SS 3069] Schuler. 1622.
- *v. Quadrat.*
- SQUARES AND CUBES, TABLES OF: [272] Barlow. 1875. [5994] Barlow. 1814. [7319] Dobson. 1858. [10564] Laundy. 1856. [SS 220] Blater. 1888. [SS 627] Magini. 1592.
- STAR ATLASES AND MAPS: [173] Astronomical Diagrams. c. 1870. [1051] Dien. 1877. [1080] Doppelmayr. 1742. [1349] Flamsteed. 1776. [1840] Heath. 1903. [1844] Heis. 1872. [1902] Herschel. 1847. [1904] Herschel and South. 1825. [2171] Johnston. 1856. [2312] Klein. 1893. [2785] Malby. 1859. [2831] Marsh. 1833. [3812. 3821. 3830. 3832-3] Proctor. 1867-79. [5019] Urania's Mirror. c. 1830. [5824] Argelander. 1843. [6063] Bazley. 1878. [6809] Cellarius. 1660-1708. [7045] Cottam. 1889. [7337-8] Doppelmayr. 1742. [7406-7] Dunkin. 1869-70. [7951] Flamsteed. 1795. [11179] McEwan. 1910. [13710. 13718] Proctor. 1896-1908. [15348] Turner. 1912. [15617-18] Bayer. 1603. [16824-5] Ball. 1905-10. [16839] Dien. 1897. [16854-5] Heis. 1872-8. [16871] Klein. 1888. [16881] McKready. 1912. [16887] Messer. 1902. [16888] Milham. 1909. [16899] Peck. 1890. [16903-4] Proctor. 1870-4. [S 1419] Cottam. 1891. [S 1445] Flamsteed. 1781. [S 1473] Hagen. 1899-1908. [S 1582] Proctor. 1896. [S 1610] Sternkarten. 1859. [SS 1001] Bayer. 1654.
- *v. Planisphere. Star Maps (Early).*
- CATALOGUES: [59] Airy. 1862-76. [90] Alphontius. 1483. [233-4. 240-1] Baily. 1827-45. [595] Brisbane. 1835. [1350] Flamsteed. 1725. [1525] Gilliss. 1895. [1530-2]

STAR CATALOGUES, *continued* :

- Gill. 1883-1902. [1538] Gill and Kapteyn. 1896-7. [1609] Gould. 1879. [2091] Innes. 1899. [3214] Newcombe. c. 1880. [3612] Piazzzi. 1903. [3847-52] Ptolemaeus. 1515-1816. [3870] Radcliffe Catalogue. 1870. [4139] Rümker. 1843-4. [4475] Smyth. 1844. [4520] South. 1826. [4624-6] Stone. 1873-81. [5469] Wollaston. 1789. [5543-4] Yarnall. 1870-8. [5921] Baily. 1845. [6441] Brahe. 1666. [6510] Brisbane. 1835. [7513] Ellery. 1874. [7711] Evans. c. 1900. [7949-50]. 7952-3] Flamsteed. 1729-1837. [8051-2] Foster. 1659. [8186] Furness. 1905. [8406-13] Gill. 1883-1906. [8428] Gill and Kapteyn. 1896-1903. [8578] Grant. 1883. [8650] Greenwich Observations. 1904-8. [8826] Halley. 1679. [9086] Hedrick. 1905. [9235] Herschel. 1847. [9823] Johnson. 1835. [10419] Lalande. 1847. [11271] Madras Observatory. 1899. [12464] Newcomb. 1881. [13822] Radcliffe Observatory. 1894-1906. [13851] Rambaut. 1887. [14090-1] Respighi. 1880-5. [14225] Richardson. 1835. [14266] Ristenpart. 1906. [14362]. 14364] Robinson. 1878-86. [14390]. 14392] Rogers. 1882-6. [15214] Taylor. 1844. [15627] Burnham. 1906. [S 1357-8] Argelander. 1835-86. [S 1364] Auwers. 1903. [S 1383] Boss. 1910. [S 1605] Searle. 1912. [S 3559] Groombridge. 1838. [SS 1305] Snell. 1618.
- *v. Astronomical Tables.*
- CLUSTERS—*v. Nebulae.*
- COLOURS—*v. Stellar Chromatics.*
- CONSTANTS : [4627] Gill. 1877.
- CORRECTION TABLES : [7910] Finlay. 1895.
- GUIDES : [6915] Clark and Sadler. 1886. [16824-5] Ball. 1905-10. [16869] Klein. 1892. [16881] McKeady. 1912. [16886] Maunder. 1904. [16888] Milham. 1909. [18907] Rudaux. 1909.
- MAPS (EARLY) : [3625-9. 13296-9] Piccolomini. 1540-79. [15617-18] Bayer. 1603.
- MEASUREMENT—*v. Astrometry.*
- NAMES : [88] Allen. 1899.
- *v. Constellations.*
- PHOTOGRAPHS : [14295-6] Roberts. 1894-8. [16921] Wolf. 1908. [S 1598] Roberts. 1894-9.
- STARCH : [5971] Baranetzky. 1878. [7023] Corput. 1857. [8096] Frankel. 1881. [13258] Phipson. 1855-6.
- STARGAZING : [2138] Jenkins. 1869. [2668] Lockyer. 1878. [2906] Maunder. 1902. [10959] Lockyer. 1878. [13235] Phillips. 1809. [13698] Proctor. 1896. [16886] Maunder. 1904.
- *v. Astronomy (Popular). Astronomy (Practical).*
- STARS (CIRCUMPOLAR) : [8186] Furness. 1905.
- (DOUBLE) : [909] Crossley. 1879. [1518] Giacomelli. 1890. [1686] Grossmann. 1892. [2091] Innes. 1899. [2110] Jacob. 1846. [5544] Yarnall. 1870. [6241] Bishop. 1852. [6530] Brothers. 1867. [6632] Burnham. 1880. [7066-7] Crawford. 1876. [8476-7] Glasenapp. 1889-99. [8512] Goos. 1908. [9194] Herschel. 1784. [11653] Maw. 1892. [12682] Niesten. 1879. [13151] Perry. 1880-4. [13746] Przybyllok. 1908. [15123] Stoney. 1900. [S 1393-4] Burnham. 1881-1906. [S 1615] Struve. 1878-1901.
- (FLAMSTEED'S, 'OBSERVED BUT NOT EXISTING') : [13168] Peters. 1885.
- (NEW) : [2274] Kepler. 1606. [7289] Digges. 1573. [SS 1017] Brahe. 1610. [SS 1045-6] Colombe. 1606-8. [SS 1346] Zololi. 1619.
- (SHOOTING)—*v. Meteors.*

- STARS (VARIABLE) : [153] Argelander. 1844. [2274] Kepler. 1606. [8508] Goodricke. 1785. [9200. 9205] Herschel. 1796. [10860] Lindemann. 1852. [13305. 13308] Pickering. 1881. [13338-9] Pigott. 1784-6. [S 1473] Hagen. 1899-1908.
- (ZODIACAL) : [5022] Baily. 1827. [9086] Hedrick. 1905.
- STATE, CHANGE OF : [13580] Poynting. 1881. [13874] Ramsey and Young. 1884. [14328] Roberts-Austen. 1886.
- STATES OF MATTER—*v. Matter, States of.*
- STATISTICS : [1138] Earnshaw. 1845. [3003-4] Minchin. 1884-9. [3673-4] Poinsot. 1848-61. [4585] Stevinus. 1586. [9171] Hermann. 1716. [9822] Johnson. 1903. [11904-8] Minchin. 1880-6. [11962] Moebius. 1837. [12033] Monte. 1588. [13460-4] Poinsot. 1824-77. [15082-3] Stevinus. 1586. [16931] Antomari. 1897. [17017] Earnshaw. 1845. [17105] Lamb. 1912. [17144] Minchin. 1889-96. [17172. 17174] Petersen. 1882.
- *v. Mechanics.*
- (ANALYTICAL) : [4101-2] Routh. 1891-1902. [4898-9] Todhunter. 1858-66. [5344] Whewell. 1833. [8547] Graham. 1883. [14514] Routh. 1891-2. [17051] Graham. 1887. [17253] Todhunter. 1887.
- (ELEMENTARY) : [484] Bossut. 1772. [2867] Martino. 1727. [3051] Monge. 1835. [4458] Smith. 1869. [8617-18] Greaves. 1886-8. [12020] Monge. 1846. [17115. 17117] Loney. 1904-12. [SS 1805] Jordanus. 1533.
- (GRAPHIC) : [746] Chalmers. 1881. [3406] Ott. 1888. [4464] Smith. 1889. [6055] Bauschinger. 1871. [6925] Clarke. 1880. [7078] Cremona. 1890. [8547] Graham. 1883. [9822] Johnson. 1903. [10784] Lévy. 1874. [11669] Maxwell. 1876. [12865] Ott. 1885-91. [14297-80] Ritter. 1879-86. [16968] Bourlet. 1910. [17022] Ewerding. 1912. [17051] Graham. 1887. [17071] Henneberg. 1911. [17072] Herrmann. 1904. [17079] Hoskins. 1899. [17108] Lauenstein. 1904. [17112] Lévy. 1886-8. [17163] Ott. 1879-85. [17222] Schotke. 1902. [17250] Timerding. 1910. [S 1775] Cathcart and Chaffee. 1911. [S 1833] Culmann. 1880. [S 1859] Eddy. 1878. [S 3476] Hess. 1915.
- *v. Calculus (Graphical). Dynamics (Graphical). Graphic Methods.*
- (APPLICATIONS) : [17216] Ritter. 1888-1900. [S 3393] Chalmers. 1881.
- STATISTICAL METHOD : [16211] King. 1912.
- STATISTICS (MATHEMATICAL) : [15778] Bowley. 1907. [16809] Zeuner. 1869.
- (VITAL) : [4870] Toaldo. 1787. [12415] Neison. 1845. [12489] Newsholme. 1889.
- *v. Mathematics (Insurance).*
- STEAM (SUPERHEATED)—*v. Superheating.*
- CONDENSATION OF : [6617] Burgh. 1871. [9477] Hospitalier. *v. y.*
- EXPANSIVE FORCE OF : [S 2533] Käntz. 1826. [SS 1636] Dalton. 1802.
- TENSION OF : [12210] Mossotti. 1837.
- USE OF : [4712] Tack. 1834.
- BOILERS—*v. Boilers (Steam).*
- CARRIAGES : [4935] Tredgold. 1835. [5551] Young. 1860. [7978-9] Fletcher. 1891-1904. [8246] Galloway. 1834. [8524] Gordon. 1836. [11525] Mary. 1833. [15334] Trevithick. 1872. [SS 3014-15] Gordon. 1834. [SS 3084] Steam Carriages. 1831.
- * * * A collection of such books will be found in Messrs. Sotheran's Bibliotheca Viatica.

STEAM ECONOMY: [13124] Perkins. c. 1840.

— *v. Fuel Economy.*

— ENGINE, ELEMENTARY WORKS ON THE: [1588-9] Goodeve. 1879-91. [5163] Walker. 1908. [9409] Holmes. 1887-8. [9748] Jamieson. 1892. [10486] Langmaid and Gaisford. 1893. [10529] Lardner. 1848. [11798] Metcalf. 1905. [13161] Perry. 1904. [17345] Holmes. 1894-1902.

—, HISTORY OF THE: [3472] Partington. 1822. [4659-63] Stuart. 1824-9. [6629-30] Burn. 1854-60. [7724-5] Ewbank. 1851-70. [7803] Farey. 1827. [8245-6] Galloway (E.). 1827-34. [8249] Galloway (R. L.). 1881. [8771] Hachette. 1830. [11588-9] Matschoss. 1901-8. [11874] Millington. 1830. [12987-9] Partington. 1822-38. [15293-4] Thurston. 1879-83.

—, LECTURES ON THE: [5017] Unwin. 1868. [12986] Partington. 1826.

—, PRACTICAL WORKS ON THE: [2999] Milne. 1830. [4012-13] Rigg. 1878. [5655] Adcock. 1839. [8888] Hann and Gener. 1854. [10145] King. 1875. [11737] Melville. 1890-1902. [11894] Milne. 1830. [12752-3] Northcott. 1877-89. [14141-2] Reynolds. 1881-98.

—, THEORY OF THE: [3445. 12929-30] Peabody. 1839-44.

—, THERMODYNAMICS OF THE: [13035] Peabody. 1906. [SS 2020] Regnault. 1847.

—, TREATISES ON THE: [509] Bourne. 1862-6. [1751] Hallauer. 1878-81. [1954] Hodge. 1849. [3474] Partington. 1822. [3896] Rankine. 1885. [4852] Thurston. 1893-4. [4937-8] Tredgold. 1838-53. [5655] Adcock. 1839. [6387-8] Bourne. 1846-61. [6629-30] Burn. 1854-60. [6909] Clark. 1890-1. [7728] Ewing. 1894. [8825] Hallauer. 1878-81. [9349] Hodge. 1849. [9749-52] Jamieson. 1888-1906. [10530-3] Lardner. 1836-51 [12987-9] Partington. 1822-38. [13733] Prony. 1790-6. [13900] Rankine. 1874. [14263] Ripper. 1899. [14592] Russell. 1841. [14966] Snow and Leland. 1908. [17338] Ewing. 1910. [17340] Goodeve. 1891. [17352] Rankine. 1897.

— *v. Governor (Steam). Heat. Indicator Diagrams. Locomotive. Marine E. Vapour.*

— ENGINEERING: [12767] Nystrom. 1876. [13768] Pullen. *n.d.* [14987] Spangler, etc. 1903.

— ENGINES (EARLY): [289] Bate. 1634-54. [560] Branca. 1629. [730] Caus. 1615. [1017-18] Desaguliers. 1734-44. [1875-6] Hero Alexandrinus. 1575. [3714. 3717] Porta. 1601-6. [4047-8] Robison. 1822. [4427. 4429-30] Smeaton. 1812-14. [4599] Stewart. 1767. [5257-60] Watt. 1854. [5505-8] Worcester. 1663-1825. [6043-4] Bate. 1634. [6684] Cambray-Digny. 1766. [6777] Caus. 1704. [7237] Desaguliers. 1734-44. [9175-8] Hero Alexandrinus. 1575-1647. [10489] Langsdorf. 1787. [11296-7] Maillard. 1783-4. [12911] Papin. 1682. [12932] Papin. 1698. [13533-4] Porta. 1601-6. [14368-70] Robison. 1822. [14688-9] Savery. 1698-1880. [14916] Smeaton. 1814. [15335] Triewald. 1734. [S 3419] Dobrzanski. 1657. [S 3673] Watt. 1818. [SS 30] Bate. 1631. [SS 2968] Bramah. 1797. [SS 2987] Craddock. 1847. [SS 3014-15] Gordon. 1834. [SS 3083] Sorbiere. 1666.

— (HIGH-PRESSURE): [13125-6] Perkins. 1877-81.

— (SPECIAL TYPES): [3636] Pilbrow. 1841. [13991] Reech. 1844. [17358] Volkert. 1898-1900.

—, DESIGN OF: [9343] Hobbs. 1907.

— HAMMER: [4282] Schryver. 1882.

STEAM NAVIGATION, EARLY HISTORY OF: [2019] Hull-mandel. 1835. [2824] Marestier. 1824. [4010] Rigaud. 1838. [4087-8] Ross. 1828. [4224] Savery. *fs. of* 1698. [4571] Steam Navigation. 1858. [6582] Buchanan. 1816. [6946] Claxton. 1845. [7320] Dodd. 1818. [7753] Fairbairn. 1831. [8246] Galloway. 1834. [8802] Hale. 1868. [9425] Holt. 1878. [9684] Isherwood. 1859. [11413] Marestier. 1824. [11863] Miller. 1825. [12335] Napier. 1912. [12986-9] Partington. 1822-38. [13606] Prehle. 1883. [13834] Railway Magazine. 1835-9. [13990] Reech. 1844. [14485] Ross. 1838. [14592] Russell. 1841. [14688-9] Savery. 1698-1880. [14793] Seaward. 1841. [15200] Talbot. 1912. [15328] Tourasse et Mellet. 1828-9. [15334] Trevithick. 1872. [S 3833] Woodcroft. 1848.

— TABLES: [14940] Smith. 1913. [SS 2020] Regnault. 1847.

— TURBINES—*v. Turbines (Steam).*

STEEL (STRUCTURAL): [SS 2901] Campbell. 1896.

— (TOOL): [S 3169] Brearley. 1911.

—, CORROSION OF: [S 3212] Cushman and Gardner. 1910. [S 3231] Friend. 1911. [S 3253] Hudson. 1913.

—, METALLURGY OF: [327] Bell. 1884. [1406] Fraxno. 1850. [2136] Jeans. 1880. [3398] Osborn. 1869. [3416] Overman. 1854. [3541] Percy. 1864. [3917] Réaumur. 1722. [4412] Skelton. 1891. [4565] Stansbie. 1907. [5287] Webster. 1856. [5730] Alleyne c. 1872. [6108] Bell. 1884. [7441] Ede. 1863. [7477-8] Eisenhüttenwesen. 1902-6. [7745] Fairbairn. 1869. [8644] Greenwood. 1900. [9299] Hind. *n.d.* [9307-8] Hiorns. 1895-1903. [9518] Howe. 1904. [9772] Jeans. 1880. [9849] Jones. 1911. [12319] Mushet. 1840. [12840] Overman. 1850. [13113] Percy. 1864. [13138] Perret. 1779. [13971-2] Réaumur. 1722. [14331] Roberts-Austen. 1889. [14686] Sauveur. 1912. [S 3198] Campbell. 1904. [S 3237] Grenet. 1911. [S 3245] Harbord. 1905. [S 3247] Hassenfratz. 1812. [S 3253] Hudson. 1913. [S 3262] Jars. 1774-81. [S 3336] Woodworth. 1903. [SS 2919] Giolitti. 1914. [SS 2957] Schafhäütl. 1847.

— *v. Bessemer Process. Blast Furnace. Furnace (Regenerative Gas). Tungsten.*

—, PRESERVATION OF: [S 3212] Cushman and Gardner. 1910.

—, PROPERTIES OF: [10183-7] Kirkaldy. 1862-1870. [15166] Styffe. 1869. [S 3198] Campbell. 1904.

— MANUFACTURE, SECRETS OF: [13961] Recken. 1839.

— *v. Razors.*

— STRUCTURES: [3547] Perissé. 1884. [9141] Henrici. 1866.

STELLAR CHROMATICS: [4480-1] Smyth. 1864. [9200. 9205] Herschel. 1796.

— LUMINOSITY: [6462] Brestler. 1888.

— MOTIONS: [9205] Herschel. 1796. [16832] Campbell. 1913.

— PARALLAXES—*v. Parallaxes (S.).*

— PHOTOMETRY—*v. Photometry (S.).*

STEREOCHEMISTRY—*v. Chemistry (Stereo-).*

STEREOSCOPE (THE) AND STEREOSCOPY: [614] Brown. 1903. [4435] Smece. 1854. [5338-9] Wheatstone. 1852-79. [6478-80] Brewster. 1856-70. [10146] Klieffel. 1863. [10886] Lissajous. 1738. [11011] Lonie. 1856. [13626] Prévost. 1843. [15516] Wheatstone. 1879. [17165] Parinaud. 1904.

— *v. Photography (Stereoscopic).*

- STEREOTOMY: [480] Bosse. 1643. [1420] Frezier. 1737-8. [2553] Leroy. 1844. [3630] Pierre de Ste. Marie Magdelaine. 1680. [7316-17] Dobson. 1849. [11551] Masonry. 1847. [16295] Leroy. 1890.
- STOICHIOMETRY: [3401] Ostwald. 1891. [13861] Rammelsberg. 1842. [15506] Wenzel. 1782. [17299] Biehringer. 1900. [S 2955-6] Young. 1908.
- STONE CUTTING—*v. Stereotomy.*
- STORM WARNINGS: [4310-11] Scott. 1876-87.
- STORMS, THEORY OF: [71] Alembert. 1747. [221] Baddley. 1860. [452] Bohun. 1671. [1091] Dove. 1862. [1313] Faye. 1897. [1337] Finley. 1885. [2859] Martin. 1852. [3054] Montanari. 1694. [3621-2] Piddington. 1860-9. [3949-54] Reid. 1838-50. [4318] Sedgwick. 1852. [4914-15] Torricelli. 1715. [5133-4] Vossius. 1663. [5910-11] Bacon. 1653-62. [6296-7] Bohun. 1671. [6712] Capper. 1801. [7131] Cyclone Memoirs. 1890-3. [8125-8] Franklin. 1754-74. [8907] Hare. 1836. [10715-16] Le Monnier. 1781-8. [11012] Loomis. 1859. [11511] Martin. 1852. [12027] Montanari. 1694. [13320] Piddington. 1869. [14009] Reid. 1838. [14492] Rosser. 1876. [14533-5] Rowell. 1840-87. [15332] Toynbee. 1882. [S 2504] Dove. 1873.
- *v. Meteorology (Dynamic). Winds, Theory of.*
- STRAIGHT LINE, DRAWING OF A—*v. Linkages.*
- LINES: [12332] Nagel. 1882. [15831] Calinon. 1888.
- STRAINS (STRUCTURAL): [694] Cargill. 1873. [4369] Sheilds. 1861. [4620] Stoney. 1873. [6299] Bois. 1890.
- *v. Iron, Overstrains in.*
- STRENGTH OF MATERIALS: [101] Anderson. 1872. [243] Baker. 1870. [273] Barlow. 1837. [319] Bélanger. 1862. [2164] Johnson. 1897. [4931-4] Tredgold. 1822-46. [4055] Turnbull. 1831. [5221-2] Warr. 1851. [5479] Wood. 1871. [5985, 6002] Barlow. 1826-51. [6069] Beardslee. 1879. [6363] Bosscha. 1857. [7729] Ewing. 1903. [8731] Guest. 1900. [9351-2] Hodgkinson. 1846. [9782] Jenny. 1878. [10182-7] Kirkaldy. 1862-91. [11823] Michælis, *s.d.* [12146] Morin. 1857. [12407] Navier. 1864. [13369] Pisati e Saporito. 1877. [14123] Revere. 1910. [14807] Seguin. 1826. [15343] Turnbull. 1832. [15362] Unwin. 1888. [S 3341] Andrews. 1915. [S 3365] Bovey. 1900. [S 3366] Box. 1893. [S 3381] Burr. 1915. [S 3496] Johnson. 1905.
- *v. Elasticity. Engineering Testing.*
- : HISTORY OF THE THEORY: [4891-2, 17251] Todhunter and Pearson. 1886-93.
- STRESSES, THEORY OF: [5016] Unwin. 1868. [5431] Williamson. 1894. [S 2037] Kelvin. 1856. [S 3635] Stoney. 1886.
- STRONTIUM: [970] Davy. 1808. [15287] Thorpe and Francis. 1910.
- STRUCTURAL DESIGN: [109] Anglin. 1891. [S 3476] Hess. 1915. [S 3608] Scott-Moncrieff. 1897-8.
- STRUCTURES, EQUILIBRIUM OF: [5221-2] Warr. 1851.
- , THEORY OF: [S 3365] Bovey. 1900.
- STUDY AND TEACHING OF SCIENCE: [5426] Williamson. 1870. [9358] Hodson. 1909. [15318] Torraca. 1784.
- *v. Algebra, T. of. Chemistry, T. of. Mathematics, T. of. Physics, T. of.*
- STURM'S THEOREM: [5565] Young. 1841. [8380] Ghijben. *c.* 1836.
- STYRACINE: [13841] Ramdohr. 1857.
- SUBSTITUTION THEORY (CHEMICAL): [2483-4] Laurent. 1854-5. [7394] Dumas. 1840. [10571-3] Laurent. 1843-55.
- SUBSTITUTIONS, THEORY OF: [2156] Jevons. 1869. [9904] Jordan. 1870. [16138] Hilton. 1914. [16193] Jordan. 1870. [16428] Netto. 1908. [16693] Study. 1893.
- *v. Groups of Substitutions.*
- SUCCINIC ACID: [11688] Mayer. 1898. [13272] Phipson. *n.d.*
- SUCCINYLPHENYLAMIDE: [3422] Hoogewerf en van Dorp. 1890.
- SUGAR: [1429-30] Frühling. 1903. [2640] Lippman. 1895. [2815] Maquenne. 1900. [3523] Péligot. 1838. [3720] Porter. 1830. [4011] Rigby. 1788. [4140] Rümpfer. 1898. [4300] Scoffern. 1849. [4599] Stewart. 1767. [4681] Sugar. 1828. [5270] Watts. 1893. [5401] Wiechmann. 1890. [5512] Wray. 1848. [7377] Dubrunfaut. 1825. [7713] Evans. 1847. [9856] Jones. 1832. [9889] Jones and Scard. 1909. [10582] Lawes. 1898. [10877] Ling and Rendle. 1905. [10933] Lock, etc. 1882. [11384] Maquenne. 1900. [11419] Marggraf 1767-8. [11740] Melsens. 1849. [12195] Moseley. 1800. [13539-40] Porter. 1830-43. [13545] Post et Neumann. 1910. [14432] Ronna. 1869. [S 3081] Lippmann. 1904.
- *v. Glucose. Saccharometry.*
- MACHINERY: [6620] Burgh. 1863.
- SULPHATES: [8554] Graham. 1837.
- SULPHIDES (METALLIC): [6089] Becquerel. 1840.
- (PHOSPHORESCENT)—*v. Phosphorescent S.*
- AS FUEL: [9406] Hollway. 1879.
- SULPHUR: [4328-9] Sendivogius. 1650-71. [4516] Sorel. 1902. [12357] Nasini e Costa. 1891. [13367] Pisati. 1877. [14814-15] Sendivogius. 1639-50.
- SULPHURETTED HYDROGEN: [13254] Phipson. *n.d.* [14697-8] Scheele. 1780-6.
- SULPHURIC ACID: [10032] Keir. 1787. [11097-8] Lunge. 1888-1903. [13310] Pickering. 1892. [14563-4] Rücker. 1891-2. [15464-6] Watson. 1791-1800. [SS 2637] Wuttig. 1815. [SS 2805] Lunge. 1903.
- SULPHUROUS ACID: [3790-1] Priestley. 1774-7.
- *v. Hyposulphites.*
- SUMS AND DIFFERENCES, RELATIONS BETWEEN: [8892] Hansen. 1865.
- SUN: [257-8] Ball. 1893. [2469] La Rue, etc. 1854-8. [2662-3] Lockyer. 1874-87. [3834-6] Proctor. 1871-6. [4316-17] Secchi. 1870-7. [5547] Young. 1882-3. [5061] Ball. 1893. [9201] Herschel. 1794. [10951-2, 10957] Lockyer. 1874-87. [11715] Meibauer. 1866. [12359] Nasmyth. 1861. [13502] Poor. 1905. [14092, 14097-8, 14100, 14105] Respighi. 1870-85. [14436] Rosa. 1874. [14847] Siemens. 1883. [S 1342] Abbot. 1912.
- *v. Solar. Zodiacal Light.*
- (ELLIPTIC): [SS 1287] Scheiner. 1615-17.
- SPOTS: [706, 6748] Carrington. 1863. [7529] Ellis. 1906. [8215-17] Galilei. 1613. [9235] Herschel. 1847. [9530] Huggins. *c.* 1867. [10951] Lockyer. 1887. [11620-1] Maunder. 1904-5. [SS 1288] Scheiner. 1612. [SS 1706-8] Galilei. 1612.
- SUN'S INFLUENCE ON AIR: [2913] Maurice. 1732.
- ROTATION—*v. Solar Theory.*
- SUPERHEATING: [1815] Hauvel. 1880. [8196] Gairns. 1907.
- *v. Boiler Explosions. Steam.*
- SUPERNATURAL IN NATURE: [11440] Reynolds. 1878.

- SUPERSTITION AND SCIENCE:** [11312] Maitland. 1855.
— *v. Occultism in Science.*
- SURFACE** (KUMMER'S): [2013, 16168] Hudson. 1905. [SS 230] Borchardt. 1888.
— TENSION: [13817] Quincke. 1901.
— *v. Bubble Formation. Capillarity. Films. Soap Bubbles.*
- SURFACES (ALGEBRAIC):** [S 619] Darboux. 1872.
— (PSEUDO): [16176] Issaly. 1902.
— (RECIPROCAL): [4183] Salmon. 1857.
— (RIEMANN'S): [15688] Appell et Goursat. 1895. [16150] Hofmann. 1888. [16433] Neumann. 1885.
— (SYMMETRICAL): [S 867] La Gournerie. 1867.
— (VIBRATING ELASTIC): [1288, 7769] Faraday. 1859.
— (TOPOGRAPHICAL): [16184] Javary. 1903.
— (TRAJECTORY): [S 968] Mannheim. c. 1873.
— DIVISION OF: [11190] Machometo Bagdedino. 1570. [SS 615] Machometus. 1570.
— DYNAMICS OF: [17135] Michaelis. 1909.
— THEORY OF: [3436] Painvin. 1866. [7169] Darboux. 1889-96. [9779] Jellett. 1853. [10332] Kummer. 1863. [10446-7] Lamé. 1843. [10657] Lecorne. 1887. [11165] McCullagh. 1844. [12017] Monge. 1807. [12704] Noether. 1888. [13066] Pellet. 1878. [14307, 14309-11] Roberts. 1870-3. [14646-8] Salmon. 1865-82. [15718] Basset. 1910. [15747] Blythe. 1905. [15831] Calinon. 1895. [15876] Clebsch. 1875-91. [15904] Cremona. 1870. [15913] Darboux. 1887-96. [15969] Eisenhart. 1909. [16004] Forsyth. 1912. [16041] Gauss. 1870. [16185] Joachimsthal. 1881. [16233] Knoblauch. 1888. [16237-8.] Kommerell. 1903-11. [16507] Raffy. 1897. [16515] Résal. 1891. [16610] Schröter. 1880. [16792] Wileczynski. 1906. [SS 341] Cremona. 1870. [SS 483] Hesse. 1897. [SS 860] Steiner. 1832.
— *v. Curvature.*
- SURVEYING:** [291] Bartoli. 1564. [897] Crocker. 1806. [1055-7] Digges. 1625-91. [1339] Firebrake. 1871. [1522] Gibson. 1768. [1671] Gribble. 1891. [1767] Hammond. 1731. [1804] Hartner e Wastler. 1894. [1870] Henry. 1895. [1975] Holwell. 1678. [2588-91] Leybourn. 1653-1722. [2705-6] Love. 1715-68. [2793-4] Mandey. 1717-27. [2947] Merett. 1897. [3018] Mitchell. 1827. [3904] Rathborne. 1616. [3943] Reid. 1859. [4413] Skrimshire. 1901. [4587] Stevinus. 1618. [5393] Whitelaw. 1906. [5442] Wilson. 1732. [5447-8] Wing. 1666-1700. [5539] Wyld. 1769. [5948] Baker. 1875. [6023-4] Bartoli. 1564-1614. [6049] Bauernfeind. 1890. [6122] Belli. 1595. [6456] Breed and Hosmer. 1906. [6633] Burns. 1771. [6765] Castle. 1847. [6770] Cataneo. 1608. [6772-3] Catini. 1559. [7286-8] Digges. 1571-91. [7542] Emerson. 1770. [7877] Fiammelli. 1605. [8242] Galli. 1694. [8396] Gillespie. 1875. [8686-7] Gribble. 1891-7. [9183] Hero Mechanicus. 1572. [9405] Holliday. 1838. [9456] Hopton. 1611. [9469] Hoskold. 1863. [9696] Jackson. 1880. [9821] Johnson. 1900. [10249] Köbel. 1563. [10708] Leigh. 1578. [10805-8] Leybourn. 1653-74. [11207] Mackenzie. 1908. [11438] Markham. 1878. [11486] Martin. 1766. [11767-9] Merrett. 1881-93. [12422-4] Nesbit. 1847-77. [13092] Penna. 1643. [13203] Philipps. 1721. [13293] Picard. 1692. [13331] Pifferi. 1695. [13541] Porter. 1799. [13925-7] Rathborne. 1616. [14569] Rudolf. 1813. [14734-5] Schooten. 1657. [14751] Schriften. 1848-52. [15046] Stevenson. 1810. [15581] Wilson (H.). 1755.
- SURVEYING, continued:**
[15583] Wilson (H. M.). 1902. [15587] Wing. 1700. [16110] Hartner and Wastler. 1904-5. [SS 205] Belli. 1570. [SS 251] Burckhard. 1687. [SS 580] Leigh. 1592. [SS 742] Pomodoro. 1599.
— *v. Geodetic Surveys. Levelling. Mine S. Quantity S. Railway S.*
— (MILITARY): [9688-9] Jackson. 1838-60. [11853] Militär-geographisches Institut. 1884-1902.
— (NAUTICAL): [323] Belcher. 1835. [190] Dawson. 1833. [4050] Robson. 1834. [5337] Wharton. 1909. [5737-8] Alston. 1860-1902. [10563] Laughton. 1872. [15063] Stevenson. 1842. [S 3820] Shortland. 1890.
— (PHOTOGRAPHIC): [1039] Deville. 1895. [10667] Lee. 1899. [13016] Paté. 1862. [15583] Wilson. 1902.
— (TRIGONOMETRICAL): [2123, 2126] James. 1858-68. [2791] Malortie. 1820. [3134-6] Mudge, etc. 1799-1811. [3440] Palmer. 1873. [4118-20] Roy. 1785-90. [4956] Turnbull. 1849. [5157-8] Walker. 1863-6. [7596] Ergebnisse. 1901-6. [8165-6] Frome. 1850-62. [12245] Mudge. 1799-1811.
— INSTRUMENTS: [713] Cassini. 1792. [1055] Digges. 1625. [1382] Foulton. 1564. [1680] Grigby. 1807. [2790] Malombra. 1630. [4564] Stanley. 1901. [5448] Wing. 1700. [5790-1] Apianus. 1532-3. [7832] Ferguson. 1901. [7877] Fiamelli. 1605. [8053-4] Foulton. 1564. [9456] Hopton. 1611. [9688-9] Jackson. 1838-60. [11130] Lupicini. 1582. [11527] Marzari-Pencati. 1811. [13925-7] Rathborne. 1616. [13992] Reeves. 1910. [14746] Schott. 1660. [14765] Schwenter. 1616-18. [15587] Wing. 1700. [S 647-50] Digges. 1556-1656. [S 764-5] Gunter. 1623.
— *v. Instrument (Universal). Levelling I. Mathematical I. Quadrant. Sextant. Theodolite.*
— TABLES: [7975] Fletcher. 1895. [11194] Mackay. 1804.
- SYLLOGISM:** [12120-1, 12124-7] Morgan. 1847-63.
- TACHOMETRY:** [3391] Orlando. 1896.
- TALBOT'S LINES:** [4651] Struve. 1883.
- TALC—*v. Magnesium and its Compounds.***
- TANGENCIES, PROBLEM OF:** [129] Apollonius. 1607. [3448-9] Pappus. 1588-1660. [4409] Simon. 1812. [5063-4] Vieta. 1646. [5739] Alvard. 1853. [5798-9] Apollonius. 1771. [12938-9] Pappus. 1660-1871. [15390] Vieta. 1646.
- TANGENTS (GEOMETRICAL):** [280-3] Barrow. 1670-1860. [1023-4] Descartes. 1649. [1067] Diverses Ouvrages. 1693. [1328] Fermat. 1679. [2531] Leibniz. 1768. [3234-5, 3277] Newton. 1711-45. [4419] Sluze. 1668. [6013-14] Barrow. 1735-1860. [7259-61] Descartes. 1659-1886. [10695-6] Leibniz. 1768-1884. [12572-3, 12579-80, 12588] Newton. 1711-45. [15999] Fleury. 1899.
- TANKS—*v. Pedrail.***
- TANNIC ACID:** [966] Davy. 1803.
— *v. Galls.*
- TANNING:** [966] Davy. 1803. [11161] McCann. 1883 [SS 2870-1] Tanning. 1774-80.
— *v. Gallic Acid.*
- TANTALITE:** [10722] Leonhard. 1818.
- TARTARIC ACID AND TARTRATES:** [858] Comtes. 1678. [1570] Glauber. 1655. [3976] Reuss. 1743. [4229] Scheele. 1786. [4234] Scheffer. 1742. [7027] Corvinus. 1780. [14697] Scheele. 1786.
- TAYLOR'S THEOREM:** [2381] Lagrange. 1813. [4762] Taylor. 1715. [6776] Cauchy. 1840-4. [10403-5] Lagrange. 1797-1813. [13537] Poselger. 1835.
— *v. Calculus of Functions.*
- TEACHING OF SCIENCE—*v. Study and Teaching of Science.***

- TECHNICAL WORK, SYSTEM OF: [10292] Kraft. 1902.
- TECHNOLOGICAL DICTIONARIES—*v. Dictionaries of Science and Technology.*
- JOURNALS: [2116] Jahrbuch (Technisch-chemisches). 1855-7. [5774] Annales des Arts et Manufactures, 1800-15.
- TECHNOLOGY (MECHANICAL): [9521] Hoyer. 1878.
- TEETH OF WHEELS: [4204] Sang. 1852. [6223] Binns. 1869-71.
- TELAUTOGRAPHY: [2328] Korn. 1907.
- TELEGRAPHY (ELECTRIC): [900-1] Culley. 1863-78. [1919] Highton. 1852. [3010] Mriell. 1873. [3025] Moigno. 1852. [3705] Pope. 1871. [3753-4] Preece and Sivewright. 1876-1903. [3758] Prescott. 1860. [4063-5] Ronalds. 1823. [4291] Schwendler. 1878. [4787] Telegraf. 1860. [5153] Walker. 1850. [5338] Wheatstone. 1879. [5754] Anderson. 1872. [5941] Bain. 1843. [6068] Beardmore. 1862. [6467] Brett and Little. 1847. [7009] Cooke (T. F.). 1868. [7010-12] Cooke (W. F.). 1839-56. [7115-17] Culley. 1874-85. [7790] Faraday. 1858. [8480] Gloesener. 1853. [9074] Heaviside. 1892. [9164-5] Herbert. 1897-1906. [9276-8] Highton. 1848-52. [10285] Koten. 1855. [10518] Lardner. 1878. [11970-1] Moigno. 1849. [12038] Montillot. 1889. [12697] Noad. 1857. [13613-15] Preece and Sivewright. 1876-1901. [14420] Ronalds. 1871. [14623] Sabine. 1867. [14696] Scharnweber. 1880. [14834] Shaffner. 1854-5. [15029] Steinheil. 1850. [15345] Turnbull. 1853. [15369] Vail. 1845. [15427] Walker. 1850. [15516. 15518] Wheatstone. 1855-79. [17350] Preece and Sivewright. 1905. [S 2148-9] Morse. 1867-9. [S2380] Vail. 1847. [S3643] Telegraphy. 1900-1. [SS 1875] Mariani. 1767. [SS 2986] Cooke. 1842.
- *v. Railway Signalling.*
- , BIBLIOGRAPHY OF: [SS 2039] Ronalds. 1880.
- , HISTORY OF: [1273] Fahie. 1899. [11824] Michaud. 1853.
- (SUBMARINE): [589] Bright. 1898. [2143-4] Jenkin. 1873-87. [4145] Russell. 1865. [6464] Brett. 1858. [6493] Bright (C.). 1898. [6494] Bright (C. T.). 1908. [7885] Field. 1866. [9794-5] Jenkin. 1873-87. [10059] Kelvin. 1866. [11010] Longridge and Brooks. 1858.
- *v. Cables.*
- (WAR): [6834] Chauvin. 1884.
- (WIRELESS): [1355] Fleming. 1906. [2675-7] Lodge. 1894-1900. [3480] Partheil. 1902. [4349] Sewall. 1904. [4962] Turpain. 1902. [7964-5. 7967] Fleming. 1903-9. [10086] Kennelly. 1909. [10971-3] Lodge. 1894-1900. [13324] Pierce. 1911. [14258] Righi and Dessau. 1903. [14832] Sewall. 1903. [15355] Turpain. 1902. [17339] Fleming. 1913. [S 2441-2] Zanneck. 1905-11. [S 3426] Erskine-Murray. 1909. [S3442] Fleming. 1915. [S3525] Marchant. 1914.
- *v. Telephony (Wireless).*
- , HISTORY OF: [2675-7] Lodge. 1894-1900. [7739] Fahie. 1899. [10971-3] Lodge. 1894-1900. [14832] Sewall. 1903.
- TELEMETER: [13331] Pifferi. 1695. [13884] Rand. 1799. [SS 862] Stengel. 1767.
- TELEPHONY: [3701] Poole. 1891. [3752] Preece and Maier. 1889. [3757. 3759-60] Prescott. 1878-84. [3957] Reis. 1883. [5733] Allsop. 1891. [8680-1] Gretschell. 1878-83. [9074] Heaviside. 1892. [9166] Herbert. 1898. [9444] Hopkins. 1893. [10941] Lockwood. 1882. [12039] Montillot. 1893. [12135] Morgan-Brown. 1877. [13159] Perry. 1893. [13593] Prescott. 1879. [13612] Preece and Maier. 1889. [13616] Preece and Stubbs. 1893. [14261] Rijke. c. 1878. [15235] Thies and Joy. 1912.
- TELEPHONY (WIRELESS): [10086] Kennelly. 1909. [14576] Ruhmer. 1907.
- TELEPHOTOGRAPHY: [945. 7139] Dallmeyer. 1899.
- TELESCOPE (THE) AND ITS PARTS: [401] Biese. 1895. [479] Boscovich. 1767. [617] Browning. 1872. [1432] Fuss. 1778. [2306] Kitchiner. 1825. [3751] Precht. 1828. [3816] Proctor. 1868. [4056] Rohr. 1907. [4278] Schröter. 1796. [4348] Servus. 1886. [4459] Smith. 1738. [4650] Struve. 1882. [5466] Wollaston. 1785. [5966] Balthasar. 1710. [7333-4] Dollond. 1762-1808. [7448] Edwards. 1782. [8724] Grubb. 1881. [8725] Grunert. 1846-51. [9198] Herschel (Sir William). 1795. [9239] Herschel (Sir John). 1859. [10223] Klügel. 1778. [11485. 11490-1. 11495] Martin. 1759-70. [12239] Mudge. 1777. [12662] Nicholson. 1797-1802. [13199] Phelps. 1835. [14367] Robison. 1788. [14712] Scherffer. 1764. [15030] Steinheil. 1858. [15122] Stoney. 1894. [S 1729] Boscovich. 1771. [S 1949] Gregory. 1715. [SS 1375] Derharn. 1700. [SS 1648] Dollond. c. 1770. [SS 1846] Leonori. 1754. [SS 2060] Scherffer. 1762. [SS 2067-9] Selva. 1787.
- *v. Achromatism. Equatorial. Opera Glasses. Pancratic Tube. Transit Instrument.*
- , EARLY WORKS ON THE: [773] Cherubin d'Orléans. 1671. [1056-7] Digges. 1571-91. [1359] Fontana. 1646. [1913-14] Hevelius. 1647. [2265-6] Kepler. 1611-53. [3035] Moll. 1831. [3037] Molyneux. 1692. [7286-8] Digges. 1571-91. [7999-8001] Fontana. 1646. [8659] Gregory. 1663. [9257] Hevelius. 1647. [10097-8] Kepler. 1611-53. [11379] Manzini. 1660. [11782] Mersenne. 1644-7. [12006] Molyneux. 1709. [13518-19] Porta. 1589. [15161-3] Sturm. 1676-85. [S 2437-8] Zahn. 1685-1702. [SS 1061] Divini. 1666. [SS 1332] Walker. 1684. [SS 1418-19] Maignan. 1648. [SS 1555] Borel. 1655-6. [SS 1618] Ciampini. 1686. [SS 1649] Dominis. 1611. [SS 1822] Kohlhaas. 1663. [SS 1992-3] Porta. 1593. [SS 2025] Rheita. 1645. [SS 2082] Sirtori. 1618.
- TELESCOPIC VISION: [15129] Stoney. 1908.
- TELLURIUM: [10286] Köthner. 1903.
- TELPHERAGE: [2143] Jenkin. 1887. [5438] Wilson. 1907. [7210] Dawson. 1899. [9478-9] Hospitalier. *v. y.* [9794] Jenkin. 1887. [11513] Martin. 1902.
- TEMPERATURE (ATMOSPHERIC)—*v. Atmospheric T.*
- (MEAN): [8442] Glaisher. 1858.
- , LEAKAGE OF: [13073] Peirce. 1910.
- TENSION: [8082] Franceschinis. 1784.
- TEREBENES: [9256] Heusler. 1896. [10151] Kingzett. 1884.
- TERPENES: [10155] Kipping. 1887. [11053] Lowry. 1898. [15440] Wallach. 1909.
- *v. Oils (Essential).*
- TEXTILE FIBRES: [5546] Yates. 1843. [S 3093] Matthews. 1904.
- *v. Cotton. Silk.*
- INDUSTRIES: [8572-4] Grandgeorge. 1890-9.
- THALLIUM: [903. 7092-3. 7095-7100] Crookes. 1861-72. [11869] Miller (W. A.). 1863. [11880] Miller (W. H.). 1865. [S 2689] Crookes. 1874.
- THEATRE CONSTRUCTION: [6591] Buckle. 1888.
- THEODOLITE: [1056-7. 7286-8] Digges. 1571-91. [9456] Hopton. 1611. [9469] Hoskold. 1863. [13146-7] Pessuti. 1794. [SS 1062] Dollond. c. 1772.
- THEOLOGY AND SCIENCE: [295] Baxter. 1740. [584] Bridgewater Treatises. 1833-7. [1095] Draper. 1887. [4597-8] Stewart and Tait. 1875. [4971] Tyndall. 1874. [5498] Woodward. 1726. [6359] Bosanquet. 1845. [6534] Brougham and Vaux. 1839. [6812-13] Chalmers. 1853-4. [6820] Chambers. 1845. [6864] Cheyne. 1715.

THEOLOGY AND SCIENCE, *continued*:

- [7236] Derham. 1732. [7282] Dick. 1842.
 [7290] Dickinson. 1702. [7361] Draper. 1875.
 [7735] Extra Physics. 1878. [8180] Füllom.
 1856. [9509] Howard. 1875. [10033] Keir. 1807.
 [10967] Lodge. 1908. [12685] Nieuwentyt. 1729.
 [13846] Ralphson. 1710. [15167] Sullivan. 1794.
 [SS 1705] Galilei. 1636. [SS 1760] Hale. 1695.
 — *v. Astronomy and T. Copernican System and T. Geology and T. Mathematics and T. Physics and T.*
- THERMAL SPRINGS: [5900] Bacci. 1571. [9565] Hunter. 1787. [12432] Newbold. 1844.
- THERMOCHRONOMETER: [10312] Kruspér. 1873.
- THERMODYNAMICS (ANALYTICAL): [1388] Fourier. 1822. [1937] Hirn. 1862-76. [2415] Lamé. 1861. [8068] Fourier. 1878. [9311-13] Hirn. 1875-6. [10440-1] Lamé. 1861. [17029] Fourier. 1878. [17074] Hirn. 1875-6.
- (ELEMENTARY): [2924] Maxwell. 1871-2. [3460] Parker. 1891. [4737] Tait. 1877. [6061] Baynes. 1878. [11675-8] Maxwell. 1871-94. [12956-7] Parker. 1891-6. [16946] Baynes. 1878. [17004] Darics. 1906. [17237] Tait. 1877.
- (EXPERIMENTAL): [1937. 9311-13] Hirn. 1862-76. [13890] Rankine. 1881. [17074] Hirn. 1875-76.
- (GENERAL): [372] Bertrand. 1887. [592] Briot. 1869. [701] Carnot. 1824. [811-13] Clausius. 1867-79. [1608] Gouilly. 1877. [4128-30. 4136] Rumford. 1796-1876. [4169] St. Robert. 1865. [5056] Verdet. 1868-72. [6567] Bryan. 1894. [6931-2] Clausius. 1876-93. [8715] Gross. 1898. [8918] Harper's Scientific Memoirs. 1899. [9473] Hospitalier. *v.d.* [10066] Kelvin. 1882-1911. [13024] Paziotti. 1869-77. [14954] Bertrand. 1887. [16992] Clausius. 1879-91. [17168] Partington. 1913. [17182] Poincaré. 1892. [17261] Voigt. 1903-4. [17277] Weinstein. 1901-8. [17292] Zener. 1877. [S 308] Gibbs. 1906. [S 2034. S 2036] Kelvin. 1849-51. [S 2357] Thermodynamics. 1858-78. [S 2443] Zeuner. 1869.
- *v. Atoms, Movement of. Carnot's Cycle. Energy. Potential (Thermodynamic).*
- (PRACTICAL): [4942] Trowbridge. 1874.
- , HISTORY OF: [370] Bertin. 1867.
- THERMOGENE: [9477] Hospitalier. *v.y.*
- THERMOMETER (DIFFERENTIAL): [4670] Sturm. 1685-1701.
- THERMOMETRY AND THE THERMOMETER: [929] Dalencé. 1688. [1833] Hazen. 1885. [2383] La Hire. 1694. [2502] Lawson. 1846. [2714-15] Luc. 1772. [2741] McAdie. 1891. [2854] Martin. 1772. [2865] Martine. 1780. [3692] Poleni. 1709. [3964-5] Renaldini. 1665-70. [4696] Swinden. 1778. [5243-4] Watson. 1784-96. [5714-16] Alencé. 1688-1753. [6115] Bellani. 1841. [6679] Callendar. 1899. [8097] Frankenfeld. 1899. [8447] Glaisher. 1870. [9171] Hermann. 1716. [9473] Hospitalier. *v. y.* [10411-12] La Hire. 1694. [10425] Lambert. 1779. [10885] L'Isle. 1738. [11059] Luc. 1784. [11138-9] Luz. 1784. [11272] Magellan. 1780. [11305-6] Mairan. 1749-57. [11521] Martine. 1772. [13309] Pickering. 1886. [13534] Porta. 1606. [14199. 14205] Richards. 1899-1911. [14537] Rowland. 1880. [14755] Schumacher. 1843. [14841] Six. 1788. [15161-3] Sturm. 1676-85. [15179] Swinden. 1778. [SS 1477-81] Accademia del Cimento. 1667-91. [SS 1575-6] Boyle. 1665-83. [SS 1588] Buat. 1816. [SS 1642] Desaguliers. 1719. [SS 1750-2] Guericke. 1672. [SS 2267] Gaussen. 1789. [SS 2307] Magellan. 1780. [SS 2316] Martine. 1792.
- *v. Calorimetry. Cryometry. Pyrometry.*
- THERMOSIPHON: [4804] Thermosiphon. 1844.
- THERINES: [10754] Letts. 1878.

- THREE BODIES, PROBLEM OF: [67] Alembert. 1780. [859] Condorcet. 1767. [7703-5] Euler. 1753-72. [8991] Harzer. 1886. [S 1573] Poincaré. 1905-10. [SS 519] Jacobi. 1881-4.
- THUNDER, CAUSE OF: [7450] Eeles. 1771. [8024-5] Fonvielle. 1868-9. [15602-3] Winkler. 1746.
- THUNDERSTORMS: [1798] Harris. 1843. [6561] Brydone. 1787. [8045-6] Harris. 1843. [15014] Stanhope. 1787.
- *v. Electricity (Atmospheric). Lightning.*
- TIDAL FRICTION: [7172] Darwin. 1898. [9996-7] Kant. 1802-17. [11694] Mayer. 1848. [S 2485] Cosmogony. 1909. [S 2491] Darwin. 1877-89.
- WAVES: [1612] Graham. 1861.
- AND CURRENT OBSERVATIONS: [11202] Mackenzie. 1884. [14125] Révy. 1874. [15063] Stevenson. 1842.
- TIDES, THEORY OF THE: [2189-91] Jordan. 1877-85. [2710] Lubbock. 1831. [3011] Miscellanea Curiosa. 1705-7. [3262] Newton. 1739-42. [3512] Pearson. 1881. [5133-4] Vossius. 1663. [5340] Wheeler. 1906. [5572-6] Young. 1807-45. [5608] Abbott. 1884. [6355] Borro. 1561. [7172] Darwin. 1898. [9167] Herbinus. 1678. [9906] Jordan. 1867. [10066] Kelvin. 1882-1911. [10418] Lalande. 1771-81. [11055] Lubbock. 1830. [11231-5] Maclaurin. 1741-1801. [11943-5] Miscellanea Curiosa. 1708-27. [12066] Moret. 1665. [12291] Murdoch. *c.* 1750. [12512-14] Newton. 1739-60. [13049] Pearson. 1881. [13513] Porta. 1610. [13844] Raimondo. 1589. [14437] Rovaccio. 1604. [14880] Simpson. 1743. [15198] Taisnier. 1562. [15389] Vieri. 1582. [15521] Whewell. 1848. [16892] Müller. 1906. [S 2473] Brancas-Villeeneuve. 1749. [SS 2025] Rheita. 1645. [SS 2228-30] Barlow. 1715-22. [SS 2348] Sagri. 1574.
- : PARADOXES: [5725] Alexandre. 1726. [5953] Baldwin. 1786. [7130] Cuthbert. 1811. [10113] Kerigan. 1844. [10160] Kirby. 1757. [12223] Moxley. 1899. [14505] Roubaix de Tourcoin. 1721. [SS 2239] Bryanston. 1683.
- TIMBER: [5985] Barlow. 1826. [6038] Baterden. 1908. [10621] Lea. 1850.
- *v. Dry Rot.*
- TIME, DETERMINATION OF—*v. Chronometry.*
- AND SPACE—*v. Space.*
- TIN, CHEMISTRY AND METALLURGY OF: [13097] Penny. 1851. [13238] Phillips. 1814. [14482] Rosenhain and Tucker. 1908. [S 3284] Moissenet. 1858. [S 3302-3] Pryce. 1778.
- *v. Brass.*
- MINING: [3845] Pryce. 1778. [13238] Phillips. 1814. [14132] Rayer. 1881.
- TITANIUM AND ITS COMPOUNDS: [10140] King. 1909. [13322] Pierce. 1909. [13363] Pisani. 1864. [15607] Wollaston. 1822.
- TOLUENE: [10157] Kipping and Russell. 1895.
- TONNAGE, ADMEASUREMENT OF: [12060] Moorsom. 1852.
- TOOLS AND TOOL MAKING: [4466] Smith. 1883. [10228] Knight. 1879. [12677] Nicolson. 1904. [14953] Smith. 1882.
- *v. Machine Tools. Steel (Tool).*
- TOPOLOGY—*v. Analysis Situs.*
- TORPEDES (SUBMARINE): [6594] Bucknill. 1889. [SS 3152] Fulton. 1812.
- TORSION BALANCE: [884] Coulomb. 1884. [14272] Ritchie. 1830. [SS 1770] Haüy. 1787.
- METERS: [8390] Gibson. 1908.
- TOURMALINE, ELECTRIC PROPERTIES OF: [15575] Wilson. 1752. [SS 1483. 1485-6] Aepinus. 1759-62.
- *v. Electricity (Pyro).*
- TOWERS: [11141] Lynde. 1890.
- TOXINES: [1194] Gautier. 1896.

- TRAMWAYS: [6077] Beavan. 1903. [6910-11] Clark. 1878-82. [8581] Grantham. 1874. [S 3400] Clark. 1894.
- (ELECTRIC)—*v. Electric Railways and Tramways.*
- (WIRE): [2326] Kool en Siedenburg. 1871.
- *v. Cable Transport. Wire Rope.*
- TRANSFINITE QUANTITIES: [6706] Cantor. 1899.
- TRANSFORMATIONS (INFINITESIMAL): [SS 608] Lie. 1891.
- (MECHANICAL): [3106] Morin. 1861.
- THEORY OF: [2388] Laisant. 1877. [8696] Griffiths. 1890. [14314. 14317] Roberts. 1857-72. [15001] Spottiswoode. *n. d.* [15942] Doehlemann. 1902-8.
- *v. Covariants. Groups of Transformation. Invariants.*
- TRANSIT CIRCLE: [5467] Wollaston. 1793.
- INSTRUMENT: [2608] Liagre. 1845. [6913] Clark. 1882. [10714] Le Monnier. 1741. [11046] Löw. 1881. [14089] Respighi. 1871. [SS 1375] Derham. 1700.
- TRANSITS OF MERCURY: [4789] Tennant. 1879. [6288] Boe. 1879. [8826] Halley. 1679. [13340] Pigott. 1786. [14259] Rignano. 1835.
- OF VENUS: [46] Airy. 1881. [632] Budd. 1875. [1176] Encke. 1822-4. [1999] Horrocks. 1678. [2314] Klinkenberg. 1761. [2843] Martin. 1773. [3215] Newcomb. 1890. [3781] Prince. 1883. [3837] Proctor. 1874. [4789] Tennant. 1877. [5695] Airy. 1877. [7371] Dubois. 1873. [7840] Ferguson. 1764. [8010] Forbes. 1874. [8580] Grant. 1874. [9002] Hasselberg. 1877. [11546] Maskelyne. 1783. [12470] Newcomb. 1880. [13563] Powalky. 1864. [13675] Prince. 1883. [13720. 13722] Proctor. 1874-82. [15102] Stone. 1768.
- *v. Parallaxes of the Solar System.*
- TRANSPIRATION (LIQUID): [S 2749] Graham. 1861.
- TRANSPORT OF MASSES: [9981] Kammerer. 1907. [S 3374] Buhle. 1908.
- *v. Carriage Traction.*
- TRANSVERSALS, THEORY OF: [698-9] Carnot. 1806. [SS 860] Steiner. 1832.
- TRAVERSE TABLES: [1152] Edwin. 1871. [4380] Shoretre. 1864. [6765] Castle. 1847. [10879] Lintern. 1872. [11033] Louis and Caunt. 1901.
- TREFOIL (MATHEMATICAL): [6517] Brocard. 1891.
- *v. Phyllotaxis.*
- TRIANGLE OF FORCES: [4585. 15082-3] Stevinus. 1586.
- *v. Parallelogram of Forces.*
- TRIANGLES, GEOMETRY OF: [8240] Gallatly. 1910. [10616] Lawson. 1773. [16496] Poulain. 1892.
- TRIGONOMETRICAL PROBLEMS AND EXERCISES: [518] Brauer. 1614. [1471] Gaskin. 1847. [4206-7] Santbech. 1561. [7248] Desboves. 1872. [8287] Gaskin. 1847. [15694-5] Aubert et Papelier. 1908-10. [15930-2] Desboves. 1872-84. [16029-30] G.-M. *s. d.* [16299] Lieber und Lüthmann. 1889. [16441] Nunn. 1913-14. [16511-12] Reidt. 1894-7. [16530] Ritt. 1873. [SS 738-9] Pitiscus. 1600.
- TABLES: [586] Briggs. 1633. [733] Cavalieri. 1632. [927] Dale. 1905. [1468] Garrard. 1789. [1716-19] Gunter. 1636-73. [1866] Henric. 1613. [2432-3] Lansberg. 1591-1631. [3305] Newton (John). 1658. [3353] Norwood and Bond. 1664. [3644] Pitiscus. 1630. [3928] Regiomontanus. 1561. [4483] Snell van Royen. 1626. [4635] Strauch. 1700. [5115-16] Vlacq. 1633-1742. [5462] Wolf. 1744. [5915] Bagay. 1829. [6279-81] Blundeville. 1597-1636. [6337] Borda. 1804. [6779-80] Cavalieri. 1632-43. [7106] Croppet. 1598. [8340] Gellibrand. 1633. [8745-50] Gunter. 1636-80. [11556] Massaloup. 1847. [12770-2] Norwood. 1667-96. [12891] Ozanam. 1697.
- TRIGONOMETRICAL TABLES, *continued*: [13192] Puerbach. 1541. [13370] Pitiscus. 1612. [13993] Regiomontanus. 1561. [15017] Stade. 1581. [15136] Streete. 1663. [15677] Andoyer. 1911. [S 765] Gunter. 1623. [S 1058-9] Oughtred. 1657. [S 3716] Blundeville. 1594. [SS 737-9] Pitiscus. 1600-20. [SS 781-3] Rheticus. 1596-1613. [SS 912] Ursinus. 1625. [SS 1267-8] Regiomontanus. 1584. [SS 1384] Fidati. 1636.
- *v. Logarithms, T. of. Mathematical T.*
- TRIGONOMETRY (ANALYTICAL): [2712] Luby. 1834. [3383] Oppel. 1746. [11857] Miller. 1906. [SS 425] Ferroni. 1782.
- (ELEMENTARY): [1926] Hind. 1828. [1976] Holwell. 1685. [1993] Hopkins. 1833. [2365-7] Lacroix. 1799-1863. [2577] Levett and Davidson. 1892-6. [2858] Martin. 1736. [4486-9] Snowball. 1837-63. [4823-4] Thomson. 1858. [5216] Ward. 1654. [5699] Airy. 1827. [6508] Briot et Bouquet. 1877. [7552-3] Emerson. 1749-64. [10031] Keill. 1806. [10040-1] Keith. 1820-1. [10676] Lefebure de Fourey. 1853. [12411] Navigation. 1772. [15794-8] Briot et Bouquet. 1873-1908. [15843] Caronnet. 1912. [15087] Combette. 1907. [16094] Hall and Knight. 1912. [16310. 16312] Lock. 1910-12. [16462-3] Papelier. *s. d.* [SS 469] Grienberger. 1630.
- (GENERAL): [662-3] Cagnoli. 1808. [733] Cavalieri. 1632. [876] Cotes. 1722. [1014] Deparcieux. 1741. [1824] Hawney. 1725. [2252] Keith. 1810. [2432-3] Lansberg. 1591-1631. [2452] Lardner. 1828. [2593] Leybourn. 1704. [3305] Newton (John). 1658. [3351-2] Norwood. 1631-85. [3643-4] Pitiscus. 1600-30. [3927-8] Regiomontanus. 1533-61. [4406] Simpson. 1765. [5030] Urquhart. 1645. [5088] Vince. 1810. [5443] Wilson. 1724. [5492-3] Woodhouse. 1813-22. [5561] Young. 1835. [6663-4] Cagnoli. 1786. [6779-80] Cavalieri. 1632-43. [7038-9] Cotes. 1722. [7083] Cristoforo. 1720. [8505] Goden. 1704. [8509-11] Goodwin. 1886-1901. [8823] Hall. 1848. [9545] Hume. 1636. [9644-5] Hymers. 1841-58. [9825] Johnson. 1889. [10112] Kerigan. 1845. [10935] Lock. 1893. [12772] Norwood. 1678. [12869] Owen. 1764. [13192] Puerbach. 1541. [13370] Pitiscus. 1612. [13993] Regiomontanus. 1561. [14511] Rouché et Lacour. 1857. [14825] Serret. 1875. [14889-91] Simpson. 1748-79. [15882] Comberousse. 1907. [16061] Goodwin. 1907. [16106-7] Hammer. 1897-1907. [16186] Johnson. 1889. [16310-12] Lock. 1909-12. [16329] Lüben. 1900. [16488] Pionchon. 1904. [16640-2] Serret. 1888-1908. [16655] Snowball. 1885. [SS 738-9] Pitiscus. 1600. [SS 912] Ursinus. 1625.
- (IMAGINARY): [11989-91] Moivre. 1730.
- (PLANE): [580-1] Bridge. 1810-22. [710] Casey. 1888. [1770] Hann. 1849. [1866] Henric. 1613. [2078] Hymers. 1841. [2775] Magini. 1592. [3409] Oughtred. 1657. [4266] Schooten. 1683. [4342] Serret. 1880. [4893-4] Todhunter. 1879-84. [5181] Walmsley. 1879. [7519-20] Elliot. 1872-3. [10992-3] Loney. 1896-1900. [11534] Maseres. 1760. [11614] Mauduit. 1772. [12690] Nixon. 1892. [13037] Peacock. 1817. [15774] Bourlet. 1905. [15847] Carslaw. 1913-15. [16146-7] Hobson. 1897-1911. [16224] Kleyer. 1887. [16259] L'abbatier. 1889. [16315] Loney. 1896-1907. [16672] Spitz. 1888. [16728-30] Todhunter. 1876-1905. [S 1058] Oughtred. 1657.
- (SPHERICAL): [2078] Hymers. 1841. [2946] Menelaus. 1707. [4483] Snell van Royen. 1627. [4896-7] Todhunter. 1859-78. [5332] West. 1838. [6652] Byrne. 1835. [6758] Casey. 1889. [11173] McClelland and Preston. 1887. [11615-16] Mauduit. 1768. [11751] Menelaus.

- TRIGONOMETRY (SPHERICAL), *continued*:
 1758. [12105] Morgan. 1836. [14989] Speidell.
 1627. [15457] Ward. 1742. [15511] West. 1838.
 [15965] Eckhardt. 1909. [16267-8] Laska. 1890.
 [16338-9] McClelland and Preston. 1886-1900.
 [16672] Spitz. 1886. [16693] Study. 1893.
 [16731] Todhunter. 1901.
 — *v. Gauss's Analogies*.
 —, ALGEBRA OF: [16115] Hayward. 1892.
 —, ELEMENTS OF: [3085. 3095] Morgan. 1837-49.
 [10681. 10683] Legendre. 1824-76.
 TRISECTION OF AN ANGLE: [189] Azemar. 1809.
 [2819] Bosanquet. 1876. [3919] Recordon. 1865.
 [5110] Viviani. 1677. [6716] Caracciolo. 1790.
 [7909] Fine. 1556. [8933] Harris. 1884. [16399]
 Montel. 1912.
 — *v. Conchoid*.
 TROCHOID—*v. Cycloid*.
 TRUSSES: [8699. 17342] Griffiths. 1886.
 TUNGSTEN: [11315] Mallet. 1875. [14226] Riche. 1857.
 TUNING FORK: [13947] Rayleigh. 1883. [15013]
 Stanhope. 1806. [17096] Kielhauser. 1907.
 TUNNELING AND EXCAVATING: [1813] Haupt. 1867.
 [4156] Rziha. 1867-72. [4385-8] Simms. 1844-77.
 [4569] Stauffer. 1906. [5164] Walker. 1888. [6589]
 Buck. 1880. [9526] Hudson. 1902. [S 3219]
 Drinker. 1878.
 — *v. Blasting, Boring and Drilling, Earthwork*.
 TUNNELS (SUBAQUEOUS): [865] Copperthwaite. 1905.
 [12672] Nicklès. 1858. [S 3409] Copperthwaite.
 1912.
 — *v. Channel Railway*.
 TURBINES (STEAM): [4613] Stodola. 1906. [5163]
 Walker. 1908. [7295] Dietrich. 1906. [8390]
 Gibson. 1908. [9484] Hospitalier. *v. y.* [9944]
 Jude. 1906. [15236] Thomas. 1906. [S 3594]
 Richardson. 1911. [S 3705] Zahikjanz. 1906.
 — *v. Marine Engines*.
 — (WATER): [5478] Wood. 1895. [6287] Bodmer.
 1895. [7327] Donaldson. 1883. [8273] Garnett.
 1908. [13005] Passot. 1839. [14575] Rühl-
 mann. 1846. [S 3550] Orten-Böving. 1910.
 TURNING AND THE LATHE: [1974] Holtzapffel. 1846.
 -84. [2080] Ibbetson. 1830. [4960] Turning.
 1859. [6062] Bayley. 1878. [6136] Bergeron.
 1816. [7531] Elphinstone. 1872. [7580]
 Engleheart. 1867. [7709-10] Evans. 1889-1904.
 [9413-14] Holtzapffel. 1846-84. [9461] Horner.
 1893. [9646-7] Ibbetson. 1830. [11076-81]
 Lukin. 1870-88. [12678] Nicolson and Smith.
 1908. [12754-5] Northcott. 1868-76. [13135]
 Perigal. *n. d.* [16713] Taylor. 1874-5. [S 3521]
 Lukin. 1871. [S 3566] Plumier. 1749.
 TWINKLING OF STARS: [9431] Hooke. 1665. [14103]
 Respighi. 1868. [15405] Vitellio. 1535.
 TYPES, CHEMICAL THEORY OF: [7394] Dumas. 1840.
 [8539] Goup-Besanez. 1860. [9378. 9382]
 Hofmann. 1848-50.
 UNDULATORY THEORY—*v. Light, Wave Theory of*.
 UNITS, C. G. S. SYSTEM OF: [7719-20. 7722] Everett.
 1875-91.
 — *v. Physical Constants*.
 UNIVERSAL SCIENCE, SYSTEM OF: [5495] Woodward.
 1816.
 URANUS (PLANET): [5650] Adams. 1846. [9191.
 9199] Herschel. 1787-8. [9896-9] Jones. 1784
 -99. [10776] Le Verrier. 1846.
 URINE, CHEMISTRY OF: [85] Allen. 1895. [11263]
 Macvicar. 1870.
 USES OF SCIENCE: [349-53] Boyle. 1663-71.
 — *v. Chemistry, U. of. Geometry, U. of. Mathematics,*
U. of.
 VACUUM TUBES, EXPERIMENTS WITH: [4197]
 Salomons. 1903.
 VALENCY, THEORY OF: [8103. 8108-9] Frankland.
 1852-77. [12348-9] Naquet. 1867-8.
 VALERIC ACID: [9377] Hofmann. *c.* 1850. [13272]
 Phipson. *n. d.*
 VALLEYS, FORMATION OF: [10132] Kinahan. 1875.
 VALUES (CORRESPONDENT): [5227] Waring. 1789.
 VALUING—*v. Measuring and V.*
 VALVE (SAFETY): [12911] Papin. 1682.
 — (SLIDE): [6619] Burgh. 1870.
 — GEARS: [5592] Zeuner. 1869.
 VANADIUM AND ITS COMPOUNDS: [13273] Phipson. *n. d.*
 VAPORIZATION LIMIT: [1295] Faraday. 1826.
 VAPORIZERS: [9477] Hospitalier. *v. y.*
 VAPOUR DENSITIES: [1115. 7395] Dumas. 1838.
 [13429] Playfair and Wanklyn. 1861.
 — PRESSURE: [9985] Kämtz. 1826. [13127] Per-
 man. 1905. [13874] Ramsay and Young. 1884.
 VARIABLES (COMPLEX): [8887] Hankel. 1867. [16246]
 Kowalewski. 1911.
 — (IMAGINARY): [5076. 15655] Villié. 1885-98.
 VARIATIONS, CALCULUS OF—*v. Calculus of V.*
 VARNISHES AND VARNISHING: [4554] Stalker and
 Parker. 1688. [5765] Andres. 1882. [11409]
 Marucci. 1816. [11917] Miniatura. 1755.
 [14614] Sabin. 1906. [SS 2728] Buonanni.
 1786. [SS 2757-8] Dossie. 1758-64.
 — *v. Japanning, Lacquers*.
 VAULTS—*v. Arches and Vaults*.
 VECTOR ANALYSIS: [9142] Henrici and Turner. 1903.
 [15812-14] Burali-Forti et Marcolongo. 1910-13.
 [15879] Coffin. 1909. [16038] Gans. 1909.
 [16175] Ignatowsky. 1909-10. [17073] Heun.
 1906. [S 308] Gibbs. 1906.
 — *v. Grassmann's Space Analysis, Mechanics*
(Vectorial), Quaternions.
 VECTORS (COPLANAR), ALGEBRA OF: [16115] Hay-
 ward. 1892.
 VEGETABLE MOULD, FORMATION OF: [5471] Wolny.
 1897.
 VELOCITIES (ORGANIC AND INORGANIC): [17162]
 Olshausen. 1903.
 — (VIRTUAL): [5050] Venturoli. 1823. [14907-
 11] Smeaton. 1794-1813.
 VENTILATION AND HEATING: [168] Arnott. 1855.
 [404] Billings. 1884. [1151] Edwards. 1868.
 [1481-4] Gauger. 1713-36. [1739. 1742. 1747]
 Hales. 1743-56. [1977] Hood. 1879. [3936]
 Reid. 1844. [3993] Richardson. 1837. [4570]
 Steam Heating Problems. 1886. [4810] Thomas.
 1906. [4936] Tredgold. 1824. [5472] Wolpert.
 1896. [5842] Arnott. 1838. [6400] Boyers.
 1807. [6575] Buchan. 1891. [7004] Constan-
 tine. 1881. [7374] Drysdale and Hayward.
 1872. [7460-1] Edwards. 1868-81. [8255]
 Galton. 1884. [8303] Gauger. 1713. [9426-9]
 Hood. 1844-85. [10172] Kittredge. 1892.
 [10674] Leeds. 1876. [13274] Phipson. 1859.
 [13595] Prat. 1898. [14270] Ritchie. 1862.
 [14346] Robins. 1885.
 — *v. Chimneys and Stoves, Mine V. Smoke Abatement*.
 — OF SHIPS: [4686] Sutton. 1749.
 VENUS (PLANET): [4278-80] Schröter. 1792-6. [6596]
 Bugge. 1789. [9203] Herschel. 1793. [10864]
 Lindenaу. 1810. [12681] Niesten. 1891.
 [SS 1134] Hirzgarter. 1643.
 — *v. Transits of Venus*.
 VIADUCTS: [11696] Maynard. 1868. [12062]
 Morandière. 1874-82.
 — *v. Bridge Building*.
 VIBRATION OF RODS AND STRINGS: [3986-7] Riccati.
 1767. [4976] Tyndall. 1866. [12944] Paradisi.
 1806. [14154-5] Riccati. 1767-84.

- VIBRATORY MOTION: [7723] Everett. 1882. [8392] Gilbert. 1823-5. [9445] Hopkinson. 1910. [17021] Everett. 1882. [17058] Guillet. 1913. [17078] Hort. 1910. [17141] Michie. 1901. — *v. Waves, Theory of.*
- VINEGAR: [1112] Dujardin. 1892. [3489] Pasteur. 1868. [4361] Shannon. 1805. [5871] Aubergier. 1825. [10751] Le Sourd. 1892. [13082] Pelouze. 1828.
- VIS VIVA: [2781] Mairan. 1741. [5587] Zanotti. 1752. [9994] Kant. 1746. [SS 1487] Alembert. 1743. [SS 1600] Châtelet-Lomont. 1741. [SS 1787-8] Huygens. 1673. [SS 1863-4] Mairan. 1741. [SS 2183] Zanotti. 1752.
- VISCOSITY: [903] Crookes. 1881. [9869-70] Jones. 1904-5. [14642] Sakurai. 1908. [S 2390] Viscosity. 1850-87.
- VISION, THEORY OF: [872] Cornelius. 1861. [3716] Porta. 1593. [5326-7] Wells. 1792-1818. [5577] Young. 1793. [6410] Boyle. 1688. [6586] Buchner. 1753. [7820] Fearn. 1837. [8015] Forbes. 1845. [10097] Kepler. 1604. [11640-1] Maurice. 1823-5. [15605] Wollaston. 1824. [SS 1658-9] Euclide. 1573. [SS 1742-4] Grimaldi. 1665. [SS 1895] Montalto. 1606. [SS 1953] Ott. 1670-1. — *v. Colour V. Microscopic V. Telescopic V.* — —: PARADOXES: [13960] Reade. 1818.
- VITRUVIUS, BIBLIOGRAPHY OF: [SS 3057-8] Poleni. 1739-41.
- VIVIANITE: [12673] Nicklès. 1855.
- VOLATILE ORGANIC BASES: [9378. 9382] Hofmann. 1848-50.
- VOLATILIZATION: [13875] Ramsay and Young. 1884. [SS 1583-4] Boyle. 1675.
- VOLCANOLOGY: [1761] Hamilton. 1773. [2018] Hull. 1892. [3441] Palmieri. 1873. [3508] Peacock. 1882. [3902] Raspe. 1776. [3906] Ray. 1692. [4313-14] Scrope. 1858-62. [5877] Auldjo 1633. [6338] Borkowski. c. 1810. [6990] Collini. 1781. [7176-7] Daubeny. 1835-46. [7809] Faujas de St. Fond. 1784. [8858-66] Hamilton. 1772-95. [9260] Hibbert-Ware. 1832. [9553] Humboldt. 1843. [9950] Judd. 1881-8. [10170] Kircher. 1669. [10922-3] Lobley. 1889-98. [11124] Lyell. 1859. [11324] Mallet. 1872-4. [11392] Maravigna. 1838. [11747] Ménard de la Groye. 1815. [11882] Mills. 1790. [12037] Monticelli et Covelli. 1822. [12828] Ordinaire. 1802. [12907-8] Palmieri. 1872-3. [13219] Phillips. 1869. [13917-18] Raspe. 1776. [14163] Ricciardi. 1883. [14785-7] Scrope. 1825-62. [15584] Winchelsea. 1669. [S 2446-7] Anderson. 1903. [S 2501] Daubeny. 1826. [S 2607] Zucher and Margollé. 1868. — *v. Seismology. Thermal Springs.*
- VORTEX RINGS: [14243] Riemann. 1879. [15263. 17248] Thomson. 1883. — THEORY (CARTESIAN): [1020-2] Descartes. 1664-92. [1363] Fontenelle. 1752. [3693] Poleni. 1712. [5075] Villémot. 1707. [7262-4] Descartes. 1664-77. [9507] Howard. 1700. [SS 1652] Duhamel. 1660. — *v. Descartes and Newton.* — OF MATTER: [13891] Rankine. 1850. [15263] Thomson. 1883. [17180] Poincaré. 1893.
- WALTENHOFEN PHENOMENON: [13074] Peirce. 1911.
- WAR ENGINES: [1499] Gaya. 1678. [2642] Lipsius. 1596. [4168] St. Julien. 1706. [4301] Scoffern. 1852. [5046-7] Vegetius. 1532-1607. [9181] Hero Alexandrinus. 1866. [9183] Hero Mechanicus. 1572. [9787] Jervis. 1859. [15373-4] Valturio. 1483-1532. [15379-80] Vegetius. 1585. — *v. Fire Arms. Gunnery and Artillery.*
- WARSHIPS: [3428] Ozanne. c. 1760. [5866] Atwood. 1904. [7362] Dredge. 1892. [8986] Harvey. 1824. [10142] King. 1878. [10486] Langmaid and Gaisford. 1893. [11381] Marchal. 1876. — *v. Ships (Iron).*
- WATCH BALANCES, VIBRATIONS OF: [5868] Atwood. 1794.
- WATER: [4977] Tyndall. 1872-85. [6986] Coles-Finch. 1908. [14503] Rotherham. 1770. —, CHEMICAL ACTION OF: [13096] Penny. 1855. —, COMPOSITION OF: [742-3] Cavendish. 1851. [3796] Priestley. 1788. [5252-4] Watt. 1839-46. [6800-1] Cavendish. 1851. [9563] Humboldt et Gay-Lussac. 1805. — —: PARADOXES: [15047] Stevenson. 1849. —, COMPRESSIBILITY OF: [SS 1477-81] Accademia del Cimento. 1667-91. —, DENSITY OF: [2714-15] Luc. 1772. [9930] Joule and Playfair. 1846. —, DISTILLATION AND PURIFICATION OF: [555] Boyle. 1674. [1739-42] Hales. 1739-56. [4003] Rideal. 1897. [6430-1] Boyle. 1674-90. [7932-3] Fitzgerald. 1683-4. [8561] Graham and Miller. 1851. [8683] Grew. 1684. [8804-5] Hales. 1739. [12728] Normandy. 1855. [14513] Roulet. 1851. [14692] Scacchi. 1622. —, ELECTROLYSIS OF: [5126-9] Volta. 1793-1816. [SS 2579] Marum. 1798. — *v. Water, Composition of.* —, EXPERIMENTS ON: [3797] Priestley. 1785. —, MICROSCOPY OF: [8117] Frankland. 1894. [15524] Whipple. 1899. —, SPECIFIC HEAT OF: [SS 2020] Regnault. 1847. — ANALYSIS: [2280] Kershaw. 1907. [2744] Macdonald. 1875. [2965] Mez. 1898. [5194] Wanklyn and Chapman. 1896. [6259] Blair. 1890. [8079] Fox. 1878. [8103. 8115] Frankland. 1877-80. [8441] Giulianielli. 1701. [10974] Loeffler, etc. 1896. [11711] Medlock. 1857-8. [12905] Palmer. 1911. [14171-2] Richards. 1900-8. — FILTRATION WORKS: [S 3448] Fuertes. 1904. — GAS: [4853] Thwaita. 1889. [5060] Verver. 1858. [6275] Blondeau. c. 1840. [12392] Naumann. 1881. — *v. Producer Gas.* — GLASS: [8176] Fuchs. 1861. [10319] Kuhlmann. 1858. — LINES: [13901] Rankine. 1864. — RAISING MACHINES: [729] Caus. 1659. [1268] Ewbank. 1870. [3102] Morin. 1863. [3108] Morland. 1685. [5101-6] Vitruvius. 1567-1800. [7724-5] Ewbank. 1851-70. [8242] Galli. 1694. [10475] Landriani. 1782. [12144] Morin. 1863. [12157-9] Morland. 1685-97. — *v. Fire Engines. Hydraulic Ram. Pumps.* — RESERVOIRS: [14758] Schuyler. 1905. — SUPPLY ENGINEERING: [651] Burton. 1894. [3692] Poleni. 1718. [5061] Vescovali. 1858. [5303] Wegmann. 1896. [6117] Beloe. 1872. [6306] Bolton. 1888. [6645] Burton. 1898. [7991] Folwell. 1901. [8112] Frankland. 1896. [8188] Furtenbach. 1662. [8781] Hagen. 1869-70. [9552] Humber. 1876. [10974] Loeffler, etc. 1896. [11246] McPherson. 1900. [11358] Mansbergh. 1882. [11596-7] Matthews. 1835. [11843] Middleton. 1903. [12456] New York. 1905. [12640] Nichols. 1888. [14758] Schuyler. 1905. [15400-11] Vitruvius. 1511-1649. [S 3436] Fanning. 1906. [S 3609] Scott-Moncrieff. 1896. — *v. Wells (Artesian).* — GEOLOGY: [3765] Prestwich. 1851. [4355] Shadwell. 1899. [4540] Spon. 1885. [5780] Ansted. 1878. [13622] Prestwich. 1851. [13883] Rance. 1882. [14950] Smith. 1852. [15368] Uzielli. 1899.

- WATER WHEELS: [13352] Piolet and Tardy. 1840. [13486] Poncelet. 1832. [14575] Rühlmann. 1846. — *v. Turbines (Water).*
- WATERWORKS: [289-90] Bate. 1634-54. [324] Bédior. 1737-53. [651] Burton. 1894. [729] Caus (I. de). 1659. [730] Caus (S. de). 1615. [4700-1] Switzer. 1729-34. [5944] Baker. 1897. [6043-4] Bate. 1634. [6105] Bédior. 1737-53. [6645] Burton. 1898. [6777] Caus. 1704. [9000] Haskoll. 1868. [9058] Hazlehurst. 1901. [9538] Hughes. 1872-82. [12159] Morland. 1697. [SS 30] Bate. 1631. — *v. Hydraulic Engineering.*
- WAVES, THEORY OF: [1266] Everett. 1882. [5283-4] Weber. 1825. [5340] Wheeler. 1906. [6568] Bryan. 1889. [6893] Cialdi. 1856. [7971] Fleming. 1902. [8759] Guthrie. 1875. [9019] Houghton. 1849. [10434] Lamb. 1898. [11039] Love. 1903. [13401] Plateau. 1873. [13434] Pochhammer. 1863. [13890. 13893. 13903] Rankine. 1863-81. [15113. 15125] Stoney. 1861-97. [16944] Bateman. 1915. [17026] Fleming. 1902. [17221] Schaik. 1902. [17273] Weber. 1825. [S 1776] Cauchy. 1815. [S 1954] Hadamard. 1903. [S 2283] Russell. 1885. — *v. Electric Waves. Light, Wave Theory of. Ripples. Sound Waves. Vibratory Motion.*
- , THERMODYNAMIC THEORY OF: [13903] Rankine. 1870.
- WAXES: [2582] Lewkowitsch. 1898. [6518] Brodie. 1849. [13048] Pearson. 1794. [S 3033] Fryer. 1917. [SS 2757-8] Dossie. 1758-64. — (SEALING): [5765] Andres. 1882. [8994] Harzer. 1848.
- WEALTH, MATHEMATICAL THEORY OF: [887] Cournot. 1838.
- WEATHER: [9] Abercromby. 1887. [3677] Pointer. 1738. [5435] Willford. 1658. [5615-16] Abercromby. 1887-96. [7934. 7937-8] Fitzgerald. 1859-63. [9578] Hutchinson. 1782. [11205-6] Mackenzie. 1818-29. [11891-2] Mills. 1770-3. [13468-9] Pointer. 1723-38. [14594] Russell. 1895. —, TYPES OF: [2753] Mackenzie. 1821. — CHARTS: [1455] Galton. 1863. [4310-11] Scott. 1876-87. — FORECASTING: [140] Aratus. 1828. [3019] Mizauld. 1554-8. [5810] Aratus. 1880. [7013] Cooper. 1890. [9129] Henderson. 1841. [9455] Hopton. 1616. [11777-8] Merryweather. 1851. [11891-2] Mills. 1770-3. [12298] Murphy. 1837. [14594] Russell. 1895. [15212] Taylor. 1814-20. — *v. Storm Warnings.* — REPORTS: [2956] Meteorological Office. 1872-94. — RULES: [800] Claridge. 1827. [6903-5] Claridge. 1714-1827.
- WEAVING: [5546] Yates. 1843. [6076] Beaumont. 1712. [12882. 12918] Page. 1864. [13576] Powell. 1661. [S 3145] Walmsley. 1893. — *v. Loom (Pneumatic). Textile Fibres. Textile Industries.*
- WEIGHTS AND MEASURES—*v. Metrology.*
- WELLS (ARTESIAN): [8275] Garnier. 1826.
- WHEATSTONE'S BRIDGE: [15316-17] Wheatstone. 1843-79.
- WHEELS (CARRIAGE): [914] Cumming. 1799. [14527-9] Rowe. 1734. — *v. Ball-Bearings. Carriage and Coach Building. Pedrail.*
- WIND AND CURRENT CHARTS: [3011] *Miscellanea Curiosa*. 1705-7. [10653] Le Clerc. 1705. [11649-52] Maury. 1854-61. [11943-5] *Miscellanea Curiosa*. 1708-27. [14031] Rennell. 1832. — *v. Ocean Charts.*
- WINDING MACHINERY: [13109] Percy. 1880.
- WINDS (TRADE) AND MONSOONS: [3011] *Miscellanea Curiosa*. 1705-7. —, THEORY OF: [452. 6296-7] Bohun. 1671. [7450] Eeles. 1771. [9587-8] Hutton. 1792. [11434-5] Mariotte. 1686-1700. [11943-5] *Miscellanea Curiosa*. 1708-27. [15320-1] Torricelli. 1715. [SS2228-30] Barlow. 1715-22. [SS2285] La Brosse. 1717. — *v. Air Currents. Meteorology (Dynamic). Sea Breeze. Storms, T. of.*
- WINE: [305] Beckwith. 1868. [758] Chaptal. 1807. [1012] Denman. 1875. [1112] Du Jardin. 1892. [2639] Lippe. 1894. [3202] Nessler. 1894. [3582] Phillip. 1596. [3715] Porta. 1583. [3922-3] Redding. 1851-60. [4361] Shannon. 1805. [4366] Shaw. 1863. [4849] Thudichum and Dupré. 1872. [5094] Vintners. c. 1750. [5637] Accum. 1820. [5871] Auberger. 1825. [6017] Barry. 1775. [6657] Busby. 1825. [6737] Carnell. 1814. [6826-7] Chaptal. 1801. [6829] Charpentier Cossigny. 1807. [7187] Davies. 1822. [7336] Donovan. 1830. [8762] Guyot. 1876. [9331] Hoare. 1841. [10302] Krebs. 1887. [10751] Le Sourd. 1892. [11159-60] McBride. 1793. [11168-9] Macculloch. 1816-7. [11628] Maumené. 1890. [11638] Maupin. 1799. [11725] Meibom. 1668. [12075] Morgan. 1898. [13012] Pasteur. 1875. [14287] Robert. 1897. [14559-60] Rozier. 1772. [14692] Scacchi. 1622. [15404] Vispré. 1786. — *v. Chaptalising. Cider. Fermentation.*
- , CHEMISTRY OF: [3144] Mulder. 1857. [8712] Grünhut. 1897. [14625] Sage. 1769.
- WIRE ROPE: [1935] Hipkins. 1896.
- WOOD, CHEMISTRY AND TECHNOLOGY OF: [761] Charpentier. 1890. [5091] Vincent. 1873. [S 3217] Demuth. 1907. —, PRESERVATION OF: [S3146] Wallis-Taylor. 1917. — *v. Dry Rot.*
- WOOD-ENGRAVING: [12910] Papillon. 1766. — -WORKING MACHINERY: [3889] Ransome. 1895. [3992] Richards. 1873. [14174-5] Richards. 1872.
- WORKSHOP RECEIPTS: [1736] Haldane. 1890. [2658-9] Lock. 1885-9. [4541] Spon. 1888. [8000] Haldane. 1906. [10932] Lock. 1885. — *v. Receipts (Practical).*
- WRITING GEOMETRICALLY DEMONSTRATED: [1823] Hawkes. 1747.
- X RAYS: [487] Bottone. 1898. [3115] Morton and Hammer. 1896. [3596] Phillips. 1898. [4067] Röntgen. 1896. [4068] Röntgen Ray Society (American). 1905. [4812] Thompson. 1896. [5182] Walsh. 1899. [6659] Büttner und Müller. 1897. [8740] Guillaume. 1896. [8915] Harper's Scientific Memoirs. 1899. [9077] Hébert. 1897. [12412] Neesen. 1904. [14433] Röntgen. 1896. [15239] Thompson. 1896. [S 3869] Röntgen Society. 1904-17.
- YACHTS: [10324] Kunhardt. 1887. [11415] Marett. 1856.
- ZEEMAN EFFECT: [10140] King. 1909. [S 2440] Zeeman. 1913.
- ZENITH DISTANCES: [11411] Marcuse. 1902. — *v. Polar Distances.*
- ZINC, CHEMISTRY AND METALLURGY OF: [3539] Percy. 1861. [5243-4] Watson. 1784-96. [6992] Combet. 1875. [7055] Cowper-Coles. 1904-5. [8752] Günther. 1904. [9662-3] Ingalls. 1902-3. [10341] Kupferschlaeger. 1860. [13111] Percy. 1861. [14202. 14206. 14213] Richards. 1895-1906. [15272] Thomson. 1831. [15464-6] Watson. 1791-1800. [S 3255] Ingalls. 1906.
- ZIRCONIUM: [13363] Pisani. 1864.
- ZODIACAL LIGHT: [4258] Schmidt. 1856. [9186] Herschel. 1867. [14789] Searle. 1883.

Q8

Z956

V.2

609863

UNIVERSITY OF CALIFORNIA LIBRARY

