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British architectural theory during the early modern architecture period in the 19th century

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Abstract. Britain first initiated industrial revolution in Europe in the 18th century. The social structure, production relations and aesthetic value orientation in Britain had the characteristics of early modern gradually from then on. In the late 19th century, the contradictions about the architectural form never stopped. At the same time, the demand for reasonable architectural form conforming to the technical conditions was increasing. Architectural practice successively appeared the technical level of the rational exploration of new architectural form. The prelude of the early modern architecture movement for the principle of form has been played during this period. Architects and theorists have made a contribution in the process of the change including Pugin, Ruskin, Morris. British architecture practice and theory gradually had shown the power of change and herald the arrival of the modern architectural form.

1. Introduction

In addition to the Britain, the European situation is volatile because of the war and revolution in the late 18th and early 19th centuries. Architecture development of Britain maintained consistent continuity. British architectural form contained the classical revival and romantic aesthetic tendency because of the progress of archaeology in the early 19th century. This was also the result of different class ideology for the choice of different architectural form under the background of the industrial revolution.

The discussion about “what is the style of British national architecture form” was getting more and more prosperous since the 1720s around. Gothic architecture began to be concerned and gradually be considered to be the form which has national characteristics. In fact, Britain was gradually transformed from complicated decorative Gothic architecture to simple vertical British style since the 15th century. Vertical and tall Gothic architecture had been considered to be England's national form from then on. British archaeologist and architect Thomas Rickman (1776-1841) described British 13-16 century Gothic architecture as perpendicular building in his article *Attempt to Discriminate the style of Architecture in England*. The modern architecture enlightenment in Britain started with the renaissance Gothic architecture undoubtedly.

2. Augustus Welby Northmore Pugin

Augustus Welby Northmore Pugin was British architecture and decoration design master in the first half of the 19th century. In the face of the prevailing Gothic tide restoring ancient ways in Britain,



Pugin questioned the simple imitation of Gothic building exterior in architectural design. He interpreted the medieval Gothic building rationally through the study of the archaeological academic research of medieval buildings. The layout of the medieval buildings to use requirement were reasonable. And the corresponding relations between structure and form of logic were rigorous. Pugin's research was the an important scientific correction to the superficial form imitation. In the meantime, it was also the guidance architectural aesthetic tendency under the background of industrialization in 19th century. Pugin was the first architect considering the Gothic architecture as an architectural principle in Britain. Viollet-le-Duc (1814-1897) in France had a very close theory likewise. Viollet-le-Duc called it a universal style. Pugin published the book *Contrast: Or a Parallel between the Noble Edifices of the Fourteenth and Fifteenth Centuries and Similar Buildings of the Present Day; Showing the Present Decay of Taste* in 1836. In this book, Pugin fought with the love of romantic architecture among the British mainstream society. He particularly disliked the separation of structure and form in classical architecture. Pugin insisted on one principal that an architectural style should be associated with its use directly. And the users and the viewers could clearly get the construction in this way. [1]

Pugin's material authenticity principle includes two parts content. Firstly, architecture form began in the reasonable construction of material. Secondly, architectural form and decoration must be purposiveness. [2] The former is that architectural form can be understood as artistic expression of materials. The latter discussed is the relationship between skeleton structure and decoration. Pugin put forward two groups of similar concept for this discussion. One was "Decoration of Construction". And other was "Ornament of Construction". "Decoration of Construction" was the decoration attached to the structural logic. "Ornament of Construction" had nothing to do with the structure of architectural main body and cannot be controlled. Obviously, Pugin agreed to the former purposeful way of building decoration. [3] Pugin published the book "Apology for the Revival of Christian Architecture" in 1843. Pugin thought that the beautiful combination of mechanical skill and form was unified in the structure of the pointed architecture. [4]The volume of the book illustrations listed almost 20 Christian churches he designed. The most representative and influential church is Saint Giles built in 1839-1844. This church is located in Staffordshire. The Gothic pointed arch form of this church shaped the strong vertical towering architectural form of Gothic style. It is the most important that this building reflected the structure of the mechanical transmission truly and accurately. Functional arrangement and space size of the religious rituals are closely combined with the actual needs in this church design. No matter from the point of view of function, material or structure, this construction conformed to Pugin's design principle of authenticity. (Figure 1)

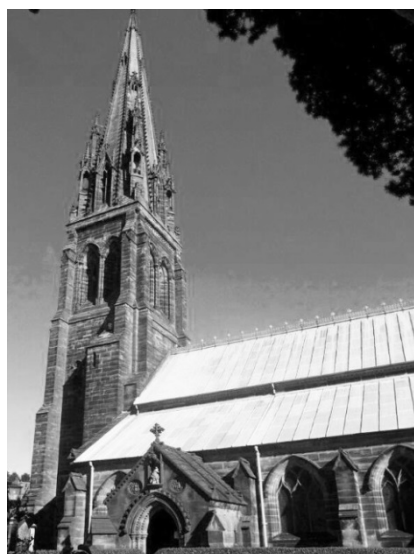


Figure 1. Saint Giles Church built in 1839-1844.

Pugin made lots of comprehensive specifications on the construction rules and aesthetic standards in the first half of the 19th century. His theory indicated some important principles of modern architecture. In the field of western architectural history and theory, he was known as the guide of the modern architecture in Britain. The authenticity of the form expression is one of sources of modern architecture. Pugin's principle of authenticity had a great effect on the other architects in Britain for a long time.

3. John Ruskin

Another famous proponent of British Gothic architecture is John Ruskin (1819-1900). Although Ruskin completely denied the correlation with Pugin, they had the same principle of authenticity essentially. On the one hand, Ruskin recognized the form Gothic architectural form could reflect the real construction. On the other hand, he also thought all good architectural form was based on real construction.

Ruskin disapproved of some of the ideal principles of standardization in classical architecture. Especially those aesthetic standards and composition principles derived from the classical rules of form. He believed that the principles and rules of past practice would disappear with the emergence of new conditions or the invention of new materials.[5] He believed that only two fundamental principles could be recognized in the rules of architecture. One is that there are ethical rules about the origins of human characteristics. The other is the rules that are reasonable in the use of materials. These two principles reveal Ruskin's requirements for readability of structural systems and material authenticity. These can easily explain Ruskin's recognition and admiration of Gothic architecture. Gothic architecture perfectly conveyed the structural logic of architecture. And Gothic architecture's use of materials compounded its nature.

The readability of the structure in question requires further explanation. Ruskin didn't want the building to represent all the structural features of a building in a straightforward way. He took the structural system of Gothic architecture as an example. The thinness of the supporting columns of Gothic architecture gives viewers and users of the building a space to enrich their imagination. The rest of the architecture is not shown too much.

Iron was the new material in the second half of the 19th century. Ruskin believed that iron should have been used to make structural connections in the building, rather than as the main supporting part of the structure. His conclusion about iron was somewhat conservative, but the core meaning and original intention of his expression was really to let different materials speak with language in the suitable way. In this way, the building can obtain greater structural strength without deviating from the existing building form.[6]

Ruskin's aesthetic appeal of architectural form was different from Pugin's. Pugin's architectural form was generated from function, while Ruskin was a complete anti-functional. Ruskin made a great contribution to the promotion of early modern architecture. He expanded Pugin's Gothic rationality to a secular level, proposed materials and construction rules more in line with modern architectural standards, and specifically discussed the relationship between technology and formal expression.

4. William Morris

William Morris was an artist as well as an architectural and art theorist. Although he was not good at the technical part of architecture, he was influenced by Ruskin's thoughts on art reform and made great contributions to the establishment of architectural art and aesthetics. As the initiator of The Arts and Crafts Movement, Morris insisted that the artistic beauty of handicrafts was better than that of machine-made products. To a large extent, this point of view had affected the British arts and crafts movement and the design orientation of early modern architecture. And it also had a profound impact on the early development of modern architecture and modern art.

In the 1870s, Morris began to pay attention to the sociality of architectural art and believed that architecture should enter the life of the general public. In this respect, he was obviously influenced by

Ruskin, and was more "modern" than Ruskin in the establishment of artistic social values. Morris understood architecture as a concept of totality, which includes the overall consideration of the overall environment of human life. Morris emphasized the functional orientation of architecture to serve the society, which was the difference between modern architecture and historic architecture. For the mainstream architecture industry at that time, architecture was still a carnival of individual will or simply imitating the previous style. The aesthetic principle that Morris paid attention to practical function to satisfy is economic and contracted social life. Therefore, the imitation and repetition of historical style should be abandoned.

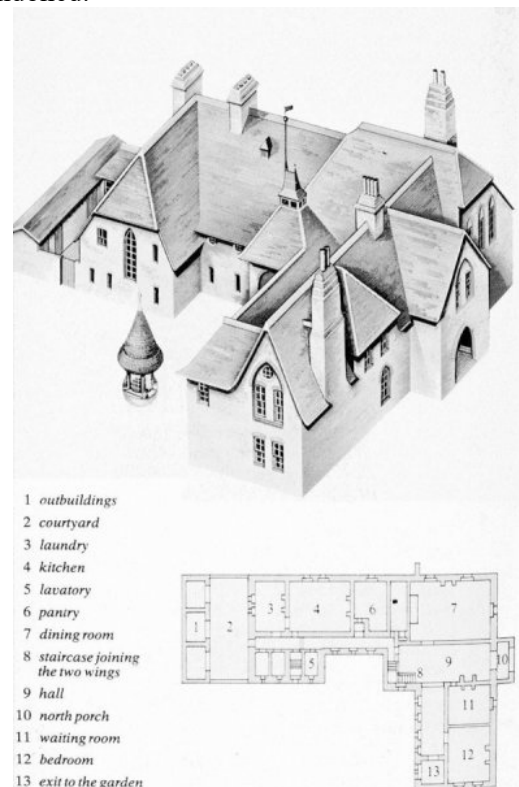


Figure 2. Architectural axonometric mapping and plan of the red house

Morris' views on materials, technology and craftsmanship had a great influence on British architects. The honest and simple design style influenced a generation of British architects and artists, which was of great significance to the modern movement. This concise technical and decorative logic was fully and directly expressed in the Red House in Bexleyheath. It was Morris' residence designed with Philip Webb (1831-1915). The red house adopted the local red brick as the main building material. The appearance was simple and honest without any painting. The concise and complete main body of the building had almost no decorative components unrelated to the function and structure. (FIG. 2) It was no exaggeration to say that the building combined the craft and architecture and coordinated declaration. And the material was honest and misunderstanding of the principle of combining handicraft decoration. Morris combined the common features of great British architecture, which was a unique national style of simplicity and solemnity developed since the middle ages. In the book *Pioneers of modern design: from William Morris to Walter Gropius*, Nikolaus Pevsner (1902-1983) firmly recognized Morris's historical status as a pioneer of modern architecture from an artistic standpoint. Walter Gropius also insisted that many of the original intention of Bauhaus came from Maurice's thought of handicraft art, which opened the education process of western modern architecture.

5. Conclusion

The previous reasons for the development of modern architecture in the 20th century originated at an earlier period of time. In the 19th century, Britain continued to march on the exploration road of the early modern architecture movement. In this period, British architects wanted to find the sense of responsibility for their own existence in the period of technological and social changes. This phenomenon with strong moral concept started from the early British architects and theorists of Pugin, Ruskin and Morris. They have contributed great wealth to the modern architectural movement. The introspection of British empiricism and modern improvement had contributed to the gradual evolution and integration of architectural forms. Therefore, British architectural thoughts and practices were irreplaceable modern values to some extent.

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