

## Original Study

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# Beyond Digital Dwelling: Re-thinking Interpretive Visualisation in Archaeology

**Abstract:** Archaeology is a visually rich discipline with a long history of utilising images across a variety of contexts within its practice. However, due to the often unavoidably subjective nature of visual interpretation, fundamental issues with its application remain problematic and largely unresolved. Furthermore, in recent years the rising dominance of digital techniques for archaeological three-dimensional surveys and interpretive visualisation has resulted in a rapid uptake of emerging technologies without adequate assessment of their impact on the interpretive process and practitioner engagement. Using an example from experimental work in Orkney as a springboard for discussion this paper outlines the need for the field to develop a more practical approach to addressing some of these recurring issues by developing methodologies which more accurately reflect the multi-layered, interpretive and ambiguous processes involved in archaeological interpretation.

**Keywords:** Archaeological visualisation, creative practice, data capture, digital documentation, archaeological interpretation, laser survey, laser scanning, photogrammetry, reconstruction, storytelling

DOI 10.1515/opar-2015-0006

Received December 9, 2014; accepted March 16, 2015

## 1 Introduction

Within the remit of ‘digital archaeology’ this paper addresses the interpretive graphic representation of past societies; specifically the archaeological visualisation of people, material culture, sites and landscapes. Archaeology is a visually rich discipline which frequently utilises images as a means of communicating complex ideas and information across a range of media with numerous avenues for visualisation within the field. However, despite the apparent prominence of digital visual techniques in archaeology, fundamental issues with its application remain challenging and largely unresolved. Reconstruction-style images in particular have a problematic history of largely uncritical creation and use within archaeology [for example, 1, 2, 3] particularly when dealing with the intangible side of interpretation concerning subjects such as process, agency, embodiment and lived experience.

This paper outlines the need for the field to develop a more practical approach to addressing some of these recurring issues by developing methodologies which more accurately reflect the multi-layered, interpretive and ambiguous processes involved in archaeological interpretation.

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**Article note:** This article is a part of Topical Issue on Challenging Digital Archaeology.

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## 1.1 Establishing Where the Field Currently Stands

In order to propose challenges for the field of digital archaeology it is essential to first establish a solid engagement with the current state of play and to ascertain what the tools and methods for visualisation within this field can and cannot do. Only once those capabilities have been identified and interrogated can suggestions be made and the field advance. Presently, within archaeology images (digital or otherwise) are a powerful communicative tool used to tell stories about data, the archaeological process and interpretation of the past. At its core, all image-making within archaeology involves implicit assumptions and explicit choices, but the context and technique behind the creation of these images and the ways they are consumed often obscure this process. Crucially, image-making (much like the process of archaeology itself) is something inherently subjective and creative. For example, photography is often perceived as being an objective and neutral means of preserving and recording a snapshot in time due to its optical consistency [4]. However, in reality photographs cannot truly provide this kind of transparency because the process of taking a photograph always includes a series of technical decisions (aperture, depth of field, focus) and choices relating to framing and, by association, exclusion. Bateman [5] explains that photographs routinely taken as part of the excavation process make conscious exclusions by removing the people and tools which excavated it. These staged images, he argues, are presented as an unhindered ‘archaeological reality’. It is in this same light that Bohrer [6] states that photographs do not passively document, but actively claim an interpretive position.

Although there is a growing body of literature and an increased appreciation within the field for expressions which illuminate and expose the interpretive and artistic qualities of presentation and narration [for example, 7, 8], few in academia actively engage with expressive practice as part of their research methodologies. Cochrane and Russell [3] believe that exploring contemporary relationships with visual expression can facilitate broader understandings of complex interpretations of the archaeological record. Furthermore, they raise concerns that the present avoidance of reflexive visual literacy in archaeology threatens the meaning and value of visualisation for research practice within the field.

One of the most familiar and certainly more wide-reaching (consumed by academics and general audiences alike) manifestations of visualisation in archaeology is digital reconstruction. The term ‘reconstruction’ itself is often discouraged in current practice as it can be taken to imply a level of interpretive certainty which is largely unobtainable. Reconstruction is a loaded term and many [for example, 1, 2, 9] have laid bare the numerous societal conditions and constitutive interests which unavoidably shape these depictions of life in the past. Traditionally reconstructions were commissioned by archaeologists and completed by artists and although this is often still the case in a public heritage context, the increased popularity and availability of software for digital modelling and rendering over the course of the past decade has seen a rise in the number of archaeologists producing digital models and reconstructed scenes themselves. As a result of this the field of archaeological reconstruction has to some extent evolved into a field of ‘virtual archaeology’, a phrase notably coined by Reilly [10]. However, Reilly’s [10] initial concept of a ‘virtual archaeology’ did not develop in a way which transformed archaeological practice, as he had expected it to [11]. Instead, the traditional concepts of archaeology were simply reinforced by the use of digital technologies for visualisation. The field of digital archaeology is often presented as having rapidly advanced in past decades; however, this is more of a testament to the field’s fetishism with new technologies [12] rather than an overall analytical advancement. On the whole, within archaeology digital developments are viewed as being fundamentally methodological, providing a set of tools comparable with any other in the archaeological toolkit [13]. This means that new techniques and approaches to visualisation within archaeology tend to influence data gathering and site management [11] but have relatively little impact at a higher analytical level which would influence the wider theoretical debate.

One of the most problematic manifestations of ‘virtual archaeology’ as it developed was that the visual output was initially believed to be of a more scientific nature than the traditional ‘artist’s impression’ due to its computational origins and the archaeological research context within which the majority of these images were being produced. Consequently, this gave way to a large body of technology-focussed literature

concerning the production, analysis and dissemination of digital reconstructions which document recurring theoretical critiques and issues with the use of reconstruction within academic practice. This problematic history of the way archaeologists have used reconstruction images coupled with their ongoing subjectively-disconnected production and dissemination has resulted in a series of deeply embedded expectations about what these compelling visuals *can* and *should* do.

## 1.2 Visualisation in Archaeological Research Practice

To this extent it is easy to critique archaeological visualisation as it is currently presented across both academic and public heritage contexts. It is much harder to solidly define where the true potential of digital media lies within the practice of archaeological visualisation and to suggest how the field might arrive there. In order to do this the discipline must first establish some core fundamentals about the practice of ‘virtual archaeology’ which can be used as the foundations upon which it can establish itself. Three key words can be used here to characterise this new dialogue with digital archaeology: process, engagement and creativity.

Crucially, digital representations have the potential to facilitate new modes of engagement and interpretation if the methodologies for their creation foreground the importance of *process*. In archaeology, visualisation can act as a catalyst to interpretation, facilitating a discourse between practitioner, site and archaeological record [14]; essentially initiating a process of thinking through doing. Rust [15] observes that artists often create in order to understand what they wanted to create and certainly, the creation of imagery such as sketching, digital 3D models and speculative renderings can act as a dynamic toolkit for archaeologists to think with if integrated into the working process itself [16].

Additionally, an important area which skirts the edges of archaeological visualisation can be loosely characterised here as art. Post-processualism and creative practice have often been represented as being incompatible with digital technologies on the grounds that subjective and objective approaches cannot coexist within a single approach [13, 17]. However it is within this perceived ‘incompatibility’ that the integration of artistic method finds its strength. Creative practice destabilises established method, negotiates different types of engagements with the archaeological record and challenges many of the problematic tropes associated with this type of work [see 8, 17-20]. Art deviates from the usual linear constraints of conventional practice into an embodiment of what abstract artist Joan Mitchell has famously termed ‘messy thinking’ [21]. Art is reliant on exchanges between artist, subject and audience and as such can be regarded as a social process [22], thus images which result from creative practice are more than simply pictures, they are a way of acting, identifying and being as well. In many ways art is the least engaged with yet most honest form of image-making within archaeology because it does not attempt to mask its creativity and subjectivity from its audience. However, in many archaeological contexts the concept of “art” has been poorly defined and consequently the perception of its use is varied, often being thought of as “good to look at” as opposed to being “good to think with” [3].

So why have creative visual methodologies not played a more prominent role in archaeological interpretation thus far? Gillings [23] speculates that the lack of theoretical discussion and absence of any sustained body of critical theory in this area may be attributed to the specialist knowledge required to produce visualisations, especially in a digital medium where a certain level of technical ability is required. What is more, he observes that where critical discussion has taken place it has tended to occur *after* these images have been produced, resulting in a system of post-hoc justification rather than the development of a sustained guiding methodology. As a result of the many meanings images can evoke, academic disciplines and texts often marginalise the role of the image in research as being too difficult to control, essentially destabilising the scientific premise of objectivity and replication [24]. It is often with this objective mind-set that archaeologists aim to achieve a situation in which an image simply records rather than imagines its subject [2]. This is particularly prevalent in the field of virtual reality, where the majority of three dimensional representations of sites tend to strip out every trace of humanity, presenting models as “sterile shells” which serve to visualise a space rather than defining a place and time [25].

Certainly, a compelling visualisation can make itself ‘easy to love and difficult to doubt’ [26], especially when that visualisation deals with complex human agency, stirring an emotive response from the viewer which, as Berger [27] observes, results in their empathy for the subject or situation, thus rendering visualisation seductive. Empathy and emotion are not commonplace in archaeological scientific discourse and their presence is often perceived as being subjective, problematic and un-quantifiable. Many archaeologists [28, for example] remain concerned by the subjectivity of their interpretive processes in the field. However, the continuing rise of post-processualism has furthered the discussion in a positive direction [29], supporting self-reflexive phenomenological approaches and the creation of narratives as an academically viable means of experiencing and understanding sites and landscapes [30]. Wheatley [31] believes that the avoidance of aesthetic and personal experience in visualisation is irrational and misguided. Certainly, dehumanizing our representations of the past is not a productive solution. Rather than being avoided as the researcher’s unquantifiable enemy, subjectivity in visual work and field methods should be engaged with as a core dimension of our interpretive process and representation [32].

## 2 Proposing Change

So, what steps need to be taken to allow the discipline to evolve from where it currently stands? Earlier it was stated that the field as a whole needs to better establish what visualisation can and cannot do. In order to establish these capabilities visual practitioners firstly need to engage more readily with their methods in the field and in the computer lab, acknowledging and interacting with subjectivity rather than remaining resistant to it. In some respects this engagement has already begun. Outside the demonstration of novel techniques and technologies the body of literature concerned with archaeological computer science has wrestled for some time with issues of validity and intellectual integrity, the perceived seductive power of images, the representation of uncertainty, documentation, sustainability and access [for example 33, 34, 35 among others]. The solution offered by the field of archaeological visualisation at present largely comes down to methodologies of best practice which advocate intellectual and technological scholarly rigour as well as self-reflexive transparency of process with the aim of promoting and giving validity to the outcomes of computer-based visualisation practices [36-39]. Following a multitude of papers written from the mid-1990s onwards [for example 40, 41, 42], the London Charter originated as a means of documenting the nature, scope and validity behind the production of hyperreal digital visualisations, essentially promoting a framework of intellectual transparency supported by *paradata* [43]. While *metadata* describes observational technicalities such as equipment settings, data ownership, hardware and software, *paradata* documents the intellectual process involved in such practices. Baker [44] explains that in this way an interpretive visualisation becomes a vital component of the research narrative as it gives others the ability to see how an argument has been constructed and allows inevitable uncertainties to remain visible and intact.

Proposing such best practice frameworks for the production of digital visualisations in archaeology provides an important step in encouraging practitioners to engage with and be reflexive about their process. However, these frameworks aim to bring quantification to a creative process by masking subjectivity behind scientific rubric which only serves to generalise, objectify and distance, shying away from the creative qualities and potential these types of expressive visuals offer to archaeology. Despite the efforts of practitioners who advocate transparency and documentation of the visualisation process by means of metadata and paradata it remains difficult to ascertain the ‘success’ of a particular visualisation as its subjective nature often makes it resistant to the conventional evaluation techniques prevalent in science [25]. In archaeology at present there are no methodologies for the creation of visualisation work which actively encourage and embrace the creative process. Digital archaeology needs to move forward as a discipline and establish a more productive approach to making and consuming these images and consider the ways in which they can influence and aid in the creation of new knowledge.

Archaeological visualisation is the process of picturing the past in the present, incorporating both scientific data and artfully crafted storytelling. It is an activity which at its core relies on a personal engagement between practitioner, practice and the archaeological record. In discussing the cognitive process of artistic practice Smith [45] insists that mistakes and messiness are crucial to understanding and

generating new knowledge. It is this intimate relationship between practitioner and visual process that makes space for meaningful engagement with the site or subject and develops visual interpretation in a way which captures the imagination of audiences.

Typically the social sciences have difficulty dealing with mess because clear descriptions are not always successful if what they are describing is not always coherent [46]. In attempting to describe and simplify the often messy processes of creativity and interpretation complex practices are often reduced to meaningless method. Quantification and transparency ask for order, conformity, systematic process and repeatability, but these attributes are not often feasible or desirable within visual research practice. Scholars have long questioned the nature of ‘objectivity’ in scientific practice, acknowledging that observation, interpretation and representation are inevitably influenced by societal and political constructs [for example, 47]. As archaeologists, what we are able to recognise in the field relies almost entirely on what we have experienced before [48]. Thus, drawing parallels and seeing the world in the simplified shorthand of our modern perspectives is inevitable and largely subconscious. Though visual practitioners may take note of their creative decisions, even the most conscientious paradata record will struggle to reflect the underlying influences behind every decision.

If interpretive visualisation cannot be quantified in a traditional sense, practitioners within this field need to take greater responsibility for their images by establishing a deeper reflexive understanding of their process. This responsibility need not rely on the problematic crutch of scientific quantification and transparency, which aims to conceal the artistic craft and interpretive ingenuity of the practitioner. Though reflexivity and documentation are a fundamentally important part of visual research, many of the processes within visualisation practice are fleeting, ephemeral, and as such, impossible to articulate and document. Rather than simply prescribing repeatable methods and processes to be documented and stored the field must learn to afford more intellectual weight to practitioner skill and competency. In order to assure this competency the field needs to invest more time in establishing visual literacy amongst its practitioners and the wider academic community.

## 2.1 What does visual literacy mean in the context of archaeology?

Visual literacy needs to go further than simply being skilled in the use of the latest equipment and software. It relies on a deeper engagement with the nuances of interpretation, storytelling and display. At present in archaeology both practitioners and audiences produce and consume visualisation within boundaries of expectation, technology and perception. Consequently, these boundaries result in tensions developing between areas of archaeological practice. For example, the perception of digital visualisation and survey as scientific and quantifiable has resulted in its practice being placed within a restrictive construct which views any integration with subjective media or methodologies in a negative light. Similarly, expectations placed upon techniques of reconstruction and visualisation in the academic and public eye has caused an inflexible and problematic attitude towards the consumption of these images. Despite the consistent use of phrases such as ‘the artist’s impression’ and insistent captions declaring that these images only depict ‘what the site *might* have looked like in the past’, audiences continue to make assumptions about the authority of an image based on media and context [see 49, 50]. In order to remedy the situation interpretive visual material must be presented to audiences in a way which reflects the broader processes of archaeological interpretation. Thus, archaeologists cannot simply state that an image is a speculative interpretation, they must also demonstrate to an audience *why* this is the case.

## 2.2 Taking the First Steps: Digital Dwelling

The journey towards widespread visual literacy within archaeology is not an easy one although a few tentative steps have been taken. During 2013 the author led a collaborative interdisciplinary team of visualisation specialists (Kieran Baxter, Dr Aaron Watson and Dr John Was) in exploring mixed-media as an archaeological field method through the act of making an experimental film at the Neolithic settlement of Skara Brae in Orkney. As shown in Figure 1, this mixed-media approach used a range of technologies including laser scanning,



**Figure 1:** Select images from the *Digital Dwelling* fieldwork. From top left: kite photography at Skara Brae (photo by Kieran Baxter) and within the wider landscape at the Ring of Brodgar, recording paradata in the field (photos by Aaron Watson) and relating the relevant literature to features within the site (photo by Kieran Baxter), filming within the village (photos by Kieran Baxter), kite photography at Skara Brae (photo by Aaron Watson), conducting photogrammetry in the wider landscape at Cuween chambered tomb (author), the author's painted hands with a replica carved stone ball during filming (photo by Aaron Watson) and a visit to the nearby Neolithic site of Barnhouse (author).

video, kite aerial photography and traditional painting and drew upon the practices of both archaeology and film-making. In doing so, it facilitated experiential and creative responses to the site to be juxtaposed with elements of the archaeological record as objective data and sensory experience became fused together in a single interpretive narrative. Rather than attempting to mask elements of subjectivity, the collaborative team actively and reflexively engaged with creativity, interrogating their process in order to validate its significance as an important part of archaeological practice (for a full breakdown of the storyboards [see 50, 51 and the film and accompanying production narratives can also be viewed in an online exhibition<sup>1</sup>]).

The narrative arc of the film (see link from Figure 2) is driven by a convergence of evidence from the archaeological record and the team's own sensory engagement as field workers: from the present day to the imagined past, from a remote aerial perspective to an embodied encounter deep within the walls of the village, and from objective interpretation to creative storytelling. The journey begins with the disembodied perspective of flight, and ends with a direct encounter with an imagined person; from the wider landscape right down to a single artefact.

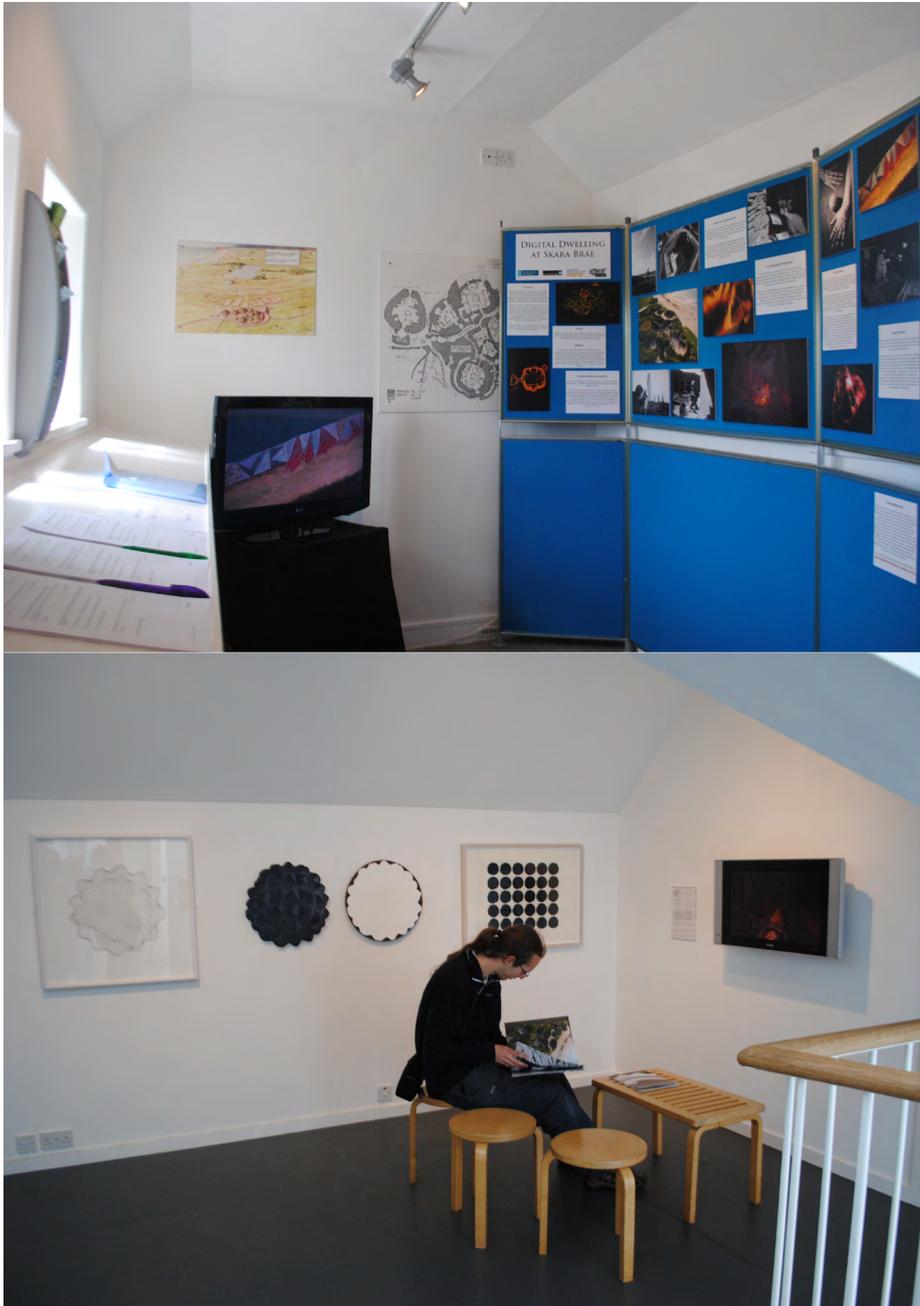


**Figure 2:** A still of the reconstructed interior of House 7 at Skara Brae from the Digital Dwelling film (see <https://vimeo.com/alicewatterson/skarabrae>).

The project challenged preconceptions by utilising, analysing and layering a selection of mixed-media approaches and methodologies, demonstrating that rather than simply being able to coexist alongside each other, these differing methods can in fact serve to complement each other and strengthen the interpretive process and final outcome. Notable interpretations of the evidence from prehistoric sites across Europe and beyond suggest that these communities are likely to have shared a vastly different understanding of their world than we do today [48, 52]. Development of the film allowed the team to expand their engagement with the site out-with the conventional constraints of systematic digital survey as they began to develop a challenging representation of the site which reflexively moved beyond modern preconceptions of Neolithic life. Artistic interventions within the film explore the site from different and evolving perspectives, reflecting the nature of this interpretive experience which can be subjective, complex and ever-changing. Thus the advantage of integrating artistic practice in archaeology is not necessarily in an ability to collapse or reinvent conventional processes; instead, its power lies in the negotiation of a complementary partnership between the subjective and objective methods and perspectives, facilitating a practice-based methodology of thinking through doing.

<sup>1</sup> Film and full exhibition available online at <http://digitaldirtvirtualpasts.wordpress.com/skara-brae/>

On the whole the academic community has been very receptive to the objectives outlined by the *Digital Dwelling* project and test audiences (see Figure 3) have enthusiastically engaged with the material. However, with specific regard to the more general audience onsite at Skara Brae the results were mixed. Some immediately engaged with the material in the exhibition and film, understanding the intentions and consuming the media with critical awareness and cognitive engagement. Others seemed to have difficulty in overcoming the initial deviation from a format they were familiar with and the ‘fixed’ interpretation they already carried with them about the site, insisting in some cases that this was simply *not* what the past was like and that the film was *wrong*. A few even took the film to be an outright ‘truth’ about the site, as opposed to an informed interpretation. Consideration of the feedback comments seems to suggest that these issues stem from the way traditional archaeological visualisations are currently consumed within these contexts.



**Figure 3:** Top: The *Digital Dwelling* exhibition onsite at Skara Brae and bottom: the film being shown in the Pier Arts Centre in Stromness as part of Jim Pattison’s *Models of Mind* exhibition (author).

Within the academic and public audiences who viewed the Skara Brae film and exhibition it was clear that a large proportion of people, regardless of background, harbour particular expectations and presumptions about the role of visualisation within archaeology. More often than not this pertains to an expectation that visualisation can and should present a singular truth about the past. These expectations are problematic as they encourage a mind-set which consumes these images in a way which ‘fixes’ this single visualisation of the site in the mind’s eye, an issue which has previously been addressed by Swogger [9] as what he terms “the tyranny of representation”. The general impression following review of the Skara Brae feedback was that on some level the general public in particular have been led to believe that the pursuit of archaeology (excavation, survey and so forth) reveals answers about life in the past, when in reality it simply brings evidence to light. Just as the interpretation of evidence cannot be presented as a definitive truth, visualisation cannot be taken to represent a single answer.

The *Digital Dwelling* film attempted to create a more meaningful kind of critical engagement with the representation of the archaeological record by challenging what is meant by visualisation and interpretation, traversing the divide between subjective and objective practice. In reflexively examining the chaotic, messy and often unpredictable process of archaeological visualisation across a number of techniques and approaches it was possible to establish a greater understanding of its value and application to the field. The research examined what visualisation using a range of contexts, techniques and media can do and what it is capable of when applied within a methodology which celebrates creativity. However, it has also demonstrated that academic and general audiences alike often harbour misplaced expectations towards archaeological visualisation. These are not problems which can be resolved easily, but this research has taken a vital step towards addressing these issues and examining practical means which move towards a solution.

### 3 Discussion and Concluding Thoughts

At present, few in academia actively engage with expressive practice as part of their research methodologies and, as Morgan [53] observes, studies about visual media produced by archaeologists acting as visual practitioners themselves are rare. The *Digital Dwelling* project has begun a dialogue with some of these issues using collaborative work to combine a range of visual approaches within a developing creative methodology, exploring themes in agency, materiality, lived experience, phenomenology and representation. These themes have been advocated by various authors [for example 54, 55, 56] but are rarely demonstrated through examples of practical work. However, more work needs to be done in this area to mark a significant change in approaches to visualisation and attitudes towards consumption. Archaeological visualisation is a complex area of research which exists at the convergence of evidence, interpretation, scientific data collection and storytelling. Further questions need to be raised and addressed in order to understand these evident boundaries.

If the field is to see a change in the way visualisation is produced and consumed there is a requirement for a more coherent body of theoretical literature to support practitioners in their work. The London Charter and other such best practice initiatives go some way towards providing a framework for this type of interpretive visual work, but to expect such a small body of literature to support such a vast field is problematic. Furthermore, Jordanova [57] has previously observed that even if it were possible for all elements of the visualisation process to be identified and captured, at present there are few incentives for makers to record their creative processes. There needs to be an increase in practitioners of visualisation publishing papers and research agendas which engage with their process in greater depth and avoid focussing solely on technology and aesthetics over methodological theory and interpretive substance. As Cochrane and Russell [3] observe, if the field of archaeology continues to downplay the importance of reflexive visual literacy and the complex dialogues which develop during the process of interpretive visualisation, then the meaning and value of visualisation for research practice within the field remains threatened.

As a discipline the field of archaeology needs to learn to overcome its deeply embedded preconceptions about the implications of creative practice as an active and engaging part of the research process. Examples

like *Digital Dwelling* begin to demonstrate that, although often chaotic and ‘messy’, interpretive visualisation as a creative practice has the potential to be a more reflexive, honest, analytical, comprehensive, transformative and engaging process than it is often perceived.

The field as a whole needs to establish a new way of thinking and consuming interpretive archaeological images, which will require the un-learning of many common preconceptions and expectations of archaeological reconstruction or visualisation. The multitude of papers concerning mechanical specifics, technological best practice and documentation is testament to the fact that practitioners of interpretive archaeological visualisation are under constant pressure to verify their work. As noted earlier, in archaeological practice at present there are no methodologies for the creation of visualisation work which actively encourage and embrace the creative process. As such, there needs to be an acknowledgement and above all an *acceptance* amongst archaeological and heritage professionals that creative practice cannot be justified solely through scientific and systematic means. On some level this will require practitioners to present clearer evidence to support the ways in which their own processes of image-making and visualisation relate to the broader debates about archaeological interpretation. Once there is a wider understanding and acceptance of the creative processes involved in this complex interpretive field, practitioners will feel more confident in taking personal responsibility for their visualisations. This in turn will influence the way interpretive visualisations are presented in heritage contexts, and the extent to which audiences are challenged and invited to engage more readily with the material. Just as the practices of both archaeology and visualisation involve a series of interpretive decisions, audiences must also be enabled to make informed choices in their consumption of visual material.

In order to incite change there needs to be an increase in visual literacy amongst archaeologists and better integration of visual techniques into fieldwork and research practice. Furthermore, there needs to be greater consideration of the ways in which visual material is presented. Images *are* indeed persuasive [as argued by 58, 59] but there *are* tangible ways in which audiences can begin to engage in a more meaningful way with interpretation. Consider performance art: at the theatre the audience can clearly see the construct of two-dimensional wooden stage sets but are willing to suspend their disbelief within the context of the story unfolding on the stage. Similarly with the use of visual effects in movies, the audience is aware they are looking at a manipulated image but accept it as a construct of cinematic deception. Archaeological visualisation has not yet established these contexts and constructs for itself. In this sense, visual literacy must transcend the boundaries between the production and the consumption of images and in order to do this practitioners and audiences alike must initiate the development of a visual language for archaeology. Though we can passively learn and adapt from other fields, to a large extent we must develop our own distinctive archaeological way of seeing and sharing this type of work. Actively working towards a higher level of visual literacy will naturally encourage and involve practitioners and audiences in their own practice and engagement.

So challenge the techniques, make mistakes and push the boundaries of expectation. Most importantly, don’t always go where it is deemed safe to go [60].

**Acknowledgements:** Many thanks to Historic Scotland for funding this *Digital Dwelling* project and to the CDDV (Centre for Digital Documentation and Visualisation) for provision of data. Thanks to both the Digital Design Studio at the Glasgow School of Art and to Duncan of Jordanstone College of Art and Design at the University of Dundee. Thanks also to Kit Reid and Richard Strachan for their support and feedback and Alastair Rawlinson for his wisdom and assistance in the field and back in the lab. Huge thanks to Jeremy Huggett and Paul Chapman for their advice and guidance. Thank you to Aaron Watson, Kieran Baxter and John Was, who formed the best collaborative team I could have ever hoped for.

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