'Visual competence' in archaeology: a problem hiding in plain sight

Simon James*

This paper is dedicated to the memory of Peter Connolly FSA (1935–2012), illustrator, author, experimental archaeologist and inspiration.

It is a truism that archaeology is a profoundly visual discipline; it is paradoxical, then, that so much of its output exhibits a poor level of what I opt to call visual competence. There are, of course, many glorious exceptions to the picture I will sketch out (pun probably intended). Yet as someone who returned to the UK university sector to teach archaeology after a decade as a jobbing illustrator and then museum educator and writer working closely with designers, I am as often dismayed as thrilled by the quality of images in many new archaeological publications, and in other documents and presentations created by archaeologists for specialist or public consumption. This is an international issue. What follows draws largely on UK experience as the central case study, but I have encountered the same phenomenon, and apparent causes, in teaching undergraduate and graduate students from a variety of Anglophone, European and other university systems, and through working on a range of projects in other countries. While I have not conducted systematic research, I have sought to cross-reference my impression that these problems are due to shortcomings in training, by canvassing the experiences of archaeologists around the world. As will be seen, their responses generally supported the picture presented here.

For obvious reasons, I must avoid citing specific egregious examples of bad practice, but many will have endured conference PowerPoint presentations with tiny images and illegible text. The reader will not have to look through many publications to encounter such common phenomena as: poorly drawn, incomprehensible location maps and site plans; object or site photographs without scales, perhaps reproduced as muddy halftones generated from colour photographs without the necessary editing for contrast; and such phenomena often appear in publications or presentations that generally look carelessly produced. As will be seen, this is just the tip of the iceberg. Certainly, such shortcomings are, in part, down to slipshod publishers, but also reflect a widespread neglect of visual matters among archaeologists, often extending to the very basics of document design. Some seem clueless about how to make, for example, the simplest poster or report visually effective or professional in appearance.

It is, naturally, hard to compare chalk and cheese, but, in my view, serious failings in the creation, use and presentation of visuals are more common, and deeper, than would ever be tolerated by, say, university examiners or editors encountering equivalent defects in writing and editing text. All this matters. It is not simply about 'superficial' issues

© Antiquity Publications Ltd, 2015 ANTIQUITY 89 347 (2015): 1189–1202

doi:10.15184/aqy.2015.60

Debate

^{*} School of Archaeology & Ancient History, University of Leicester, Leicester LE1 7RH, UK (Email: stj3@le.ac.uk)

of presentation: it is about fundamentals of effective practice in academic research that are far from superficial, and it is equally important for the wider communication of our discipline. Such visual deficiencies shout 'amateurs' to savvier outsiders accustomed to slick, commercially designed presentations—the people on whom most graduates will depend for employment, and from whom archaeologists in post must increasingly seek funding.

I argue, then, that archaeology as a discipline and profession has a real problem with what in a wider sense might be termed 'visuality' (Mirzoeff 2006, 2011), and, more precisely, 'visual competence' (Müller 2008; Pauwels 2008) or 'visual literacy' (e.g. Hug 2012; Hattwig *et al.* 2013). It is telling in itself that archaeology (and indeed wider scholarship) lacks an agreed term for this matter. It is doubly telling that 'visual literacy' relies on analogy with, and implicitly cedes priority to, skills required to handle text. As stated initially, I opt for the shorthand 'visual competence', employing 'competence' in the sense of the *Oxford English Dictionary* definition: "sufficiency of qualification; capacity to deal adequately with a subject". I would more closely define visual competence as comprising the capacity to interrogate and evaluate images and visual media productions critically—something requiring at least some reflexive experience of image (re)use and deployment—extending to the ability to create new visual images. I argue that active experience of deploying images, and of creating imagery and layouts, are vitally important to developing skills in visual critique, and also to understanding how to work with visual-media professionals.

Widespread shortcomings in visual competence comprise a significant but largely unrecognised weakness in archaeological training and practice, which stands in urgent need of addressing. There are, of course, crucial theoretical and historiographical strands to this: why do we do what we do, and how did we arrive at the present situation? These have been the subject of pioneering work by others: I have myself benefited enormously from the work and expertise of Stephanie Moser, Sam Smiles and Sara Perry in particular. Although I will briefly consider what seem to me to be the origins and causes of present problems, my primary focus is, however, on contemporary practice, and university-level training for practice—or lack of it. I then make some suggestions for what might be done.

Much archaeological evidence is perceived by the eye and recorded through visual means. Data are then represented, and interpretations presented, in visual as well as textual form. Archaeological documents, from student essays to fieldwork reports, popular books and web pages, are commonly punctuated with tables, graphs, maps, plans, object drawings, site photographs and perhaps reconstructions. In recent decades, field projects have increasingly used video for recording, and research presentations may use CGI, but here my concern is with still dominant static 2D media. A further key but underappreciated point is that visual representations are not merely passive records appended to the real deal: text. Much more than this, they have active roles deeply woven into the process of archaeology. Creating, manipulating, interrogating and deploying images are parts of the process of research itself, as fundamental as verbal discussions, writing working notes and drafting the publication texts with which such visuals are inextricably entangled (James 1997; McFadyen 2011). Embedding image-making in the research process is exemplified in the work of the late Peter Connolly, illustrator-turned-archaeologist, whose visualisation skills with the pen formed the basis of full-size reconstructions, recovering the forgotten design of stirrupless



Figure 1. Technical illustration as research process as well as medium of communication. Peter Connolly, working closely with Carol Van Driel-Murray, created drawings of the archaeological and iconographic evidence, then working sketches of how the elements functioned, to develop full-size physical reconstructions of the stirrupless Roman saddle; this transformed understanding of a fundamental piece of ancient transport and military technology (collage of images originally published in Connolly 1988: 30–31, reproduced with the kind permission of the Estate of Peter Connolly).

Roman-era saddles and revealing the unsuspected effectiveness of this fundamental of ancient transportation and warfare (Figure 1; Connolly 1986; Connolly & Van Driel-Murray 1991).

In recent decades, developments in information technology (IT) have led to proliferating ways of visualising data and ideas, from simple page-layout features of word-processing programs to magnetometry plots, GIS and LiDAR imagery and 3D virtual reality (VR). These developments derive from archaeology's embedded position in the world of contemporary high-tech culture. Along with everybody else, archaeologists—and especially students who have never known any different—are immersed in a world saturated in flickering full-colour imagery, on smart phones and tablet computers, across the internet and teeming digital TV channels, on advertising screens and in 3D movies. In the face of

this visual onslaught, mere text might seem generally to be in retreat in Western culture. With so much technology and such a plethora of media available to us, we might expect to find ourselves in a Golden Age of archaeological imagery and visualisation. In many ways we are. Fine new imagery has continued to be generated in traditional media such as ink and paint (e.g. the artworks by Danish illustrator Flemming Bau that weave together *Spuren der Jahrtausende*, a huge volume on German archaeology; von Freeden & von Schnurbein 2002). We also now enjoy stunning VR creations, including reconstructions or (better) simulations of past artefacts, buildings, people, places and landscapes.

An example of fine contemporary visual practice in archaeological publication is provided by a recent volume on the Roman forts at Newstead, Scotland (Hunter & Keppie 2012). A worthy sequel to Curle's classic 1911 work (Curle 1911) in both academic and physical weight, the new book exhibits an elegant layout, framing many excellent illustrations, some of which were selected substantially for aesthetic reasons. The images are highly varied in nature and style, even including something long unfashionable: attractive, hand-lettered sketch maps. To be sure, this work was produced with substantial sponsorship that is unavailable to most archaeological publications, but shows what can currently be achieved in conventional print media.

Further, in recent years, as part of a wider 'visual turn' in at least some areas of academic scholarship, the theorised study of archaeological visualisation has been established as a new area of research in its own right (e.g. Moser 1992, 2001, 2014; Smiles & Moser 2005). Archaeological visualisation studies, however, remain a tiny specialist niche, while current unprecedented technical virtuosity in archaeological image-making is confined to a talented but (in Britain at least) shrinking group of graphics specialists and a handful of practising archaeologists also possessing the specialist skills. I argue that, paradoxically, across the discipline of archaeology as a whole, general levels of visual competence have not improved in recent decades, but have actually declined, to the point where many practitioners seem barely aware of this as a distinct subject, let alone something requiring serious attention. The results can be depressing, a catalogue of lost opportunities.

A repeatedly encountered manifestation of the problem is in the provision of an elaborate and clearly expensive reconstruction of past life on an excavated site commissioned from a professional illustrator, used simply as a pretty frontispiece or shoved on the cover to sell copies, yet remaining undiscussed in the text. A golden opportunity for interpretative discourse (James 1997: 46–47) is thrown away as mere eye candy.

Why do these problems exist? In the UK at least, I suggest a combination of factors has been responsible. In the middle decades of the twentieth century, when typography and document layout were preserves of professional printers and typesetters, there was certainly much poor visual practice in publications. Nevertheless, competence with a drawing pen and camera were highly valued in academic archaeology, not least in the UK where such skills in visual presentation were widely seen as integral to the intellectual enterprise. The small number of departments teaching archaeology employed specialist illustrators and photographers, some on teaching contracts, others as technicians. Some Western archaeological expeditions also employed professional artists and architects for visual recording. For example, Henry Pearson, who trained at the Yale School of Fine Arts, served on the Franco-American project at Dura-Europos, Syria, in the 1930s, becoming a considerable

'Visual competence' in archaeology



Figure 2. Archaeological artwork: original drawing created on site at Dura-Europos, Syria, by Henry Pearson, architectturned-archaeologist; published in Rostovtzeff 1938: plate VI: reproduced by permission of Yale University Art Gallery.

field archaeologist while making exquisite drawings of the architectural discoveries (Figure 2; Hopkins 1979: 77–80). During the same era, many academic archaeologists developed their own image-making skills, some to very high levels. Famously, Wheeler's development of technical conventions for illustrations was integral to his field method, something

encapsulated in a now famous drawing from 1922, of the section through the *sacellum* cellar in the HQ building of the Roman fort of Segontium (Wheeler 1922: fig. 11; Piggott 1965: 175, fig. 5; Adkins & Adkins 2009: 5, fig. 1.4). Other notable archaeologists such as Stuart Piggott and Brian Hope-Taylor also produced technically sophisticated and aesthetically accomplished line art (Figure 3; Piggott 1958: fig. 1; Hope-Taylor 1977), and both published on archaeological draughtsmanship as a topic in its own right in this journal (Piggott 1965; Hope-Taylor 1965, 1966). Yet during the latter part of the century, the disciplinary dynamics changed radically.

Major expansion of UK university education from the 1970s resulted in a fundamental shift in the purpose of archaeology degrees, from vocational courses towards archaeology-themed general degrees. Those wanting to enter the profession were now also expected to undertake postgraduate training. In a climate of pressure to drive down costs, larger student cohorts made it increasingly difficult to maintain labour-intensive, studio-based drawing and photography tuition. Further, the growth of joint degrees has made it ever harder to fit things into the curriculum. Indeed, the development of undergraduate archaeology courses by distance learning offers global reach but creates additional challenges in the provision of practical skills training.

These trends have been exacerbated by resurgent academic bias against 'mere craft skills'. Historical primacy (or tyranny) of the written word over the image may be traced to the roots of modern academia during the often iconoclastic Protestant Reformation, and is arguably encapsulated in the continuing centrality of the essay in pedagogy. It is ironic that the ostensibly radical post-processual theoretical turn of the 1980s, for all its exhilarating critique of what had gone before, actually served to deepen these entrenched prejudices, through its obsession with the metaphor of the past as text, and its focus on matters cerebral and symbolic. Both for the pasts we study, and for modern archaeological discourse, this implicitly devalued practical matters—such as studying craft skills in antiquity, let alone developing contemporary equivalents for ourselves in areas like visual media. The work of leading post-processualist Mike Shanks on photography, referred to below, might be deemed an exception here, although it tends to take a strongly theorising and intellectualising approach, paying much less attention to accompanying practical skills *per se*.

Meanwhile, developments in IT were expanding the world of visual media far beyond traditional drawing and photography, to include graphics and image-manipulation programs, document-design packages, and advanced word processors with increasingly sophisticated layout capacities. These developments increasingly blurred the boundaries between hitherto distinct visual media, and facilitated closer integration of image and text. Such software became more affordable and accessible to students. As these major developments unfolded, UK archaeology departments generally did not revise their existing staffing and training provision to embrace them.

Where they might have evolved traditional drawing and photography provision towards more comprehensive and integrated graphics training, archaeology departments instead generally took the opposite tack, opting to shed existing specialist staff posts, reducing and perhaps outsourcing training in graphical techniques. I attempted to quantify the current situation through a snapshot survey of graphics staffing and training provision



'Visual competence' in archaeology

Figure 3. Proficiency in technical projection and exquisite penmanship by an academic archaeologist who loved to draw: Stuart Piggott's beautiful hand-lettered isometric rendering of the east end of West Kennet long barrow (Piggott 1958: fig. 1) © Antiquity Trust.

1195

Debate

in UK university archaeology departments during the summer of 2013, circulating a questionnaire with the help of the Subject Committee for Archaeology (SCFA). Unfortunately, this did not elicit enough responses to be useful, although it indicated considerable variation in practice. My qualitative impression is that—with honourable exceptions—the general situation continues to deteriorate. To be sure, in some places advanced visual tuition is available, but only as a specialist option. Sadly, many UK archaeology graduates today might receive little or no formal training in drawing or photography except for shooting a digital site photograph or two and creating a pencil section and plan during their field school, with perhaps some limited guidance in other graphical matters.

A straw poll of other nations' students and teachers suggests that this is a common pattern. Germany seems to do relatively well, for as a German PhD candidate reports: "graphics training has already started for the BA, but most of the students get their real experience while they are preparing their MA thesis". Italy may perhaps buck the trend with a respondent stating that "I graduated [from] the University of Rome in 2003, and thanks to my professors I got the basis of archaeological drawing and design. Later on [...] experience at excavations and in the lab have done the rest".

The picture for the most part, however, resembles that of the UK. An Australian university archaeologist reports that "I was trained [...] in both prehistoric and classical archaeology in the 1980s. In neither of these departments did we, as undergraduates, get any formal training in the craft of archaeological illustration [...] there was a compulsory field school for four days, and [...] we did some training in section drawing".

From a US university archaeologist the situation was as follows: "my colleagues here $[\ldots]$ did degrees in anthropology programmes $[\ldots]$ They did not receive training as $[\ldots]$ undergraduates in these skills from their departments, but picked them up [elsewhere] (technical illustration from biology, photography from art) or just worked them out on their own." Another American university teacher commented:

I received very little training in the classroom in visual studies [...] specific training in, artefact drawing for example [...] would have meant that I had to go to the art department [...] It is my impression that friends and colleagues in other US PhD programmes were in a similar boat. The only people I know that had extensive training with images were those that happened to fall into various roles on an excavation.

A Canadian who graduated in 2001 experienced much the same: "we only got compulsory drawing training as part of the field school, and that was site recording, not small finds. We certainly weren't allowed anywhere near the cameras!"

A 2002 graduate from Denmark wrote: "there was no formal training in archaeological drawing [...] However, some of us [...] were encouraged to follow the course in archaeological/technical drawing at the School [of] Conservation [...] We had a sort of *ad hoc* training in photography when we participated in excavations. Nothing in terms of document design, reconstruction drawings etc." A French respondent reported equally patchy coverage.

Several Spanish graduates all responded on similar lines: "My own impression is that we lack any training in visual techniques in Spanish universities, or at least we did when I was

an undergraduate"; "In my opinion, Spain lacks basic training in archaeological drawing and photography because [...] researchers at university only focus on texts"; "During my undergrad years (I graduated in 2005) we saw very briefly some aspects of field photography [...] As for archaeological drawing [...] nothing at all [...] What I could learn about these issues... has been through field work".

While far from systematic, my informal survey indicates the existence of a global issue. This situation is a consequence of the kinds of factors already outlined, plus, I suspect, there is an erroneous but widespread general assumption that simple access to versatile graphics-capable software for everyone is enough, without need for formal training. It seems we have not learned the lesson of the initial 'desktop publishing revolution' of the 1980s, that, in the hands of the untrained, powerful software gives enormous power—to make a terrible mess. Equally unsatisfactorily, such vast potential often just languishes on computers, unknown and unused.

Both the scale and nature of the problems, and ideas about their likely causes and possible solutions, were crystallised for me during the course of the workshops and international conference of the Visualisation in Archaeology project led by Stephanie Moser at the University of Southampton (2008–2011). In particular, I was prompted to scrutinise the then current UK Quality Assurance Agency's benchmarking document that set standards for university courses in archaeology, published in 2000 and subsequently revised (QAA 2007). This document, which, in its two editions, framed the training of half a generation of UK archaeologists, seemed to me to be profoundly significant in what it said, and also what it did not say, about the visual aspect of archaeological training.

Its spirit was notably 'logocentric', e.g. section 2.10: "archaeology is, in essence, a unique way of *writing* about the past" (emphasis added). Similarly, section 2.3 stated that "archaeology must engage adequately with other disciplines studying the same cultures through other sources of evidence such as art, architecture, and visual culture" (emphasis added); here, visual culture is external, not integral, to archaeology. The most explicit statement relating to visual competence was at 4.3: 'Generic Skills' include making "effective and appropriate forms of visual presentation", but did that imply anything beyond using PowerPoint? Perhaps not, as 'visualisation' was apparently something confined to IT (2.16). Otherwise, engagement with matters visual involved no more than "familiarity with the diverse sources of evidence used by archaeologists (including excavated, documentary, representational, observational, artefactual, environmental and scientific)" (3.1: emphasis added). Beyond this, visual competence was at best entirely implicit-or potentially overlooked completely; for example 5.3: "Given the importance for archaeology graduates of the development of *technical skills* in a variety of areas of archaeological practice, institutions should facilitate access to the equipment and technical resources for the pursuit of these within the archaeology programmes they manage" (emphasis added). This urged, rather than required, departments to provide training that might or might not encompass visual skills.

Yet students now need wider *basic* training in visual competence than ever before, even if advanced image production and design reasonably remain the preserve of specialist professionals. Whatever the exact causes, recent decades have seen a widespread loss of practical graphics teaching and teachers in UK archaeology departments, with, it

seems, a concomitant decline in training provision without contravening the tenets of the benchmarking document.

I believe that substantial action is needed to address the shortcomings in visual competence in archaeology, both in the UK and elsewhere. At the time of writing, the UK's national benchmarking document is undergoing revision; how far the new edition will facilitate and foster visual skills training currently remains to be seen.

The present situation is likely to take time to address in any country, and there are hopeful signs elsewhere. Recently, new generic guidelines setting 'competency standards' for teaching 'visual literacy' in higher education were published in the USA by the Association of College and Research Libraries (Hattwig *et al.* 2011, 2013). These offer a potentially valuable template for discussing ways of training the next generation of archaeologists (Figure 4).

What training in visual skills, then, should we provide to archaeology students? Given the bureaucratic and inquisitorial pressures under which university teachers now labour, I hesitate to suggest any additional burden of work to my colleagues and their peers in other departments. But much could be achieved by quite modest measures, through shifting emphasis in what we already do. Nevertheless, I believe that truly effective change over the longer term is likely to require strategic reprioritisation and investment.

Clearly we cannot, and do not need to, train all archaeology graduates to be able to produce publication-quality technical illustrations, or prize-winning magazine cover designs—although we must maintain pathways to ensure these artistic, craft and technical skills can thrive within the discipline for those with the talents and desire to pursue them. As a minimum, I suggest we need to ensure general inculcation of skills required for critically viewing ('reading') extant images, and selecting and reusing them in an informed manner. We should also be providing graduates with a basic understanding of how to design documents. These are quite modest and achievable goals.

Where not already formally instigated, training in the practical skills and rudimentary principles of basic document design can be easily and cheaply delivered through online tutorials, accessible both to campus-based and distance-learning students. Useful examples may already be found on the internet, so this could simply be a matter of ensuring students actually use them by getting them to create documents (e.g. a poster) for discussion in workshops, with formal assessment to ensure they take all this seriously. Ensuring that such presentational skills become embedded also requires scrutiny, with requirements written into marking schemes then consistently applied by markers.

Fostering the development of the intellectual skills involved in critically analysing images and visual presentations clearly requires pedagogical approaches different to those delivering document-design training, and is an aspect to which some teaching departments already pay considerable attention. This may be delivered through asking students to try to deconstruct archaeological imagery, to understand its overt messages, unconscious or smuggled-in assumptions, and possible hidden agenda about people and cultures. This approach builds on pioneering work, such as Moser's in this journal, on rival early representations of Neanderthals as visual encapsulations of archaeological interpretations, themselves embedded in wider contemporary socio-political and ideological discourses (Moser 1992). Again, we already well know how to deliver this dimension of training,



Figure 4 'Visual literacy array', diagram presenting concepts and structures underpinning ACRL's recent Visual Literacy Competency Standards for Higher Education (Hattwig et al. 2013: fig. 1): Visual Literacy Array based on ACRL's Visual Literacy Standards by D. Hattwig, K. Bussert & A. Medaille. Copyright 2013 The Johns Hopkins University Press. This image first appeared in Portal: Libraries and the Academy 13: 75.

e.g. through classes and illustrated written assignments, and it is fairly straightforward to see how this could be extended to distance learning.

Such training is inherently passive in nature; it comprises more or less speculative discussion of existing images. At an undergraduate level it would seem to be rare to pursue this through to formal tuition in *active* engagement with visuals: at its most basic, this involves learning how to select or deploy images most effectively in one's own work. It is even rarer for students, except those lucky enough to have access to specialist courses, to be taught how to create effective new visuals *ab initio*. Yet, I argue, students will learn how to critique others' visual arguments more effectively through learning to create them for themselves.

Of course, the most directly accessible means of visual creation is instant image capture through the photography of archaeological landscapes and locales, sites, artefacts and activities; almost all students own a digital camera, even if it is only one located in their mobile phone. However, for reasons explained below, rather than pursuing photography here, I want to concentrate on the widely unappreciated value of image creation through drawing and related means, with a pencil or technical pen—even if a paintbrush or graphics tablet, let alone rendering software, will remain mainly the preserve of the specialist.

It actually does not matter that many individuals 'cannot draw' and will never be able to generate publishable images themselves; that is not the point. The basic experience of drawing things by hand, accurately, to scale-plans, sections, elevations, perhaps above all some artefacts-offers something unique and invaluable. Drawing makes you examine the subject much more closely than simply pointing a camera at it, or even just handling it and inspecting it by eye. Indeed, a top-quality archaeological photograph also requires such scrutiny, involving careful attention to viewpoint, focal length and depth of field, framing, lighting and shadow (Cookson 1954). More recently, Shanks has also published on archaeological photography or 'archaeography' (Shanks 1997; Shanks & Svabo 2013), but this highly sophisticated and rather abstruse work is not itself a basis for initial practical training, which few undergraduates get anyway. Without such tuition, it is all too easy to short-circuit the process through just 'dashing off some record shots', i.e. crude image capture with minimal attention to content or technique. It is much harder to cut corners in a similar manner with drawing. Manipulating and looking closely at ancient artefacts, or exploring archaeological spaces and other data patterns, as part of the act of drawing them, obliges the observer to analyse the subtleties of their conformation, the shape and the spatial interrelation of elements.

Further, attempting something more ambitious, in the manner of an archaeological reconstruction drawing, especially a figural scene—even if only a sketch with matchstick people—can offer profound insights into the kinds of assumptions, choices and necessary compromises that go into creating more complex archaeological images. Actually having to try out these things offers a deep, visceral learning experience in the creation, use and impact of imagery that simply cannot be acquired through passive scrutiny of examples created by others. There really is no substitute for trying it yourself.

Much more than just a medium of representation, visual image creation—above all, drawing—constitutes a multi-sensory means of both exploration and interpretation. In much archaeological endeavour, generating, manipulating and analysing visual imagery—from beer-mat sketches to reconstructions, and from site photographs to plots of point data in representations of geographical or mathematical space—constitutes an intimate, integral, indispensable yet underappreciated dimension of how primary research is done, something that is every bit as powerful as the spoken or written word.

Image creation in general, I suggest, and the *process* of drawing in particular, comprise fundamental archaeological experiences that all serious students of the discipline should be required to practise as a basic element of their training, alongside honing their writing and speaking skills. I would reiterate that whether or not they ever develop image-creation skills to publication standard simply does not matter. They will, however, gain deeper insight into, as well as a discursive understanding of, how images work.

This offers substantial long-term benefits, even if graduates never again pick up a drawing pen, take a site photograph or (surely implausible) ever have to lay out a formal document for themselves. They will have acquired a basic understanding of the practices and requirements of the professional illustrators, graphic designers and publishers who they may one day need to work with, whether in archaeology or a range of other careers. Conversely, a more visually aware archaeological community would also form a more secure basis for sustaining a body of visualisation specialists. On a general level, visual competence—especially being critically image-savvy—constitutes a generic transferable skill that is of value to the graduate in any profession, and in everyday life.

But how can we deliver universal hands-on training in image creation? It may mean seeking to reverse the trend of recent decades to shed specialist technical staff in university departments. It is likely to mean a minimum of a shift in investment priorities. We could make a positive virtue of such a move towards emphasising the visual in archaeological education and practice. In addition to the anticipated benefits to research and to the quality of publications, playing the visual skills card could provide special and overt added value to archaeology degrees, at a time when the discipline is having to compete ever harder to recruit students; it would be something different, valuable and, almost literally, eye-catching.

Acknowledgements

I am very grateful to Stephanie Moser, Sam Smiles and Sara Perry for inspiration in thinking about the visual in archaeology, although none of these necessarily agree with the sentiments or suggestions expressed here. Similarly, I appreciate the comments of the two anonymous reviewers of the original draft. Thanks also to Jen Baird for drawing my attention to Lesley McFadyen's 2011 publication, to Barbara and Matthew Connolly for permission to reproduce the images in Figure 1, and to Denise Hattwig and her colleagues for permission to reproduce their 'visual literacy array'. I am also very grateful to the university teachers, graduates and current students in various countries who shared their experiences regarding training, or lack of it, in visual techniques.

References

- ADKINS, L. & R. ADKINS. 2009. *Archaeological illustration*. Cambridge: Cambridge University Press.
- CONNOLLY, P. 1986. The Roman saddle. *Britannia* 17: 353–55. http://dx.doi.org/10.2307/526559
- 1988. *Tiberius Claudius Maximus the cavalryman*. Oxford: Oxford University Press.
- CONNOLLY, P. & C. VAN DRIEL-MURRAY. 1991. The Roman cavalry saddle. *Britannia* 22: 33–50. http://dx.doi.org/10.2307/526629
- COOKSON, M.B. 1954. *Photography for archaeologists*. London: Parrish.
- CURLE, J. 1911. A Roman frontier post and its people. The fort at Newstead. Glasgow: J. Maclehose.
- VON FREEDEN, U. & S. VON SCHNURBEIN (ed.). 2002. Spuren der Jahrtausende: Archäologie und Geschichte in Deutschland. Stuttgart: Theiss.

- HATTWIG, D., J. BURGESS, K. BUSSERT & A. MEDAILLE. 2011. ACRL visual literacy competency standards for higher education. Association of College and Research Libraries. Available at: http://www.ala.org/acrl/standards/visualliteracy (accessed 16 April 2015).
- HATTWIG, D., K. BUSSERT, A. MEDAILLE & J. BURGESS. 2013. Visual literacy standards in higher education: new opportunities for libraries and student learning. *Libraries and the Academy* 13: 61–89. http://dx.doi.org/10.1353/pla.2013.0008
- HOPE-TAYLOR, B. 1965. Archaeological draughtsmanship: principles and practice part II: ends and means. *Antiquity* 40: 107–13. http://dx.doi.org/10.1017/S0003598×00032270
- 1966. Archaeological draughtsmanship: principles and practice part III: lines of communication. *Antiquity* 41: 181–89. http://dx.doi.org/10.1017/S0003598×00033214

 – 1977. Yeavering: an Anglo-British centre of early Northumbria. London: HMSO.

HOPKINS, C. 1979. *The discovery of Dura-Europos*. New Haven (CT): Yale University Press.

HUG, T. 2012. Media competence and visual literacy—towards considerations beyond literacies. *Social and Management Sciences* 20: 115–25. http://dx.doi.org/10.3311/pp.so.2012-2.06

HUNTER, F. & L. KEPPIE (ed.). 2012. A Roman frontier post and its people: Newstead 1911–2011. Edinburgh: NMSE Publishing.

JAMES, S.T. 1997. Drawing inferences: visual reconstructions in theory and practice, in B. Molyneaux (ed.) *The cultural life of images: visual representation in archaeology*: 22–48. London: Routledge.

MCFADYEN, L. 2011. Practice drawing writing object, in T. Ingold (ed.) *Redrawing anthropology: materials, movements, lines:* 33–44. Farnham: Ashgate.

MIRZOEFF, N. 2006. On visuality. *Journal of Visual Culture* 5: 53–79.

- 2011. The right to look: a counterhistory of visuality. Durham (NC): Duke University Press. http://dx.doi.org/10.1177/1470412906062285

MOSER, S. 1992. The visual language of archaeology: a case study of Neanderthals. *Antiquity* 66: 831–44. http://dx.doi.org/10.1017/S0003598×0004477X

 2001. Archaeological representation: the visual conventions for constructing knowledge about the past, in I. Hodder (ed.) *Archaeological theory today*: 262–83. Cambridge: Polity.

 2014. Making expert knowledge through the image: connections between antiquarian and early modern scientific illustration. *Isis* 105: 58–99. http://dx.doi.org/10.1086/675551 MÜLLER, M.G. 2008. Visual competence: a new paradigm for studying visuals in the social sciences? *Visual Studies* 23: 101–12. http://dx.doi.org/10.1080/14725860802276248

PAUWELS, L. 2008. An integrated model for conceptualising visual competence in scientific research and communication. *Visual Studies* 23: 147–61. http://dx.doi.org/10.1080/14725860802276305

PIGGOTT, S. 1958. The excavation of the West Kennet long barrow: 1955–1956. *Antiquity* 32: 235–42. http://dx.doi.org/10.1017/S0003598×00027253

 – 1965. Archaeological draughtsmanship: principles and practice, part I: principles and retrospect. *Antiquity* 39: 165–76. http://dx.doi.org/10.1017/S0003598×00031823

Quality Assurance Agency. 2007. Subject benchmark statement: archaeology. Available at: http://www.qaa.ac.uk/Publications/Information AndGuidance/Documents/Archaeology.pdf (accessed 16 April 2015).

ROSTOVTZEFF, M. 1938. Dura-Europos and its art. Oxford: Clarendon.

SHANKS, M. 1997. Photography and archaeology, in B. Molyneaux (ed.) *The cultural life of images: visual representation in archaeology*: 73–107. London: Routledge.

SHANKS, M. & C. SVABO. 2013. Archaeology and photography—a pragmatology, in A. González-Ruibal (ed.) *Reclaiming archaeology: beyond the tropes of modernity*: 89–102. London: Routledge.

SMILES, S. & S. MOSER (ed.). 2005. Envisioning the past: archaeology & image. Oxford: Blackwell. http://dx.doi.org/10.1002/9780470774830

WHEELER, R.E.M. 1922. The Segontium excavations, 1922. Part 1. Archaeologia Cambrensis 77: 258–326.

Received: 13 February 2014; Accepted: 24 July 2014; Revised: 24 November 2014