



**Archaeology and Text: A Journal for
the Integration of Material Culture
with Written Documents in the Ancient
Mediterranean and Near East**

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*Archaeology and Text: A Journal for the Integration of Material Culture
with Written Documents in the Ancient Mediterranean and Near East*

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Editorial Statement

The study of the human past has conventionally been divided between two distinct academic disciplines depending upon the kind of evidence under investigation: “history”, with its focus on written records, and “archaeology”, which analyzes the remains of material culture. This new annual publication, *Archaeology and Text: A Journal for the Integration of Material Culture with Written Documents in the Ancient Mediterranean and Near East*, aims to bridge this disciplinary divide by providing an international forum for scholarly discussions which integrate the studies of material culture with written documents. Interdisciplinary by nature, the journal offers a platform for professional historians and archaeologists alike to critically investigate points of confluence and divergence between the textual and the artifactual.

We seek contributions from scholars working in the ancient Mediterranean and Near East. Contributions with a theoretical or methodological focus on the interface between archaeology and text are especially encouraged. By publishing all of its articles online, the *Archaeology and Text* seeks to disseminate its published papers immediately after peer-review and editorial processes have been completed, providing timely publication and convenient access.

In providing a forum, we will publish reviews of recent publications which deal with the issue of archaeology and text. When appropriate, each volume will include a short overview of recent conferences which have treated this topic as well.

Recent Conferences focused on the Issue of Archaeology and Texts

Archaeology and Text: Toward Establishing a Meaningful Dialogue between Written Sources and Material Finds

Conference held on Sunday May 10 - Monday May 11, 2015. Sponsored by Ariel University and the Israel Ministry of Science, Technology, and Space. Conference was organized into several small sessions. Papers ranged from those dealing with the issue of archaeology and texts in the Near East to those focusing on this issue in Mediterranean Studies. Topics ranged from the application of textual material to singular sites – Text and Archaeology: the Case of Tel Rehov in the 10-9th Centuries BCE, A. Mazar – to more theoretical contributions – Purity and Purification in the Dead Sea Scrolls and the Mikva'ot of Qumran: the Convergence of Archaeology and Text, L. Schiffman.

Textual Archaeology of Ancient Near East: Are We Doing it Wrong?

Conference held on Thursday December 10 – Sunday December 13, 2015. Sponsored by the McDonald Institute for Archaeological Research, Cambridge University. Conference was subdivided into various sessions with invited responses. Topics focused on issues pertaining to the Near East with a few inclusions of cases dealing with the Bronze Age Aegean. Papers ranged from those treating the issues of the uses of archaeology and texts in broad areas in the Near East, such as Assyriology – Of Haematite and Apricots: Matching up the Mesopotamian World, N. Postgate – to contributions touching upon landscape – Satellite Remote Sensing, Archaeological Survey, and Historical Geography in Northern Mesopotamia, J. Casana – the analysis of texts in ancient Mayan studies – Histories of Decline and Fall: Archaeology, Epigraphy, and the Maya Collapse, N. Carter.

The Conference is being published by the McDonald Institute, with its organizer, Y. Heffron as the editor.

Visual Models in Archaeology and Harmonization of Archaeological and Literary Data

Catalin Pavel, Kennesaw State University

Abstract

In this article I argue that an important arena for the transfer of knowledge between history and archaeology is that of visual reconstruction. I am taking a brief look at the metamorphoses of archaeological knowledge when used, together with historical knowledge, for the purpose of narrative reconstructions. I then move on to discuss how this knowledge is articulated in order to produce so-called “realistic” visual models of ancient monuments. It is proposed that a middle-range theory to overcome the issue of the perceived incommensurability between excavation and textual data may be found by analyzing the construction of visual models, particularly digital reconstructions.

In what follows I discuss in general terms the epistemological environment of knowledge transfer between archaeology and history (part I). I then present some methodological implications of the construction of so-called “realistic” visual models of ancient monuments and probe into how knowledge is articulated in the process (part II). A number of partial solutions for mitigating the tensions between archaeological and literary data are subsequently put forward, particularly with respect to visual reconstructions (part III). In a brief conclusion (IV) it is argued again that in order to look for a middle-range theory to overcome the issue of the perceived incommensurability between excavation and textual data, one of the most promising places is precisely the construction of visual models, particularly digital reconstructions.

I. The Harmonization of Textual and Archaeological Data

Insufficient attention has been given to the stress and strain to which archaeological knowledge is subjected in order to make it compatible with information from literary sources. When creating a methodological framework for blending archaeological and written sources, one draws on a conspicuously fragmented body of literature. The very

existence of a problem, namely that the integration of artefactual and documentary data is fraught with uncertainties (biases, circularity, self-fulfilling prophecies, and coalescing data that may be in fact incommensurable) was not duly acknowledged until perhaps the mid-20th century. Where it was recognized, it had a very limited impact on how archaeologists actually were to proceed with excavation, publication, and visual reconstructions. It has seemed for a long time self-understood that the much younger discipline, archaeology, should be a handmaiden to age-old history, and merely illustrate it (Hume 1964, Moreland 2006). A perception of archaeology as ancillary to history is in fact perhaps the most enduring misconception throughout the development of the discipline, and archaeologists repeatedly protested against this “tyranny of the historical record” (Champion 1990, Small 1999). It may be that revolutionary texts such as Rostovtzeff’s *Social and Economic History of the Roman Empire* (1926), which used, on a scale never quite encountered before, archaeological artefacts to illustrate a narrative still culled primarily from written sources, may have, as a side-effect, confined archaeology to playing this role in perpetuity. Indeed, the use of archaeology in a majority of ancient history books and journals still does not go substantially beyond this view, as Lloyd (1986), Martin (2008), and Hall (2013) have shown. Kemp (1984: 21) pointed out that archaeology still supplies “garments, baskets, razors, sandals – all the props needed for the costume reconstruction of ancient life”. Among explanations for this view we should count the fact that archaeologists are still “trapped by the agenda set by historians” (Austin 1990), and in general that the questions asked of the material remains are in fact those normally asked of texts (Allison 2001: 181). Classical archaeology’s reluctance to indulge in theory-building regarding the relationship between “word” and “dirt” (Vermeule 1996), of course, did not help the situation.

It was Cambridge scholars who initiated a debate that was to bring about a loss of innocence, starting with Finley’s (1971) disappointment in archaeology not having made much progress on this front since Rostovtzeff. Finley denounced the academic creed according to which statements in literary or documentary sources are to be accepted unless they can be disproved, and that material culture matters mainly in so far as it can support or falsify the literary tradition (Finley 1985, Hall 2013: 207-9). In turn, A.M. Snodgrass (1987) exposed archaeologists’ “positivist fallacy”, a tendency to mechanically equate what appears to be significant in the archaeological record with what appears to be significant in the textual evidence. A layer of ash must be due to the Dorian invasion, some Cimmerian raid, an attack of the Goths. This is tantamount to making archaeological and historical prominence interchangeable. This fallacy is all too easy to perpetrate given the fragmentary nature of both the archaeological record and of historical sources.

The disenchantment with this state of affairs resulted in a quest for solutions, but the attempts were desultory and the ideas proposed were rarely incorporated in actual research programmes. To summarize a sundry of disparate suggestions in the literature, the solution appeared to be a two-pronged approach. Firstly, one would make sure to analyze archaeological and historical sources independently (Leone 1988: 29, Miller 1991, Andrén 1998, Storey 1999: 232, Galloway 2006, Hurst 2010; Hall 2013: 208). While this approach hopes to avoid circularity in argumentation (Kosso 2001, 81-90), the question as to what guidelines to follow in order to know when the disparity between the two lines of evidence begins remained unanswered. In a second approach, one would bring together the strands of evidence (pursued separately so far) and compare them. The priority for investigation would then become those aspects of the human past for which the archaeological and textual evidence contributed contradictory statements. Such contradictions have been in turn named inconsistencies (Allison 2001), contrasts (Andrén 1998), incongruities (Little 1992), ambiguities (Leone 1988), disjunctions (Carmack and Weeks 1981), deviations (Leone and Potter 1988), or dissonances (Hall 1999). In the range between what was called “text-free” and “text-aided” archaeology (by Hawkes [1954]; cf. Little 1992, and Young 1992 “text-misled”), almost all positions have been advocated. A plethora of suggestions were made as to how to bridge the great divide between artefact and text, necessarily reflecting various habitus-bound research agendas. Occasionally, it has been advocated that a certain area of study is key to deconstructing the dialogue between archaeological and textual data. Among such highly sensitive research areas are, according to certain scholars, the study of ancient materials and technologies (Martín-Torres 2008) or that of cult and religion (Dever 1991). The rationale for these choices is not further elucidated. On a more general level, Andrén (1998: 146 sqq.) and Martín-Torres (2008) have argued that in order to sidestep a philosophically unrewarding study of concepts (artefacts, texts), we could analyze best-practice strategies, in other words how concentric contexts for each of the two are crystallized in practices. Others yet have found redemption in bringing into the limelight long-term quantifiable change, since that is precisely what texts cannot do (Hurst 2010), in using one category of evidence for deriving hypotheses to be tested within the other category (Little 1992, Perry 2007), and in using a sort of “formation process” analysis, geared towards understanding how texts and artefacts come to be and how they come to shape society (Galloway 2006, Moreland 2006, Martín-Torres 2008). Some of the solutions however have further obscured the original problem, such as the idea that archaeology and history speak “different languages” (e.g. Ahlström 1991), when in fact the two types of evidence are rather incommensurable, in Kuhn’s sense.

A more metaphorically-minded cohort of archaeologists drifted away from the archaeological arena in search of solutions. For example, Martin (2008) proposed to achieve a proper “dovetailing of text and objects” by using cultural semiotics and thick-description ethnography, while Galloway (2006) resorted to Bruno Latour and Arjun Appadurai for actor-network theory and the social life of things to help construe the relationship between texts, artefacts, and society. Finally, where processual archaeologist had spearheaded an increased, at times indeed total, independence of archaeological data from written sources (Arnold 1986), post-processual approaches focused on hermeneutics (Leone 1988, Dyson 1995 on the archaeological site as an Urtext; also post-ironic perspectives in Isayev 2006).

The wide geographical and chronological coverage of the works tackling the subject must be underscored. If these approaches did not build up to the critical mass needed for a problem-specific methodology, they still testify to tectonic movements through the whole of archaeology today. These approaches stem from work in medieval archaeology (Austin 1990, Fehring 1991: 229–237 focusing on Germany, Young 1992, and Tabaczyński 1993), prehistory (Bennet 1984 for Late Bronze Age Aegean), Classical (Storey 1999, Snodgrass 1985, Lloyd 1986), and North American (Leone 1988). The debate was perhaps most welcome in areas where traditionally written texts dominated the development of the discipline (Egypt, Kemp 1984, Mesopotamia, Ellis 1983; Stone 1987; Matthews 2003; Zettler 2003, Syria, Gates 1988, the Near East in general, Zimansky 2005 and as a case study, Casana 2009, Roman and Byzantine Near East, Perry 2007, Biblical archaeology Finkelstein 1996; Bunimovitz and Faust 2010 as well as other articles in Vikander Edelman 1991 and Levy 2010). As for Anatolia, the Hittite empire is still known to us primarily through its texts, limited in range and geographical distribution as they are, but archaeology is now catching up (Glatz 2009; Matthews and Glatz 2009; Atici 2014). Excavators seem to be coping better with Hittite vassals such as Troy, but although the city of Homeric epic has produced fine scholarship on e.g. the Trojan War, they only recently started to set methodology as a primary goal (see Vanschoonwinkel 1998; Rose 2013; Pavel 2014). Despite the substantial number of contributions (although this is still small compared to most other provinces of theoretical archaeology), they are not yet articulated into a coherent whole. It can be however said that the schism between the epigraphic and the archaeological approaches to the ancient Near East, invoked by Gates three decades ago (1988: 64) might give way to reconciliation, and we will no longer witness a “division of labor” between archaeologists and philologists/historians (as noted by Zettler 2003:5). The concern remains that many only pay lip service to what promises to be a noble critical stance, and moreover, that they reiterate a relatively small number of tenets.

Currently, the most promising avenue of combining archaeological and literary material, as reflected in the literature, seems to be to revisit the relevance of multidisciplinaryity the term multidisciplinaryity remains oddly uncomfortable when discussing archaeology and history, as if digging in the ground and reading Tacitus were in fact done with fundamentally similar methods and objectives (cf. Martínón-Torres 2008). As D. Austin (1990: 13) put it, whenever archaeologists attempt to deliver an independent historical narrative, they are accused by historians of “at best, irrelevance or lack of scholarship, and at worst of uttering jargonistic claptrap”. Nevertheless, there are now enough voices pleading for the integrated production of historical knowledge, and even though the multi-disciplinary approach is “the most difficult, the most susceptible to superficiality...”, it is still the most productive (Carver 2002: 490; see also 1990). Blending archaeological, historical, and scientific knowledge is championed among others by Martínón-Torres (2008: 33) with the rationale that thereby the ability of the respective specialists to understand past societies is “multiplied exponentially”. Despite the reservations of Isayev (2006), the way this could work is adequately described by the so-called “mode 2 knowledge production” (Gibbons 1994). Some archaeological applications of it exist already, as in the multidisciplinary project (not without its own cautionary tales) described by Rankov (2004).

In conclusion, what Arnold (1986) noted in the eighties is still true today: researchers piously advocate the integration of the categories of evidence, but few are doing it and fewer are explaining how it should be done. The majority endorse (tacitly) the view that in the end archaeological evidence is mute and cannot be understood without written texts, or a variant of this view (Allison 2001), and that the role of archaeology will never be more than marginal in historical reconstruction (e.g. Lloyd 1986: 42). Small (1995) deplored that the archaeological record is still seen as a “subordinate dynamic context for viewing textually-adduced reconstructions”, and sure enough some archaeologists still claim (notably Rainey 2001: 148) that one ought not to use “subjectively interpreted archaeological data” to contradict written sources. The trouble is not that the same archaeological data is invoked for antagonistic interpretations (Miller 1987) – plurality of interpretations has never been the problem – but that scholars proceed with a “forced harmonization” of archaeological and historical data (Ahlström 1991: 119).

For a couple of decades prehistoric and Classical archaeology have been increasingly unhappy with this forced harmonization, but the situation remains that described by G.R. Storey at the turn of the millennium, namely one where “a balanced, dependable method for integrating textual and archaeological data is still lacking” (Storey 1999: 206).

II. Visual Models in Archaeology

A new source of solutions can be found in exploring the mechanisms of model building, especially in the field of visual reconstructions of archaeological discoveries, be they monuments or whole sites. The harmonization of textual, archaeological and (increasingly) hard-science data is unavoidable, decisions and selections are made at every corner, and, if critically monitored, they can speak volumes about how researchers prioritize information and integrate evidence. How we create visual reconstructions (even when we do not document our underlying theoretical stance) is an approach whose analysis can offer key insights as to how we go about the “harmonization”.

Over the past three or four decades, digital models of now destroyed buildings have become, if not ubiquitous, at the very least a familiar presence in the media, in museums, scholarly publications, and classrooms (Lock 2003; Frischer 2008; Favro 2013). An image-hungry world, where science is highly respected, especially if it looks like magic, immediately embraced the potential of computer simulations. To be sure, such simulations come with great advantages. They offer lavish illustrations of ancient sites for laymen and academia alike, for children and blasé cultural consumers. They stimulate public interest in, and awareness of the past and can help to convince sponsors to support archaeology. To scholars, more specifically, they provide a way to manage the complexity of data and the possibility to simultaneously examine complex components, both large-scale and small-scale. By using models, archaeologists can extract more data from archaeological remains and are more successful in identifying potentially unreliable or missing data. Digital models also represent the most cost-efficient way to devise and test hypotheses, from daylighting analyses to heating patterns to earthquake resistance. In comparison to physical models, they can easily be shared inside and outside the community of peers, and they can be updated when new information becomes available or when new theories supersede old ones (Earl 2003; Frischer 2008; De Paepe 2014: 29; Llobera 2011: 194). An expression of the great scholarly confidence in, and public appeal of digital models was the volume by Forte and Siliotti (1997), who collected computer simulations/re-presentations of a few dozen major sites worldwide, from the Palaeolithic to the Classical period. The number of similar studies has increased continuously since then, whether dealing with Thule whale bone houses with skin and sod covering (Dawson and Levy 2005), Olmec ritual precincts (Gillespie and Volk 2014), the Roman forum (Favro and Johansson 2010), Cham temples in central Vietnam (Guidi et al. 2014), the Rotterdam synagogue destroyed in WW2 (De Paepe 2014), or Chaco Canyon kivas (Kantner 2000).

The widespread production and use of models is however, not without its critics. Commenting on the models in the seminal volume mentioned above (Forte and Siliotti 1997), Gary Lock cautioned: “the technology is almost too successful, it is too convincing, it is too believable”, and concluded “the general understanding of the potential and pitfalls of modelling and VR in archaeology is coming of age after the sometimes blinkered enthusiasm of the early years” (Lock 2003: 154, 155). The fact that an overwhelming majority of those models were produced by private companies raised the concern that this was out of scholarly hands, and that archeological authorship was threatened. To this day – even though universities and research institutions are more involved than ever before in the design of models – the alleged disjunction between archaeologist and modeler remains haunting (e.g. Guidi et al. 2014: 55, cf. 62). The two specialists ought in fact to work together in a hermeneutic spiral (an “iterative interaction between archeologists and digital modelers, leading to a progressive refinement of the reconstructive hypotheses” Guidi *et al. loc. cit.*). To put it simply, this is a two-pronged approach. First, it entails a permanent back and forth between the (laser-scanned) reality-based model (showing only what is left in the field, itself a valuable means of recording) and the reconstructed model (adding all that is missing). Second, a similar back and forth takes place between the modeler (the one who is computer savvy) and the excavator (the one who is the purveyor of strictly archaeological data).

Behind the popularity of digital models of ancient monuments there is more than just an interest in the past and a fancy for elegant design. As scholars, we are indeed working with the past-as-reconstructed, rather than with that utter stranger, the past-in-itself. Every time we take a stance about our history we in fact create a model of it, one which, we hope, will be both accurate and relevant today. But science-aided (virtual) experiences are today marketed as the only ones which can impart the feeling of authenticity. There is an increasing disdain for the narrative when not backed by graphics (garish or not). Models, a type of displaced materiality, are advertised to the public as the only one capable of representing the material world, in other words, of doing justice to the mathematical image that nature has become. This is rooted both in Husserl’s 1970 [1936] phenomenological analysis of the crisis of science and in the neopositivist conception of science, and is occasionally pushed to the extreme by a compulsive drive to show off computer capabilities. The current conception of virtual reality has produced a disembodied viewer who has become ubiquitous and omniscient. This seems a vindication of Husserl’s conception of the model achieving a higher ontological status than the reality (the *Lebenswelt*). At the same time, it paradoxically illustrates Baudrillard’s view that the reconstruction is a simulacrum, “a truth concealing

that there is none”, reflecting the “characteristic hysteria of our time: the hysteria of production and reproduction of the real” (1988: 166, 180). Digital models in archaeology may have become Baudrillard’s (*id.* 166) “maps that precede the territory”, in a world of scientific illustrations where an original monument and its reconstruction are mutually constitutive. In an age of simulation, witnessing the liquidation of all referentials, models have become more real than real, and indeed their hyperreality is the only reality that past monuments can enjoy. In the recent philosophy of science, N. Gray further argues that virtual reconstructions are generally perceived as erring on either side of reality, either almost but not quite real, or, on the contrary, more concentrated than real (i.e., perceiving either the model’s “deficiency” or its “intensity”, (Gray 1995, n. 1, p. 347).

Paramount in the discussion of visual reconstruction in archaeology today is the notion of realism – in fact, “a slippery term” (Earl 2003: 231). Curiously, it took a century or so to debunk the myth that archaeology is presenting the “real” past, only for us to unreservedly embrace today the view that the digital model “brings the past back to life”. Proponents of this view would be of course otherwise bound to dismiss as naïve any historian who set about showing history as “how it really was”. Archaeology was the new history, now it would seem that computer models are the new archaeology. What are the underpinnings of this generous naivety when it comes to digital reconstructions? Models have indeed become increasingly convincing in a short time since the advent of computers, and it is easy to forget that the same reservations that applied to the historical narrative should now be applicable to such visual reconstruction. No epistemological vaccine was ready in time to protect against the sudden rise of astonishing and compelling computer models. The graphic pizzazz of such models downplays or completely conceals that any number of educated guesses or *pro domo* choices go into such models, which are inevitably theory-laden. Models are intrinsically glamorous and their very appearance tends to imply that archaeologists know much more than they do about the past. In so doing, they obscure the fact that a visual reconstruction is not the restitution of the past, but a present theory of the past (Kantner 2000; Moser and Gamble 1997; Dawson and Levy 2005: 445). The model is not objective – not even the digital replica of an artefact, let alone that of an ancient monument. In fact, these replicas belong to a realm between reality and our minds; they operate in a space that is at once virtual, fluid, and ritualized. Despite their perceptual realism, models are not a slice of, but only a statement about, a real past. Younan and Treadaway (2014: 241) have summed up the current discussion on liminality as a space between the tangible and the imaginary, where 3D technologies are at work. Michel Foucault (1986: 24) had spoken, even before the advent of computer simulations, of counter-sites or “heterotopias”: “places... outside of all places, absolutely different from all sites that they reflect”.

Another problem with models is that, if the public is expecting to be walked through the past, they will always be disappointed by the model's inability to ever breathe actual life into the past. It has been pointed out that the authenticity of a model is not about verisimilitude, but rather about process, biography and embeddedness (Gillings 2005; also Mesick 2013; 66). In fact, the realism of such reconstructions is judged against photography, so in fact it should be called photorealism, reifying vision as the means to evaluate the world (Gillings 2005; Earl 2013). Architects such as J. Pallasmaa have criticized the hegemony of vision in the appreciation of built (reconstructed) structures. Realism as a criterion for evaluating success should be discarded if understood as mere visual, photorealistic (as opposed to multisensorial, contextual, and functional) agreement between original and reconstruction, without considering "the life for which the original was intended" (Yegül 1976; 171-172). One of the ensuing paradoxes is that the more realistic the model, the less it helps answer research questions (cf. Kantner 2000; 52). Moreover, accuracy, verisimilitude, or realism can in fact only be assessed as a function of purpose, and often this involves the consideration of the intended audience. Is the reconstruction focusing on the building's earthquake resistance, accompanying a traveling exhibition, being used in undergraduate courses, or currying the favor of excavation sponsors? Between consumption, teaching, and research, goals which restrict the infinite task of reconstructing, modelers must choose which compromises – in terms of accuracy – are acceptable and which are not. Delingette (2002: 90) calls any digital reconstruction a "restrictive interpretation". How this interpretation will be restricted is a function of the goals and target audience of the reconstruction. Such purpose-driven accuracy is now commonly acknowledged. Multipurpose reconstructions run into trouble, and not only because of the enormous computing power required. For example, different degrees of realism are needed for pedagogical and research purposes: the amount of realism needed for research purposes is contraproductive in the classroom, where slowed-down visuals are less effective. more importantly, too realistic an appearance creates in the eyes of students the impression that this was how the past actually looked like, rather than just a hypothesis (Kantner 2000; Smith and Rusinkiewicz 2012).

The aspiration to be realistic has also resulted in models using real photos of dramatic skies over the digital Roman Forum model, or real water videos in Hadrian's pool, while at the same time having the viewer fly through the model on a Wimbledon serve trajectory, certainly unlike anyone's experience of these sites, now or then.

Barthes argued in his "L'effet de réel" (1968) that the use of very concrete details can well remain a mere rhetoric device, driven not by the need for accuracy, but by the art of persuasion. Audiences are actually used as arenas to build disciplinary prestige, with less regard for knowledge formation. C. Mesick further argued that models ought to

self-sabotage their in-your-face realism, suggesting they could signal to the viewer that they are just conjectures, by means of “angled contours of the landscape”, “deliberately... garish colors”, or “obviously ‘fake’ textures onto roofs” (2013: 81). Others have pleaded for “varying transparency, digitally signposting particular elements, and degrading the visual fidelity of areas that are considered less ‘certain’ ” (Earl 2003: 232) The intentional introduction of conspicuously non-realistic elements in archaeological reconstruction is an interesting avenue of research. The seductive realism of images of the past may also supply better tools for manipulation (Smiles 2013); data is often scant and/or ambiguous and deductive reasoning can only take the archaeologist so far.

As Yegül (1976: 172) put it, to physically rebuild all ancient buildings to their last roof tile would be very disappointing, if not totally irresponsible (and financially impossible). But while the question whether to restore and/or reconstruct even individual monuments is very difficult, no harm is done in creating an academic models. In an ideal world, it would be mandatory for any archaeological publication to include a visual reconstruction of the site’s architecture, indeed alternative reconstructions of the same monument. Not in order to wow the public, let alone to encourage handsome reconstructions piggybacked on poor data (cf. Favro 2013: 164), but simply because reconstructions (visual, as well as narrative) are the crucial test for the archaeologist’s understanding of the site. The costs in money and time are probably why alternative reconstructions are not offered. At best, it is suggested (Kantner, 2000: 52) that all reconstructions be accompanied by written text and description of the original archaeological material. The very definition of academic reconstructions presupposes, apart from the authors being qualified experts, the full disclosure of the metadata (archaeological, historical, scientific etc.) on which the work is based. Alternative reconstructions are, to be fair, recommended in the 2007 International Council on Monuments and Sites “Ename” charter for the Interpretation and Presentation of Cultural Heritage Sites (par. 2.4; language such as “the most probable reconstruction” was significantly left out from a previous draft, and the idea was altogether absent from the 1964 Venice charter). The authors of such a model would be perhaps best advised to present two reconstructions, at the opposite ends of what they consider the range of the possible.

Another counterproductive trend is correlating increased realism with decreased human presence. Realistic appears to have to mean dehumanized, sanitized, cold, scientific, and numb. In models streets in digital cities are generally shown with no people, little if any vegetation, no graffiti, no signs of age and wear on constructions (Kantner 2000; Earl 2013, 232; Favro 2010, 32, n.5). While this is likely to the additional computational difficulties rather than being a statement about society, it is bound to

permeate public opinion and, in time, give new generations a quite eerie impression of how ancient places must have looked like. Experiential depth of these models, in sum, remains very shallow (Favro 2013, 168; Gillings 2005). The object's aura, lost, in view, during (mass) reproduction, seems to have a correspondent in the loss of experiential depth from original to digital model. An additional problem is that models make a point to be rich in details, clear and easy to view – that is, after all, what makes them valuable, according to common wisdom. But what if the original monument was dark, elusive, intentionally confusing, labyrinthine, awe-inspiring? What if the ancient visitor was supposed to feel lost or dwarfed, enclosed or exposed (also Kantner 2000; 50 Earl 2013, 233)? Instead, the modern visitor of virtual ancient environments is in full control, a domineering consumer of science as entertainment.

All visual reconstructions are intended for an audience. A spectacular 3D digital model of Ancient Rome “for everyone” was recently produced by international experts gathered in the *Rome reborn* project, a model previously on Google Earth, but now here <http://vimeo.com/32038695> (last accessed Sept. 5, 2016). If he could watch it, Flavio Biondo, the Renaissance father of archaeological topography, would be amazed; Piranesi, probably, disappointed. The vagaries of assessing the success of a model point towards disciplinary ruptures between archaeology and history, but also to the opportunities for reconciliation in the future.

III. (In)commensurable Paradigms

We have seen in part I a few suggestions for overcoming the perceived incommensurability of archaeological and historical data. In the view of the discussion of visual reconstructions in part II, they can be reformulated as follows. Firstly, one can begin to match two different categories of evidence, and evaluate possible discrepancies, only when satisfactory, if perhaps incomplete, explanations can be given of either category solely on its own terms. These discrepancies between archaeological and historical data can then be used to prioritize research topics. There is no in depth discussion in the literature as to how the identification of such “contrasts”, to use Andr n’s terminology, can be used as markers and catalysts of further rapprochement between archaeological and historical narratives. It has been previously argued that one would want to analyze archaeological and historical sources independently (Leone 1988: 29; Miller 1991; Andr n 1998; Storey 1999: 232; Galloway 2006; Hurst 2010). The point is that a purely archaeological reconstruction of occupational phases at a site is fundamentally a stranger to the same reconstruction culled from written sources, and visual reconstructions can help negotiate

between them. This is an enhanced form of the hermeneutic spiral where archeological and historical data are checked against each other, but the back and forth between them is regulated by visual reconstructions as a milieu for testing assumptions, choices, and methods. One thinks of how a reconstruction of the Roman Senate House can investigate the impact of its marble floors and marble-clad walls on acoustics and therefore on its proper function as an arena for debate (Frischer 2008). Enhancing a model by adding physical properties was in this case seen as a tool for historical analysis. But any such investigation quickly generates questions or indeed hypotheses that need to be ground truthed against the archaeological reality of the monument. This is no different when dealing with, say, Hindu temples; Guidi et al 2014 have worked from a reality-based model and, separately, from historical and iconographical sources to establish the range of heights of the Kalan temple in Vietnam, since no clear indications to that effect were available in either category of sources. Different attempts to visualize the temple prompted at each step a return to the ruins to check for compatibility and entailed yet another search for historical comparanda.

Secondly, the solution to combining archaeological and textual data partly resides in a change of approach to historical reconstruction. Instead of merging these categories of evidence in the fabric of an omniscient narrative, one would be best advised to constantly tell two intertwining stories, an archaeological and a historical one, each one using the other as a foil. This would be followed by the production of competing, alternative visual reconstructions. Such competing reconstructions could recreate, in turn, a very minimalistic rendering, based on the most conservative interpretation of all archaeological clues, and a maximizing rendering based on the most generous reading of the texts, or the other way around as the case may be. This could visually suggest the range of heights of a temple, or the range of visibility and therefore social impact of an urban pageant along a known route, be it the victorious general's triumphal procession in Rome or the mediaeval Christmas pageants of Spanish Jaén. Archaeologists also have the obligation to entertain multiple interpretations at the same time when merging archaeological and historical data and when creating visual models. Clearly this is not a comfortable thing to do. Juggling with alternative interpretations requires not only scholarly effort, but a kind of flexibility that many years of specialization tend to stifle. Even researchers who start off by considering several hypotheses end up soon committing to one of them, even before a critical mass of evidence, pointing in this or that direction, had been reached. But it cannot be overemphasized that the extent to which alternative interpretations of the data must be entertained during the research, as long as each of them can account for a substantial part of the reliable data.

Thirdly, the use of visual reconstructions should be seen as a catalyst for blending archaeological and historical data, in so far as the process can be recast as “science in the context of application” (Carrier and Nordmann 2011), where objectives are formulated from the outset within a dialogue between scientific stakeholders. In so doing, one should investigate not only how society-specific knowledge claims are raised, but for whom knowledge is in fact produced. The main point here is that the study of the collaboration between historians and archaeologists, often joined, e.g. during experimental archaeology projects by scientists, is a multidisciplinary effort best understood as “mode 2” knowledge production (Gibbons 1994). Researchers negotiate and produce knowledge in a non-hierarchical manner. None of the disciplines dictates the framework. Quality control is a function of disciplinary rigor combined with social accountability, consensus formation, and constant negotiation of the results (Nowotny *et al.* 2001, 2003). Reflexivity is a characteristic of this process since the result is not scientific truth, but rather socially-viable knowledge: not objectivity as a view from nowhere, but a network of views managed by knowledge brokers. The literature offers various examples of case studies of multi-disciplinarity involving scientists, not just historians and archaeologists, from re-building a Roman bath (Yegül and Couch 2003) to the re-building of a Greek trireme (Rankov 2004). I argue that knowledge is actually shaped by the process of knowledge dissemination. Here I have in mind outreach programmes through which the general public is, on the one hand, informed, stimulated, and educated, and, on the other hand, attracted into informal or formal archaeological networks. This leads to long-term societal support for archaeology (information, donations, volunteers) and more protection (less destruction) of past remains by the public. Outreach will have to be considered as one of the new important resources for the creation of archaeological knowledge, articulating an epistemological interface between archaeology and history. Model-building is part and parcel of outreach activities as it is part of academia and fund-raising. There is no denying that the public, children and adults alike, enjoys physical and digital reconstructions. Vision leads to cognition (Frischer 2008, V). Archaeology is a science predicated on the fascination for the artefact and the monument in their striking, albeit eroded, physicality. The public needs to actually see what is left of the artifacts and the monuments, as well as how they may have looked like in their day. Flamboyant orations just won't cut the mustard. As outreach specialists design their programmes, they aim to maximize learning, and consequently they think of ways of involving the public in archaeological problem-solving. This encourages the presentation of partial models and open-ended configuration, so that the learner can, physically or on a computer screen, select a different dome form, see arches collapse when buttresses

are removed, experiment with light angles and variegated marbles. This puts alternative interpretations back on the archaeologist's agenda, where they are so badly needed. In this context I would mention the media hype surrounding the 2001 Troy exhibit "Dream and Reality" in Stuttgart, Germany (Troia-Ausstellung: Traum und Wirklichkeit), which was both a success to judge by the number of visitors (almost a million) and an occasion for controversy. Manfred Korfmann, the excavator of Troy and initiator of the exhibition, was at that time accused of having gone beyond the liberties any reconstructed model was entitled to. But whether the reconstruction of how the city looked like was entirely backed by excavation results or not was a moot point. The excavator made the public engage with the artist's view presented in the exhibition, and that per se was excellent. He could have been faulted rather for not having shown two radically different, and equally provocative, models of the city instead of just one.

Fourthly, there are a number of methodological aspects that draw attention to the potential of visual reconstruction to help with the conciliation and imbrication of archaeological and textual data. In theory at least, in model-building the duty to consider all possible categories of evidence cannot be side-stepped. It may give primacy to archaeological data, strictly in the sense that any model starts from the physical remains as fixed points of the reconstruction. But to flesh those out the recourse to historical knowledge is paramount, sometimes in the indirect form of using archaeological analogies which in turn had been produced with historical knowledge. In contrast, compared to the sophistication with which ancient historians discuss written sources, their approach to archaeological reports in order to harvest usable knowledge tends to be perfunctory and reductionist (Carver 2002; Moreland 2006). The options available to the archaeologist or historian to produce a productive reconstruction are not available to the model maker. It would appear that proper model-making, by its nature, fosters willingly or unwillingly a more rigorous approach. This could be an instance where the task produces the tools.

Another methodological question is: which monuments should be visually reconstructed? Some obvious answers are: "big ruins" – their good preservation screams for reconstruction; "famous" monuments, regardless of degree of preservation – the public is hungry for substitutes; those that interest "many people", for whatever reasons (religious, nationalist) etc. One should however also investigate additional questions. For example, are there chronological periods or geographical areas where this fit between archaeological and literary information is better? It would seem logical that archaeological evidence is most needed where written sources offer only meager coverage of a specific historical period. But there is an embedded historiocentrism

in this suggestion. In fact archaeological evidence is needed as badly, if for different purposes, where texts are abundant and (apparently) trustworthy. Indeed, it can be counterintuitively suggested that we need archaeology especially where texts offer a mass of information that is bulky enough for us to winnow out inconsistencies, judged by internal (not archaeological) *Quellenforschung* criteria, and thereby also create the possibility to compare them with the archaeological narrative. Clearly, however, there is a point after which the returns from using archaeology in addition to texts are diminishing, such as in the case of post-medieval archaeology. On the other hand, where prehistory gives way to history, and records are scant and political, the idea of merging the two categories will not bring much. Importantly, an exclusive focus on periods that are both well excavated and well documented by historical sources (such as Roman Italy or the Greek Aegean) runs the risk of perpetuating a knowledge paradigm that is both Eurocentric and conservative, but also of obliterating the process through which blending the two categories of data is done. This is most likely when texts are very fragmentary and the archaeological record lacks information from key sites. From this point of view, epistemological advances are therefore to be expected rather from the archaeology of fringe areas, interfaces, provinces, and melting pots. And it is no surprise that monuments from these areas are for now noticeably underrepresented among visual reconstructions. A corpus of visual reconstruction of monuments from contested peripheries and other fringe areas can greatly help the blending of relevant archaeological and historical data. Take, for example, the reconstruction of monuments or urban architecture in the East Aegean/West Anatolian Interface (on sites such as Troy, Pavel 2014), exhibiting a blend of influences from powerful neighbours, grafted onto resilient local traditions. This appears to be an appropriate arena to confront our assumptions about both Mycenaean and Hittite architecture in a much sharper way than if we were working on the cities of Mycenae or Hattusa themselves, where we are constrained by what seems to be established knowledge. Other interfaces, such as Philistia, for which Egypt and Assyria competed in the early first millennium BCE, are however less bound to exhibit such influences from the neighbouring cultures.

Related to this is the issue of scale, the focus on individual monument reconstruction has deflected attention away from the need to recreate the visual landscape of whole regions. Again, here the implications of what monuments to reconstruct and how to reconstruct them are similar to those of how archaeological and historical information can be matched. Indeed, these reconstructions should be clustered around important fundamental issues. Specific questions, derived from literary sources such as whether Alexander the Great was buried in Babylon or if the *depas amphikypellon* pottery type

was used by the heroes of the Trojan war, answered by archaeological sources, risk resulting in circular answers. Merging archaeological and textual evidence functions best when the historian strives for regional syntheses and wide-ranging evaluations. That way patterns emerge properly from both the historical and archaeological sources, and they can be overlapped or confronted. The drawback here is that these types of syntheses appear to be unappealing to academic authors – to judge by the percentage of such syntheses in the bulk of archaeological publications – , although they are supposed to be the ultimate goal, in archaeology even more so than in history. But whenever syntheses are attempted, even in relatively short articles, the benefits are instantly apparent, such as that by Schallmayer. Schallmayer discussed the contradictions between the literary sources attesting war destructions in the Roman territories west of the Rhine and the substantial destruction layers actually identified by archaeological excavations. His investigation showed that from the first to the third centuries CE the latter are much more numerous than the former, while for the 4th the opposite is true.

Finally, it is important for both archaeologists and historians to understand that the others' conclusions are just as provisory as theirs – and for the model-maker to bear that in mind. It is understandable that historians would want to derive a clean-cut judgment from the conclusion of an archaeological publication on their topic. However, in employing such conclusions, they will more often than generally admitted remove from that conclusion all “probably”, “possibly”, “partly”, or “apparently”. In a recent book J. Hall (2013: 209) spoke in this respect to the issue of “unidimensionality”. Provisional conclusions are also notoriously difficult to illustrate visually in any other way than by using alternative reconstructions for the same monument. In such a scenario, one alternative reconstruction can perhaps privilege the archaeological data, the other the historical data. While there is a continuum of knowledge between archaeology and history, the danger remains that the choice between conflicting interpretations is made by an archaeologist based on a historical interpretation, itself perhaps privileged by the historian because of an archaeological tentative conclusion.

IV. Conclusion

In this paper I perused the epistemic map of the transfer of knowledge from one theoretical framework to another, i.e., between the historical and the archaeological paradigm, and probed into the role of visual reconstructions in mediating between the two. As Stefan Hauser (2005; 94) put it, the collaboration between archaeology and history “is not a mere reconciliation of two accidentally and wrongfully separated components of classical and ancient studies, but an interdisciplinary negotiation between two theoretically and methodologically mature disciplines.” (translated by author). This is indeed a multi-step negotiation of knowledge between archaeological and written sources, whose catalyst and also end-product is the narrative/visual reconstruction.

As we have seen, behind the facade of objectivity of every model, behind the positivistic display of scientific wizardry, there are choices, interpretations, conundrums. A model is not better for concealing this. On the other hand, there should not be anything apologetic in a model, as if it degraded the sanctity, or the aura, of the original. Latour and Lowe (2010) have reversed Walter Benjamin’s “aura” concept, and argued that the complexity and social relevance of an artefact can be measured by the popularity of its models. Technology may actually create the aura of the original, rather than doing away with it.

The future will bring more computing power and with it more convincing reality, with more realistic models. But we should not be satisfied with these advances. More can be done than simply amping up the photorealism of our models. The challenge is rather how to make models more open-ended, while preserving a certain sense of well-roundedness, or how to supply them in pairs -- model plus its alternative twin. The incompleteness of open-endedness far from being a disadvantage, draw the audience in, and it is this participation that really triggers interest and shapes durable knowledge. The challenge is to infiltrate architectural models with a sense of the fortuitous, or to tag in an unobtrusive way certain architectural members as conjectural, without distracting the viewer from experiencing them as credible (Earl 2013). By the same token, models should become more dynamic, as e.g. to show evolution through time by turning on and off period layers (Mesick 2013; Gillespie and Volk 2014). All this discourages the public from receiving knowledge passively, and empowers it to ascribe different meanings to the past. Indeed, such meanings may perhaps be different than those preferred by the archeologists themselves, and this is fine as long as all these interpretations remain in the range of good scientific practices. I would go so far as to encourage cultural poaching. In the context of this paper, this would mean that heritage

institutions and their arsenal of visual and narrative instruments for outreach do not monopolize the meaning of the past, do not force the interpretation of cultural goods on the public, and do not decree what are the appropriate ways to visualize the past. They rather dilligently assist the public in choosing how to visualize the past, while eschewing the excesses of fringe archaeology.

The process of translating archaeological results in historical narratives and visual illustrations helps to filter out inconsistencies and fosters reflexivity and multivocality. Above all, this process, rather than creating mere copies or equivalents, actually generates archaeological knowledge. The creation of historical narratives and visual models of sites and monuments does much more than communicate results. It is a heuristic device to test the archaeologist's understanding of a monument or site. This is a proof that true interdisciplinarity helps to reinforce disciplinary excellence and integrity, rather than posing the threat of relaxing disciplinary standards. Deconstructing model-making techniques, e.g. modern reconstructions of baths with opus sectile decoration, can help produce a theoretical device that may help to bridge the conceptual gap between different categories of data, between e.g. marble tesserae found in the trench and discourses on luxury in literary sources. It is by deconstructing model-making techniques that we may be able to finally discuss the two paradigms, textual and artefactual, in terms of commensurability.

Digital models are immensely popular today. People walk through Hadrian's villa in the model created by the Institute for Digital Intermedia Arts from Ball State University: <https://www.youtube.com/watch?v=tk7B012q7Eg&feature=youtu.be>. (last accessed Sept. 5, 2016). Special journals, such as *Digital Applications in Archaeology and Cultural Heritage*, are dedicated exclusively to the scholarly publication of 3D digital models. This very new phenomenon cannot be reversed, nor should it, but it certainly can benefit from more critical reflection, especially given its role in harmonizing archaeology and history, and disseminating the resulting knowledge.

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