Hyp(ed)ertextual archaeology

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In the face of the controversy surrounding Facebook/Cambridge Analytica, and in part as a response to the loss of trust in big tech companies (for example, Chakravorti 2018 and Yao 2018), there's been some discussion which has sought to revisit the original ideals of the World Wide Web and hypertext. Anil Dash recently suggested:

> the time is perfect to revisit a few of the overlooked gems from past eras. Perhaps modern versions of these concepts could be what helps us rebuild the web into something that has the potential, excitement, and openness that got so many of us excited about it in the first place.

That seems a rather forlorn hope, perhaps, but his revisiting of core concepts such as 'View Source', 'Authoring', and 'Transclusion' rang bells in my mind and led me to exhume a paper I gave back in 2004 in a session on *Archaeology and the Electronic Word* at the 'Tartan TAG' conference in Glasgow (amazingly the programme and abstracts, if not the website, are still available via https://www.antiquity.ac.uk/tag). At that time, I suggested that discussion of hypertext within archaeology had been relatively limited, especially in relation to issues such as access, power, communication and knowledge (which admittedly overlooked the contributions on digital publication in *Internet Archaeology* 6 (1999) for instance). This was despite the number of archaeological theorists who were enthusiastic proponents of hypertext in archaeology. For example, Ian Hodder wrote of enhanced participation and the erosion of hierarchical systems of archaeological knowledge together with the emergence of a different model of knowledge based on networks and flows – an environment in which "interactivity, multivocality and reflexivity are encouraged" (Hodder 1999a and see also Hodder 1999b, 117ff). Michael Shanks wrote of the benefits of collaborative writing in his *Traumwerk* wiki (no longer available) and the new insights that such activity can throw up through using an environment in which anyone could create and edit web

pages on a particular topic, and add or alter the content of any contributions. Cornelius Holtorf published a number of papers discussing electronic scholarship and his experience in creating and publishing a hypermedia thesis (e.g. Holtorf 1999, 2001, 2004). In contrast, I proposed that there was a significant dislocation between the rhetoric and the reality – that what was actually being presented on our screens was masquerading as something which it was not and that consequently there might be a utopian or even a fetishisitic dialectic at work.

Not much seems to have changed in the intervening years. There has been relatively little further discussion of hypertext in archaeology (examples include Denning (2004), Joyce and Tringham (2007) amongst others) and, perhaps significantly, a retrospective review of reflexive archaeology at Çatalhöyük (Berggren et al. 2015) makes only passing reference to hypertext. So much the same questions remain. For instance, is the fragmentation of narratives made possible through technology altogether benign? Do technological texts fulfil their promise of greater access and democracy, and at what cost to reader and writer, and the subject? How are the relationships between author and reader affected by different methods of technology-based writing, and what drawbacks might there be? Does the circulation of archaeological knowledge through technological intervention leave the nature of that knowledge unchanged?

The anti-hierarchical approach of hypertext was embraced by Hodder, Shanks and others as subverting traditional paradigms associated with print texts. The problem is, as it is most commonly implemented and experienced, it does nothing of the sort. The World-Wide Web is often seen as the ultimate realisation of hypertext and its potential, and yet many hypertext theorists saw the Web as being some kind of bastard child, responsible for holding back the progression of the medium rather than promoting it. It's a fight that's been going on since before the beginning of the Web, in fact back to 1991 when Tim Berners-Lee's paper in which he proposed the Web was rejected by the Third International ACM Hypertext Conference. At best, the Web is a highly successful but very restricted version of a hypertext system (it does, after all, support navigation between pre-defined nodes and links). However, a fully implemented hypertext system (following Vannevar Bush (1945) and Ted Nelson (1965), for example) would include a range of elements only some of which have been implemented in Web-based hypertext since 2004. These include:

- *Annotation by readers*, where readers can add and edit information content that they are reading (a recent example being Kathleen Fitzpatrick's use of open review for her next book, *Generous Thinking: The University and the Public Good* (https://generousthinking.hcommons.org/ and see her associated blog post).
- *Source tracking*, keeping a record of every document or document fragment in terms of who entered the information, when, and who changed it, allowing the complete history of a document to be constructed (something we've become familiar with in Wikipedia, for instance, but is rarely applied outside wikis).

Other elements remain largely theoretical. For example:

- *Typed links*, which include information about the purpose of the link. There's a tendency to assume that a link will lead to an elaboration, comment, or explanation of what is currently being read – that it's a definition of the term, or supports/refutes the argument being made, or some other relationship – but which is it? Not knowing the

purpose of a link quickly leads to disorientation in the reader.

- *User-authored links*, inserted by the reader and connecting new locations that have not previously been considered.
- *Calculated links*, generated automatically for a reader based on possible associations. Some hypermedia systems used in archaeology in the past, such as *Microcosm*, did incorporate this (for example, Wolle and Shennan 1996), but Web hypertext does not.
- *Transclusion*, which is the capability of a document to include (rather than just link to) sections of other documents created by another by reference to them. We see this in the form of embedding Youtube videos or Google Maps on webpages for instance, but, as Anil Dash points out, you almost never see functional parts of one website embedded in another, which leaves instead what he describes as "a grim landscape for anyone that can imagine a web where bits and pieces of different sites are combined together like Legos."

Effectively, therefore, post-processual archaeological theorists and others embraced the more restricted Web variant of hypertext, but its lack of key hypertextual functionalities meant it did not provide a strong foundation for examining the issues of power, readership and authorship, let alone the level of interactivity, intertextuality, and multivocality that was claimed for it. Even what is probably still the largest and most sustained example of an archaeological hypertext – Cornelius Holtorf's *Monumental Past* (2001) – is, despite claims to the contrary, constrained by its use of Web-based hypertext and limited by what Thomas Corns (2000, 99) called 'premature closure', in which:

> the maker of the system surrounds the target text with texts of his or her choosing – the intertext is a tendentiously determined closed set – and then defines the links or anchor points which he or she regards as appropriate for a right understanding, which will be the maker's understanding, hiding the right answers in the confidence that the user will find them, like hiding a slipper in the children's game. There is a disturbing disparity of power between maker and user that is far greater than that between critic and reader.

So we have a problem. Interesting questions surrounding authorship and readership through the use of hypertext haven't been properly addressed in archaeology since archaeologists aren't actually using hypertext in the strictest (widest?) sense. Archaeologists deal in the Web, but not in hypertext *per se*. We aren't alone in this. For example, Francesca Pasquali suggests that the success of the Web paradoxically saw the obsolescence of hypertext, making hypertexts little more than a curiosity for media archaeologists (2014, 36). But of course, the fact that we *aren't* using non-Web-type hypertext is in a way equally interesting – why it is, with all its connotations of critical theory and so on, that writers of archaeology have turned to the Web variant rather than embracing 'true' hypertext? Is it just a question of availability? And why, when digital archaeologists research virtual reality, networked information systems, geographical information systems, computational modelling etc. has hypertext remained largely ignored?

Today we seem to be at a point when the traditional modes of publication are being reconsidered (again) in the face of institutional as well as philosophical pressures. James Somers (2018) has recently argued that the traditional article and its digital PDF offshoot is obsolete in the face of the development of dynamic computational notebooks such as those provided through Jupyiter or R Markdown. I'm probably wrong, but we have yet to see this used in archaeology to any great extent

although growing concerns about reproducibility mean it can only be a matter of time. Contributions to *The Practice of Reproducible Research* (Kitzes et al. 2018) including that by Ben Marwick (2018) certainly demonstrates the potential. In the meantime, we've seen Shawn Graham's recent development of the online journal *Epoiesen* which encourages "playful and unfamiliar forms of singing the past into existence" and specifically focuses on creative engagement between author and readers through the use of Hypothes.is which (for the first time in an archaeological publication?) allows direct annotation and discussion alongside the paper. Doubtless the journal's flexible structure will allow the incorporation of computational notebooks as well as still more experimental approaches in the future.

Such projects provide encouragement for the idea that there is an opportunity to revisit hypertext along with allied technologies and consider their implications for reconfiguring archaeological publication and communication. They remain problematic at the moment, though, not least because they face the challenge of acceptance by institutions, funders, and peers (for example, see Neville Morley's concerns regarding evaluation of outputs under the UK Research Excellence Framework in relation to *Epoiesen*). But, such challenges aside, to borrow Anil Dash's conclusion:

> It's not impossible that we could still complete the unfinished business that's left over from the web's earliest days. And I have to imagine it'll be kind of fun and well worth the effort to at least give it a try.

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