In the Shadow of Digital Machine-Gods?

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I recently used a citation analysis of the Computer Applications in Archaeology annual conference proceedings as a proxy for examining the spread of digital archaeology across the broader discipline (Huggett 2024). Admittedly to my surprise, the results seemed to show that the debates and methods of digital archaeology had significantly infiltrated the wider archaeological discipline, at least as evidenced in citations of CAA papers in books and journals outside of digital archaeology (although not conference proceedings).

But as if to burst my newly optimistic bubble about the influence of the work of digital archaeologists across the broader discipline, a chapter recently appeared which sought to examine the influence of digital technologies on archaeology (Ribeiro 2025). It does so almost entirely without reference to any work in the field of digital archaeology: Hacıgüzeller et al. (2021) is the only 'digital' reference in the piece. It's perhaps why Ribeiro can boldly claim that "… little has been said about how technology has influenced the practice of archaeology itself." (Ribeiro 2025, 45) since discussions and debates within digital archaeology on that topic appear to be entirely overlooked. But to put that aside, it does mean that the chapter provides an interesting viewpoint on digital matters from a perspective specifically outwith digital archaeology itself, and so, in a way, shines a different light on digital technology in archaeology. It's a perspective that those of us working in digital archaeology can respond to even if, in many cases, we may think we have already done so.

Following an introduction, a large section (pp. 45-49) of the chapter concentrates on science fiction and cyberpunk culture as a means of envisioning the future, one driven by machines, a 24/7 always-on environment, and one in which roles have reversed: from humans using machines as prosthetics to humans becoming prosthetics for machines which have taken control of our lives and work (pp 48-49). None of this is news to digital archaeologists. From Chrysanthi et al. (2012) onwards, the

way in which digital tools can be used as human extensions to amplify certain senses or activities but at the same time numbing, or dumbing down, other areas has been a topic of debate amongst digital archaeologists (Chrysanthi et al. 2012, 10; see also Caraher 2019, Morgan and Wright 2018, Morgan et al. 2021, for example, as well as any number of my own papers).

The meat of Ribeiro's chapter lies in the three sections on automating archaeology, looking at the power of networks (pp. 49-51), the power of technological science (pp. 51-52), and the power of information (pp. 52-55). His discussion of networks highlights the replacement of hierarchical structures of labour employment with rhizomatic ones and the associated reliance on technologies which support and reinforce what he sees as the decentered and deterritorialised nature of work (p.49). He points to the growing importance of digital presence over physical presence in relation to archaeological employment and funding (p.50) in a 24/7 environment that is reliant on constant connection via digital networks. He also points to the way in which information is shared and made available across networks, though he initially focuses on examples of personal websites and the ownership of online lectures, rather than the bigger questions surrounding the collection, manipulation, and presentation of digital data which have been widely debated by digital archaeologists. In his second section, he suggests that archaeology is increasingly subsumed within "technological science" as it becomes a quarry for analytical materials for use in broader interdisciplinary studies and he highlights the growth of the specialist who is increasingly a specialist in one kind of technology or another (p. 51). He admits that this is a somewhat caricatured and cynical perspective but asks what has been lost in this shift to a technological emphasis. It's an interesting question, but his answer is initially limited to the reduction of textual description to numerical summaries characterised in graphs, models and distribution maps (p. 52). However, his third section expands on the first two through what he sees as the proliferation of archaeological information at the cost of understanding:

> Technology is the means by which we convert the archaeological past into information, into data, and in the process rob it of its past. … [technology] is a filter through which only anything that can be converted into a value can be considered, eliminating everything else. (Ribeiro 2025, 53).

He explicitly sees archaeological data as created by technological means, which seems a very narrow perspective. While he's correct in saying that data does not exist in a vacuum, awaiting discovery, the act of data creation is more than purely technological – human input remains significant in terms of the identification of what is recognised as data, whether and how that data is best represented, and decisions around whether a technical device is used in its capture and recording. Archaeologists may be increasingly digital, but they are not yet technological automatons, and Ribeiro perhaps jumps the gun here when he argues that the limitations of our human senses as sensors of data means that they are replaced by technology (p. 53-54).

In fact he goes further, suggesting that

> … automation in archaeology is not one in which an anthropomorphic robot takes over the task of excavating, analyzing, and interpreting the material record; rather, automation in archaeology is a process whereby technology does away with excavation, analysis, and

> interpretation altogether, and replaces it with faster and simpler digital methods. (Ribeiro 2025, 55).

He argues that in relying on these digital methods "we have sacrificed our own intelligence and submitted to these black boxes and the information they produce." (p. 55). This should perhaps be taken as a dire warning rather than a statement of fact: after all, we already recognise that black boxing and failure to understand the workings of our digital devices risks unethical behaviour, and talk of 'sacrifice' and 'submission' rather over-eggs our present condition.

Overall, Ribeiro takes a very negative view of human-technology relations, to the extent that he claims that

> … having to lurk in the shadow of machines diminishes the power of archaeology to tell empathetic stories about past peoples. Interpretation becomes devalued since this act cannot be quantified. (Ribeiro 2025, 54).

His promotion of technology over the human is perhaps taken too far – for instance it might equally be argued that the kinds of technology that he talks about actually frees us up to pursue these interpretative narratives about the past; indeed, the automation of repetitive, routine tasks such as we see is typically seen as providing time, space, and energy to do the more interesting things that he argues are lost.

There's a lot more to be said. But in summary, it seems unfortunate that Ribeiro doesn't make greater use of the debates that have been taking place within digital archaeology since the kinds of issues flagged by his chapter have already been the subject of discussions amongst digital archaeologists for at least the past 25 years. It's part of what for ten years I've been describing as an 'introspective' digital archaeology, seeking to derive an understanding of the digital turn in archaeology. Those debates are ongoing, adjusting and adapting as technologies change, but they demonstrate an awareness and a degree of understanding of the challenges associated with digital technologies that would have reinforced parts of his argument while offering counter-arguments to other aspects. However, as I suggested at the outset, Ribeiro's perspective on technological influences and their implications for archaeology provides an interesting external view which digital archaeologists can respond to. And in that light, and rather selfishly, it provides me with material to think about for my forthcoming presentation on how digitalisation has changed archaeology to be given at the Norwegian Institute at Athens workshop on 'Exploring the Layers of Digital Archaeological Practice' this December …

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