***Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar Conference*. Edited by Kevin Garstki. 2022. 210 pp. Cotsen Digital Archaeology Series 2. UCLA Cotsen Institute of Archaeology Press, Los Angeles, CA. ISBN eBook: 978-1-950446-26-1 (open access), Paperback: 978-1-950445-30-8.**

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This well-edited volume successfully investigates several of the pre-eminent challenges facing contemporary archaeology, in particular those posed by archaeology's growing reliance on digital archives and data-heavy analytical tools. Whilst these technological advances have improved many aspects of academic research, digital practices in archaeology have become an increasingly central concern over the past decade (e.g. Jeffrey 2012; Huggett 2015; Richardson 2018). Kevin Garstki advocates a self-critical approach to archaeology in this digital age, with a more purposeful and systematic application of powerful digital tools. To this end, the book urges disciplinary reforms to improve digital archaeology's long-term sustainability, accessibility and outreach.

Critical Archaeology in the Digital Age investigates three broad themes: the impact of new technologies in archaeology; data and digital archiving practices; and possible futures for the discipline. This structure does a reasonably good job of drawing together an otherwise eclectic mix of perspectives originating from authors with a myriad of research backgrounds. Yet, in some ways this variety damages the book's ability to form a central and consistent argument.

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In the first chapter, Paola Di Giuseppantonio Di Franco discusses the application of 3D printed and digital artefact replicas in museums, arguing for a wider use of these more interactive mediums in favour of originals kept behind the barrier of traditional glass cases. The author also grapples with debate surrounding the concept of authenticity, claiming that the sense of touch plays a crucial role in our encounters with such objects, and is therefore central to its definition.

Next, Bernard Frischer and David Massey in Chapter 2 showcase 3D urban models of two Roman *rostra*, providing the latest update to the ongoing Rome Reborn Project launched in 1996 (Guidi *et al.* 2007; Dylla *et al.* 2009). The authors successfully demonstrate the amazing potential of 3D modelling for experiencing nearly vanished spaces and observing features that would otherwise be lost to time. The images provided are of excellent quality and inspiring, but so numerous as to become somewhat disorientating. The inclusion of a map displaying the overall layout of structures from a birds eye view would have been helpful.

In Chapter 3, Rebecca Bria and Erick Casanova Vasquez explore how a combination of collaborative photogrammetry and storytelling can create new dialogues between archaeologists and community partners. They do so using examples from their ongoing outreach and collaboration with the Hualcayán community of rural Peru.

The next two chapters both look at case studies in Anatolia and their engagement with digital heritage. First, in Chapter 4 Patrick Willett and co-authors argues that predictive models should play a more active role in planning processes, situating archaeological heritage prominently into local agendas. The authors combine data from 24 surveys carried out between 1999 and 2018 to produce seven locally adaptive models of archaeological potential (LAMAPs); however, none of these predictive raster maps appear in this book; it would have been useful to have seen at least one example. In Chapter 5, Laura Harrison makes a compelling argument for greater utilization of vast databases of relatively unexceptional sites

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arising from development and rescue archaeology. She also introduces the "Digital Data Lifecycle" as a possible framework for engagement with these large, unsorted grey literature databases (Faniel 2018).

Jeremy Huggett follows on well from this in Chapter 6 by discussing Caraher's concept of "Slow Archaeology" (Caraher 2016; 2019). This effectively bridges the gap between two book sections, calling for the appropriate use of slow or rapid data collection where most sensible. The idea of reducing the needless collection of vast empirical datasets has taken many forms, many of which are discussed here including "Sure Data" and "Data Humanism" (Few 2018, 73; Lupi 2017).

In Chapter 7, Benjamin Štular touches upon the poor dissemination of large archaeological datasets, using LiDAR as his primary example. Despite LiDAR's popularity and success, especially in forested landscapes, the ability to share new data-heavy research and interpretations easily is lacking within the current academic publishing system. To address this problem, the author calls for a new publication format which better accommodates large databases, rapid publication, interactive GIS/LiDAR maps and data sharing.

Chapters 8 to 10 all have similar themes and are the most technical (and relatively difficult to read). In Chapter 8, Opitz and co-authors outline the Keeping Data Alive (KDA) project, its software, filetypes and workflows. They suggest possible changes to digital infrastructure with the aim of enhancing wider collaboration. Next, in Chapter 9, Eric Kansa identifies a growing need to secure greater financial and technical autonomy over databases, so they can be maintained with archaeological needs and values in mind. William Caraher in Chapter 10 then discusses the concept of "digital workflows" and the changing nature of archaeological publishing .

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Adam Rabinowitz in Chapter 11 looks ahead to re-imagine what archaeological data archives may be like in 100–150 years from now. Faced with rapid digitization and a shift from analogue to digital documentation in archaeology, Rabinowitz makes the argument that we are at a crossroads: we must either wholly accept this shift to digital methods, leading to rich empirical data but poor human context, or we must revise our ideas of what we think an archaeological archive should contain, with a greater emphasis on ease of access, future reuse, and quality over quantity.

Chapter 12, by Ruth Tringham, conveys the idea that archaeological projects have an "afterlife" and that curation is crucial for the longevity of a digital entity. The data is fragile to changing formats, research trends and a lack of adequate funding or motivation to maintain or revisit databases. Tringham echoes earlier suggestions for a significant reworking of how archaeological data is archived and disseminated.

The final chapter (Chapter 13) provides an overview of the environmental impact of archiving digital heritage. Lorna-Jane Richardson argues that our reliance on electronics for data capture, analysis and archiving has a human cost and a carbon impact (e.g. the mining of rare metals) . She emphasises a need for greater awareness of these "Green" issues and the implementation of sustainable management practices.

The organization of the volume is semi-integrated, with a handful of direct linkages between chapters in the form of internal referencing. This alone does not entirely address the disjointed nature of the whole, and a concluding chapter, drawing together its range of arguments and ideas into a short, focused narrative would be a welcome addition. Still, given the wide range of writing styles and diverse topics covered, its relative cohesion is an achievement.

In sum, *Critical Archaeology in the Digital Age* provides a lucid review of the main challenges faced by archaeologists when working with digital tools and datasets. It calls for

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much-needed reflection on archaeological practices highly relevant to the field of contemporary archaeology. This book is likely to have a wide appeal for readers of *The Journal of Contemporary Archaeology*, especially those looking to improve their awareness about present and future technical challenges. Individual chapters may be particularly relevant to researchers using similar methods, such as 3D scanning, photogrammetry and predictive modelling – or for those, like myself, grappling with vast archaeological databases for landscape-scale research and heritage management.

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