Daniel Strand, Anna Källén & Charlotte Mulcare (eds)

Critical Perspectives on Ancient DNA

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As the title suggests, the book offers a series of critical reflections on ancient DNA (aDNA) research. The edited volume examines how genetic interpretations shape narratives of the past, and focuses on epistemological tensions, ethical challenges, and power structures in archaeogenetics. The chapters approach these questions primarily through anthropological and sociological perspectives without many contributions from geneticists themselves.

In their introduction, Strand and Källén outline the central themes of the entire volume. While the topic is timely and relevant, some of the text reads somewhat aggressive, such as the critique of the term 'revolution' (pp. xii–xiii). Archaeogenetics has been described as revolutionary for introducing new types of data that has the potential to expand and challenge traditional interpretations of the past (e.g., Crellin & Harris 2020; Heggarty 2018; Kristiansen 2022). Strand and Källén invoke Thomas Kuhn's theory of scientific revolutions (p. xii), noting that the absence of an articulated

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paradigm shift in archaeology to justify this label. Yet, one could argue that carefully done integration of genetic information into archaeological interpretation has the potential to reshape or at least refine understanding of identity, mobility, and population histories (e.g., Crellin & Harris 2020; Gregoricka 2021; Matisoo-Smith & Horsburgh 2016; Pohl et al. 2021). Nevertheless, it is very true that without the interpretative lens of archaeology (and possibly the integration of other scientific methods), genetic results alone can remain decontextualized, or be overinterpreted, highlighting the essential role of archaeological expertise in grounding aDNA findings in historical and social contexts. We argue that this is precisely what modern archaeogenetics does. Particularly controversial is the editors' claim that no clear line can be drawn between population geneticists and political actors (p. xx), which may oversimplify the relationship between scientific research and its societal interpretations. We will return to this point when discussing chapter 7.

Chapter 1, Gained in Translation: Interdisciplinary Challenges in Ancient DNA, by Charlotte Mulcare and Mélanie Pruvost, calls for ethical reflection and sustained dialogue across disciplines. While the chapter raises important concerns, particularly regarding the need to incorporate Indigenous and marginalized perspectives into research design and interpretation, it tends to present a somewhat simplified picture of the current state of archaeogenetics. The valuable point about inclusion might have been strengthened by acknowledging recent developments in North America and elsewhere, where collaborative models involving Indigenous and African American descendant communities are increasingly shaping research practices (First Rider et al. 2024; Fleskes et al. 2023; Moltke et al. 2021, and even chapter 4 in the volume). Similarly, caution in overinterpreting genetic data is valid, but the chapter does not address the extent to which contemporary archaeogenetics already seeks to engage with methodological limitations, uncertainty, theory-laden inference, and interdisciplinary cooperation. However, given the young age of archaeogenetics as a discipline, its epistemological framework is still in its infancy, and therefore, discussions of standards, ethics, and genuine inclusivity are timely. Equally important is maintaining a dialogue among disciplines to ensure that archaeology is not reduced to a subordinate or purely supportive role within archaeogenetic research.

Chapter 2, Diagrams of Human Genetic Kinship and Diversity by Marianne Sommer and Ruth Amstutz, critiques widely used visual tools in archaeogenetics, such as PCA and ADMIXTURE plots. The authors argue that these diagrams may reinforce simplistic or racialized ideas of origins, ancestry and, implicitly, ethnicity. This is an important concern, especially when visual outputs are isolated from their interpretative context. However,

many of the examples cited are from older publications and do not reflect how such tools are now routinely accompanied by demographic modelling, functional studies, cautionary explanation, and critical reflection and debate (e.g. Barton et al. 2025; Chevy et al. 2023; Durvasula & Sankararaman 2020; Klunk et al. 2022; Teixeira et al. 2021; Vilgalys et al. 2025). The critique of two comparative figures (2.5 and 2.6) appears technically imprecise, as it fails to acknowledge that the diagrams depict different analytical levels (individual vs. population) and are not meant to be directly comparable. Since the publication of the book, new approaches, such as identity-by-descent (IBD) network analyses and collaborations integrating genetic data with social and cultural understandings of kinship have emerged (e.g. Gnecchi-Ruscone et al. 2024; Wang et al. 2025), and these studies demonstrate how archaeogenetics is evolving to address many of the very concerns the authors raise.

In Chapter 3, Past Pathogens and Precarious Futures, Venla Oikkonen examines how the study of ancient pathogens is entangled with culturally and politically charged imaginaries. Oikkonen focuses on how narratives of risk and vulnerability are constructed through the scientific and public framing of pathogen aDNA research. While this offers an interesting humanities-based perspective on the symbolic dimensions of science, the chapter blurs the line between speculative cultural discourse and real-world biosecurity risks. Scenarios such as the reawakening of pathogens from thawing permafrost are presented with limited differentiation from actual scientific debates, and the core aim seems to be a critique of how science is used to express collective anxieties about contamination, control, and the future. However, the chapter would have benefited from a more grounded engagement with the current aims, methods, and limitations of ancient pathogen research, especially given the increasingly cautious and reflective approach of many practitioners in the field.

Chapter 4, Twisting Strings: Hopi Ancestors and Ancient DNA by Stewart B. Koyiyumptewa and Chip Colwell, is an excellent contribution. The authors offer a nuanced comparison between Hopi notions of kinship and genetic ancestry frameworks employed in archaeogenetics. They argue convincingly that for communities like the Hopi, identity and belonging are culturally constructed and cannot be reduced to genomic affinity. The chapter presents a strong case for archaeogenetic research to engage thoughtfully with Indigenous epistemologies and to acknowledge that genetic data is only one strand in a much larger narrative. Koyiyumptewa, writing from within the Hopi community, and Colwell raise important concerns around biocolonialism, drawing attention to how states have at times used genomic findings to undermine Indigenous sovereignty. Their central message is clear: ancient DNA research must be conducted collaboratively, with clear

benefits to descendant communities, rather than simply seeking to confirm cultural histories that Indigenous people already understand through their own traditions.

Chapter 5, Whitewashing the Neanderthal: Doing Time with Ancient DNA by Amade M'charek is another valuable contribution. The chapter provides an insightful analysis of how visual and rhetorical representations of ancient hominins, particularly Neanderthals, can perpetuate racialized and Eurocentric conceptions of human evolution. M'charek notes that Neanderthals are commonly depicted as white, contrasting them with darker-skinned, more 'primitive' African ancestors. This reflects a deeper, often unconscious tendency to associate progress and modernity with whiteness and Europe. A particularly compelling example is the Neanderthal Museum's postcard Werde Teil der Menschenfamilie, in which the visual arrangement places light-skinned individuals as the culmination of humanity. M'charek places this pattern within a broader critique of Enlightenment-era scientific frameworks and colonial legacies that have shaped genetics and anthropology. By highlighting how skin colour can become a gatekeeper of historical belonging, where individuals can only identify with the past if it visually resembles them, the chapter warns of the dangers of superficial identification and the erasure of diversity in human history. Rather than reinforcing narrow phenotypically-based notions of our ancestors, ancient DNA research should highlight the cultural, social, and lived complexity across time and space.

Chapter 6, The Lagertha Complex by Andreas Nyblom, critically examines the media reception of the 'Birka female warrior' aDNA study (Hedenstierna-Jonson et al. 2017) and cautions against speculative narratives in public discussions of aDNA research. While the chapter raises valid concerns about sensationalism in popular science communication, it occasionally overstates the role of researchers in shaping media narratives. Some criticism of the research team borders on personal, and the chapter lacks comparative examples that could have contextualized its claims. For example, the research on the Suontaka grave (Moilanen et al. 2022 [available online in 2021]), another case involving contested gender identity and extensive international media coverage, is conspicuously absent. Including additional examples would have allowed for a more balanced discussion of how media portrayals vary across studies and how researchers can influence, and on the other hand, lose control of public interpretation. This loss of control over narratives can occur even when researchers act responsibly and communicate their findings with care, as media can shape interpretations in ways that diverge from the original intent.

Chapter 7, Ancient DNA and the Politics of Ethnicity in Neo-Nationalist China by Magnus Fiskesjö, shifts focus from media reception to the delib-

erate instrumentalization of archaeogenetic research by state actors. The chapter is an important account of how aDNA research can be co-opted for nationalist and authoritarian agendas. Focusing on contemporary China, Fiskesjö outlines how genetic narratives are selectively appropriated to delegitimize minority groups like the Uyghurs. While the chapter powerfully illustrates the dangers of scientific findings being mobilized to justify state violence, one passage (p. 147), in which prehistoric interactions are described using phrases such as Denisovans 'moving in to sleep with the natives' and 'packing their bags to move across the landscape' strikes as an oddly flippant tone in an otherwise serious analysis. Importantly, the way Fiskesjö's chapter is presented in the book's introduction (suggesting that no distinction can be made between geneticists and political actors) risks misrepresenting the chapter's careful treatment of the constraints under which many scientists operate, particularly in politically oppressive environments. Although focused on China, the chapter's warnings are globally relevant. Recent studies have shown that archaeogenetic narratives, particularly those related to migration and ancestry, are increasingly appropriated by far-right actors to support exclusionary and racialized notions of identity (Frieman & Hofmann 2019; Hakenbeck 2019). This reminds researchers to be aware of how their findings may be interpreted or misused in politicized contexts, both within and beyond academia.

The volume ends with K. Ann Horsburgh's concluding commentary, which reiterates many of the book's key concerns, calling for truly interdisciplinary collaboration and critical reflection in aDNA research. Her emphasis on listening to archaeologists and heritage professionals is well-founded, but her language occasionally generalizes the motivations and epistemic positions of geneticists. Terms like 'molecular chauvinism' imply that geneticists uniformly disregard the humanities, a claim that does not do justice to the diversity of researchers in the field. Also, the inclusion of discussion on direct-to-consumer genetic testing companies feels somewhat misplaced in a volume dedicated to ancient DNA. While these companies also reflect public interest in ancestry and genetics, conflating these distinct domains may obscure rather than clarify the responsibilities and practices of academic researchers. It is essential to distinguish between media representations, consumer genomics, and peer-reviewed archaeogenetics. This complexity merits a calibrated discussion, one that recognizes both the pitfalls and potential of aDNA research when conducted in mutual respect across disciplinary boundaries.

Overall, the volume is a welcome contribution to the broader conversation around ethics, interpretation, and interdisciplinary collaboration in archaeogenetics. Despite its occasionally uneven tone, it raises important questions that merit careful reflection. Researchers in archaeogenetics, espe-

cially those early in their careers, would benefit from reading and reflecting on these critiques. Even though criticism that focuses only on problems without acknowledging strengths risks polarization rather than dialogue, the concerns raised in the book should be taken seriously by all those involved in aDNA research, from project design to public communication.

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