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DANIEL STRAND, ANNA KÄLLÉN, AND CHARLOTTE MULCARE, eds. 2024. *Critical Perspectives on Ancient DNA*, Cambridge, MA: MIT Press, 206 pp., ISBN 978-0-262-54809-0.

Abstract: As the first comprehensive inquiry of its kind, *Critical Perspectives on Ancient DNA* critically interrogates the practices, narratives, and sociocultural effects of archaeogenetics. Bringing together scholars from anthropology, archaeology, genetics, cultural history, media studies, and science and technology studies, the collection examines the epistemological and ontological challenges of ancient DNA (aDNA) research. Key themes include the fallibility of aDNA as incontrovertible evidence, the epistemic dominance of genetic frameworks over alternative knowledge systems, the risks of scientific racism and political instrumentalization, and the role of media in shaping public imaginaries of the past. Through case studies ranging from Neanderthal DNA to the “female Viking warrior” and genetic mapping in contemporary China, the chapters demonstrate that aDNA knowledge emerges not solely from laboratory analysis but from complex interactions between science, culture, and society. The volume ultimately challenges DNA essentialism and calls for interdisciplinary collaboration to resist molecular chauvinism, foregrounding the cultural contingencies and interpretive dimensions of archaeogenetics.

Keywords: aDNA, paleogenetics, epistemic dominance, molecular chauvinism, social power.

This edited volume offers the first comprehensive and critical examination of the practices and impacts of archaeogenetics, foregrounding its sociocultural as well as scientific implications within broader societal contexts. Structured around an introduction and eight chapters, the collection addresses a central concern: the fallibility of ancient DNA (aDNA) as incontrovertible archaeological evidence and the imperative to remain critical of the ways in which ancient DNA findings are produced, interpreted, and mobilized.

In the Introduction, D. Strand and A. Källén provide a clear and accessible entry point into the field. They trace the exponential growth of aDNA research over the past fifteen years, enabled by advances in bioinformatics and innovations such as next-generation sequencing, and situate this trajectory within the broader recognition paleogenetics has received in both scientific and public arenas—culminating in the awarding of the 2022 Nobel Prize in Medicine to Svante Pääbo for his groundbreaking work. Crucially, the introduction underscores how the discourse and practice of archaeogenetics have evolved in continuous interaction with popular imagination.

This framing establishes the book’s core argument: that aDNA research, shaped by contextual demands, scientific and social pressures, and expectations of revolutionary discovery, has often been misapplied. In this process, it has acquired qualities of what the editors call “sensational science” (p. xi)—empirically speculative and affectively charged (p. 114).

This volume foregrounds the epistemological and ontological challenges that define the field of archaeogenetics. Epistemologically, the lack of genuine interdisciplinarity, coupled with the shaping effects of knowledge-production and visualization technologies, profoundly influences how raw data are analyzed and interpreted. In Chapter 1, geneticists C. Mulcare and M. Pruvost address these challenges from a personal perspective, emphasizing the need to recognize the fundamental epistemological distinctions between genomic sciences and the humanities and social sciences. Rather than seeking to collapse these differences, they call for acknowledging them and engaging in acts of translation across disciplinary boundaries.

These epistemological issues have direct consequences for the ontological dimensions of the field. The portrayal of aDNA as incontrovertible proof, combined with a lack of cultural awareness—arguably a symptom of interdisciplinary shortcomings—raises pressing concerns. Chief among these is the narrow, biologically reductionist definition of ancestry that dominates genetic science. In Chapter 4, Hopi tribe member S. Koyiyumptewa and anthropologist C. Colwell interrogate this limitation by contrasting the strictly biological conception of ancestry in archaeogenetics with Hopi understandings, which conceive ancestry as an intricate tapestry of humans, nonhumans, material objects, places, and historical events. Their analysis reveals the inadequacy of genetic frameworks for capturing the complexity of social identity and highlights the epistemic dominance of genomic perspectives. The chapter ultimately underscores the need for collaborative approaches

capable of negotiating and reconciling divergent conceptualizations of ancestry within archaeogenetics.

Also within the epistemological realm, Chapter 2 by cultural scholars M. Sommer and R. Amstutz demonstrates how software programs—often presented as neutral, data-driven tools—are in fact generative, producing divergent research outcomes depending on the decisions of programmers and researchers. Such technologies not only structure scientific results but also risk perpetuating traditions of scientific racism.

Whether advertently or not, racism and racial politics emerge as central by-products of contemporary aDNA research, as illustrated in Chapters 5 and 7. In Chapter 5, anthropologist A. M'charek interrogates the cultural meaning-making surrounding concepts of race and identity by examining how archaeogenetics informs popular imagination. Drawing on personal memories and fieldnotes from her leadership of a laboratory working with Neanderthal DNA, M'charek argues that the recent “whitening” and cultural assimilation of the Neanderthal stem from the discovery of genetic relatedness between Neanderthals and modern humans. This reframing has reshaped both scientific and popular understandings of human evolution, with profound implications for the conceptualization of sameness and otherness. She warns of the dangers inherent in using aDNA to construct singular evolutionary narratives—in this case, a whitewashed account of the Neanderthal—that reinforce racialized imaginaries with significant consequences for racial politics in Europe and beyond.

In a parallel critique, anthropologist M. Fiskesjö (Chapter 7) highlights the political stakes of genetic racism. He exposes the ways in which archaeogenetics, through the classificatory power of naming in genetic mappings of past and present populations, becomes complicit in the politicized manipulation of ethnicity. His analysis of contemporary China reveals how genetic research can be mobilized to serve state agendas, thereby contributing to violations of human rights. This case underscores the broader potential of archaeogenetics to be harnessed for political ambitions with severe consequences.

These chapters also illuminate the pivotal role of language: the terminology used to frame, interpret, and communicate aDNA research not only constrains scholarly discourse but also powerfully shapes public understandings. Media historian A. Nyblom emphasizes the importance of attending to the “mechanisms of closure” (p. 133)—the rhetorical strategies employed in

archaeological research to obscure necessary and ethically important ambiguities in historical interpretation.

Nyblom develops this argument further in Chapter 6, where he explores the mediatization of science and the social power of DNA through the widely publicized case of the so-called “female Viking warrior.” He demonstrates that archaeogeneticists who conducted genomic analysis of the remains interred with weapons in Birka (present-day Sweden) misused the symbolic authority of DNA as a truth-confirming device. Although genomic analysis played only a marginal role in determining the biological sex of the individual, genetics was invoked as the ultimate authority to affirm both the identification of the skeleton as female and the existence of professional, high-ranking female warriors in the Viking Age. In reality, the figure of the female warrior emerged not directly from genomic evidence but from complex interpretive processes involving archaeology, mythology, and contemporary fiction, shaped by interactions among archaeologists, academic journals, popular culture, news outlets, and social media. This social power of DNA is also examined in Chapter 3, where science scholar V. Oikkonen analyzes cultural representations of ancient pathogens preserved in permafrost. The author situates these narratives within broader anxieties about climate change, highlighting fears that dormant pathogens might be revived and pose new threats to human health. This chapter underscores that aDNA research concerns not only reconstructions of the past but also speculative futures.

The volume concludes with Chapter 8, a commentary that returns to the central claim set out in the introduction: archaeogenomics does not represent a scientific revolution in the Kuhnian sense, but rather a “hyperbolic euphemism” (p. xii). As molecular anthropologist A. Horsburgh observes, “despite the grandiose claims to the contrary, aDNA data have not, and will not, revolutionize reconstructions of the past” (p.173). Drawing on her own experiences with aDNA research, Horsburgh argues that genetic data only become meaningful when interpreted in relation to other forms of evidence, particularly social and historical contexts. Her reflections highlight the necessity of sustained interdisciplinary collaboration to resist “molecular chauvinism”—the treatment of genetic data as inherently pure or privileged—and instead embrace the epistemological complexity of aDNA studies.

In sum, this volume makes a significant contribution by interrogating the epistemological, ontological, and political dimensions of archaeogenetics, demonstrating how aDNA research is

entangled with media, cultural imaginaries, and disciplinary power relations. By exposing the risks of molecular chauvinism and epistemic dominance, while also pointing to the possibilities of genuine interdisciplinary collaboration, the book provides both a cautionary and constructive framework for future work. It should be considered essential reading for scholars across the humanities, social sciences, and natural sciences who are invested in critically assessing the promises and perils of aDNA.

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Dr. Irene Martí Gil is the Educational Outreach Coordinator and Anthropology Collections Manager at the LSU Museum of Natural Science in Baton Rouge, Louisiana. She obtained a Ph.D. in Anthropology from Louisiana State University in 2023, which Fulbright sponsored. Previously, she earned her master's degree in Cultural Heritage from University College London (London), a bachelor's degree in Archaeology from Universitat Autònoma de Barcelona-Université Paris-Sorbonne IV (Barcelona-Paris), and a degree in Liberal Arts from Escuela de Liderazgo Universitario-Universidad Francisco de Vitoria (Madrid). Her field of research encompasses a broad range of topics including archaeological looting and antiquities trafficking, southeastern US anthropology, museology, and digital anthropology, among others.



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