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BOOK REVIEW

Daniel Strand, Anna Källén and Charlotte Mulcare (eds.), *Critical Perspectives on Ancient DNA*

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Now is a time for speaking truth to power and for questioning science performed in service of the state. This excellent book does both. Most gratifyingly, the book offers suggestions for redemption alongside criticism, issuing a friendly invitation to those working on ancient DNA (aDNA) to do better. We need critique; but, more, we need pathways to a better place. This collection is a road map consisting of a thematic introduction by two editors, seven topical contributions by authors from a host of disciplines, and a concluding commentary that engages the whole volume. Each chapter makes conceptual contributions likely to be of use to practitioners, as well as to studiers, of the science in question.

Daniel Strand and Anna Källén's introduction sets a critical tone. It establishes that scientific work on aDNA is a complex meaning-making process involving science and society, and this work 'has repercussions far beyond the university' (p. xx). Chapter 1 by Charlotte Mulcare and Mélanie Pruvost offers a qualitative assessment of an interdisciplinary research project focused on aDNA. This case study reinforces the critical themes of the introduction, advancing conflict as 'a precursor to innovation' (p. 2) and a much-needed generator of 'profound conversations on difficult issues' (p. 20).

Chapter 2 by Marianne Sommer and Ruth Amstutz surveys diagrammatic practices, demonstrating how trends in depictions of admixture have shifted with the development of population-modelling practices while underlying assumptions about hierarchical population structure have remained stable. Chapter 3 by Venla Oikkonen examines several frequent and culturally potent conceptual associations: indigeneity with cold, aDNA with immutability, science with indisputability. Chapter 4 by Stewart B. Koyiyumptewa and Chip Colwell is essential for palaeogeneticists or molecular geneticists handling indigenous data, especially genetic or genomic data from Hopi and other Native American persons. Not everyone experiences advances in aDNA as the opening of exciting new frontiers. Recall what 'the frontier' was often like for those who were there when the settler colonizers arrived. Many indigenous groups remain under existential threat from industries of extraction. Science has often acted as just another extractive industry, but each scientist has an opportunity to reject rather than adopt the role of (bio)colonizer. This chapter articulates conditions for genuine collaboration.

Chapter 5 by Amade M'charek analyses depictions of Neanderthals in museums and other cultural spaces, tracing a shift that occurred once scientists began thinking that

Neanderthals contributed to European genomes. The shift in depiction is remarkable and occurs along a host of dimensions, including, but not limited to, skin tone, facial expression, personal grooming, clothing, props, pose, sexualization and setting. Attending to this shift, and to what precipitated it, helps bring into view just how culturally resonant scientific work on genetics, especially aDNA, can be. M'charek characterizes aDNA research as an *affective* field, which 'invites a wide audience to project different kinds of aspirations, feelings, and vested ideas' (p. 114). When we project, we take an observation and extend its meaning; we make further inferences based on that observation and what we take it to imply. A host of other messages seemed to cascade out from the same source material once Neanderthal inheritance was identified in Europeans. Some pre-existing notions resonated with the claim, and others were unexpectedly discordant. We adjusted our ideas accordingly. This is an instance of that phenomenon which Strand and Källén presented in the volume's introduction: aDNA work as a complex meaning-making process for science and society.

Andreas Nyblom, in Chapter 6, showcases aDNA work in relation to showbiz, demonstrating 'the assertion and authority of genomics, as well as ... the persuasive force of its presentation and cultural resonances' (p. 131). Celebrity science, actual media celebrities, DNA mystique, molecular chauvinism and the allure of mechanisms of closure for scientists and public alike combine to present a categorical overreach as an incontestable fact. This case is an entertaining exhibition of science in service of celebrity; the next is a sobering presentation of science in service of nation building, nationalist narratives and even possible genocide. In Chapter 7, Magnus Fiskejö highlights aDNA work as it relates to concepts of race and ethnicity in China and contributes to an ongoing political project marshalling scientific support for state-mandated narratives regarding regional history, national culture and imagined futures. Most devastating is Fiskejö's presentation of the potential use of aDNA work in the recently accelerated 'forced assimilation of the Uyghurs in the Xinjiang region, a wide-ranging campaign with atrocities that already meets the definition of genocide' (p. 150) given its surveillance, detainment and forced sterilization practices.

M'charek's earlier chapter documenting the conscription of the archaic Neanderthal into today's racial politics incorporates discussion of a German artist's project placing *Stolpersteine*, or inscribed 'stumbling stones', into sidewalks and cobblestones in front of residences from which Holocaust victims were taken. I read this book and wrote this review while temporarily living in Germany during a period of research leave. I often notice these stumbling stones and am reminded of that awful history. I am grateful to this art and the artist Gunter Demnig for that reminder.

I am especially grateful because no one with better options, scientists included, is morally permitted to ignore clear signs that their work may be contributing to genocide or dictatorship. K. Ann Horsburgh's concluding commentary puts this point perfectly: 'The research community itself must decide whether the ethical requirements of engaging in aDNA research should have teeth, by whom those teeth should be wielded, and what kinds of wounds those teeth should inflict' (p. 167). Horsburgh directs practitioners toward potential collaborators from anthropology. I, too, want to gesture toward resources from another domain. The palaeontological community is aware that engaging with fossil specimens absent considerations of their provenance can contribute to genocide and other crimes against humanity, and, when needed, engineers a coordinated response (see the current moratorium on working with amber specimens from Myanmar). Palaeogeneticists might look to their counterparts in palaeontology for a model of how to arrange collective action aimed at preventing their science from working in the service of dictatorship or genocide.

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