The aDNA Revolution Moves Beyond Genetics

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The aDNA Revolution Moves Beyond Genetics

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Abstract

Ancient DNA has revolutionized the fields of archaeology and anthropology. Nowhere is this more apparent than in the field of kinship studies. This report provides a reflection on a recent workshop focused on exploring non-biological kinship in light of recent aDNA research. It presents a summary of reflections by workshop participants that emphasized the importance of interdisciplinary collaboration for future research on ancient kinship.

Keywords

Kinship studies, non-biological kinship, aDNA, third science revolution, interdisciplinary collaboration

There can no longer be any doubt that the application of ancient DNA techniques to the study of the past has caused a scientific revolution in the field of archaeology (Kristiansen 2014; Kristiansen 2022). In recent years headlines reporting new discoveries have rolled in at a breathtaking pace, and our understanding of ancient population movements, interactions and social structures has been advanced in ways that we would never have thought possible only a few decades ago. As this new scientific revolution moves from its breakthrough to implementation phase, however, it is critical that we take time to pause and examine how the powerful genetic techniques now available to us match against the highly complex and subjective reality of the human experience (e.g. Rebay-Salisbury 2024). For few topics is this as important as for kinship studies, a once central field of study within socio-cultural anthropology that has moved back into the foreground of anthropological discourse in recent years due to the use of aDNA approaches. Tracing genetic relatedness between ancient individuals has allowed researchers to reconstruct the genealogies of past populations and explore the connections between specific ancient individuals. Yet how does the biological data produced by aDNA studies match with the socially constructed world of human kinship? Exploring such important questions was the goal of the 'Beyond Genetics: Exploring Non-Biological Kinship in Prehistoric Times' workshop held at the Austrian Archaeological Institute at the Austrian Academy of Sciences in Vienna on 4 and 5 October 2024 and organized by Ana Herrero-Corral, Sabina Cveček and Katharina Rebay-Salisbury. This report provides a brief reflection on the outcomes of this workshop.

What does it mean to be someone's kin? Recent anthropological approaches have tended to emphasize the cultural rather than biological aspects of kinship. Marshall Sahlins, for example, tells us that kinship is about culture, not biology (Sahlins 2013). The biological nature of aDNA data, however, has predisposed many recent bioarchaeological discussions of kinship towards a focus on procreation and genealogy. Grappling with this disconnect between the archaeological data and our anthropological understanding of kinship was a major theme for the workshop. Several papers engaged critically with concepts such as biological relatedness and the nuclear family in order to identify potential biases in the way we discuss kinship. Data from ethnography was critical to this discussion, and we heard from numerous case studies in which cultural concepts of kinship did not match biological models of relatedness. Archaeogenetic and archaeological parallels were also central to the discussion, including examples of cases where people lacking genetic ties were buried together in ways that would suggest a kin relation. These discussions drove home the message that kinship is a process and not something that is fixed either temporarily or biologically.

Many of the issues surrounding the biological versus cultural nature of kinship parallel old debates within the field. The Gellner-Needham debate from the mid-twentieth century, for example, was specifically mentioned in one of the papers at the workshop. What is unique about our

present situation is the possibility to combine new data from genetic approaches with both new and old anthropological data in order to establish baselines from which to draw comparisons and identify potential outliers in the archaeological record. In this way, ancient DNA can provide us with new empirical data with which to address and explore some of these foundational questions within anthropology. Interdisciplinary approaches like those explored in the Beyond Genetics meeting therefore offer an opportunity to breathe fresh air into these old discussions and even to move forward in exciting new ways.

Workshop participants were asked to give free-form reflections on their experience at the conclusion of the meeting. Of the 21 responses that were recorded, 19 responses have been schematically presented in Figure 1, grouped into three main categories. The two additional responses reflected generally positive experiences regarding the workshop that could not be categorized by the three themes in Figure 1. It is notable that a large plurality of respondents emphasized the importance of interdisciplinary work for contemporary research on kinship. Other participants emphasized the importance of reviewing traditional understandings of kinship in view of recent ethnography and genetic data. One of the participants mentioned at the end of the discussion that it is by understanding cross-cultural and interdisciplinary norms that unique and potentially groundbreaking cases can be identified in the archaeological and genetic data. Perhaps the time has come to move beyond these long-standing debates with a new pragmaticism that acknowledges both the biological foundation and cultural variability that has characterized kinship in both ancient and contemporary societies.

The potential for genetics to address both old and new anthropological questions in unexpected ways is central to its revolutionary capacity within archaeology (Cveček 2024). Now that aDNA techniques have become widely applied and increasingly normative in archaeology, the time has come for us to have serious discussions about how the data produced from these approaches shape the biases, interpretations and narratives about the past that we build as anthropological archaeologists. As many of the participants mentioned in the post-seminar discussion, the tremendous array of interpretive possibilities made available by new techniques makes it increasingly critical for geneticists, archaeologists and cultural anthropologists to brainstorm possibilities and future pathways together. Workshops such as this one offer excellent blueprints for what such interdisciplinary thinking can look like. By combining robust ethnographic models with new genetic data, interdisciplinary collaborations have great potential for furthering our understanding of human social behaviour and organization. Exciting times are certainly ahead of us.

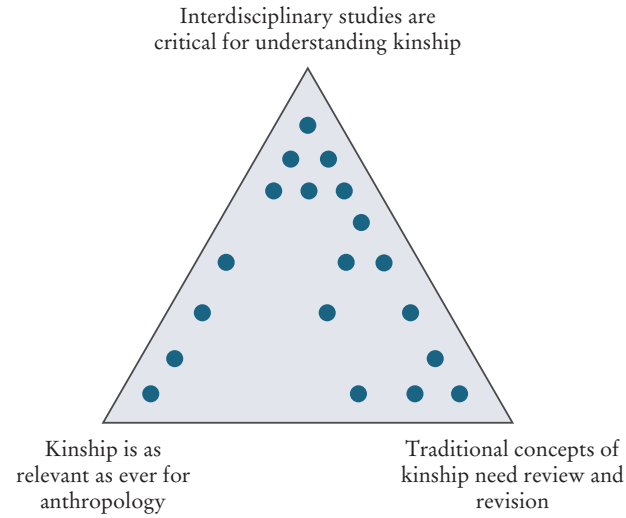

Fig. 1. Schematic interpretation of the results of 19 responses to a free-form survey asking workshop participants to reflect on key take-away concepts from the meeting.

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