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Chaco Canyon Dig Unearths Ethical Concerns

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Abstract

The field of paleogenomics (the study of ancient genomes) is rapidly advancing with more robust methods of isolating ancient DNA and increasing access to next-generation DNA sequencing technology. As these studies progress, many important ethical issues have emerged that should be considered when ancient Native American remains, whom we refer to as ancestors, are used in research. We highlight a recent article by Kennett et al. (2017), "Archaeogenomic evidence reveals prehistoric matrilineal dynasty," that brings several ethical issues to light that should be addressed in paleogenomics research (Kennett et al. 2017). The study helps elucidate the matrilineal relationships in ancient Chacoan society through ancient DNA analysis. However, we, as Indigenous researchers and allies, raise ethical concerns with the study's scientific conclusions that can be problematic for Native American communities: (1) the lack of tribal consultation, (2)

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the use of culturally-insensitive descriptions, and (3) the potential impact on marginalized groups. Further, we explore the limitations of the Native American Graves Protection and Repatriation Act (NAGPRA), which addresses repatriation but not research, as clear ethical guidelines have not been established for research involving Native American ancestors, especially those deemed "culturally unaffiliated". As multiple studies of "culturally unaffiliated" remains have been initiated recently, it is imperative that researchers consider the ethical ramifications of paleogenomics research. Past research indiscretions have created a history of mistrust and exploitation in many Native American communities. To promote ethical engagement of Native American communities in research, we therefore suggest careful attention to the ethical considerations, strong tribal consultation requirements, and greater collaborations amongst museums, federal agencies, researchers, scientific journals, and granting agencies.

Keywords

PALEOGENOMICS; ANCIENT DNA; ETHICS; NATIVE AMERICAN

Recent studies involving paleogenomics (the study of ancient genomes) research have generated genomic data from many Native American ancestors, some who lived 6,260 to 1,036 years ago (ya) (Prince Rupert Harbour Ancients (Lindo et al. 2016)), 8,500 ya (the Ancient One (Rasmussen et al. 2015)), and 12,600 ya (the Clovis child (Rasmussen et al. 2014)), using robust DNA isolation methods and next-generation sequencing technology. While some of these ancestors may fall under the purview of the Native American Graves Protection and Repatriation Act (NAGPRA), which was established in 1990 "to address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American cultural items, including human remains, funerary objects, sacred objects, and objects of cultural patrimony" (US Department of Interior 1990), it is unclear how these regulations relate to research. Kennett et al.'s (2017) article, "Archaeogenomic evidence reveals prehistoric matrilineal dynasty," unearths several issues that should be addressed when ancient Native American ancestors are used in research (Kennett et al. 2017). Kennett et al. extracted DNA from nine ancestors who were originally interred, along with their funerary objects, in the Pueblo Bonito greathouse in Chaco Canyon, New Mexico. Since excavation in the early 1900s funded by non-Native collectors, these ancestors and funerary objects have been housed at the American Museum of Natural History (AMNH) in New York, New York. While the study helps elucidate the matrilineal relationships in ancient Chacoan society, we, as Indigenous researchers and allies, raise three ethical concerns that threaten the study's integrity and weaken their scientific insights: (1) lack of tribal consultation during study design, (2) culturally-insensitive descriptions of data, and (3) inconsideration of the study ramifications on already marginalized groups.

To our knowledge, there was no engagement with tribal communities before the study began, despite the fact that communities in the Southwest have long been engaged with repatriation issues related to Chaco Canyon (Schillaci and Bustard 2010). While the study's authors stated that they followed the AMNH determination that there was no "clear ancestor-descendant relationship with specific modern communities" (Balter 2017), we argue that both AMNH and the authors had an ethical obligation to consult with local tribes—even if

AMNH had not established cultural affiliation—because the oral histories and traditional knowledge of many Southwestern tribes already exhibit strong ties to Chaco Canyon. In 2006, after extensive consultation, the Chaco Culture National Historic Park repatriated 282 ancestors and 725 cultural items to 21 tribes in the Southwest, citing sufficient evidence of cultural affiliation (Schillaci and Bustard 2010). This precedent should have been considered by AMNH and the study authors. The last tribal consultation reported by AMNH regarding ancestors in Chaco Canyon was in 1990, around the time when the NAGPRA was enacted. If the study authors had consulted with local tribes, they could have developed collaborative relationships, which may have augmented the study design, enhanced research outcomes, and laid the groundwork for future research.

The failure to consult with tribes led researchers to ignore tribal knowledge in their study and use problematic objectifying language. Tribal knowledge of familial structures and matrilineal kinship systems in affiliated tribes could have enriched the study and reduced the need to use destructive techniques on tribal ancestors (i.e. carbon dating and certain DNA extraction methods). Consultation could have also dissuaded the use of objectifying language to describe the ancestors, including terminology like “cranium 14” and “burial 14”. These ancestors should be treated respectfully and referred to as individuals, rather than as disaggregated body parts and disinterred objects. By failing to consult these communities and perpetuating the broader philosophy of non-Indigenous scientific control over excavated skeletal “materials”, the researchers continue the extractive and colonizing history of anthropological research in Native American communities.

The continued exploitation of Native American ancestors in research has implications for modern tribes and their citizens. Archaeologists, anthropologists, and geneticists must be particularly mindful of their disciplinary roots in colonial thought and their impacts on Native American communities. Past research indiscretions have created a history of mistrust and exploitation in many Native American communities (Garrison 2017). Only 0.05% of indigenous people currently participate in genomic research (Popejoy and Fullerton 2016), and ethical problems with this study may further exacerbate feelings of distrust and exploitation, leading to a continued lack of diversity in genomic studies. Unequal representation of different groups in genomic studies has already contributed to healthcare inequalities in precision medicine (Petrovski and Goldstein 2016). Furthermore, palpable mistrust of scientific research could directly contribute to the dearth of Native American scientists who could pursue valuable research questions guided by their own experiences and community values, to enhance scientific knowledge for all. For example, rather than pursuing studies that devalue traditional tribal origin stories, Indigenous scientists might instead undertake research that explicitly values the role of native lands and waters in shaping the emergence of their peoples as the living peoples or cultures they are today (TallBear 2013). Scientists should also recognize that tribes tend to be uninterested in research that does not benefit their communities, and these wishes should be respected. Additionally, genetic data from this and similar studies could have implications beyond the history of past populations, impacting descendent communities and Native American populations altogether. For example, if a DNA variant contributing to a disease was identified in an ancestor, and this disease was found in local, modern tribes, these populations could be stigmatized for the variant found in their ancestor. This is a real

possibility when, as with the Ancient One (i.e. Kennewick Man), genetic data show genetic continuity with geographically adjacent modern tribal groups over many millennia (Lindo et al. 2017; Rasmussen et al. 2015). Such continuity is likely for Chaco Canyon ancestors and modern affiliated tribes, as it is in other parts of North America. Researchers cannot continue to forgo consultation with modern tribes by studying their ancestors.

This article makes evident the limitations and confusion surrounding NAGPRA and the treatment of "culturally unaffiliated" remains, especially those in existing collections. NAGPRA states that cultural affiliation should be based on multiple sources, including oral traditions, historical data, geographic location, biological, archeological or anthropological information, kinship ties, linguistic connections, folkloric references, and other relevant information or expert opinion (US Department of Interior 1990). To date, however, determinations of cultural affiliation have tended to be strongly biased towards Western viewpoints that emphasize scientific expertise over Indigenous knowledge and expertise. Many tribal communities retain oral transmission of traditional knowledge, culture, and history. Cultural links to ancestral communities are also established through shared geography and history, and may not be biological or archaeological. Weighing Western scientific evidence more than tribal knowledge, definitions, and history denies tribes their legal rights to provide evidence for cultural affiliation, and can hinder their ability to repatriate their ancestors and cultural items. It should be noted that the 2010 Rule added to NAGPRA "requires consultation on the culturally unidentifiable human remains by the museum…with Indian tribes…whose tribal lands or aboriginal occupancy areas are in the area where the remains were removed" (US Department of Interior 2010). While this rule addresses repatriations when requested by tribes, it is unclear how it applies to research involving culturally unaffiliated remains in existing collections. NAGPRA primarily concerns the disposition and repatriation of cultural items, but what responsibilities should researchers have when working with ancestors? We contend that as NAGPRA was created to address Native American concerns for their ancestors and to create dialogue and discussion, researchers should follow the ethical intents of NAGPRA.

We therefore suggest: (1) museums and federal agencies tasked with protecting Native American ancestors should make determinations of culturally unidentifiable remains in consultation with tribal experts, respectfully granting equal weight to tribal ways of knowing and histories when evaluating cultural affiliation; (2) museums and entities that manage archaeological collections should support the formation of inter-museum meetings and coordination to share best practices in tribal consultation; (3) all studies involving Native American ancestors should consult with tribes, not only those deemed to be "culturally affiliated" but also those with historical and geographical ties to the area; and (4) scientific journals and granting bodies should ensure that ethical research practices are followed before publication and throughout the research process by requiring evidence of meaningful tribal consultation, especially when Native American ancestors are involved. The potential benefits of following these recommendations will be many-fold; they will not only build trust with tribal communities but also result in stronger, more informed science and the equitable distribution of research benefits for all. From the indigenous perspectives, the ancestors can finally be put to rest.

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