

with a sample and those that end in denial help me to more fully understand the people I work with and make my studies that much more holistic. Diversity in positionality, life experience, and thought all potentially make researchers into targets. However, these types of diversity also contribute to new and innovative ways to think about human experience and, ultimately, what it means to practice anthropology.

## NOTES

1. A John Crow is a turkey vulture, *Cathartes aura* (see Cassidy and LePage 2002).

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# How Subjectivity Strengthens Research: Developing an Integrative Approach to Investigating Human Diet in the Pacific Northwest Coast

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Last summer, I (ACB) flew directly from Alaska, where I had been salmon fishing with my grandfather, to visit the Metlakatla First Nation in British Columbia with whom I am collaborating for my dissertation research. When I interviewed Metlakatla elders that week, we talked about diet and the way subsistence has both changed and stayed the same as Metlakatla endures across the harbor from the growing port town of Prince Rupert. We discussed fishing, smoking, and canning. I asked about the methods used in their community, wondering how they might differ from how my grandfather and I had done the same work the week before. When I was invited to have lunch with community members who worked at the community center, I smiled at the similarities between the plate of salmon and rice I ate there and the same meal we had eaten as a family on the boat. Community members discussed preparing salmon to send to family and friends who live outside of the community, just like my grandfather does for me and my family. All of these parallels reinforced to me the way the act of research is intertwined with ourselves. Salmon has been a tether to my identity as an Alaska Native. As I have moved farther and farther from my family for school, salmon caught, smoked, and canned by my grandfather has been a tangible link to them and home. Now, it seems only natural that my research in biological anthropology has come to reflect these ties. But learning to embrace the intersections between the aspects of my re-

search that are perceived as personal, political, or scientific has been a crucial part of my intellectual development as a biological anthropologist.

When I started my doctoral program, I was hesitant to join RSM's ongoing research collaboration with the Coast Tsimshian of Metlakatla. I am Tsimshian and have ancestors from "Old" Metlakatla, as I grew up calling it; conducting research in this community did not fit the models of "scientific" research I had previously been exposed to in biological anthropology. As Potawatomi botanist Kimmerer (2013, 19) describes, "science pretends to be purely rational, completely neutral, a system of knowledge-making in which the observation is independent of the observer." In the pursuit of objectivity, scientists are trained to write themselves out of their methods sections, so to speak, by ignoring how their own perspectives have contributed to the way they frame and approach their research (Harding 2015; Wilson 2008). This is especially true of scholars whose background and perspectives reflect those of the dominant majority. Reflexivity has been discussed in other subfields of anthropology (Jacobs-Huey 2002), predominantly by scholars with marginalized social identities (Kanuha 2000), but has been largely overlooked in biological anthropology (Goodman and Leatherman 1998) and other quantitative fields.

Within this intellectual environment, I was concerned that I could not generate the type of "objective" data valued by Western science if I worked in a community where I have a personal connection. I knew I would feel more personal responsibility if I conducted research in this community, if I transformed Ancestors into research subjects in a field that has historically harmed and exploited Indigenous people.

How could I do value-neutral science in these circumstances? In reality, each of us has unique values and interests that motivate our desire to do science. Over the course of our careers, exposure to new theoretical ideas, scholars, and methodologies shape how we do our research. The way we translate these experiences into practice has a direct and personal influence on our science, from the questions we ask to the ethics that guide us, the methods we employ, and the motivations that ultimately drive us. There is no objective science; every research project is subjective in unique and interesting ways that reflect our own intellectual journeys and values.

As I began exploring how molecular anthropology research *could* be done, I realized that I could shape my research questions and methods not just around certain established theoretical schools and notions of intellectual merit but also around my own values and personal experiences. I embraced the ideal that “good” research did not have to be detached and from a distance (Harding 2009; Ranco 2006; TallBear 2014). Instead, by centering my research around the ethics and values to which I felt responsible, I could produce innovative methodologies and new knowledge. I began to see how a personal connection to Metlakatla could strengthen, rather than hold back, my research.

Building off the existing collaboration with the Metlakatla First Nation (Cui et al. 2013; Lindo et al. 2016; Lindo et al. 2017), we developed a project focused on reconstructing the diet of the ancestral Coast Tsimshian community. We are investigating how changes in diet, both in the distant past and those experienced more recently by many Indigenous communities as part of ongoing colonization in North America, may be reflected in the composition or function of the human oral microbiome. We include oral history and community knowledge, as well as osteological, stable-isotope, and genomic analyses, to answer our research questions. While this integrative methodology reflects our diverse skill sets from training in archaeology, bioarchaeology, and genomics, it also acknowledges community-held forms of knowledge as legitimate sources of data that should be assessed equally alongside lab-derived forms of knowledge.

In choosing to do molecular anthropology research with an Indigenous community, it is crucial that my science address the imbalance in how Indigenous and Western ways of knowing are acknowledged in biological anthropology research by engaging with the knowledge about the natural and social world held by Indigenous communities (Kimmerer 2013). This is a way for me to confront the past exploitive nature of research on Indigenous communities (Deloria 2004; Moreton-Robinson 2015; Smith 1999) and to provide one model for a new way forward. For example, my research demonstrates how knowledge gained from interviews with community elders can teach us about past and current food resources and food culture. We are also sharing with community members the results of database matches from genomic libraries constructed from the dental

calculus of Ancestors to assess if species identified in the analysis were possibly consumed in the past. The insights from community members are critical to developing inferences of ancestral Coast Tsimshian diet because community members can provide clarification on how different flora and fauna may have been used by Ancestors as food or tools, or which specific species within a genus identified through bioinformatic analyses of genomic sequence data were likely foods consumed by Ancestors. This integrative methodology provides an opportunity to examine how different forms of data can tell different, or similar, stories rather than focusing on validating Indigenous knowledge using Western scientific methods. In doing so, it reflects my values as a biological anthropologist with Indigenous ancestry.

Now, researching diet with the Metlakatla community feels like coming full circle. Getting some of the education to do this work may have taken me far from home, but the project has brought me back to traditional Coast Tsimshian territory, where I have the opportunity to engage with the community to learn about and contribute to our knowledge of these Ancestors. I am orienting my research to reflect my own ethics and values. In doing so, we have developed a new integrative methodology for community-based studies of diet that engages with Indigenous knowledge to explore how different forms of knowledge can contribute to more nuanced narratives.

Innovation in biological anthropology research can take many forms, from new research questions to novel approaches to research design and new interpretations of data. This is why programs like SING (Malhi and Bader 2015) and IDEAS (Malhi et al., this issue) are so important: they encourage scholars from historically underrepresented backgrounds to use their experiences and values to shape research in ways that can be unorthodox but deeply influential for how science is done. Diversifying the community of researchers in biological anthropology is crucial to expanding the quality, depth, and purpose of knowledge in our field, and beyond.

## NOTES

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## Increasing Diversity in Evolutionary Anthropological Sciences—the IDEAS Program

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Biological anthropologists work in a variety of cultural contexts globally, yet the makeup of practitioners in this field is surprisingly nondiverse (Antón, Malhi, and Fuentes 2018). The disparity in representation of minority scholars in biological anthropology likely stems from a combination of multiple factors, including a history of racism and unethical practices by scientific leaders in the field. For example, in the early 1900s, shortly after the mass murder of more than one hundred Yaqui people, Aleš Hrdlička, the founder of the American Association of Physical Anthropologists (AAPA, the largest association of biological anthropologists), trav-

eled to Sonora, Mexico, to collect the bodies of twelve of these Yaqui individuals to bring back to the American Museum of Natural History for study and display (Darling et al. 2015). This example, along with other actions of past AAPA-affiliated practices, has likely resulted in a lasting objectionable reputation for the field among minority community members. Research practices by biological anthropologists on minority populations today continue to be criticized on ethical grounds (Bardill et al. 2018; Claw et al. 2017; Marks 2002). These practices, along with institutional structures of universities and the AAPA, continue to diminish interest in the field among minority community members, even with the AAPA's recent adoption of an ethics committee and a comprehensive code of ethics. In addition, there exist representational and foundational problems, including the absence of biological anthropologists and their research at historically black colleges and universities (HBCUs), and other minority-serving academic institutions in the United States (Antón, Malhi, and Fuentes 2018). Students without access to, representation in, or