



“Native American DNA”: Implications for Citizenship and Identity

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Introduction

In the wake of the 1974 American Indian Movement occupation of Wounded Knee, Vine Deloria Jr. posed a pressing question: What is the meaning of the tribe? “Should it continue to be a quasi-political entity? Or it could become an economic structure. Or it could become, once again, a religious community. The future . . . will tell.” Deloria said nothing about “tribe” as a genetic population. Deloria is known for his critiques of the natural and social sciences, their truth claims, and their colonial power to disturb, study, and reorganize Native American society. Likewise, a key critique of American Indian Studies is that the sciences have spoken for American Indian life in ways that undermine self-determination.

For example, anthropologists have gazed upon natives, become “experts” in our cultures and societies, and then represented our histories, practices, and worldviews to the rest of the world. Historians have done much the same through archival work, in archives produced overwhelmingly by non-natives. Physical anthropologists since the 19th century have handled, measured, and categorized the bones of deceased natives, again, hypothesizing about our ancestors’ practices, societies, bodies, and beliefs. In every discipline—because every field of study potentially intersects with American Indian life—researchers study American Indians and become *the* experts that represent us to the world.

I am deeply interested in genetic science, but within an understanding of the historically contentious relationship between American Indians and the sciences. My research critiques a particular type of genetic science, ancestry DNA tracing. But my ultimate goal is to suggest that American Indian peoples and tribal governments can exert more control over genetic research and research more generally.

Summary of Findings

I study ancestry DNA testing companies and the research that supports their work. I examine how researchers and company spokespeople describe “human genetic diversity” and how, in so doing, they also speak for American Indian histories, landscapes, ancestry, and kinship relations. For example, some scientists describe “Asia” or “Siberia” as the “homeland of all Native Americans,” or declare that “[a]lmost all Native North Americans (94%) belong to one of the four [Native American] haplogroups.” Such statements are debatable from both genetic and anthropological points of view, and I’ll touch on that in my talk. But a more important problem is that such statements are authoritative claims to power—the power to define and represent American Indian peoples, to determine according to particular biological and anthropological

criteria (not American Indian criteria) which aspects of our bodies, histories, and kinship relations *count* as *true* and *real* in understanding American Indian identity.

There are roughly 15 companies in the US, UK and Canada that market various forms of ancestry-tracing technologies to the public and to tribal governments. In the talk, I will focus on one ancestry-DNA tracing company, GeneTree (a subsidiary of Sorenson Genomics) that sells ancestry DNA tests. I also examine one company, Orchid Cellmark, which markets the DNA fingerprint, or “parentage test,” to US tribal governments and Canadian First Nations. In its scientific and marketing claims, Orchid suggests that biology determines Native American identity.

Case 1: GeneTree

GeneTree and five to ten other companies market “Native American DNA” testing services to public consumers, many of whom suspect Native American ancestry. I focus on GeneTree because they market so heavily on Native American-theme websites, including Native American genealogy research websites, popular sites on Native American history, and the websites of nonprofit organizations that refer to themselves as tribes (although these should not be mistaken for recognized tribes).

GeneTree makes four important claims that relate DNA to American Indian identity that I find troublesome, both for their scientific imprecision and because they challenge Native American cultural authority. First, GeneTree contends that academic scientists have discovered genetic markers that are “unique” to “populations,” meaning they appear solely within those populations. However, very few such markers are “unique”; they are found at higher and lower frequencies between different populations.

Second, there is a tautological relationship between certain markers and the population that such markers define. It is common practice for only Native Americans who are considered appropriate for genetic analysis to have their blood drawn. Those Native Americans *not* considered appropriate (e.g. who are “mixed-blood”) will not have their blood analyzed precisely because they may not have the “unique” populational markers. Nonetheless, they are still Native American, quite probably enrolled.

Third, the markers that GeneTree tests for indicate only two ancestral lines, an individual’s mother’s mother’s mother’s line (via markers on the mitochondrial DNA), and an individual’s father’s father’s father’s line (via markers on the Y chromosome). The vast majority of one’s ancestors are not indicated by the test. To say that markers are unique to populations is incorrect. Even to say that the majority of Native Americans have such markers stretches the evidence, given how that evidence is gathered.

Fourth, GeneTree makes a claim that threatens to re-write the definition of “tribe”. GeneTree contends that the database of Native American samples (obtained via blood draws taken by various researchers) is growing in the repositories around the world. They say that scientists and companies will soon be able to assess a “Native American tribal affiliation.” This claim is at the heart of a disconnect between DNA and the concept of “tribe” as it is used in Indian Country. On a basic level, GeneTree’s test gauges a genetic relationship (i.e. membership in a ‘haplotype’ group) that is not associated with *named* individuals. But tribal or First Nation citizenship requires that specific relations be named. The “tribe” consists of a group of citizens, all with citizenship documentation. When GeneTree claims that an expanded data base will one day enable company scientists to determine whether someone is affiliated with the Chippewa or the Choctaw, for example, they risk usurping tribal sovereignty by re-making “tribe” into a

genetically-defined “population,” not a people defined by interwoven social and biological indicators enshrined in law.

Ancestry tracing tests are not used by tribes for enrollment. However, their wide availability to the public presents indirect risks to our concepts of tribal citizenship. I will address those in the section below on practical implications.

Case 2: Orchid Cellmark

Orchid Cellmark markets the “DNA fingerprint” to US tribes and Canadian First Nations as an enrollment tool. DNA fingerprinting, more commonly called a “paternity test,” can be used to confirm close relations (e.g. not only the father but also the mother and siblings) with very high degrees of probability. Unlike the GeneTree test, it does not analyze markers judged to inform one’s “ethnic” ancestry; that is, more distant relatedness with historical “Native American” populations.

Many companies sell this technology to the public (mostly for paternity testing), but few expressly target tribal enrollment. After all, (in)accurate knowledge of biological parentage is not a principle problem in enrollment. Yet Orchid Cellmark advocates tribal-wide parentage testing. Why? The answer seems to be a combination of the misconceptions that company scientists have of tribal enrollment *and* the changing nature of enrollment itself. Many tribes use parentage testing on a case-by-case basis when, for example, paternity is in doubt and the alleged father’s blood quantum is necessary to process a child’s enrollment application. But for most applicants and already-enrolled members, DNA fingerprinting would provide already-known information at a great financial cost. (One company charges \$500 for the enrollment applicant plus one or both parents). In addition, the DNA test does not address the most divisive problem in contemporary enrollment debates: even when parentage is not in question, increasing numbers of tribal members’ offspring cannot meet “blood-quantum” requirements. On the other hand, some tribes (i.e. very wealthy gaming tribes that disburse per capita payments to their usually small membership) are abandoning older ways of determining enrollment in favor of across-the-membership DNA testing in order to keep numbers down.

In one sense, the growth in this type of DNA testing is a symptom of the way that gaming can disrupt enrollment. But in and of itself, across-the-membership DNA testing also poses risks to tribal self-determination. Orchid Cellmark literally sells the idea that there is a clean scientific answer to the politics of enrollment. A company spokesperson asserts that with the DNA fingerprint there is “no possibility of incorporating a subjective decision into whether someone becomes a member or not.” While the test can determine a parent-child relationship with near 100% probability, the “subjective” decision is made before any blood is drawn: that is, when the tribe (advised by a DNA testing company) decides to require a DNA test as a key enrollment criterion. Using the test across-the-board prioritizes genetic knowledge of *certain* kinship relations – specifically, lineal biological descent - over other types of knowledge and relationships. By adopting such standards, the tribal electorate cedes to scientists their cultural authority to determine citizenship.

Practical Implications

The practical implications of this research go to the core of tribal sovereignty, both political and cultural sovereignty. I have noted some of those implications, but I will recap and expand those points here.

First, tribal governments should be wary of trying to “solve” contentious enrollment processes with science. Western scientific and cultural values about kinship lie behind genetic testing technologies. Embracing DNA tests privileges the cultural values that inhere in those technologies over American Indian cultural values about kinship, ancestry, and citizenship.

Second, relying on genetic testing to determine enrollment vests scientists with the power to define (according to culturally narrow genetic criteria) who is and isn’t eligible for enrollment.

Third, as DNA testing occurs more frequently in Indian Country—especially in relation to high-profile enrollment disputes linked to casino revenues—the legal and historical foundations of tribal sovereignty may fade from view. Both American Indians and the American public may come to see the possession of particular genetic markers as a foundation for tribal citizenship and for tribal claims to self-governance. And as DNA testing comes to be associated with sharing in gaming revenues, Indian gaming will increasingly appear to be a special “race based” (read biological) right, and not a right supported by the historical status of tribes as sovereign nations.

The implications go beyond enrollment. If Native American identity is closely tied to genetics, anti-tribal interests will have stronger evidence to argue that tribal benefits are race-based rights, not treaty payments. At the same time, groups without historical-colonial relationships, heretofore racially identified as other than Native American, may increasingly claim *tribal* authority based on (even small amounts) of DNA evidence. In essence, claims to tribal self-governance may increasingly be denied or justified by the absence or presence of particular DNA markers in individual claimants. Such an outcome could prove toxic for Native American claims to sovereignty.

Additional Policy Implications of Research

This research suggests challenges for policy-makers working at multiple levels: tribal, state, and federal government; in non-governmental organizations; and in universities and research institutes. In addition to enrollment, two areas of concern come immediately to mind. First, tribes should be attuned to how DNA testing will be used in Indian Child Welfare Act (ICWA) claims in ways that can undermine sovereignty. I recently advised a state Attorney General’s office not to use a GeneTree “Native American DNA” test in order to invoke the ICWA. Were the state to call for the genetic test, it would undermine tribal self-determination in the same way that companies do, by suggesting that there is a genetically definitive way to gauge tribal citizenship and therefore the tribal interest in invoking ICWA.

Second, research broadly (not just the genetic research detailed here) can challenge tribal self-determination. Researchers, funders, government agencies, and non-governmental organizations decide what constitutes legitimate and ethical research in Indian Country. I foreground the undemocratic nature of certain types of research and provide analyses that support expansive tribal governance of research. For example, are research questions valid and for whom? Which methods are used, and whose cultural knowledge do they privilege? By asking such questions tribes can insist that researchers working in Indian Country respect tribal ethics. Moreover, such questions can help tribes set the research agenda.

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 Implications for Citizenship and Identity

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ORCHID CELLMARK
 A TRIBAL SERVICE TO CONFIRM NATIVE
 AMERICAN TRIBAL MEMBERSHIP

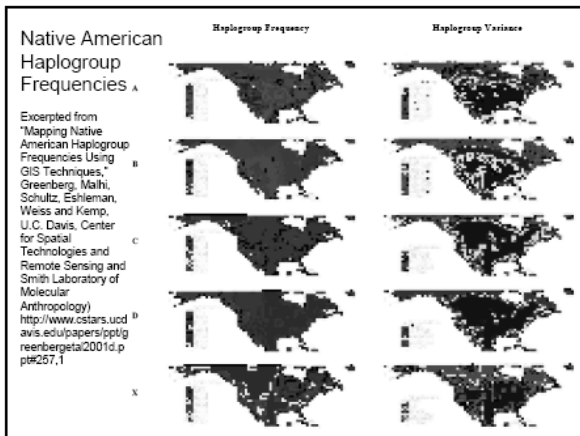
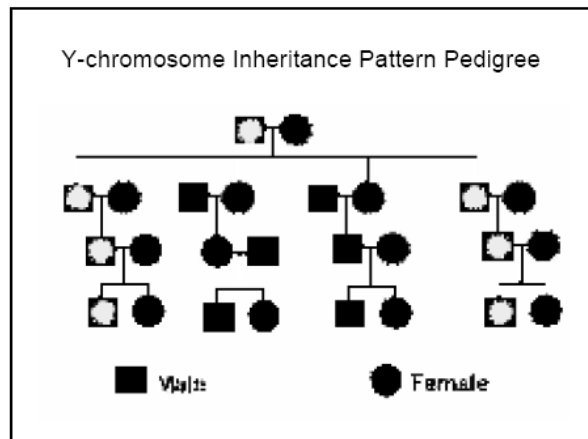
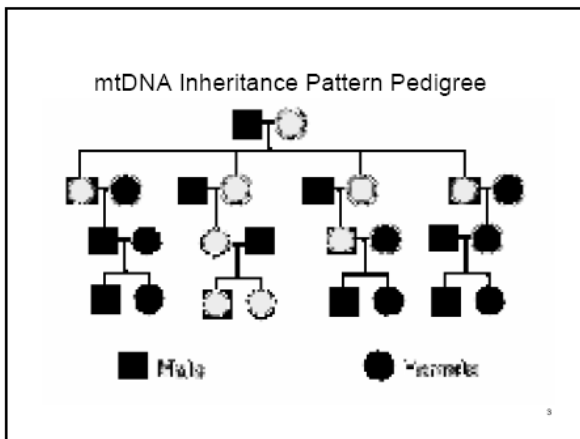
ASU ARIZONA STATE UNIVERSITY

“ORCHID CELLMARK LAUNCHES NEW DNA TESTING SERVICE TO CONFIRM NATIVE AMERICAN TRIBAL MEMBERSHIP”

Native American? **ORCHID CELLMARK**

NATIONAL GEOGRAPHIC GENOGRAPHIC PROJECT

<https://www3.nationalgeographic.com/genographic/atlas.html>



GeneTree and “tribe”

“DNA research on full-blooded indigenous populations, such as Native American Indian populations, from all around the world has led to the discovery of “genetic markers that are unique to populations, ethnicity and/or deep ancestral migration patterns”. The markers that have very specific modes of inheritance, and which are relatively unique to specific populations, are used to assess probabilities [sic] ancestral relatedness.”

www.genetree.com/product/native-american-test.asp



"Because the database is growing, it's getting more and more sophisticated . . . The more tribes we get, we can really pinpoint which tribe you belong to. Right now it is more localized, but soon we hope to be able to say, based on your maternal heritage, you are part of the Choctaw, or Chippewa, or whatever . . ."

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Orchid Cellmark

Orchid Cellmark's monthly advertisement in national news magazine, *American Indian Report* (May -December 2005 issues)



Orchid understands the politics of enrollment: It involves "tribe" and "race"

- Its DNA fingerprint documents relatedness to specific, named relations (tribe).
- Ancestry DNA tracing appeals to the notion of shared biogenetic substance translated as ethnic/racial substance (race).
- A 3rd test, AncestrybyDNA™, calculates a % of racial markers that seems reminiscent of the familiar blood fractions, although they technically do not correlate.

Brochure distributed at the National Congress of American Indians (NCAI) annual meeting (November 2005)

Policy implications

1. **DNA testing undermines the notion of what it is to be a "tribal" or "First Nation."**
 - It emphasizes Western cultural values (e.g. linear relations & continental racial categories) over tribe, which incorporates notions of kinship, ancestry, or citizenship.
2. **As genetics influences enrollment and identity, we risk undermining the treaties, laws, and obligations that are foundational to contemporary tribal sovereignty.**
 - Anti-tribal interests can read genetics as "race" and further argue that tribal rights are not based on sovereignty but that they are "special," or race-based rights.

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Additional policy implications

1. **DNA and the Indian Child Welfare Act (ICWA)**
 - Using an ancestry DNA test to invoke the ICWA, suggests that there is a genetically definitive way to gauge tribal affiliation along racial lines. In so doing, it directly challenges tribal citizenship and affiliation criteria.
2. **Tribes must govern research and set the research agenda**
 - Are research questions valid?
 - For whom are they valid, and to what end?
 - Which methods are used?
 - Whose cultural knowledge and practices do those methods privilege?
 - Whose cultural assumptions frame the interpretation of research results?

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