

Title: “NATIVE AMERICAN DNA - Tribal Belonging and the False Promise of Genetic Science”



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[hyperlikes and 'notes' added by Susan]

INTRODUCTION

AN INDIGENOUS, FEMINIST APPROACH TO DNA POLITICS

Scientists and the Public alike are on the hunt for "Native American DNA."

Hi-tech genomics labs [[A](#)] at universities around the world search for answers to questions about human origins and ancient global migrations. (https://en.wikipedia.org/wiki/Homo_sapiens)

In the glossy world of made-for-television science, **celebrity geneticist [Spencer Wells](#)** travels in jet planes and Land Rovers to far flung deserts and ice fields. Clad in [North Face® gear](#), he goes in search of [indigenous DNA](#) that will provide a clearer window into our collective human past.

Others-[housewives](#), [retirees](#), [professionals](#) in their spare time[-] search for [faded faces](#) and long-ago names, [a kind of] proof that their grandmothers' stories are true, that there are Indians obscured in the dense foliage of the family tree. (*"If you keep that up, I am going to give you back to the Indians!" – Mary Elizabeth [Miller-Sprouse-Roby] - CassAdy - Brothers*)

Some are meticulous researchers, [genealogists](#) who want to fill in the blanks in their ancestral histories. They combine DNA testing with online networking to find their ["DNA cousins."](#)

Some have romantic visions of documenting that "spiritual connection" they've always felt to Native Americans. **A few imagine casino payouts or free housing, education, and health care if they can get enrolled in**

a Native American tribe. *[like my brother's acquaintance]*

Applicants to Ivy League and other top-ranked schools have had their genomes surveyed for Native American DNA and other non- European ancestries **with the hope of gaining racial favor in competitive admissions processes.** [My Sister's little girl mentioned this to me.]

Former citizens of Native American tribes ejected for reasons having to do with the financial stakes of membership have sought proof of Native American DNA **to help them get back onto tribal rolls.'**

One mother-herself an adoptee from a Native American biological mother-**sought a DNA test in order to forestall legal termination of her parental rights.** If she could represent herself and her child as genetically Native American, she **hoped to invoke the Indian Child Welfare Act,** which inhibits the adoption of children away from Native American parents and communities.'

WHAT IS NATIVE AMERICAN DNA?

To understand Native American DNA, it is not enough to discuss simply what [genetic scientists](#) say they are looking for in their samples though I will do that shortly. It is *also* important to look back at how Native American bodies have been treated historically [[B](#)], for [because] [knowledge producing cultures and practices](#) that shaped earlier research continue to influence the way science is done today.

[Biophysical scientists](#) have for several centuries crafted and refined particular questions, terminologies, and methods in their studies of Native American and other [marginalized bodies](#).

Native American bodies, both dead and living, have been sources of

bone, and more recently of blood, spit, and hair, used to constitute knowledge of human biological and cultural history.

In the nineteenth and early twentieth centuries, the [American School of Anthropology](#) rose to worldwide prominence through the physical inspection of Native American bones and skulls plucked from battlefields or from recent gravesites by grave robbers-cum-contract workers for scientists.

It was certainly distasteful work to scavenge decomposing bodies and boil them down so bones could be sent more easily to laboratories clean and ready for examination. But **two justifications** emerged for the work, justifications that will ring familiar in my analysis of genetic scientists' treatment of Native Americans' DNA. **First**, this sort of research was and is for the good of knowledge, and knowledge, it was and is supposed, is for the good of all, despite complaints by Native Americans then and now about research purposes and methods. **Second**, the Indians were seen as doomed to vanish before the steam engine of westward expansion.

Today, "indigenous peoples" are doomed to vanish through [genetic admixture](#). The idea was then and is now that they should be studied before their kind is no more. It is not the means but the ends that science keeps its sights on. Given that background, **[QUESTION] [W]hat, in technical terms, is Native American DNA?**

[ANSWER] In the early 1960s, new biochemical techniques began to be applied to traditional anthropological questions, including the study of ancient human migrations and the biological and cultural relationships between populations.

The new subfield of [molecular anthropology](#) was born, sometimes also called anthropological genetics.' Sets of "[markers](#)" or nucleotides in both the [mitochondrial DNA](#) (mtDNA) and in [chromosomal DNA](#) were observed to appear at different frequencies among different populations.

The highest frequencies of so-called [Native American markers](#) are observed by scientists in "[unadmixed](#)" [native populations](#) in North and South America.

These markers are the genetic inheritance of "[founder populations](#)," allegedly the first humans to walk in these lands that we now call the Americas.

On the order of millennia (*a period of a thousand years*) anthropological geneticists want to understand -which human groups, or "populations," are related to which others? – and, who descended from whom?

Where geographically did the ancestors of different human groups migrate from?

What were their patterns of geographic migration, and when did such migrations occur?

In the genomes of the living and the dead, scientists look for molecular sequences-the "genetic signatures" of ancient peoples whom they perceive as "original continental populations" [C].

For example, Indo-Europeans, Africans, Asians, and Native Americans. Native American DNA, as a (threatened and vanishing) scientific object of study, can help answer what are, **for these scientists**, pressing human questions.

Unlike scientists or consumers of [genetic-ancestry tests](#), I (Kim Tallbear) *stretch* the definition of Native American DNA beyond its usual reference to "New World" genetic ancestry traceable either through female mtDNA and male Y-chromosome lines -- or through more complex tests -- that combine multiple markers across the genome to trace ancestry.

*I (Kim Tallbear) include the "DNA profile" as I examine the material and social work **that Native American DNA does in the world.***

Commonly used in criminal cases, this test has been referred to as a "[DNA fingerprint](#)." Within an [individual's genome](#), multiple sets of genetic markers are examined. They act like a genetic fingerprint to identify an individual at a very high probability. As a parentage test, the same form of analysis shows genetic relatedness between parent and child. [When used by U.S. tribes and Canadian First Nations as part of conferring citizenship \(also called "enrollment"\), the DNA fingerprint becomes essentially a marker of Native Americanness.](#)

More than genetic-ancestry tests that target "Native American" as a race or [pan ethnic category](#), the [DNA profile](#) is helping to reconfigure the concept of [tribe](#).

Technically, the DNA profile promises only to identify an individual or close biological kin relationship. But, one must have a basic grasp of several types of complex knowledges simultaneously- [for example] A) molecular knowledges and their social histories, and B) practices of tribal citizenship-or, the DNA profile is likely to be taken as a powerful marker of Native American identity.

Those who understand its technical limitations-say, “DNA-testing-company scientists and marketers-do not have a deep historical or practical understanding of the intricacies of tribal enrollment” [D].

Nor do they tend to understand the *broader political frame circumscribing their work*, [that is] how their disciplines have historically fed from marginalized bodies. [This needs a better explanation.]
[[Googled > “historically fed”]]

<http://theconversation.com/heritage-value-is-in-the-eye-of-the-beholder-why-fed-square-deserves-protection-100895>

<https://news.utexas.edu/2018/05/09/rapid-evolution-fails-to-save-butterflies-from-extinction/>

<https://sfwater.org/modules/showdocument.aspx?documentid=5467>

<https://www.recorder.com/my-turn-botkin-farming-13434247>

<http://www.akijp.org/2017/06/18/many-native-communities-are-being-forced-to-relocate-due-to-climate-change/>

https://en.wikipedia.org/wiki/Social_Darwinism

<https://www.history.com/topics/early-20th-century-us/social-darwinism>

<http://www.crf-usa.org/bill-of-rights-in-action/bria-19-2-b-social-darwinism-and-american-laissez-faire-capitalism.html>

Tribal folks know these politics and histories well[.]-[W]e live day in and day out with [enrollment rules](#), and we all know about the Native American Graves Protection and Repatriation Act ([NAGPRA](#)); [B]ut, we do **not** know the molecular intricacies of the test.

Where knowledge is lacking, gene talk-the idea that essential truths about identity in here in sequences of DNA-misleads us.

DNA tests used by tribes are simply statements of genetic parentage that tribal governments have made regulatory decisions to privilege instead of or along with other forms of parent-child relationship documentation, such as birth or adoption certificates.

Tribes increasingly combine DNA tests with longer standing citizenship rules that focus largely on tracing one's genealogy to ancestors named on ["base rolls"](#) constructed in previous centuries.

Until now, tribal enrollment rules have been articulated largely through the symbolic language of "blood." Like many other Americans, we are transitioning in Indian Country away from blood talk to speaking in terms of what "is coded in our DNA" or our "genetic memory."

But we do it in a very particular social and historical context, one that entangles genetic information in a web of known family relations, reservation histories, and tribal and federal-government regulations and transcriptions that indicate genetic relationships and histories have not been simply uncovered in human genomes; they have been conceived in ways shaped by key historical events and influential narratives.

Native American DNA - as it is usually defined - refers to molecules that track deep genetic and geographic ancestries (sometimes they code for genetic traits, often not) amplified from blood or saliva-less often from bone and hair-via chemicals and laboratory devices.

The concept of Native American DNA is also conditioned by complex software that calculates frequency distributions of markers among different populations of the world from whom biological samples have been taken.'

But Native American DNA could not have emerged as an object of scientific research and genealogical desire until individuals and groups emerged as "Native American" in the course of colonial history.

Without "settlers," we could not have "Indians" or "Native Americans"- a pan racial group defined strictly in opposition to the settlers who encountered them.

Instead, we would have many thousands of smaller groups or peoples defined within and according to their own languages, as Dine [<https://en.wikipedia.org/wiki/Navajo>], Anishinaabeg [<https://en.wikipedia.org/wiki/Anishinaabe>] , or Oceti Sakowin [<https://americanindian.si.edu/nk360/plains-belonging-nation/oceti-sakowin.cshtml>], for example.

It is the arrival of the settler in 1492 [history of the United States] and many subsequent settlements that frame the search for Native American DNA before it is "too late" - before the genetic signatures of the "founding populations" in the Americas are lost forever in a sea of genetic admixture.

Of course, mixing is predicated on the notion of purity. The historical constitution of continental spaces and concomitant grouping of humans into "races" is the macro frame of reference for the human genome-diversity researcher.

Scientists who trace human migrations [<https://www.nature.com/articles/nature25173>] do not tell a story from the standpoint of those peoples who were encountered; [T]hey

[Terminal Pleistocene Alaskan genome reveals first founding population of Native Americans

- [J. Víctor Moreno-Mayar](#)
- , [Ben A. Potter](#)
- , [Lasse Vinner](#)
- , [Matthias Steinrücken](#)
- , [Simon Rasmussen](#)
- , [Jonathan Terhorst](#)
- , [John A. Kamm](#)
- , [Anders Albrechtsen](#)
- , [Anna-Sapfo Malaspinas](#)
- , [Martin Sikora](#)
- , [Joshua D. Reuther](#)
- , [Joel D. Irish](#)
- , [Ripan S. Malhi](#)
- , [Ludovic Orlando](#)
- , [Yun S. Song](#)
- , [Rasmus Nielsen](#)
- , [David J. Meltzer](#)
- & [Eske Willerslev](#)

tell a story [the story above] from the standpoint of 1) those who did the “encountering”2) those who named and ordered many thousands of peoples into undifferentiated masses of "Native Americans", "Africans," "Asians," and "Indo-Europeans."

Standing where they do-(almost never identifying as indigenous people themselves)-scientists (who study Native American migrations) [**article cited above**] turn and look back over their shoulders [through their exclusively blue eyes] with desire to know the "origins" of those who were first encountered when European settlers landed on the shores of these American continents. [circa 1492].

In human genome diversity research [E], faith in the origins gets operationalized as "molecular origins". This refers to ancestral populations.

A Culmination of History find Narrative

Clearly, mtDNA lineages A, B, C, and D, and X- or V-chromosome lineages M, Q3, and M3 are not simply **objective molecular objects**.

These molecular sequences, or "**markers**" -their patterns, mutations, deletions, that are inferred for an individual based on a specific set of genetic markers, a specific set of algorithms for assessing genetic similarity, and a specific set of reference populations."

But each of those **constitutive elements** operates within a loop of circular reasoning. Particular, and particularly pure, biogeographic origins must be assumed in order to constitute the data that supposedly reveals those same origins.

(<https://en.wikipedia.org/wiki/Biogeography>)

Native American DNA as an **object** could not exist without, and yet functions as a scientific data point to support the idea of, **once pure, original populations**. Notions of **ancestral populations**, the ordering and calculating of genetic markers and their associations, and the representation of living groups of individuals as reference populations all require the assumption that there was a moment, a human body, a marker, a population back there in space and time that was a biogeographical pinpoint of originality.

This faith in originality would seem to be at odds with the doctrine of

evolution, of change over time, of becoming. The populations and population-specified markers that are identified and studied mirror the cultural, racial, ethnic, national, and tribal understandings of the humans who study them. Native American, subSaharan African, European, and East Asian DNAs are constituted as “scientific objects” by laboratory methods and devices, and also by discourses or particular ideas and vocabularies of race, ethnicity, nation, family, and tribe.

For and by whom are such categories defined?

How have continental-level race categories come to flutter?

And, why do they matter more than the "peoples" that condition indigenous narratives, knowledges, and claims?

The answer to this last question is not because favored scientific categories are more objectively true.

Privileging the concept of genetic population enables the sampling of some bodies and not others.

An Anishinaabeg with too many non-Anishinaabeg ancestors won't count as part of an Anishinaabeg "population."

To make things even more complicated, a scientist may draw blood from enrolled members of the Turtle Mountain Band of Chippewa Indians at a reservation in North Dakota and call her sample a "Turtle Mountain Chippewa" sample.

At the same time, she may have obtained "Sioux" samples from multiple other scientists and physicians who took them at multiple sites (on multiple reservations or in urban Indian Health Service hospitals) [F] over many years.

In the first instance, we have a "population" circumscribed by a federally recognized tribal boundary. **In the second**, we have a "population" circumscribed by a broader ethnic designation that spans multiple tribes. There is often little categorical consistency between different study samples. That is because samples are delineated and named differently depending on where they are obtained and on how that government or institution organizes its citizenry or service population. There are **histories of politics** that [inhere](#) [are inherent] in the samples. Added to that are the **politics imposed onto the samples by researchers** who enforce subsequent requirements for the data; namely, that **usable samples come only from subjects who possess a certain number of grandparents from within said population**. But such problems have done little to undermine the authority of scientists on questions of Native American origins and identity that precede study of our genome diversity. In the "real world" of power and resource imbalances, in which some peoples' ideas and knowledge are made to matter more than others[,] [G]enetic markers and populations named and ordered by "scientists" play key roles in the history that has come to matter for the nation and increasingly the world. If such narratives are [rescripting](#) what is historically salient, they risk [rescripting](#) what is socially and politically salient with real material consequences.

Native American DNA is [material-semiotic](#).' It is supported by and threads back into the social-historical fabric to (re)constitute the categories and narratives by which we order life. Indigenous political authorities and identities, as well as land and resource claims, are at stake.

Who Studies? Who Gets Studied?

This book draws from well-documented histories of the science of race in the West [Please cite...], tracing a genealogy of Native American DNA as a research object and tool for categorizing molecules and humans.

The book then examines an online community of "genetic genealogists" [Please cite...], who use DNA to help trace family histories, before crossing into a strange hybrid world where science meets corporate marketing.

The chapters **reveal a gold mine of representational language and imagery excavated from company Web sites**, narratives of origins, race, and tribe as told to us by DNA testing companies and the [Genographic Project](#).

Native American "perspectives" on genetic research or understandings of DNA are not a chief topic of this book.

There is a rich field of data to mine in the evolution in Indian Country of blood into gene talk during the last ten years.

When I am back in South Dakota on one of the two Dakota reservations that I call home-those of the SissetonWahpeton Oyate and the Flandreau Santee Sioux tribes-or when I travel throughout Indian Country on business or for pleasure, I attend gatherings large and small: tribal membership meetings in community centers or casino banquet halls, powwows, tribal and federal agency meetings, tribal enrollment conferences, national tribal or First Nations organization meetings, and my annual tribal writers' retreat in southeastern South

Dakota. Or I might simply enjoy a coffee and some gossip with relatives or friends in a reservation border-town cafe. In doing so, I regularly encounter tribal folks old and young, university-educated and not, and of different class backgrounds who refer to certain characteristics being "in our blood" or increasingly "part of our DNA" or our "genetic memory." **Genetic memory refers to a sense of ancestral memory.** That is, one might know a place or have knowledge of a place (and the nonhumans found there) that was not gained actively or personally. Rather, one somehow carries or embodies such knowledge - or has a sense of having been in a place before - because of ancestors' historical experiences of that place. One often hears such accounts in relation to the idea that descendants continue to retain knowledge or a sense of deep familiarity with place in spite of their ancestors' dispossession from the land and from tribal languages.

Or, descendants might have inherited "in our DNA" historical trauma from ancestors that continues to hamper individuals in their daily lives decades later. This sense of inexplicable inheritance would not have been chalked up to genetics twenty years ago. It would have been spoken of in the language of blood.

Later chapters of this book discuss blood as not simply a biophysical substance in contemporary Native American parlance. Likewise, the new "DNA talk" in Indian Country works much the same way. Like blood, DNA gets spoken of as a more-than-biological substance. **Yet, with money and resources at stake, DNA is also increasingly spoken of in indigenous communities as a scientifically objective and precise solution to an intractable political problem:** [W]ho gets to be a tribal or First Nation citizen? As [Jessica Bardill](#) puts it, "DNA concretizes that

idea ["Indian by blood"] and removes its ability to be a metaphor ... only making it possible to mean the literal substance.?"

Without [ethnography](#), what indigenous peoples' own transitions from blood to DNA talk mean for indigenous ontologies or for citizenship practices is difficult to pin down.

These developments would make a fascinating study. In fact, that is part of the aim of Bardill, who is affiliated with the Eastern Band of Cherokee, in her look at that tribe's enrollment practices. [H]

But this book, in perhaps an extreme form, commits what Audra Simpson calls an "ethnographic refusal [I]," that is, "***a calculus ethnography of what you need to know and what I refuse to write in.***"? Put simply, Native Americans are less subjects of this book than a key part of its audience. In an explicitly ethical move and from an explicitly situated place (this author [? Does Ms. Tallbear refer to herself OR Ms. Bardill?] stands at times in a lot of different Native American communities), this work refuses ethnography on Native Americans and instead gazes upon those who are understudied yet influential, those who track Native American DNA in bodies across time and space: genetic scientists (including anthropological geneticists), commercial enterprises, and financially able lovers of genetic science.

Indeed, it is not primarily Native American perceptions or (mis)understandings of biology, genetics, and human genome diversity that matter in the delineation of Native American identities and attendant rights to self-governance.

Tribal sovereignty aside, dominant U.S. understandings of race, kinship, history, and Native American identity set the ground upon which tribal

and First Nations attempt to govern their citizenries and territories.

Understanding **what** Native American DNA portends for Native Americans requires, in large part, understanding how gene discourses and scientific practices are entangled in **ongoing colonialisms**.

What "they" (?American Europeans?) think and do have always determined how much trouble "we" have. Native American intellectuals, policy makers, and concerned tribal or First Nation citizens should find much of interest in these pages.

Genetic understandings of history and identity can operate without reference to the federal-tribal legal regime that is critical for contemporary indigenous governmental authority, including rights to determine citizenship.

In some instances, DNA testing can support indigenous governance, such as in the case of using a parentage test as part of a suite of enrollment or citizenship criteria. But, an increasing "*geneticization*" of the categories of tribe, First Nation, and race can also have undesired consequences.

"Genetic-ancestry" tests are irrelevant to existing indigenous citizenship criteria; [W]hereas, across-the-membership application of "parentage" tests can contradict hard-won legal foundations that are the source of contemporary indigenous governmental authorities.

In other cases, enrollment controversies result from contradictions between categories, for example, when notions of "tribal nation" and "race" do not neatly line up but collide. This was the matter in the

[Cherokee and Seminole freedmen cases](#), where African American tribal members, descended from freed slaves naturalized as tribal citizens long ago, had their citizenship questioned or revoked due to their non blood ties to the tribes.

Bringing DNA to bear on such identity and citizenship claims will complicate and not solve disagreements rooted not only in biology but also in histories of white supremacy, slavery, and dispossession.

The **question** is, as genetic identities and historical narratives command increasing attention in society, **will they come to rival as legitimate grounds for identity claims the existing historical-legal foundations of indigenous governance authority?**

In the United States, that authority is treaties and case law.

If so, we will see a transformation, not an end, to controversy in indigenous citizenship and Native American racial identity, adding to a growing genetic fetishism in the broader society.

How I PRODUCE My KNOWLEDGE: THEORY, METHOD, AND ETHICS

The knowledge foundations of this book are diverse and not contained by academic disciplines. But, from within the academy, this book brings into conversation voices and theories from science and technology studies (STS), or social studies of science and technology, and Native American and indigenous studies (NAIS).

It [this book] also draws on "[cultural studies](#)" scholarship and frameworks but informs them with STS (science and technology studies) and NAIS (Native American and indigenous studies) literatures

and methods. Cultural studies were at the forefront of *problematizing* the "tradition"-versus-"modernity" binary that does so little to illuminate the questions tackled in this book.

Its critical social theories and interpretive textual approaches assist a focus on both scientific and indigenous spaces as cultural, political, and knowledge-production spaces. In turn, this book relies on social-science methods such as *participant observation* and *interviews* to complement interpretive claims.

All three fields-STS, NAIS, and cultural studies-share critiques of universality and objectivity in the Western sciences, with [feminist](#)-oriented strands of STS (science and technology studies) being more critical in that regard than is mainstream STS.

STS (science and technology studies) uses social-science and humanities approaches to explain how social, political, and cultural values affect science-and-technology (technoscientific) research and innovation and, in turn, how techno-sciences affect our politics, cultures, and social institutions.

The following chapters focus on challenges to indigenous governance posed by human genome diversity research and its commercialization. **But ultimately, the goal of this book is to center the roles of the social and techno-sciences in expanding indigenous governance, in part through indigenous efforts to govern techno-scientific knowledge production such that indigenous interests are protected.**

The exercise of indigenous sovereignty in the twenty-first century depends (in no small part) on how indigenous peoples account for the

roles of techno-scientific knowledge production. This book points in its concluding chapter to efforts by Native American tribes, Canadian Aboriginal peoples, and indigenous advocates to shift power relations in techno-scientific knowledge production by asserting rights of property and control over the biological resources, processes, and material and conceptual objects of genome Science.

Analytical Frameworks:

Coproduction (of Natural and Social Order) and Articulation

Readers will frequently encounter the idiom of "coproduction," a key STS (science and technology studies) analytical tool that explains natural and social orders as coproduced. That is, science and technology are explained as actively entangled with social norms and hierarchies.

Rather than being discrete categories where one determines the other in a linear model of cause and effect, "science" and "society" are mutually constitutive—meaning one loops back in to reinforce, shape, or disrupt the actions of the other, although it should be understood that, because power is held unevenly, such multidirectional influences do not happen evenly. I.e. [That is] The emergence of new "natural orders" (for example, population categories such as "Native American" supported by genetic markers found in higher and lower frequencies in different geographies) depends (in part) on an already existing "social order" (for example, a concept of indigeneity and actual indigenous social organization) that itself was already informed over the centuries by natural orders (for example, race categories based on older notions of blood configured through material observation and symbolic meanings simultaneously).

This twenty-first century "natural order" (DNA markers labeled "Native American") continues the coproduction loop by helping to reconfigure (as a genetic category) the preexisting social and otherwise biological category of "indigeneity" that informed its emergence.

Coproduction facilitates and helps make sense of what could otherwise be a very confusing multidisciplinary analysis of the emergence of Native American DNA as a complex social and scientific object."

In terms of Native American DNA, it *problematizes* a realist approach to understanding the object. Native American DNA is not simply "naturally" determined; it becomes manifest as scientists observe the movement of particular nucleotides via human bodies across time and space (between, what is today Siberia/Asia and the Americas) [[Beringia](#)].

The presence of such markers is then used to animate particular "populations" and individuals and their tissues (both dead and living) as belonging to that identity category.

The presence of such DNAs is sometimes also used by scientists and consumers to forge *consequential* identity connections between human bodies across time and space.

But such bounded ethnic or racial descriptions of certain nucleotide sequences would not have any salience were it not for the established idea within genetic science that "Native American" (or "Amerindian" and the like) is a distinct genetic or biological category.

And, although researchers increasingly acknowledge indigenous

governance authority (they are required to as they seek tribal-councilor institutional-review-board approval to do research within Native American lands and on native bodies), at a more fundamental or conceptual level, the assumptions, technical languages, and methods of these fields cannot recognize indigenous political organization or identity. **Indeed**, they must actively work to eliminate social and biological complexity from their samples, as it is seen to interfere with the goal of **tracing the migrations of nucleotides** (that come to stand for the migrations of peoples) from supposedly "original" populations to effect "colonizations" of the "Americas."

Thus, "Native American" becomes a moniker used to represent a clearly traceable biological link to the "Old World" that lies back beyond the Bering Strait, rather than a label indicating long-standing and intimate relationships between humans and nonhumans on this side of the Bering Sea;-[R]elationships that cohere peoples as peoples with origins in specific landscapes.

The concept of articulation is also invoked in these pages, a framework traced to two prominent cultural studies scholars, James Clifford and, before him, Stuart Hall.

Like coproduction, the articulation framework complicates overly dichotomous views of phenomena as either essentially determined or overly constructed or invented, thereby implying a lack of "realness." In Clifford's and Hall's more specific terms, "articulation" (literally, to conjoin parts together into something neither strictly old and traditional nor completely new and different) indicates cultural transformation. It focuses on cultural practices and know ledges as sometimes borrowed, interpreted, and reconfigured.

Indeed, *dynamism* in cultural practice and identity formation is a sign of being alive, another key claim that indigenous peoples consistently make. They have survived. They are still here. **A second key component of the articulation framework, and the reason it is helpful in relation to this subject**, is its focus on power. It enables an analysis of dynamic societal forces that combine to determine who or what counts as "indigenous"; - including, the power of **genomic practices** and **articulations** to structure indigenous lives, and in ways that may ultimately harm indigenous peoples more than they serve them.

Perhaps the genetic articulation of indigeneity will become also an indigenous articulation as tribes increasingly move toward DNA parentage testing within a discourse of sovereignty.

Together, the frameworks of *articulation* and *coproduction* help us to see the emergent and not inevitable quality of genetic forms of indigeneity.

Central points of contention in this book reflect these two approaches [*articulation* and *coproduction*]. Those points of contention lie in the fact that particular questions posed in the course of human genome diversity research derive from **particularly situated inquirers**. And just as particular hypotheses are not equally relevant across diverse societal terrains, not all methods work equally well for differently positioned social actors.

Let us turn now to a closer exploration of such ethical and methodological choices and the ways they shape the account in the chapters to follow.

The Sins and Stories of Anthropology: Embraces and Refusals

In *Custer Died for Your Sins* (1969), [Vine Deloria Jr.](#) famously interrogated the practices and power of anthropology to define and represent Native peoples' histories, practices, and identities to the world.

Deloria was critical of various anthropological "*revelations*" of Indians as "folk people" as "caught between two worlds," or as not "real" enough because they didn't do enough Indian dancing.

He saw such representations and the influence of anthropology on the American popular imagination, including in Indian Country, as detrimental to Indian self-concepts and notions of self-sufficiency and to Indian political organizing, assumptions of power, and self-governance.

I grew up in the early 1970s in eastern South Dakota among Native American undergraduates, artists, and activists.

Deloria's text and its reception in my corner of Indian Country **shaped my relationship to anthropological representations and to the very idea of research from early on.** It has become second nature (for me) to ponder the politics that run through "knowledge production" at every stage: how authors and researchers begin where they do, which audiences they imagine will receive their knowledge production, and what leads them to assume that they should research a subject or object. I wonder how researchers gain access to subjects, who brokers their research relationships, how much it costs to do research, and who funds research. I think about which research protections are in place

and whose certifications, laws, and policies guide those protections. I wonder who controls and has access to data and whose languages are at play.

When I speak of anthropology, I speak of all of the subdisciplines: sociocultural, physical (or biological), archaeological, and linguistic anthropology. I have been most intimate with the first two subfields, and I draw most of my examples from those.

[James Clifford](#) and [George Marcus](#), in their seminal edited volume [Writing Culture \(1986\)](#), foreground ethnographic writing as cultural, as producing a cultural form. "***Science is in, not above, historical and linguistic processes,***" they note." It is itself cultural practice. Writing is central to what anthropologists do. Thus, their writing cannot be viewed simply as studied or distanced and unproblematic representations of the cultural practices and beliefs of the others they study, but must be read as a cultural-political act in and of itself, as a literary act.

Ethnography does not render simply transparent representations of what is culturally "out there." For Clifford and Marcus, ethnography is "actively situated between powerful systems of meaning," posing its questions at the borders "of civilizations, cultures, classes, races, and genders."

The same can be said of [physical anthropology](#) with its own specific methods, language, and texts that attempt to capture human movements and cultural histories via intimate examination of human bodies. Both forms of anthropology [ethnography & physical anthropology] do not gaze from outside the cultural processes they

represent; they are part of those very processes. Anthropology "decodes and recedes"!"

Ethnography and physical anthropology are *translation*. In that [*translation*] is power. What happens when a lifelong critic of anthropology [such as Kim Tallbear identified herself previously to be] is faced with the fact that one subdiscipline of anthropology [J- [ALL](#)] is an incisive way to analyze (-in the interest of Native American self-determination-) the colonial practices and power of another anthropological subdiscipline?

I began with *trepidation* research on **Native American DNA**. The idea of constituting [American Indian] reservations [where I have lived and worked,] [where I attend family and tribal events], [where my family lines trace to,] as "field sites" felt [extractive](#).

For this book ([NATIVE AMERICAN DNA - Tribal Belonging and the False Promise of Genetic Science](#)), I conducted only a handful of interviews in "[Indian Country](#)". Putting that "[informed-consent form](#)" between me and other tribal members felt "*wrong*"; [I]ike making an *object* of Indian Country rather than "routing" me in and through it. I could not bring myself to write about my fellow tribal citizens, our family histories having been entwined for centuries - **especially** if that writing took place largely *outside* a shared or [community-based work project](#).

My queasiness with [academic social-science research](#) had to do with feelings of the individual power I could exercise via standard academic approaches to extract knowledge and to publish analyses under my individual name, to speak "in"· versus speaking "with".

My position on the continuum of [indigeneity](#) is not unimportant: I left: the reservation (at fourteen) for high school in a progressive urban area and went to university on the East and West Coasts [?of America?]. As I inhabit diverse worlds, I confront the inequalities of race, class, and increasingly [gender privilege](#) from a very particular and perhaps unusual position. I am a privileged U.S. American-from the heart of empire-yet from **one of the most impoverished groups** here. [[L](#)]

<https://www.kff.org/other/state-indicator/poverty-rate-by-raceethnicity/>

Moving in and out of multiple disciplinary, national, and ethnic cultural spaces, I work in an era of [critical methodological interventions](#) and hybrid writing styles that enable [self-reflexivity](#) and [polyvocality](#) in [ethnography](#).

For example, *analyses* of the subjectivity of the "endogenous," "native," "indigenous," or "insider" anthropologist, although they are radical in the history of anthropological inquiry, are limited. [?]" Such analyses take up the benefits and risks of the position.

On the one hand, an "insider anthropologist" might more quickly immerse herself in a community, gaining better access to insider data because of a more intimate familiarity with, as [Emiko Ohnuki-Tierney](#) puts it, the "cognitive and emotive dimensions" of subjects' behavior." ["[The Culture of Japan as Seen through Its Leisure](#) "]

[That is,] Sometimes research subjects are more willing to participate because they want to support their fellow-"the insider" anthropologist-and her career aspirations. **On the other hand**, a potential "insider"-one with a university education-can be suspect, classified as an "educated fool". If an insider anthropologist does gain a certain level of acceptance and support, she might be faced with yet another

challenge: [H]ow to manage increased personal obligations and requests for reciprocity? Neither clearly insider nor outsider, the researcher experiences "gradations of endogeny."

But such analyses do little to alleviate my unease. They are primarily concerned with matters internal to the discipline; [That is,] an individual researcher's problematic subjectivity and her ability to produce rigorous disciplinary knowledge nonetheless. The discipline remains both the chief audience for such analyses and the chief agent in knowledge production. The agency and desires of subjects and communities to produce knowledge they need and in ways amenable to their ethical sensibilities are not central to such discussions.

In preparing this book, I ultimately refused the role of the native (on native) anthropologist. Indigenous scholars [Pakki Chipps](#) and [Audra Simpson](#) call for "refusal" of anthropology for what we might call ethical reasons. [http://www.firstnations.de/indian_land/sovereign_owners.htm]

In certain moments, when occupying both roles simultaneously and proficiently was not possible, they [[Pakki Chipps](#) and [Audra Simpson](#)] chose being in solidarity or in sync with the demands and practices of their native communities first.

[That is,] [Chipps](#) refused research when it disrupted her role in the family or tribe, for example, the cooking and visiting, the doing instead of asking questions. For [Simpson](#), her refusal came in the depths of anthropological process, when anthropology risked subverting sovereignty by compromising the "representational territory gained" by Natives. Simpson writes that there are things she will not write, understandings between her and her "informants"-her fellow [First](#)

[Nation citizens](#)-that are implicit rather than explicit. **She writes of turning off the tape recorder**, of deciding she's revealed enough and respecting that her informants have revealed enough.

To use Simpson's term, my "[calculus ethnography](#)" or, what I refused to write, became almost everything to do with *Native American perspectives on blood and DNA and their roles in forming contemporary Native American citizenship and identity*. ["[Humanizing Research: Decolonizing Qualitative Inquiry With Youth and Communities](#)"]

The concept of *refusal* helps frame the silences in this book as not only against the ethnographic grain but as productive and supportive of indigenous self-determination. [[United Nations Declaration on the Rights of Indigenous Peoples \(UNDRIP\)](#)]

After all, on the one hand, who among my tribal kin asked me to produce knowledge about their understandings of DNA and how molecular knowledge contradicts or might be compatible with their views of life, identity, and history? No one.

On the other hand, through years of work (as a tribal and environmental planner [[M-education & experience](#)]) I felt certain of an implied support for research I might do that could support tribal governance and community development in relation to DNA knowledge production.

Could I do such research without making my tribal kin my subjects?

This book ["[NATIVE AMERICAN DNA - Tribal Belonging and the False Promise of Genetic Science](#)"] is a response to that question. It [the

book] shifts the anthropological and analytical gaze **to** non-Native subjects and scientific projects.

[If Ms. Tallbear succeeded] Not only was shifting the gaze [was] “personally liberating”, a relatively unimportant development in the grand scheme of things, but it also facilitated what I hope the reader will agree is an incisive account of Native American DNA - as a material-[semiotic](#) object [N] – with [the] power to influence indigenous livelihoods and sovereignties, and genetic scientists and entrepreneurs as frontline agents in the constitution of that object.

[Indigenes](#) themselves, it turns out, were never the "key informants".

That is **not** to say that observations made in [Indian Country](#) are absent from this work. I could not keep this narrative clean of things I've learned in a lifetime of living and working in various tribal and urban Indian communities. It is that life which makes this topic so compelling to me in the first place. That is the standpoint from which I begin, but beginning there, I look "up" and out.

In refusing to occupy the role of the native anthropologist, I made a more typical anthropological decision to study those who are culturally foreign to me. Yet that move is simultaneously unexpected. **I am a Native American studying non-Natives.** And, I study "up." In the same year that Vine Deloria jr, published his groundbreaking essay "Anthropologists and Other Friends"

[<https://mvlindsey.files.wordpress.com/2015/08/custer-died-for-your-sins-deloria-jr-1987.pdf> < Page 78]

[Berkeley anthropologist, Laura Nader](#), published her now-classic essay "[Up the Anthropologist](#)" in which she urged anthropologists to study "[the colonizers rather than the colonized, the culture of power rather](#)

than the culture of the powerless, the culture of affluence rather than the culture of poverty."

Nader's *admonition* is not inconsistent with science-and-technology studies approaches. Because relations of power script my (un)ease with research, I feel easier with the ethics of studying scientists than studying Native Americans.

As geographer and political ecologist [Paul Robbins](#) writes, "Research is theft, and from natives much has already been taken."

I thought I would find it morally and personally easier to study not the marginalized native; but, actors at the center of genomic fields[;]- subjects with institutional, cultural, and financial power that enables them to develop and use genomic technologies for their own intellectual and commercial projects.

I would not have to study those who engage with [genomics](#) chiefly as its potential research subjects-those who extend arms to receive the needle while the syringe receives their blood.

In practice, it has not been easier to study up. Power inequities are not always clear. Genetic scientists are increasingly women, Latino, African or African American, and even Native American.

Many are young and working hard to do scientific work as people of color and/or women in a predominantly white, male world. **When I gaze upon scientists as individuals**, when I take up their "knowledge production" and turn it over in my hand -an artifact ripe for cultural analysis- I am not unconscious that the social sciences and humanities

are, like the natural sciences and engineering, born of [colonialisms](#).

I, too, have some power and privilege in my authorial position. In general, the [natural scientists](#) (whom I study) and (by whom I am surrounded) enjoy more cultural power in part because they command greater wealth in the form of government, foundation, and corporate research money. A [humanities and social-science scholar](#) in a largely [natural-science department](#), I benefit from the margins.

Kim Tallbear :: https://en.wikipedia.org/wiki/Kim_TallBear ::

University of Alberta ::

https://en.wikipedia.org/wiki/University_of_Alberta

[

<https://nycstandswithstandingrock.files.wordpress.com/2016/10/linda-tuhiwai-smith-decolonizing-methodologies-research-and-indigenous-peoples.pdf>]

"Decolonizing" Research

Several more research approaches (at least, their underlying ethics if not actual methods) that can be grouped under the growing umbrella of "decolonizing methodologies," to borrow Linda "luhiwai Smith's influential terminology,;" inform the development of this account. The "participatory action research" (PAR) movement, also commonly called "community-based participatory research" (CBPR), emerged in the 1970s in developing countries as **a critical and productive response to dominant research paradigms** that extracted knowledge for the benefit of researchers, institutions, and governments, often at social and material cost to the peoples whose bodies, resources, and societies were the objects of study." Combining research, education, and action,

participatory research quickly gained currency around the world and is now used across scientific fields. **In U.S. tribal communities**, participatory techniques are often used in health-related research. It is meant to address uneven power relations in research, especially on indigenous peoples, poor people, and other marginal groups.

[Louise Fortmann](#), a feminist political ecologist who has conducted community forestry research in West Africa, focuses in part on the gendered relationships between humans and forest resources. She sees the practice of writing under a singular byline, as, for example, "I would like to thank so-and-so for their patient and thorough research assistance," as giving insufficient credit. If, she challenges, "local knowledge really is important and not just something we pay lip service to, then we should pay for it in our own currency-not with an offhand acknowledgment in a footnote but with full-blown academic credit. If we have relied on their knowledge, then they should be co-authors."!

Fortmann (and the community researchers she worked with have) [has] done just that." But Fortmann does not just trade in the researcher's most valuable currency, shared authorship in academic publications; she also works to expand the definition of what counts as currency-as legitimate research and knowledge production. She works to make research a more valuable currency for the communities with whom she studies. Fortmann explains that people "develop a consciousness about their problems as they [talk] about them." They become experts and spokespeople, and they develop networks that can later be mobilized to local ends.!

In human genome diversity research, shared authorship with Native American subjects may be a step forward, but a truly mutually

beneficial relationship entails reconceptualizing research projects, stretching them beyond academic or corporate researcher's knowledges and institutions to also develop [a] communities' broader intellectual property and their educational, economic, and governance institutions.

Because of its commitments to capacity building and to producing knowledge that communities expressly desire, [CBPR](#) has become a mantra for [indigenous researchers](#), and increasingly for researchers working in indigenous communities." "Decolonizing methods" deepen further still CBPR's ethical commitments to communities. Rather than integrating community priorities with academic priorities, changing and expanding both in the process, decolonizing methods begin and end with the standpoint of indigenous lives, needs, and desires, engaging with academic lives, approaches, and priorities along the way. Smith's [Decolonizing Methodologies \(1999\)](#) opens with a classic charge against researchers by indigenous peoples. Because it captures so completely the critiques of this field, **I quote Smith at length:**

From the vantage point of the colonized ... the term "research" is inextricably linked to European imperialism and colonialism. The word itself, "research," is probably one of the dirtiest words in the indigenous world's vocabulary Just knowing that someone measured our "faculties" by filling the skulls of our ancestors with millet seeds and compared the amount of millet seed to the capacity for mental thought offends our sense of who and what we are It angers us when practices linked to the last century, and the centuries before that, are still employed to deny the validity of indigenous peoples' claim to existence, to land and territories, to the right of self-determination, to the survival of our languages and forms of cultural knowledge, to our natural resources and systems for living within our environments.

Smith, a Maori writing in New Zealand, centers indigenous perspectives on research in order to deconstruct Western scientific research and to reiterate its role in the imperial project. But she does not stop there. Smith advocates a Kaupapa Maori methodology in which Maori "assumptions, values, concepts, orientations, and priorities" frame research questions, shape analyses, and determine research instruments."

Research is driven by desires for Maori autonomy and "cultural wellbeing," and such research is key to exercising sovereignty and to restoring and building indigenous communities." If research helped subjugate indigenous peoples, then empirical observation and the gathering of data can help liberate them, too."

This is precisely the idea that leads some Native American communities to embrace health-related genetic and environmental science and technologies in particular. Yet Smith also explains that the decolonizing approach of Kaupapa Maori is not synonymous with Maori knowledge and epistemology. Rather, Kaupapa Maori "implies a way of framing and structuring," a set of methods developed by Maori who work in conversation between academic and indigenous communities.!"

Smith concludes her hook with a list of "twenty-five indigenous projects" taking place both inside and outside the academy that exhibit the core assumptions she outlines. Such research (reclaims and supports the return of indigenous rights, lands, and histories; builds indigenous archives by documenting oral narratives; and celebrates indigenous survival rather than foretelling the demise of indigenous

groups).

Decolonizing research-whether or not it also employs indigenous knowledges and methods-reframes views of indigenous peoples, histories, and futures to promote indigenous thriving while also refraining the view of the nonindigenous world." A similar concept, **tribally driven participatory research** (TDPR), provides insight into the potential for indigenously governed genetic research.

Patricia Manella and colleagues assert that "indigenous peoples throughout the world have conducted research for millennia; in fact, indigenous knowledge gained by observation and experimentation produced much of the world's foodstuffs as well as many medicines that researchers today seek to assess."

CBPR, with its focus on indigenous "participation," is more likely to be initiated and sometimes even driven by those outside the tribe.

[Mariella](#) et al. describe how tribal government agencies and institutions increasingly perform their own research and maintain the power to invite university or industry collaborators to participate.

[Puneet Sahota](#) documents one tribe's partnership with a genetics-research institute, both as an investor and as a research partner in studying diabetes and other diseases in tribal populations." Tribal governments also regulate research by approving and denying protocols, publications, and research contracts.

TDPR, like [Kaupapa Maori](#), serves indigenous priorities by advocating research as key to the expansion of indigenous governance and

sovereignty while not claiming to be an indigenous epistemology or knowledge per se.

At a more fundamental level, we might also ask how "research" conceived as an act in and of itself can disrupt other necessary work and reconstitute what counts as indigenous ways of knowing.

For example, tribes in the United States increasingly seek technical assistance from agencies such as the Indian Health Service (IHS) to set up their own research-review boards to govern health-related research, including genetics research.

But the process of setting up a research-review board is just the beginning. Staffing the board, hiring outside experts, and training tribal experts in various scientific fields divert community members' energies from other work.

Exercising agency in any scientific research process requires training, institution building, and practices that take one off the land and into the university, the conference room, the state agency, and other nonindigenous spaces.

Ironically, building bureaucracies and becoming expert in nonindigenous scientific fields is done to protect the very ways of knowing that community members may no longer engage in because their energies are taken up elsewhere.

[Anthropologist Paul Nadasdy](#) calls attention to this paradox -the development of bureaucratic knowledge in order to save traditional practices that are then not engaged in while the First Nation

bureaucracy is being built.

In his description of [Kluane First Nation ways of knowing](#), learning is through doing, through the labor that supports Kluane lives. Unlike "research," where knowledge is learned at a distance, "knowing" is not separate from doing and living." Knowledge production takes finite labor power. Research has a cost as well as a benefit.

Feminist and Indigenous Epistemologies at One Table

Like decolonizing methods and indigenous epistemologies that theorize practices and histories of knowledge production about and by indigenes, feminist epistemologies are concerned with knowledge about and by subordinated subjects. **Feminists are concerned with the lives of women but do not limit their focus to women.** Both feminist and indigenous epistemologists call out the sciences that do not account for their partiality and for representing their views as universal and objective, or value-neutral. Although indigenous and feminist thinkers don't necessarily rely on the same analytical frameworks (for example, indigenous sovereignty infuses indigenous analyses), the two intellectual worlds both push the sciences to be more accountable to the worlds (within which) they study, To this effort, feminist scholars contribute concepts such as situated knowledges, standpoint, and "speaking with, not for" that are helpful for understanding the ethics embodied in this account.

"Objectivity" and Situated Knowledges

[Indigenous studies scholar Laurie Anne Whitt](#) explains that those working within a framework of "value neutrality" and "fact-value duality" (often called "positivists") hold knowledge of the natural world

to be self-evident. When such knowledge is eventually uncovered or "discovered," it is held to be value-free because nature itself is neutral."

Such understandings of knowledge production and notions of truth are critiqued by [Donna Haraway](#), [Sandra Harding](#), and others as conditioned by "the view of everything from nowhere (and everywhere at the same time)." Haraway refers to this as the "God trick," a play on God's omniscience. He (naturally -the divine Creator-just is. God is not situated. Empiricists who claim objectivity and neutrality, in effect, claim a view from nowhere. Haraway is frequently cited for her conceptualization of "**feminist objectivity**" in the form of "situated knowledges.?" What each and every one of us has access to are partial knowledges, because our know ledges are produced within historical, social, value-laden, and technological contexts. The concept of situated knowledges has traveled widely to inform geographical, sociological, and anthropological studies of multiple scientific disciplines." Situated knowledges do not dispose of objectivity. They seek to engage the strengths of both empiricism and constructionism and to avoid their weaknesses. Haraway is in good company (not always explicitly feminist) in this project.

[STS scholar Sheila Jasanoff](#) and her students foreground the concept of "co-production of natural and social orders," **which I rename "co-constitution"** in a small semantic tweak I probably inherited from Haraway. For me, this term avoids the overly constructionist tone of "production." Haraway and her students work consistently in a co-constitutional idiom that views both "natural" and "social" orders as mutually constitutive. **Jasanoff** adds to the feminist project greater focus on "the authority of the state" in productions of science, technology, and power.

Standpoint

In order to understand the difference that feminist epistemology makes for understanding the emergence of Native American DNA as an object conceived in the work process of particular parties (scientists, genealogists, ancestry-testing companies) and not that of others (indigenous nations), we must pay attention to materiality and discourse while also being attuned to location, multiplicity, and power.

We need to be promiscuous in our accounting of **standpoints**.

Haraway calls us to see from multiple standpoints at once, because such a "double vision" is more rigorous. It reveals "both dominations and possibilities unimaginable from a single standpoint."

For [feminist epistemologists](#), rigorous, more "strongly objective" inquiry not only does not require "point-of view lessness". It actively incorporates knowledges from multiple locations.

Rigorous inquiry must also include beginning from the lives of the marginal, for example, from the lives of "women and traditional cultures." This is not just a multicultural gesture to pay greater attention from without, it is a call to begin from within, to be driven to inquire from within the needs and priorities articulated in marginal spaces.

Shifting the gaze sometimes requires new eyes. Sometimes it requires shifting one's feet. [Feminist philosopher of science Sandra I larding](#) explains that feminist standpoint theory is concerned with "the view from women's lives" as a standpoint from which to begin inquiry. She wants women's *situations* and those of other marginalized peoples in a society stratified by gender, class, race, sexual orientation, and other

factors to not be written out of scientific accounts as "bias." Rather, the views from such lives can produce empirically more accurate and theoretically richer explanations than conventional research that treats the views from some lives and not others as bias. **Harding** explains that the modern/traditional binary that continues to shape both social- and natural-scientific research, as well as philosophy and public policy, "typically treats the needs and desires of women and traditional cultures as irrational, incomprehensible, and irrelevant-or even a powerful obstacle to ideas and strategies for social progress."

The table conversation between feminists and indigenous critics of technoscience should be obvious. Both are "valuable 'strangers' to the social order" who bring a "combination of nearness and remoteness, concern and indifference that are [contrary to positivist thought] central to maximizing objectivity." The outsider sees patterns of belief or behavior that are hard for the "natives" (in this case, the scientists), whose ways of living and thinking fit "too closely the dominant institutions and conceptual schemes," to see."

In order to precisely represent and effectively confront power, **standpoint theorists** also pay attention to the fact that subjectivities and lives lived at the intersections of multiple systems of domination become complex. **For example**, they avoid claiming a single or universal "women's experience"-another reason why their theorizing is beneficial for doing indigenous standpoint theory in the twenty-first century.

The feminists recognize that individuals can be oppressed in some situations and in relation to some groups, while being privileged in other instances. Thus, **feminist objectivity** helps shape an account of **Native American DNA** that is critical but that does not simply invert

nature/culture, science/culture, and modernity/tradition binaries as we try to see things from an indigenous standpoint.

For example, this book does not argue that only indigenous people can speak whereas scientists have no legitimate ground to speak. It does not argue that only "indigenous cultures" or "traditions" matter in circumscribing what it is to be "Native American".

Nor do federal and Indian policies alone matter. This account **IS** not so naive. Rather, it argues that when we look from feminist and indigenous standpoints, we become more attuned to the particular histories of privilege and denial out of which the concept of "*Native American DNA*" has emerged.

We might then more rigorously argue against the misrepresentation of this **molecular object** as apolitical fact that ignores all that indigenous people have suffered and lost in its constitution.

The hope is that with greater insight, we might find ways to take more responsibility for the everyday effects, both material and psychic for indigenous peoples and others, of this powerful object and its "sister objects" - African, Asian, and European DNAs.

RESEARCHING, CONSUMING, AND CAPITALIZING ON NATIVE AMERICAN DNA

Three chapters of this book explore the use of Native American DNA by genetics researchers, consumers, and for-profit companies.

Although no chapter focuses on Native American tribal uses of DNA testing, tribal engagement with DNA is implicated especially in **chapter 2**. [*2. The DNA Dot-com: Selling Ancestry 67*]

In the forward looking conclusion, I also emphasize indigenous governance, broadly speaking, of genetic science as a necessary intervention, both for building indigenous capacity to govern and for democratizing scientific practice. In **chapter 1**, "Racial Science, Blood, and DNA," I explore the concept of blood by drawing on key texts from history and anthropology that treat the subject in both global and U.S. terms. In the latter case, I compare dominant u.S. concepts of blood with Native American or "tribal" blood concepts by combining insights from the aforementioned literatures with those from legal scholarship on the relation of blood to the conceptualization of the **Native American "tribe"** in nineteenth- and twentieth-century U.S. law.

One cannot talk about blood in a Native American context without exploring its co-constitution with the concepts of tribe and race in the colonial practices of the United States.

In addition, I look at how "race" and "tribe" organize Native American identity in different, sometimes overlapping ways and the looping implications for U.S. concepts of race broadly.

I build on the valuable work of established race scholars and, in particular, younger race scholars who study how Native American race has been conceived to reinforce the division between white and black.

Such conceptions facilitate ownership claims to Native American history and cultural patrimony by the white nation. I add an analysis of how

genetic concepts further support the ownership of Native American history, bodies, molecules, and identities by whites.

In **chapter 2, "The DNA Dot-com: Selling Ancestry,"** I analyze the technical and cultural production of DNA-testing companies that target Native American ancestry and identity, especially their overly simplistic claims about the correlation between racial and ethnic identity and genetics. **The chapter is primarily textual analysis of company Web pages, print advertisements, trade-show advertising materials, company representative statements and interviews in the popular press, and correspondence with company representatives.**

I also draw on participant observation, for example, attendance at national tribal-enrollment conferences for tribal staff **where DNA-testing companies both give technical talks and advertise.** In the chapter, I focus on a half dozen companies and their practices that together represent the array of technologies offered for ascertaining Native American ancestry. Some of these companies, because of marketplace dynamics, are no longer in business, but the products and texts generated by the companies remain technically and culturally current.

Companies that bring different techniques of analysis to bear on Native American identity treat differently the concepts of "tribe" and "race." Some exhibit more understanding than others of the overlap and contradictions between those categories, especially as they relate to [tribal sovereignty](#) or [indigenous governance](#). This chapter explains why a turn to genetic tests will not solve the intractable problems associated with blood-quantum and other nonscientific [tribal enrollment policies](#) despite company promises of scientific precision.

In **chapter 3, "Genetic Genealogy Online,"** I explore the practice of "genetic genealogy," or using ancestry-DNA tests to fill in documentary gaps that arise in "family tree" research. **Doing family genealogies is a top American pastime,** and genetic testing is a quickly growing practice among genealogists.

Whereas chapter 2 highlights the activities, texts, and claims of DNA-testing companies, chapter 3 is based on participant observation and focuses on the activities, texts, and claims of **a group of DNA-test consumers** who were active in one online community in the mid-2000s, a **Listserv** dedicated to sharing genetic-testing information and to mentoring among genealogy researchers. The chapter also draws an analysis of tens of thousands of archived posts from 2000 (when the list was founded) to 2005. In this chapter, I am especially attuned to politics of race and property as they play out between the categories of "Native American" and "white" ("Anglo-Saxon," "WASP," "European American," "Caucasian," and so on) on this **Listserv**, which is dominated by largely self-identified whites.

Chapter 4, "The Cenographic Project: The Business of Research and Representation," treats the politics of race and indigeneity as expressed in the [Genographic Project and by Spencer Wells](#), National Geographic explorer-in-residence and [Genographic's](#) principal investigator. Launched in 2005, Genographic aims to trace the global migratory history of humans (pre-1492, it is implied) by sampling one hundred thousand "indigenous and traditional peoples" around the globe. This chapter performs a textual analysis of Genographic public relations and research output-Web sites, videos, news articles, press interviews with project organizers, and research papers-that keep alive

five problematic narratives at the intersections of race and science: that "we are all African," that "genetic science can end racism," that "indigenous peoples are vanishing," that "we are all related," and that Genographic "collaborates" with indigenous peoples.

Although Genographic might seem to liberate "genetics" and the "population" from their older counterparts "blood" and "race," the project actually conjoins older racial ideas and even racist practices with newer discourses of multiculturalism and the idea that "we are all related." This chapter pays special attention to the implications for indigenous identities, indigenous know ledges, and indigenous governance of the Genographic Project specifically; {B}ut it also highlights the broader colonial context-how **Genographic** relies on older notions of race while constructing identities and histories as disproportionately genetic.

In the Conclusion, "Indigenous and Genetic Governance and Knowledge," I look toward a more hopeful future for the interactions between genome science and indigenous peoples. My central role in this volume is as **cultural analyst** and **critic**. But, I was also trained as a community and environmental planner, and I grew up under the moral and political tutelage of tribal and urban Native American community planners, institution builders, and activists. I call attention to the critical and ethical lapses of genome science throughout the following chapters, but I am also moved to foreground promising developments that might take us beyond the present status quo. I begin the Conclusion with an overview of key points from Canadian genetic scientist [Roderick McInnes's 2010 American Society of Human Genetics \(ASHG\) presidential address in Washington, D.C.](#); in which, he encouraged geneticists to acknowledge indigenous "intercultural

“frameworks” that can help genetic researchers better respect indigenous claims related to property and sacredness of biological materials. McInnes highlights the efforts of the [Canadian Institutes of Health Research \(CIHR\)](#)-the equivalent of the U.S. [National Institutes of Health \(NIH\)](#)-to use an intercultural framework to guide genome research on Aboriginal peoples in Canada. The respect for Aboriginal sovereignty and the collaborative spirit that McInnes advocates are in sync with changes to standard research and institutional practices suggested by indigenous critics, bioethicists, and social-science scholars in the United States-suggestions that have met skepticism from geneticists. Issued instead from the ASHG presidential pulpit, perhaps such ideas will be more seriously considered by the mainstream of U.S. genome science.

The power inequities are real in this world in which DNA narratives increasingly grab center stage in the telling of human history and the construction of human identities. But those relations of power are not as linear as they used to be.

As indigenous peoples push back on those who gaze on them and would extract their biological and cultural resources, and as those who do science become more diverse, the sciences are not only a culprit, they are a site for change.

[End Introduction]

Chapters: **RACIAL SCIENCE, BLOOD, AND DNA (more)**