
OKLAHOMA CITY UNIVERSITY LAW REVIEW

VOLUME 39

SPRING 2014

NUMBER 1

ARTICLES

GENOMIC RESEARCH IN INDIAN COUNTRY: THE NEW ROAD TO TERMINATION?

Marren Sanders*

I. INTRODUCTION

“Unless you’re one of the first Americans, a Native American, you came from someplace else. Somebody brought you.”¹

As the 2012 presidential election approached, political-figure parodies popped up all over the Internet. One website, *iamsococonservative.tumblr.com*, featured a picture of Republican hopefuls, Rick Santorum, Mitt Romney, and Newt Gingrich, seated together at a CNN news table. The caption at the top of the picture, “I am so conservative,” may have come as no surprise considering the source,

* Associate Professor of Law, Arizona Summit Law School; S.J.D. (Doctor of Juridical Science) and LL.M., University of Arizona, James E. Rogers College of Law; J.D., Suffolk University Law School; B.A., University of Vermont. Dr. Sanders would like to thank Terrell D. Hunsinger, Jr., Yvette Brown, and the staff of the ASLS Library for their research assistance, and the editors and staff of the Oklahoma City University Law Review for their time and assistance.

1. President Barack Obama, Remarks by the President on Comprehensive Immigration Reform (Jan. 29, 2013), *available at* <http://www.whitehouse.gov/the-press-office/2013/01/29/remarks-president-comprehensive-immigration-reform>.

but the joke lay in the punch line below: “I am so conservative I will deport Native Americans to where the hell they came from.”² The humor of threatening to deport those who have always been considered the “first Americans” is not lost. However, as population-migration theories, espoused by genomic scientists, gain more and more acceptance, a day may come when the witticism of this political satire no longer entertains.

Genomic science has generated controversy in the social, legal, and ethical arenas for decades, and indigenous populations continue to be a subject of great interest in the area of genomic science.³ Human genome sequencing brings the promise of personalized medicine, where drug companies can customize medication for the individual patient based on his or her genetic profile.⁴ Genetic-testing supporters market it as explaining “our place in the world: our history, our social relationships, our behavior, our morality, and our fate,”⁵ and as a tool for private corporations to help law enforcement create criminal-suspect profiles.⁶

In this Article, I look at the recent concept of population genomics—

2. *I Am So Conservative*, TUMBLR, <http://iamsococonservative.tumblr.com/post/18598307379/i-am-so-conservative-i-will-deport-native> (last visited Dec. 26, 2013).

3. See, e.g., Alison Abbott, *The Genetic Map Maker*, NATURE (Oct. 17, 2007), <http://www.nature.com/news/2007/071017/full/news.2007.166.html> (describing the Human Genome Diversity Project as “one of the major scientific controversies of the 1990s”); Eric T. Juengst, *Group Identity and Human Diversity: Keeping Biology Straight from Culture*, 63 AM. J. HUM. GENETICS 673, 673–74 (1998) (stating “even the most academic population-genomic studies . . . can pose significant risks to groups,” because, “a detectable genetic . . . marker could serve as an indelible ‘yellow star,’ marking for oppression those with indigenous American ancestry”); Pilar N. Ossorio, *The Human Genome as Common Heritage: Common Sense or Legal Nonsense?*, 35 J.L. MED. & ETHICS 425, 437 (2007) (stating that “many of humanity’s most important problems, including medical ones, can be addressed using existing knowledge and products that have little to do with human genetic knowledge or technologies”); Ron J. Whitener, *Research in Native American Communities in the Genetics Age: Can the Federal Data Sharing Statute of General Applicability and Tribal Control of Research Be Reconciled?*, 15 J. TECH. L. & POL’Y 217, 218 (2010) (stating that “recent . . . discoveries in . . . genomic research ha[ve] led to even greater interest in the U.S. native communities by commercial and scientific interests”).

4. Dee Marlo E. Chico, Comment, *Pharmacogenomics: A Brave New World in Designer Drugs*, 5 SCHOLAR 111, 131 (2002) (footnote omitted).

5. Sonia M. Suter, *The Allure and Peril of Genetics Exceptionalism: Do We Need Special Genetics Legislation?*, 79 WASH. U. L.Q. 669, 674 (2001) (quoting DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* 57 (Univ. of Mich. Press 2004) (1995)) (internal quotation marks omitted).

6. See, e.g., Christian B. Sundquist, *The Meaning of Race in the DNA Era: Science, History and the Law*, 27 TEMP. J. SCI. TECH. & ENVTL. L. 231, 258–59 (2008) (stating that “DNA analysis of crime-scene genetic material has been a staple of law enforcement forensics for well over a decade”).

2014]

Genomic Research in Indian Country

3

a biotechnology used to help scientists understand how genetic variation relates to human health and evolutionary history. In parts II and III, I examine the debate among scientists about the first Americans' migration into North America and how the DNA markers found in the human genome are quickly influencing this debate. Part IV surveys the history of scientific research involving indigenous peoples—a history predominantly colored by ignorance and bias—as science was presented as conclusive proof of their savage nature and inferiority as a race.

Today, scientists proffer evidence that Native Americans' ancestors were, in reality, colonists who emigrated from Africa, Europe, or Asia. While it is unlikely that Native Nations will be deported back to where they came from, a number of indicators, which I examine in Part V, point to the possibility of genomic research justifying renewed termination of Indian tribes' special status, as reflected in the federal/tribal trust relationship. In Part VI, I look at a number of tools that tribes may wish to consider using to help protect their members' genetic information, as they face the seemingly endless need of researchers for Native American DNA.

While suppositions of geneticists are actually just theories of historic migration, I conclude that these theories have gained acceptance as fact in mainstream society. Given current indicators, Congress and/or the courts may very well use genomic science to justify another termination of the trust relationship between tribes and the federal government.

II. GENOMIC SCIENCE AND MIGRATION THEORIES

*“It is heartening that the study of our basic DNA makeup . . . [and p]opulation genomics will help to resolve questions and controversies regarding the origins and affinities of our species.”*⁷

*“We know our origins and our history . . . We don't need somebody else telling us where we came from and who our ancestors are.”*⁸

Genomics is the study of a person's genes (the genome) and the

7. L.B. Jorde, W.S. Watkins & M.J. Bamshad, *Population Genomics: A Bridge from Evolutionary History to Genetic Medicine*, 10 *HUM. MOLECULAR GENETICS* 2199, 2204 (2001).

8. Vida Foubister, *Research Reservations: As Researchers Increasingly Look to DNA of Native American Tribes and Other Groups for Clinical Answers, Is an Ethical Imperative to Seek Community Consent Emerging?*, *AM. MED. NEWS*, Jan. 31, 2000, at 8 (internal quotation marks omitted).

gene's function.⁹ Population genomics refers to the recent concept of applying biotechnology to the genome to help scientists understand how genetic variation relates to human health and evolutionary history.¹⁰ "In the past [few decades] population geneticists have begun to fill in [perceived] gaps in the paleoanthropological record by fashioning a genetic bread-crumbs trail of the earliest migrations" of the human race.¹¹ According to Gary Stix, the study of human genetic variation, which he referred to as a "historical Global Positioning System," began in World War I when doctors discovered that soldiers "had a differing incidence of a given blood group depending on their nationality."¹² Years later, Dr. Luigi Luca Cavalli-Sforza "[formalized] the concept of geographical genetics," when he hypothesized that the "random genetic drift" in African Pygmies "could . . . be used to follow the movements of migrating subpopulations."¹³

Cavalli-Sforza's work in Africa eventually inspired his conception of the Human Genome Diversity Project (HGDP).¹⁴ Along with several other leading geneticists, Cavalli-Sforza proposed the project to collect, analyze, and preserve DNA from isolated human populations to understand "more about human origins, evolution, and ancient migration patterns."¹⁵ The HGDP was planned "as an international addition to the [National Institutes for Health (NIH)] Human Genome Project"¹⁶ and

9. *Glossary*, HUM. GENOME PROJECT INFO. ARCHIVE, http://web.ornl.gov/sci/tech/resources/Human_Genome/glossary.shtml#G (last visited Dec. 27, 2013).

10. Charles N. Rotimi, *Population Genomics*, NAT'L HUM. GENOME RES. INST., <http://www.genome.gov/Glossary/index.cfm?id=161&textonly=true> (last visited Dec. 27, 2013).

11. Gary Stix, *Traces of a Distant Past*, SCI. AM., July 2008, at 56, 56.

12. *Id.* at 56–58.

13. Abbot, *supra* note 3.

14. *Id.*

15. LAURELYN WHITT, SCIENCE, COLONIALISM, AND INDIGENOUS PEOPLES: THE CULTURAL POLITICS OF LAW AND KNOWLEDGE 81–82 (2009); *see also* L.L. Cavalli-Sforza et al., *Call for a Worldwide Survey of Human Genetic Diversity: A Vanishing Opportunity for the Human Genome Project*, 11 GENOMICS 490, 490 (1991) ("We must act now to preserve our common heritage. Preserving this historic record will entail a systematic, international effort to select populations of special interest throughout the world, to obtain samples, to analyze DNA with current technologies, and to preserve samples for analysis in the future."); Mitchell Leslie, *The History of Everyone and Everything*, STAN. MAG., May/June 1999, at 70, 73, *available at* http://alumni.stanford.edu/get/page/magazine/article/?article_id=40759 ("Some [blood, hair, or saliva samples] would be analyzed right away; other samples would be preserved for future study . . .").

16. CHEE HENG LENG ET AL., UNESCO INT'L BIOETHICS COMM., BIOETHICS AND HUMAN POPULATION GENETICS 2 (1995), *available at* <http://unesdoc.unesco.org>

was originally funded in 1988 as a joint-agency endeavor with the U.S. Department of Energy “to coordinate research and technical activities related to the human genome.”¹⁷ The project’s “goal was the complete mapping and understanding of all the genes of human beings.”¹⁸ The specifically named populations of most interest for the HGDP were all indigenous, and these scientists warned that “[t]he gate to this study [was] closing rapidly because these [populations were] vanishing, rapidly disappearing, [and] in danger of dying out or being assimilated.”¹⁹

Cavalli-Sforza and his colleagues recognized that taking samples from a population of interest should not be done “without consideration of [the] population’s needs for medical treatment and other benefits.”²⁰ Nevertheless, the HGDP was immediately denounced, and it became “one of the major scientific controversies of the 1990s.”²¹ Indigenous peoples around the world opposed the project as neocolonialist and racist, with one Australian aboriginal group describing the plan as a “vampire project.”²² Some critics went even further, stating “that the data [gathered by the HGDP] could pave the way for genocide by uncovering population-specific genetic traits that unscrupulous parties could use as targets for biological weapons.”²³ In the end, the HGDP never made it

/images/0013/001323/132344e.pdf.

17. *A Brief History of the Human Genome Project*, NAT’L HUM. GENOME RES. INST., <http://www.genome.gov/12011239> (last updated Nov. 8, 2012) (internal quotation marks omitted); *see also* Leslie, *supra* note 15, at 73.

18. The Institute announced, in 2001, that its goal of mapping the human genome was 90% complete. *What Was the Human Genome Project?*, NAT’L HUM. GENOME RES. INST., <http://www.genome.gov/12011238> (last updated Nov. 8, 2012).

19. Laurie Anne Whitt, *Indigenous Peoples, Intellectual Property & the New Imperial Science*, 23 OKLA. CITY U. L. REV. 211, 222 (1998) (citations omitted) (internal quotation marks omitted); *see also* Cavalli-Sforza et al., *supra* note 15, at 490 (stating that the isolated populations needed for the study “are being rapidly merged with their neighbors . . . destroying irrevocably the information needed to reconstruct our evolutionary history”).

20. Cavalli-Sforza et al., *supra* note 15, at 490 (citation omitted).

21. Abbott, *supra* note 3; *see also* Leslie, *supra* note 15, at 73 (noting that Cavalli-Sforza’s work was called “a lightning rod for genetic issues” (internal quotation marks omitted)).

22. Leslie, *supra* note 15, at 74; *see also, e.g., Declaration of Indigenous Peoples of the Western Hemisphere Regarding the Human Genome Diversity Project*, INDIANS.ORG (last visited Mar. 6, 2014), *available at* <http://www.indians.org/welker/genome.htm> (listing opposition to the project for a number of reasons, including that the HGDP “intend[ed] to collect[] and make available our genetic materials[,] which may be used for commercial, scientific and military purposes”).

23. Leslie, *supra* note 15, at 74 (internal quotation marks omitted).

past the planning stages largely because of this resistance.²⁴

The HapMap project followed the HGDP in 2002 as an international effort to assemble genetic information from populations in several countries as “a tool that allow[ed] researchers to find genes and genetic variations that affect health and disease.”²⁵ Members of the project’s research consortium distinguished the HapMap from the HGDP, stating that HapMap’s goal was biomedical and would “study only large, less vulnerable populations,” unlike HGDP, which had been anthropologically designed for studying “small, isolated human populations.”²⁶ While advocating that HapMap contained “virtually no risk” to sample donors, HapMap nonetheless acknowledged that, “[w]hen researchers use the HapMap and find that a disease is associated with a genetic variant that is common in a particular population, some people may mistakenly generalize . . . that the population as a whole is somehow genetically inferior.”²⁷

When the National Geographic Society launched the Genographic Project in 2005,²⁸ the HGDP’s principles resurfaced in an “unprecedented and . . . real-time research effort” meant to “clos[e] the gaps of what science knows today about humankind’s ancient migration stories.”²⁹ Kim TallBear noted similarities between the two projects. Dr. Spencer Wells, National Geographic’s “Explorer-in-Residence” and

24. Press Release, Nat’l Inst. of Health, Background on Ethical and Sampling Issues Raised by the International HapMap Project (Oct. 2002), available at <http://www.genome.gov/10005337> [hereinafter *HapMap Issues*]; see also Joan L. McGregor, *Population Genomics and Research Ethics with Socially Identifiable Groups*, 35 J.L. MED. & ETHICS 356, 359 (2007) (“One reason for the HGDP’s [demise] . . . was that the scientific community failed to grasp the deep cultural, ethical, and political reasons why Native Americans did not accept the authority of the researchers to define their groups.” (footnote omitted)).

25. *International HapMap Project Overview*, NAT’L HUM. GENOME RES. INST., <http://www.genome.gov/10001688> (last updated May 1, 2012). HapMap was based on genetic samples from the Yorubas in Nigeria, the Japanese, the Han Chinese, and United States residents with northern or western European ancestry. *HapMap Issues*, *supra* note 24.

26. *HapMap Issues*, *supra* note 24.

27. *Id.* HapMap researchers considered the project “no risk” because they collected no medical or personally identifying information. *Id.*

28. *Geno 2.0: The Greatest Journey Ever Told*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT 2.0 BETA, <https://genographic.nationalgeographic.com/> (last visited Dec. 27, 2013).

29. *Introduction: A Landmark Study of the Human Journey*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT, <http://web.archive.org/web/20120722011111/https://genographic.nationalgeographic.com/genographic/index.html> (last visited Dec. 27, 2013) (accessed via the Internet Archive).

leader of the initiative, studied with Cavalli-Sforza.³⁰ Both projects share the goal of collecting indigenous peoples' DNA samples in an attempt to build a genomic database that will "answer the oldest questions we have about ourselves: Who are we and where did we come from?"³¹ Finally, the two projects employ a call for urgent action in the face of "the world's disappearing cultures," pleading for help in assembling "the largest collection of anthropological genetic data ever assembled before modern day influences erase it forever."³²

TallBear also brings attention to the Genographic Project's attempts to dissociate itself from the HGDP.³³ In its website's Frequently-Asked-Questions section, National Geographic specifically details that the project will involve "no medical research of any kind" and that it is "nonprofit, nongovernmental, nonpolitical, and noncommercial."³⁴ The

30. Kim TallBear, *Narratives of Race and Indigeneity in the Genographic Project*, 35 J.L. MED. & ETHICS 412, 412 (2007); see also *Introduction: A Landmark Study of the Human Journey*, *supra* note 29.

31. *Frequently Asked Questions: What Is the Genographic Project?*, NAT'L GEOGRAPHIC'S MIGRATION STORIES, <http://migration-stories.nationalgeographic.com/faq/> (last visited Dec. 28, 2013). The Genographic Project will use DNA samples collected from three sources: indigenous and traditional populations, ancient remains, and members of the general public who purchase a Genographic Project Public Participation Kit and submit their own cheek-swab sample. *Frequently Asked Questions, About the Project: What Is the Genographic Project?*, NAT'L GEOGRAPHIC'S THE GENOGRAPHIC PROJECT, http://web.archive.org/web/20120515101410/https://genographic.nationalgeographic.com/genographic/lan/en/faqs_about.html (last visited Dec. 28, 2013) (accessed via the Internet Archive).

32. *Explorers: The Genographic Project*, NAT'L GEOGRAPHIC, <http://video.nationalgeographic.com/video/specials/in-the-field-specials/genographic-overview/> (last visited Dec. 28, 2013); see also Claudia Kalb, *In Our Blood*, NEWSWEEK, Feb. 6, 2006, at 46, 54, available at <http://www.newsweek.com/our-blood-113321> (stating that the Genographic "[P]roject's overarching goal is to collect DNA from indigenous populations . . . fast, before whole populations die out and leave their ancestral homelands").

33. TallBear, *supra* note 30, at 413.

34. *Frequently Asked Questions, Testing and Results: How Does the Genographic Project Differ from the Human Genome Diversity Project (HGDP) Proposed in the Early 1990s?*, NAT'L GEOGRAPHIC'S THE GENOGRAPHIC PROJECT, http://web.archive.org/web/20120515101410/https://genographic.nationalgeographic.com/genographic/lan/en/faqs_about.html (last visited Dec. 28, 2013) (accessed via the Internet Archive). "The DNA analysis conducted by National Geographic is intended to determine what migratory routes your deep ancestors followed and to which branch of the human family tree you belong and in no way relates to analyzing your health, health status, or any inherited health conditions." *Frequently Asked Questions, Testing and Results: Will the Genographic Project Conduct Health-Related Analysis on My DNA Sample or Provide the Sample to My Physician?*, NAT'L GEOGRAPHIC'S THE GENOGRAPHIC PROJECT, http://web.archive.org/web/20120120063221/https://genographic.nationalgeographic.com/genographic/lan/en/faqs_results.html (last visited Dec. 28, 2013) (accessed via the

Genographic Project states that it, unlike the HGDP, “is a true collaboration between indigenous and traditional populations and scientists.”³⁵ The project also “established the Genographic Legacy Fund,” a grant program, as a means to give back to indigenous and traditional peoples as the project “asp[ir]es to promote and protect [the indigenous and traditional peoples’] cultures.”³⁶ National Geographic also clarifies that “[a]ll the information [it derives from the samples] belongs to the global community and [is] released into the public domain.”³⁷

The Genographic Project performs one of two tests on collected samples. For maternal ancestry, mitochondrial DNA (mtDNA) are the “markers of descent,”³⁸ and tests identify and reveal “direct maternal deep ancestry.”³⁹ These tests can be done for both men and women because mothers pass mtDNA to daughters and sons.⁴⁰ The Y-DNA test traces paternal lineage and can be done only for males because females do not inherit a Y chromosome from their fathers.⁴¹ Testing is not limited to indigenous peoples. “The general public [may participate] . . . by purchasing a Genographic Project Public Participation Kit and by submitting an anonymous . . . cheek swab” sample.⁴² Proceeds from sold kits are used to fund both the Genographic Legacy Fund as well as field research on key indigenous populations.⁴³ National Geographic

Internet Archive); *see also* TallBear, *supra* note 30, at 413.

35. *Frequently Asked Questions, Testing and Results: How Does the Genographic Project Differ from the Human Genome Diversity Project (HGDP) Proposed in the Early 1990s?*, *supra* note 34.

36. *Id.* Net proceeds from the sale of the project’s “Public Participation Kits” go to the Legacy Fund. *Id.*

37. *Id.*

38. *Frequently Asked Questions, About the Project: What Is the Purpose of Collecting DNA for the Genographic Project?*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT, http://web.archive.org/web/20120112043221/https://genographic.nationalgeographic.com/genographic/lan/en/faqs_about.html (last visited Dec. 28, 2013) (accessed via the Internet Archive).

39. *Frequently Asked Questions, Participation, Testing, and Results: Will I Have to Choose to Test Either My Paternal or Maternal DNA?*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT, <https://genographic.nationalgeographic.com/faq/participation-testing-results/#paternal-or-maternal> (last visited Dec. 28, 2013).

40. *See id.*

41. *Id.*

42. *Genographic Project Participation Kit*, NAT’L GEOGRAPHIC’S STORE, <http://shop.nationalgeographic.com/ngs/browse/productDetail.jsp?productId=72306&code=MR20027> (last visited Dec. 28, 2013); *see also* *Explorers: The Genographic Project*, *supra* note 32.

43. *Genographic Project Participation Kit*, *supra* note 42; *see also* *Giving Back: The*

maintains that “[t]he Genographic Project is anonymous, nonmedical, and nonprofit, and all results are placed in the public domain *following scientific peer publication*.”⁴⁴ In fact, as of 2013, the project’s Science Team has already published over 30 papers based on the project’s results.⁴⁵

Like the HGDP before it, the Genographic Project’s study of indigenous peoples has been severely criticized.⁴⁶ As I will examine more closely in a later part, indigenous peoples have centuries-old reasons for viewing nonindigenous researchers with suspicion. These researchers have routinely used “scientific evidence” as the foundation for racist and, at times, genocidal laws and policies. It should be no surprise then that population geneticists’ current push to fill in the gaps of human-migration history may seem as yet another threat to tribal sovereignty. The next part will briefly survey these migration theories.

III. EUROPE, AFRICA, ASIA, OR SIBERIA?

*“Christopher Columbus stumbled across the so-called New World while on a voyage to discover a more direct trade route to India, or so the story goes. Certainly, in his mind, he had found that route, and thus he called the inhabitants ‘Indians’ and the place ‘the Indies’ . . . But if the New World was not India and its inhabitants were not Indians, who were these people, where did they come from, how did they get here, and when did they arrive?”*⁴⁷

Scientists have debated migration of the “first Americans” into the “New World” for decades, and the Bering Land Bridge theory has been a

Legacy Fund, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT 2.0 BETA, <https://genographic.nationalgeographic.com/legacy-fund/> (last visited Dec. 28, 2013).

44. *About*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT 2.0 BETA, <https://genographic.nationalgeographic.com/about/> (last visited Dec. 28, 2013) (emphasis added).

45. *Scientific Grants Program*, NAT’L GEOGRAPHIC’S THE GENOGRAPHIC PROJECT 2.0 BETA, <https://genographic.nationalgeographic.com/for-scientists/scientific-grants/> (last visited Dec. 29, 2013).

46. See, e.g., TallBear, *supra* note 30, at 422 (questioning National Geographic’s view that “science has a right to the knowledge carried in indigenous DNA”); see also *Petition to Oppose the Genographic Project*, INDIGENOUS PEOPLES COUNCIL ON BIOCOLONIALISM (May 20, 2006), http://www.ipcb.org/issues/human_genetics/htmls/gp_petitionsigs.html.

47. DENNIS J. STANFORD & BRUCE A. BRADLEY, *ACROSS ATLANTIC ICE: THE ORIGINS OF AMERICA’S CLOVIS CULTURE 1* (2012).

favorite among researchers for over half a century. According to this hypothesis, North American indigenous peoples came from Asia, through Siberia, over the land bridge, and into the area now known as Alaska.⁴⁸ From there, these “Clovis” people dispersed across the continent, eventually becoming the Native Americans of today.⁴⁹ Many scientists present this Clovis First theory as fact, although they continue to argue whether it occurred in the “great migration” of a single group or in multiple phases.⁵⁰

In the late 1980s, this theory was questioned when headlines proclaimed the notion of “Mitochondrial Eve.” Building on the genomic research of Cavalli-Sforza, University of California scientists reported that humans from different populations all descended from a single female who had lived in Africa tens of thousands of years ago.⁵¹ “The out-of-Africa theory postulates that descendants of modern humans left Africa from 50,000 to 60,000 years ago to settle the world.”⁵² So-called multiregional theorists contest this scheme, and instead postulate that modern man “evolved not just in Africa but [also] in . . . Asia and Europe.”⁵³

Supporting the multiregional proposition, another hypothesis

48. *Id.* at xiii. These “first Americans” were dubbed “Clovis” when the Bering Land Bridge theory was first posited on the discovery of spear points that were found near Clovis, New Mexico. *See, e.g., Other Migration Theories*, NAT’L PARK SERV., <http://www.nps.gov/bela/historyculture/other-migration-theories.htm> (last visited Jan. 6, 2014).

49. Katherine Drabiak-Syed, *Lessons from Havasupai Tribe v. Arizona State University Board of Regents: Recognizing Group, Cultural, and Dignitary Harms as Legitimate Risks Warranting Integration into Research Practice*, 6 J. HEALTH & BIOMEDICAL L. 175, 218–19 (2010); *see also* Aleš Hrdlička, *The Origin and Antiquity of the American Indian*, in 1923 ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION 481, 481–94 (1925). Hrdlička stated that Native Americans emigrated from Asia 13,000 years earlier. *Id.*

50. Jonathan D. Greenberg, *The Arctic in World Environmental History*, 42 VAND. J. TRANSNAT’L L. 1307, 1322–24 (2009) (stating as fact “that all indigenous peoples . . . throughout the Americas . . . trace their ancestry to the Siberian Arctic”); *see also* PBS, *Arctic Journeys Travel Guide: History and Culture*, <http://www.pbs.org/beringlandbridge/guide/history.html> (last visited Dec. 29, 2013) (stating that “[t]he Bering Land Bridge is as much a part of America’s cultural heritage as Yellowstone or Yosemite, if not more so”).

51. Michael D. Lemonick, *Everyone’s Genealogical Mother: Biologists Speculate That “Eve” Lived in Sub-Saharan Africa*, TIME, Jan. 26, 1987, at 66.

52. Stix, *supra* note 11, at 60.

53. *Id.* (“Many scientists believe that the weight of evidence, now backed by large statistical analyses such as the ones in *Science* and *Nature*, gives the out-of-Africa proponents a clear edge in a long-running debate over human origins.”).

advanced a pan-Pacific journey over the seas and down the Pacific coastline. Suggested as early as 1923, the scientific community did not take this theory of North America's peopling seriously until 1997 when researchers in Monte Verde, Chile, found archeological evidence that humans had crossed over from Asia many years before the ice-free corridor had existed.⁵⁴ This notion gained credibility with the discovery of "Kennewick Man" in Washington State's Columbia River Basin; anthropologists claimed that the 9,500-year-old skeletal remains bore a "striking resemblance" to modern Ainu peoples of Japan.⁵⁵

The latest supposition, known as the Solutrean hypothesis, is that the earliest Americans traveled from Europe's southwest coastal regions and arrived on the East Coast 13,000 to 25,000 years ago by traveling across the North Atlantic.⁵⁶ This hypothesis derives from early 20th century archaeological work in France's Solutré region.⁵⁷ According to Dennis Stanford and Bruce Bradley, these early nomads followed the "ice-edge environment" to ultimately colonize North America and become the Clovis people.⁵⁸ In support of this theory, Stanford and Bradley note that there was "no evidence of Clovis ancestors in Siberia" and that "[t]he oldest fluted points in Alaska are younger than western Clovis and much younger than the early sites in eastern North America."⁵⁹ The evidence, they claim, points to "people moving northward up the corridor when it opened rather than the other way around."⁶⁰

Stanford and Bradley are quick to note that the Solutrean theory "does not [necessarily] mean that Paleolithic northeast Asians did not

54. *Other Migration Theories*, *supra* note 48; see also Michael D. Lemonick & Andrea Dorfman, *Who Were the First Americans?*, TIME, Mar. 13, 2006, at 44, 52 (stating that "[t]he Clovis [Bering Land Strait] theory is pretty much dead, and the case for coastal migration appears to be getting stronger all the time"); *id.* at 51 (stating "Monte Verde was the turning point . . . It broke the Clovis barrier") (quoting David Meltzer, Professor of Prehistory and member of the blue-ribbon panel who examined the Monte Verde evidence) (internal quotation marks omitted).

55. *Bonnichsen v. United States (Bonnichsen III)*, 357 F.3d 962, 966, 978 (9th Cir. 2004), *amended by* 367 F.3d 864 (9th Cir.); see also Lemonick & Dorfman, *supra* note 54, at 50; *Other Migration Theories*, *supra* note 48.

56. See STANFORD & BRADLEY, *supra* note 47, at 14.

57. *Id.* at 121–22.

58. *Id.* at 14.

59. *Id.* at 242.

60. *Id.* "[W]e contend that the archaeological evidence that Clovis predecessors were immigrants from southwestern Europe during the [Last Great Maximum] is stronger and more compelling than the evidence that their ancestors were from an Asian microblade tradition that came out of northeastern Asia . . ." *Id.* at 247.

also colonize the Americas.”⁶¹ They state that the Solutrean hypothesis merely means “that Clovis is part of the rich, complex, and wonderful story of the ebb and flow of people whose descendants are what we call Native Americans.”⁶² However, one voice is consistently left out of the debate. As Ruth Hopkins, *Indian Country Today* columnist, reminds us: “[These theories] presume that the Americas were once vacant until they were populated by outsiders. Why do [these theories] not consider that Indigenous Peoples of the Americas were always here . . . ?”⁶³

IV. GENOMIC SCIENCE AND INDIGENOUS PEOPLES

*“The days of objectifying human beings in research should have ended with the Nuremburg Trials, but many of these same intractable problems are visible in the trials and tribulations of Indigenous peoples in a biocolonial world. These experiences have generated a collective body of knowledge about genetics, based on flawed science, inadequate ethics, and the unjust application of such research.”*⁶⁴

As discussed earlier, genomic scientists promise advances in healthcare and a resolution to questions and controversies regarding the origin of the human species. However, the history of genomic research involving indigenous peoples tells another story, one rife with examples of unscrupulous (some say genocidal) practices, cultural ignorance, and racist motivations.⁶⁵ Daniel Brunstetter reminds us that indigenous populations have been an enticing subject of debate for researchers and

61. *Id.* at 14.

62. *Id.*

63. Ruth Hopkins, *Clovis vs. Beringia: Europe or Siberia? A Review of Across Atlantic Ice*, INDIAN COUNTRY TODAY, July 8, 2012, at 42, available at <http://indiancountrytodaymedianetwork.com/2012/07/08/clovis-vs-beringia-europe-or-siberia-review-across-atlantic-ice-121018> (“Perhaps such immigration theories are part of a larger effort to dissuade guilt associated with the invasion of the Americas by Europeans, and thereby lessen the significance of the subsequent genocide of Indigenous Peoples.”).

64. Debra Harry, *Indigenous Peoples and Gene Disputes*, 84 CHI.-KENT L. REV. 147, 191 (2009).

65. Whitener, *supra* note 3, at 220 (“Unethical and undesirable research practices have led to distrust and conflict between Native populations and outside researchers”); see also Bette Jacobs et al., *Bridging the Divide Between Genomic Science and Indigenous Peoples*, 38 J.L. MED. & ETHICS 684, 684 (2010) (“[T]he history of biomedical research among people in indigenous and developing nations offers salient examples of unethical practice, misuse of data and failed promises.”).

philosophers since “discovery” of the New World.⁶⁶ As early as 1551, Juan Ginés de Sepúlveda and Bartolomé de Las Casas debated the humanity of the discovered Natives; Sepúlveda argued that Indians were “natural slaves”⁶⁷ “with neither humanity nor prudence”⁶⁸ caused by “the natural retardation of the mind that leads [them] to practice inhumane and barbaric customs.”⁶⁹ Las Casas disagreed with Sepúlveda’s conclusion and argued that the Spanish were the barbarians for “the absolutely inhuman things they [had] done to those nations [of the New World].”⁷⁰ Indians, he argued, were rational beings who recognized the existence of God, were “created in God’s image,”⁷¹ and could be “easily and quickly persuaded to” embrace Christianity.⁷²

66. Daniel R. Brunstetter, *Sepúlveda, Las Casas, and the Other: Exploring the Tension Between Moral Universalism and Alterity*, 72 REV. POL. 409, 412 (2010) (stating that, “[p]hilosophically, the [d]iscovery was the catalyst for debates in Spain about the notion of the human [that] took place [in the early] . . . sixteenth century”); see also Rebecca Tsosie, *The New Challenge to Native Identity: An Essay on “Indigeneity” and “Whiteness,”* 18 WASH. U. J.L. & POL’Y 55, 64 (2005) (stating that a tribunal was created by Europeans in the 16th century “to [resolve] whether [indigenous] peoples were [actually] ‘people’ at all for purposes of European expansion into the New World”).

67. Brunstetter, *supra* note 66, at 416 n.24 (noting that “[t]here is debate about what Sepúlveda actually meant by the term ‘natura serva’” (citing LEWIS HANKE, *ARTISTOTLE AND THE AMERICAN INDIANS: A STUDY IN RACE PREJUDICE IN THE MODERN WORLD* (Literary Licensing 2011); Jose A. Fernandez-Santamaria, *Juan Ginés de Sepúlveda on the Nature of the American Indians*, 31 AMERICAS 434, 450 (1975); R.E. Quirk, *Some Notes on a Controversial Controversy*, 34 HISP. AM. HIST. REV. 357 (1954))).

68. *Id.* at 417 (internal quotation marks omitted) (translating JUAN GINÉS DE SEPÚLVEDA, *APOLOGIA, AND BARTOLOMÉ DE LAS CASAS, APOLOGIA* (Á. Losada ed. and trans. 1975)).

69. *Id.* at 416 (footnote omitted) (internal quotation marks omitted). “[W]hat greater benefit and advantage could befall those barbarians than their submission to rule of those who with their prudence, virtue, and religion have converted them from barbarians and barely men into humans and civilized men *to the extent that they can be?*” *Id.* at 418 (citation omitted) (internal quotation marks omitted); see also *id.* at 422 (stating that Indians of the New World “had no written language, which was taken as a sign that they were closer to beasts than to men” (footnote omitted)). Interestingly, Sepúlveda recognized that Indian peoples of the New World were political states and had their own laws. See Fernandez-Santamaria, *supra* note 67, at 436. However, as they engaged in the “evil and unnatural practices of cannibalism, idol-worship, and human sacrifices,” he concluded that Indian laws were not “true laws, and their states [were] not true states.” *Id.*

70. Brunstetter, *supra* note 66, at 422, 424–25 (second alteration in original) (quoting BARTOLOMÉ DE LAS CASAS, *IN DEFENSE OF THE INDIANS* 29 (Stafford Poole ed., Stafford Poole trans., N. Ill. Univ. Press 1992) (1552)).

71. *Id.* at 424 (citing TZVETAN TODOROV, *CONQUEST OF AMERICA: THE QUESTION OF THE OTHER* (Catherine Porter trans., U. Okla. Press 1999) (1984)).

72. *Id.* at 425. Brunstetter argues that Las Casas tolerated Indians because he believed they would assimilate. *Id.*

The first North American settlement at Jamestown discloses similar attitudes. According to Michael Guasco, early colonial marketing of the New World often included language suggesting that the establishment of English colonies in the Americas would benefit Indians by “insulat[ing] them from the Spanish and connect[ing] them in a more concrete fashion with their English brethren.”⁷³ Edward Waterhouse, a Calvinist lawyer and settler near Jamestown, declared members of the Tidewater tribes “lesse capable then children of sixe or seaven yeares old, and lesse apt and ingenious,”⁷⁴ while Puritan Robert Gray held that these same Indians were “savages” and “wild beasts in the forest . . . [who] range and wander up and down the country without any law or government, being led only by their own lusts and sensuality.”⁷⁵

As colonization of the Americas continued, “[t]he idealized depiction of Indians as passive and malleable subjects open to benevolent guidance and possible inclusion in English society was put to rest by [their] continuing independent behavior.”⁷⁶ However, inquiries into the “true nature and character of the American Indians” were incomplete without

73. Michael Guasco, *To “Doe Some Good upon Their Countrymen”: The Paradox of Indian Slavery in Early Anglo-America*, 41 J. SOC. HIST. 389, 395 (2007) (footnote omitted); see also MOURT’S RELATION: A JOURNAL OF THE PILGRIMS AT PLYMOUTH 91–92 (Dwight Heath & Henry Bamford Parkes eds., Corinth Books 1963) (1622) (stating that tribes were “not industrious, neither have art, science, skill or faculty to use either the land or the commodities of it. . . . [S]o is it lawful now to take a land which none useth, and make use of it”).

74. Guasco, *supra* note 73, at 397 (internal quotation marks omitted). After the Virginia “Massacre” of 1622, a surprise attack by the Tidewater tribes on the settlements in and around Jamestown, Waterhouse encouraged the English that they were “free to wage war” on the tribes until the settlers’ God “cleansed” the “savages.” ROBERT A. WILLIAMS, JR., *THE AMERICAN INDIAN IN WESTERN LEGAL THOUGHT: THE DISCOURSES OF CONQUEST* 217 (1990). Opechancanough, who had succeeded to the confederacy’s leadership in 1618 following the death of his brother, Emperor Powhatan, persuaded the tribes to rise against the settlements to end repeated assaults and encroachments by the English. *Id.* at 213. In his account of the “barbarous Massacre,” Waterhouse declared that the English were now at liberty to destroy the Indians, for the Indians were “no other than wild beasts.” EDWARD WATERHOUSE, *DECLARATION* (1622), as reprinted in MICHAEL P. JOHNSON, *1 READING THE AMERICAN PAST, SELECTED HISTORICAL DOCUMENTS: TO 1877*, at 42, 45 (4th ed. 2009).

75. WILLIAMS, *supra* note 74, at 211 (footnote omitted) (internal quotation marks omitted); see also H. Murray Hofmeyr, *Christian Mission and Colonialism in Southern Africa and African Responses: Some Case Studies*, 14 EMORY INT’L L. REV. 1029, 1030 (2000) (“Indigenous peoples without religion were not human and therefore had no human rights.”).

76. Guasco, *supra* note 73, at 403–04.

science.⁷⁷ As “civilized” society ventured west toward the Pacific, in the late 18th and early 19th centuries, scientists studied and catalogued Indians along with other specimens of plant and wildlife.⁷⁸ Scientific books and journals from the era read like transcripts from Mutual of Omaha’s Wild Kingdom.⁷⁹

The new sciences of phrenology and craniometry postulated that the shape and size of Indians’ skulls disclosed intellect, morality, sociability, and domesticity.⁸⁰ These sciences offered concrete evidence of what “experience of more than two centuries ha[d] abundantly evinced, that [Indians] . . . [could] be neither civilised nor actually conquered and enslaved.”⁸¹ Phrenologists concluded that the “animal organs of the

77. *Remarks on the Cerebral Organisation of the American Indians and Ancient Peruvians*, 3 AM. PHRENOLOGICAL J. & MISCELLANY 207, 207 (1841), available at <https://archive.org/details/americanphrenol00unkngoog>.

78. See, e.g., SAMUEL MORTON, CRANIA AMERICANA; OR, A COMPARATIVE VIEW OF THE SKULLS OF VARIOUS ABORIGINAL NATIONS OF NORTH AND SOUTH AMERICA: TO WHICH IS PREFIXED AN ESSAY ON THE VARIETIES OF THE HUMAN SPECIES 6 (1839), available at <https://archive.org/details/Craniaamericana00Mort>. Morton described Indians as a distinct “American Race”

marked by a brown complexion, long, black, lank hair, and deficient beard. The eyes are black and deep set, the brow low, the cheek-bones high, the nose large and aquiline, the mouth large, and the lips tumid and compressed. The skull is small, wide between the parietal protuberances, prominent at the vertex, and flat on the occiput. In their mental character the Americans are averse to cultivation, and slow in acquiring knowledge; restless, revengeful, and fond of war, and wholly destitute of maritime adventure.

Id.

79. See, e.g., *id.* at 74 (“The constant state of suspicion and alarm in which the Indian lives, compels him to observe a sleepless vigilance. His senses are incessantly employed to preserve himself from surprise and destruction, and to foil the stratagems of his enemy.”). Morton, an American physician and natural scientist, is considered the founder of American physical anthropology. ROBERT E. BIEDER, A BRIEF HISTORICAL SURVEY OF THE EXPROPRIATION OF AMERICAN INDIAN REMAINS 7 (1990), available at http://www.narf.org/nill/documents/NARF_bieder_remains.pdf. Craniometry, or craniology, is the study of the skull’s shape and size; practitioners correlated skull shape and size with “evolution, race, intelligence, and criminality.” *Cultural History of the Head*, in 1 CULTURAL ENCYCLOPEDIA OF THE BODY 285 (Victoria Pitts-Taylor ed., 2008). It has been discredited by modern science, but is cited as a founding influence for the 20th century’s eugenics movements. *Id.* at 285–86.

80. *Remarks on the Cerebral Organisation of the American Indians and Ancient Peruvians*, *supra* note 77, at 208.

81. *Id.* at 209. Franz Josef Gall founded phrenology—the study of bumps on the skull as indicative of mental faculties and character traits in the brain—in the early 19th century. Stephen M. Soreff & Patricia H. Bazemore, *Examining Phrenology*, BEHAV. HEALTHCARE (Jan. 1, 2007), <http://www.behavioral.net/article/examining-phrenology>. Phrenology proponents declared that their study would “shed on the deeds and characters

brain” were predominant in the Indians of North America, and that the “moral, religious, and reflective organs” were significantly smaller; thus, phrenologists concluded, the Indians were “more ignorant and vindictive, blood-thirsty and cruel in war,” and would ultimately “prefer extermination to slavery.”⁸² This defect meant that the Indians’ “ultimate extinction is an event which is approaching, and whose accomplishment nothing earthly can prevent.”⁸³ It was the “greater size . . . [and the] better development” and configuration of European brains that explained how the Europeans, although greatly outnumbered and disadvantaged, were able to conquer American Indians.⁸⁴

U.S. officials also believed the Indians could never be civilized and would eventually become extinct.⁸⁵ In 1824, the Bureau of Indian Affairs was established within the War Department to deal with the “Indian problem,”⁸⁶ and Secretary of State, Henry Clay, advised President John Quincy Adams that Indians were “destined to extinction” and were not,

of the ancient[s] . . . a light which the world has never yet enjoyed.” *Remarks on the Cerebral Organisation of the American Indians and Ancient Peruvians*, *supra* note 77, at 216. Although intensely popular through the mid-20th century, “[p]hrenology is now cited as the quintessential example of . . . pseudoscience[.]” Soreff & Bazemore, *supra*. Modern science has refuted the theory, considering its use a form of “quackery.” *Id.*; see also BIEDER, *supra* note 79, at 12 (stating that “phrenology soon degenerated into quackery and disrepute but not before it took root in American thought and contributed to American racial prejudice”).

82. *Remarks on the Cerebral Organisation of the American Indians and Ancient Peruvians*, *supra* note 77, at 209.

83. *Id.* The article goes on to state that stories of the Cherokee as “an industrious, civilised, agricultural *people*, are rank fabrications.” *Id.* at 210. Only “‘half-bloods’ . . . exhibit[ed] any positive traits of civilisation and improvement,” as shown by Sequoyah, who was not the “inventor” of the Cherokee alphabet, but rather “the Scottish-Cherokee . . . [who] was only the fortunate receiver, from a Caucasian, of a plain and practical suggestion, of which the alphabet was ultimately the product.” *Id.*

84. *Id.* at 216 (stating Europeans had “a larger endowment of . . . intellectual qualifications . . . [that] bestowed on them a . . . mental compass and power, which the . . . weaker-minded [Indians] were unable to resist. Those comparative *imbeciles* stood related to their *vigorous assailants*, as boys do to men, idiots to sound-minded persons, or as inferior animals to the human race.”). *Id.*

85. REPORT OF COMMITTEE ON INDIAN AFFAIRS (1783), as reprinted in DOCUMENTS OF UNITED STATES INDIAN POLICY 3, 4 (Francis Paul Prucha ed., 3d ed. 2000) (stating that Indians were “aggressors in the [Revolutionary W]ar, without even a pretence of provocation . . . and in return for proffered protection, and liberal supplies, and to the utter ruin and impoverishment of thousands of families, they wantonly desolated our villages and settlements, and destroyed our citizens”).

86. Letter from John C. Calhoun, Sec’y of War, to Thomas L. McKenney, Esq. (Mar. 11, 1824), in DOCUMENTS OF UNITED STATES INDIAN POLICY 37, 38 (Francis Paul Prucha ed., 3d ed. 2000) (appointing McKenney as the first Superintendent of Indian Affairs).

“as a race, worth preserving.”⁸⁷ The new sciences justified the removal of Indians from their land and provided incentive for government policy makers to create reservations, which would separate the Indians from their civilized Euro-American neighbors.⁸⁸

Samuel Morton’s *Crania Americana* became “the foundation for anthropological interest in the search for deceased Indians” and fueled a scientific thirst for Indian body parts.⁸⁹ Collection of Indian remains for study became official U.S. policy in 1868 when the Surgeon General ordered Army officers to collect Indian skulls for the Army Medical Museum.⁹⁰ The continuing notion that Indians would soon disappear as a species powered this “scientific” thirst. By the 20th century, “anthropologists flooded the reservations, seeking to record valuable cultural data about Native Americans before they became ‘extinct.’”⁹¹

The new century brought with it yet another explanation for the inferiority of Indians: eugenics. This new science pointed to “bad

87. 7 MEMOIRS OF JOHN QUINCY ADAMS COMPRISING PORTIONS OF HIS DIARY FROM 1795 TO 1848, at 90 (Charles Francis Adams ed., 1875) (“They were not an improvable breed, and their disappearance from the human family will be no great loss to the world.”). According to Adams, Clay believed, within 50 years, there would be no Indians left. *Id.* at 90; see also JOSIAH NOTT & GEORGE GLIDDON, TYPES OF MANKIND OR ETHNOLOGICAL RESEARCHES BASED UPON THE ANCIENT MONUMENTS, PAINTINGS, SCULPTURES, AND CRANIA OF RACES 461 (1855) (“Can any one call the name of a single pure Indian of the *Barbarous* tribes who—except in death, like a wild cat—has done anything worthy of remembrance?”).

88. Jack F. Trope & Walter R. Echo-Hawk, *The Native American Graves Protection and Repatriation Act: Background and Legislative History*, 24 ARIZ. ST. L.J. 35, 40 (1992). During the Reservation Period, the federal government entered into treaties with Indian nations “in order to secure land and safe passage for [non-Indian] settlers.” Marren Sanders, *De Recto, De Jure, or De Facto: Another Look at the History of U.S./Tribal Relations*, SW. L. REV. (forthcoming 2014) (manuscript at 13) (on file with author). “Indian land was exchanged for promises of goods and annuities [and] . . . that specific areas of their tradition[al] homelands would be reserved for their ‘exclusive use and enjoyment.’” *Id.* (footnotes omitted).

89. BIEDER, *supra* note 79, at 7.

90. *Id.* at 36–37. “[I]t is chiefly desired to procure sufficiently large series of adult crania of the principal Indian tribes to furnish accurate average measurements.” *Id.* at 37 (footnote omitted). During the latter half of the 18th century, “over 4000 heads were taken from battlefields, burial grounds, prisoner-of-war camps, hospitals, fresh graves, and burial scaffolds across the country.” Trope & Echo-Hawk, *supra* note 88, at 40.

91. Rebecca Tsosie, *Cultural Challenges to Biotechnology: Native American Genetic Resources and the Concept of Cultural Harm*, 35 J.L. MED. & ETHICS 396, 399 (2007) (footnote omitted); see also Tsosie, *supra* note 66, at 85–86 (stating “the ‘Vanishing Redman’ ideology of the nineteenth century . . . resulted in troops of anthropologists visiting reservations to gather data and remove cultural objects before the Indian people ‘disappeared’” (footnote omitted)).

heredity” as the source for “feeble-mindedness, insanity, alcoholism, and criminal tendencies,” among other problems caused by the degenerate.⁹² Perhaps most infamously used by Hitler, “eugenics . . . advocated sterilization of the ‘genetically unfit’”⁹³ and was “legitimized by legislation in over thirty states prohibiting the ‘socially inadequate’ from reproducing.”⁹⁴ Although based on legitimate science, after World War II and the discovery of the abuses perpetrated by Nazi Germany, eugenics became heavily criticized and soon fell out of favor.⁹⁵ However, Native American women continued to be sterilized—most without informed consent—through the 1970s.⁹⁶

The idea of the “disappearing savage” also continued to influence scientific study in the 20th century, but the goals of such studies began to change. While in the 19th century, pseudosciences like craniometry had set out to scientifically prove the inferiority of Indians, 20th-century scientific study saw tribes as “natural control groups” because of their

92. See *The Eugenics Survey in Vermont: Roots (1900–1925)*, VERMONT EUGENICS: A DOCUMENTARY HISTORY, <http://www.uvm.edu/~eugenics/roots.html> (last visited Dec. 29, 2013).

93. Whitt, *supra* note 19, at 236.

94. Suter, *supra* note 5, at 676; see also Walter L. Wasson, *Alcoholism and Eugenics*, 21 VT. MED. MONTHLY 188, 189 (1913) (postulating that “[a]n alcoholic, . . . basket[ma]ker[] [who] married a feeble-minded woman. . . [would], in four generations, [result in] nearly forty alcoholic, immoral, imbecilic and epileptic offspring” and that “segregation and sterilization, seem to be the only [remedy] left, since no form of treatment can hope to change abnormal tissue into normal tissue”). One author notes that the Abenaki Indians in Vermont have been referred to as gypsies, basket makers, pirates, and river rats. FREDERICK MATTHEW WISEMAN, *THE VOICE OF THE DAWN: AN AUTOHISTORY OF THE ABENAKI NATION 120–39* (2001). Vermont Eugenics laws targeted the Abenaki and the Abenaki were two of the three “family” types presented by the Vermont Eugenics Survey as unfit to reproduce. Lutz Kaelber, *Vermont, Eugenics: Compulsory Sterilization in 50 American States*, VT. EUGENICS, <http://www.uvm.edu/~lkaelber/eugenics/VT/VT.html> (last visited Dec. 29, 2013). These three family types were “the Gypsy family, with ‘dark skin’ due to African-American, Abenaki, and French Canadian ancestry, the ‘Chorea family,’ . . . and the ‘Pirate family,’ who lived on houseboats on Lake Champlain and also had French[]Canadian ancestry.” *Id.*

95. Suter, *supra* note 5, at 676 n.17 (stating that “most [eugenics] claims were based on unfounded extrapolations of genetics, poor scientific studies, or sometimes mere assumptions [because e]arly geneticists grossly overstated the role of genetics with respect to such characteristics as criminality, laziness, and other moral transgressions” (citation omitted)).

96. Anne Minard, *Pre-Emptive Genocide*, INDIAN COUNTRY TODAY, June 6, 2012, at 36–37, available at <http://indiancountrytodaymedianetwork.com/2012/06/04/preemptive-genocide-only-now-are-reparations-being-made-eugenics-victims-116217> (stating that more than 3,400 Native women were sterilized between 1973 and 1976).

small populations and often geographic isolation.⁹⁷ Several post-World War II studies combined eugenics with the old notions of inferiority and savagery, and used Native communities as guinea pigs for experiments, often without fully informed consent.⁹⁸

In the 1950s, one experiment involved radioactive isotopes, given to Alaska Natives by the U.S. Air Force to study whether they “possessed higher metabolisms than the general U.S. population.”⁹⁹ Researchers did not tell the participants that the capsules contained a radioactive substance but instead told them that the pills were meant to improve their health.¹⁰⁰ However, the “experiment offered no prospect of medical benefit to [the] subjects.”¹⁰¹ Researchers did not consider whether or not to use written consent because “a number of [the N]ative subjects could neither read nor write.”¹⁰² In addition, the military made no attempt to explain the study’s militaristic purpose to Native participants.¹⁰³

Technology and the dawning of the 21st century brought even greater interest in indigenous peoples and the role their DNA could play in research regarding biomedical advances, human origin, and evolution.

97. Alice Hsieh, Note, *A Nation’s Genes for a Cure to Cancer: Evolving Ethical, Social and Legal Issues Regarding Population Genetic Databases*, 37 COLUM. J.L. & SOC. PROBS. 359, 364 (2004). From the 1950s to 2007, over 3,000 biomedical articles about American Indian and Alaska Native communities were published. Puneet Chawla Sahota, *Research Regulation in American Indian/Alaska Native Communities: Policy and Practice Considerations*, NCAI POL’Y RES. CENTER, at 1 (2007), <http://ncaiprc.org/files/Research%20Regulation%20in%20AI%20AN%20Communities%20-%20Policy%20and%20Practice.pdf> (last visited Dec. 30, 2013).

98. See, e.g., Whitener, *supra* note 3, at 229–33 (recounting federal government Cold War experiments on Alaska Natives).

99. *Id.* at 230; see also ADVISORY COMM. ON HUMAN RADIATION EXPERIMENTS, FINAL REPORT 598–99 (1995) [hereinafter ACHRE FINAL REPORT], available at <https://archive.org/details/advisorycommitte00unit>. “The study involved 200 administrations of [iodine] to 120 subjects: 19 Caucasians, 84 Eskimos, and 17 Indians.” *Id.* “Participants in the study were asked to swallow a capsule containing a tracer dose of radioiodine, [and m]easurements were then made of thyroid activity.” *Id.* at 599. The U.S. military believed Alaska would be a war front with the Soviet Union and was researching the thyroid function’s role in acclimating humans to cold. Whitener, *supra* note 3, at 230.

100. ACHRE FINAL REPORT, *supra* note 99, at 601–02 (reporting that “[s]ubjects [of the study] testified . . . that they thought [the capsules] would improve their own health and that they would not have participated in the study if they had known it required them to take a radioactive tracer”).

101. *Id.* at 601.

102. Whitener, *supra* note 3, at 231 (alteration in original) (footnote omitted); see also ACHRE FINAL REPORT, *supra* note 99, at 601 (stating that Dr. Kaare Rodahl, the principal investigator hired by the U.S. Air Force to conduct the study, “did not use the term radiation in his explanation” of the study to Alaska Natives).

103. ACHRE FINAL REPORT, *supra* note 99, at 603.

One recent and particularly notorious study involved the Havasupai Nation in Arizona. The Havasupai are geographically isolated in a remote area of the Grand Canyon, and there is a very high incidence of type 2 diabetes among tribal members.¹⁰⁴ Members of the Tribe approached a researcher at Arizona State University (ASU) for help to reduce diabetes among the Tribe's members; starting in 1990, researchers collected 400 blood samples from tribal members for the research.¹⁰⁵ However, ASU researchers allegedly conducted additional research on the samples—unauthorized by participants—regarding schizophrenia, inbreeding, and population migration.¹⁰⁶ The researchers also shared the samples with other institutions, which resulted in dozens of academic papers and publications.¹⁰⁷

The Tribe became aware of the additional studies “when a tribal member attended a talk at [ASU] about some of the non-diabetes work.”¹⁰⁸ Not surprisingly, individual tribal members and the Havasupai Nation soon filed lawsuits. These suits included claims of breach of confidential or fiduciary duty (including lack of informed consent), fraud, misrepresentation or fraudulent concealment, negligence, gross negligence, negligence per se, trespass, and intentional or negligent infliction of emotional distress.¹⁰⁹

Katherine Drabiak-Syed states that, in addition to unconsented studies, ASU's refusal to return the samples subjected the Havasupai to stigmatization, and it undermined the Nation's authority as a sovereign government.¹¹⁰ According to Drabiak-Syed, “the Havasupai tribe

104. Lori Andrews, *Havasupai Tribe Sues Genetic Researchers*, 4 L. & BIOETHICS REP. 10, 10 (2004) (footnote omitted), available at <http://www.kentlaw.iit.edu/institutes-centers/institute-for-science-law-and-technology/selected-islat-publications>. The Havasupai reservation can only be accessed by helicopter, horseback, or foot. Paul Rubin, *Indian Givers*, PHOENIX NEW TIMES (May 27, 2004), <http://www.phoenixnewtimes.com/2004-05-27/news/indian-givers/full/>.

105. Andrews, *supra* note 104, at 10.

106. *Id.*

107. McGregor, *supra* note 24, at 364 (footnote omitted); see also Rubin, *supra* note 104 (stating that, of the 23 known publications, 15 “of those treatises focus on schizophrenia, inbreeding and migration, not diabetes”).

108. Arthur L. Caplan & Jonathan D. Moreno, *The Havasu 'Baaja Tribe and Informed Consent*, 377 LANCET 621, 621 (2011).

109. *Tilousi v. Ariz. State Univ. Bd. of Regents*, No. 04-CV-1290-PCT-FJM, 2005 WL 6199562, at *2–6 (D. Ariz. Mar. 3, 2005); *Havasupai Tribe of Havasupai Reservation v. Ariz. Bd. of Regents*, 204 P.3d 1063, 1067–72 (Ariz. Ct. App. 2008); see also Second Amended Complaint at 23–33, *Havasupai Tribe v. Ariz. Bd. of Regents*, No. CV2005-013190, 2006 WL 4642880 (Ariz. Super. Ct. Feb. 22, 2006).

110. Drabiak-Syed, *supra* note 49, at 222–23 (“ASU's failure to obtain proper consent

2014]

Genomic Research in Indian Country

21

believes that biological materials must be intact [for a tribal member who has passed] to cross from the physical world to the spirit world.”¹¹¹ Without the return of the blood samples, participants who passed were “doomed because [that] person’s spirit [could not] travel to the afterlife.”¹¹²

In *Tilousi v. Arizona State University Board of Regents*, the plaintiffs argued that they feared visiting the Indian Health Service Clinic and seeking medical attention because they did not want to be subjected, once again, to research without their knowledge or consent.¹¹³ They saw no difference between the use of their samples to proffer scientific proof of the Bering Strait migration theory and “a scientist asking Christians from Nazareth to give blood for a diabetes study, then producing research to suggest that Jesus never existed.”¹¹⁴

The study, titled “Schizophrenia: A Genetic Model,” was submitted to ASU’s human-subjects protection board by Therese Markow.¹¹⁵ According to the investigative report, Markow based her submission “on the assumption that the Tribe’s revered shaman who [had] lived during the 1880s [had] merely [been] a man with schizophrenia.”¹¹⁶ Markow and other scientists characterized the lawsuits as “groundless” and the

... undermined the tribe’s authority to practice self-governance . . . produc[ing] multiple harms from the Havasupai’s perspective: it disrupted individual sense of identity, disconnected individuals from their ancestral web, and prohibited recently deceased tribal members, who had donated blood, to travel to the afterlife.” (footnotes omitted); see also Debra Harry & Le’a Malia Kanehe, *Asserting Tribal Sovereignty over Cultural Property: Moving Towards Protection of Genetic Material and Indigenous Knowledge*, 5 SEATTLE J. SOC. JUST. 27, 38 n.64 (2006) (stating that investigations “found that published papers using Havasupai samples drew inferences about the Tribes’ migration to the Americas, which were used in press coverage to contrast Native American beliefs”).

111. Drabiak-Syed, *supra* note 49, at 214 (footnote omitted).

112. *Id.* (footnote omitted).

113. See Plaintiffs-Appellants’ Reply Brief at 5, *Tilousi v. Ariz. State Univ. Bd. of Regents*, No. CV2005-013190, 2008 WL 2142182 (Ariz. Ct. App. Jan. 21, 2008).

114. Rubin, *supra* note 104 (explaining further that Havasupai tribe members “believe that the retreat of waters from a global flood had carved the Grand Canyon, and that the Canyon is the birthplace of the human race”).

115. *Id.* Dr. Markow was one of the study’s principal investigators. Order, *Tilousi v. Ariz. State Univ. Bd. of Regents*, No. 04-CV-1290-PCT-FJM, 2005 WL 6199562, at *1 (D. Ariz. Mar. 3, 2005).

116. Drabiak-Syed, *supra* note 49, at 218 (citing STEPHEN HART & KEITH A. SOBRASKE, INVESTIGATIVE REPORT CONCERNING THE MEDICAL GENETICS PROJECT AT HAVASUPAI 168 app. A (2003)). This raises the question of what reaction Christians would have if their blood samples were used to prove that Jesus may not have been the son of God but merely an adept politician with a great public relations manager.

Tribe's reaction as "hysterical" and "hypersensitive."¹¹⁷ Nonetheless, "[n]o one wants to be known as the . . . 'crazy tribe.' Doing that kind of research without specific permission from the subjects is a real harm."¹¹⁸

The Havasupai eventually accepted a settlement to resolve the lawsuits.¹¹⁹ However, the firestorm regarding indigenous peoples and genomic research has continued as 19th-century themes of inferiority and extinction are persistently used as justification for "new" science.¹²⁰

117. David Osborne, *Blood Feud in the Grand Canyon*, INDEPENDENT (Apr. 23, 2010), <http://www.independent.co.uk/news/world/americas/blood-feud-in-the-grand-canyon-1951972.html> (quoting Dr. Therese Markow, "There was no basis for any claim. They would have lost had it gone to trial"); see also Anne Minard, *UA Scientist Named in Two Suits by Havasupai Tribe, Members*, ARIZ. DAILY STAR (Mar. 24, 2005), http://www.nathpo.org/News/Tribal/News-Tribal_Governments37;Tribal_Culture_Versus_Genetics, 430 NATURE 489, 489 (2004), available at <http://www.nature.com/nature/journal/v430/n6999/full/430489a.html> (stating that tribes are "understandably hypersensitive," and that "[g]aming revenues provide . . . [them] economic clout [that] is used to further litigation for tribal political purposes"); Rubin, *supra* note 104 (quoting Ken Iserson, director, University of Arizona Bioethics Program, "The complaints about the migration studies sound just like the Scopes trial, when science butted heads with the creationists. If a tribe has faith, it has faith. A study shouldn't change that"). *But cf.* Drabiak-Syed, *supra* note 49, at 210 (stating Markow's response to the Havasupai lawsuits "problematically exemplified the notion that opposition to a particular use of samples . . . necessarily stems from an anti-science attitude without rational merit, rather than a legitimate, albeit different, standpoint . . . [and] a highly offensive sense of paternalism to 'help' a population that does not 'understand'" (footnote omitted)).

118. Rubin, *supra* note 104 (quoting Bill Freeman, former director of research for Indian Health Service).

119. The settlement included: (1) The state of Arizona issued a formal apology; (2) ASU returned the blood samples to the participants; (3) the Havasupai recognized ASU's efforts to improve research oversight and conduct; (4) ASU and the Tribe agreed to work together on health, education, and economic development programs; and (5) ASU paid \$700,000 to 41 plaintiffs in the lawsuits. William L. Freeman & Pearl O'Rourke, *The Havasupai Settlement: Implications for HRPPs, IRBs, and Researchers*, PRIM&R WEBINAR (May 20, 2010), http://www.hhs.gov/ohrp/sachrp/mtgings/mtg07-10/freeman_sachrp_20100721.ppt.

120. For example, the *Science* magazine article, proposing the Human Genome Diversity Project, opens with this striking proclamation: "*Indigenous peoples are disappearing* across the globe—victims of war, famine, disease, or simply what Cole Porter called the 'urge to merge.' As they vanish, they are taking with them a wealth of information buried in their genes about human origins, evolution, and diversity." L. Roberts, *A Genetic Survey of Vanishing Peoples*, 252 SCI. 1614, 1614 (1991), available at <http://www.sciencemag.org/content/252/5013/1614.extract>; see also Cavalli-Sforza, *supra* note 15, at 490–91 (calling "for a concerted effort to obtain and store samples from" indigenous peoples because they are "rapidly disappearing," and "[i]t would be tragically ironic if, during the same decade that biological tools for understanding our species were created, major opportunities for applying them were squandered"). "Cavalli-Sforza [has] dismiss[ed] indigenous] protests against the HGDP and the Genographic Project as mere ignorance [because] there are some people who hate biology . . . [o]r

2014]

Genomic Research in Indian Country

23

V. THE NEW ROAD TO TERMINATION?

“[Discussions] of the threats of genetics . . . suggest that the problems are as new and fresh as the technology underlying it. . . . [However, i]s there really anything new here? Are we really in a brave new world of social and ethical issues, or does the new technology simply ask us to reexamine long-standing, persistent, and thorny social issues that we have never resolved?”¹²¹

“I predicted [the Human Genome Project and NHI initiatives] with my people ten years ago. I said, it’s not going to stop with sequencing or mapping or even function and genomics. This baby’s going to go on, because they have the technology, they have the money, they have the resources to do it. And I kept telling the Indian community, it’s not a matter of if they’re going to do it, it’s when they’re going to do it.”¹²²

As Professor Suter alludes to, genomic science has been touted as the stepping stone to a “brave new world” where genetic profiles promise “personalized medicine,”¹²³ and genetic testing will explain “our place in the world: our history, our social relationships, our behavior, our morality, and our fate.”¹²⁴ However, as indicated in the previous part, Native Nations have centuries-old experiences with “policies and practices . . . that [the] dominant culture draws on to maintain and extend its control over other peoples and lands.”¹²⁵ As we have seen, scientific inquiry played a role even in the earliest days of the New World’s colonization.

According to Professor Laurie Anne Whitt, genomic “discoveries” are a form of “biocolonialism” and bring with them danger of assimilation and “loss of political and economic autonomy” for

they hate humanity.” Meredith F. Small, *First Soldier of the Gene Wars*, *ARCHAEOLOGY*, May/June 2006, at 51 (internal quotation marks omitted).

121. Suter, *supra* note 5, at 670–71.

122. Dr. Frank Dukepoo, full-blooded Hopi/Laguna Indian, professor, Northern Arizona University Department of Biological Sciences, Workshop at the University of Wisconsin-Milwaukee Center for Twentieth Century Studies: Anthropology, Genetic Diversity, and Ethics—Issues Relating to Population Identification, Session One Speaker (Feb. 12–13, 1999), available at <http://www4.uwm.edu/c21/conferences/geneticdiversity/dukepoo.html>.

123. Chico, *supra* note 4, at 131.

124. Suter, *supra* note 5, at 674 (quoting NELKIN & LINDEE, *supra* note 5, at 57).

125. Whitt, *supra* note 19, at 212.

indigenous peoples.¹²⁶ Many scholars have addressed the ethical and cultural implications of informed-consent issues that are related to genomic research involving Native Nations, as well as problems of indigenous peoples potentially not benefitting from the research.¹²⁷ In this part, I examine the possibility of genomic research leading to another termination of the federal trust relationship.

A. *The Termination Era*

*“There is something un-American about the idea of reservations. . . . Perhaps Government paternalism should be ended, and the people should be given the same opportunity for successful assimilation which was offered to our ancestors.”*¹²⁸

126. *Id.* at 213–15. “Such knowledge, irrespective of the intentions of its collectors, is not only a potential weapon, but also a means of control, facilitating the manipulation of a people by [the] imperial power. It thereby exacerbates already well-entrenched injustices” *Id.* at 220–21. Professor Whitt defines

extractive biocolonialism . . . as any activity which (a) through the use of force or coercion (economic or otherwise), involves or facilitates the removal, processing, conversion into private property and commodification of indigenous genetic resources by agents of the dominant culture(s), and (b) typically results in some or all of the following:

- 1) substantial damage to the environment, such that a peoples’ way of life is destroyed, undermined or threatened;
- 2) erosion of indigenous health and well-being—whether physical or spiritual;
- 3) destabilization of indigenous social, economic and legal structures;
- 4) the creation of new, or the exacerbation of existing, internal or external political struggles;
- 5) the disruption or discrediting of indigenous knowledge and value systems;
- 6) the imposition of concepts, practices, and values which further the economic and political interests of the dominant culture;
- 7) loss of political and economic autonomy and increased dependency upon the dominant culture(s); and
- 8) assimilation and loss of biological and cultural diversity.

Id. at 214–15.

127. *See, e.g.,* Rebecca Tsosie, *supra* note 91, at 409 (concluding that “[g]enetic research on Native peoples must be evaluated under a framework that is inclusive of Native norms and values”); *see also, e.g.,* Harry, *supra* note 64, at 179–81 (addressing patenting of indigenous peoples’ genetic material).

128. GARY ORFIELD, *A STUDY OF THE TERMINATION POLICY* (1966), *as reprinted in* DAVID H. GETCHES ET AL., *CASES AND MATERIALS ON FEDERAL INDIAN LAW* 201 (6th ed. 2011).

Scholars often divide the history of federal Indian law into specific eras, defined by the congressional policy in force at the time. These eras include the Marshall Trilogy, the Reservation and Treaty-Making Period, Allotment, the Indian Reorganization Act, Termination, and Self-Determination.¹²⁹ Each era would have profound consequences for tribes and their ability to manage their lands and resources and would reflect a “pendulum” of changing ideals about the proper place for tribes in American society.

The Termination Era began in the 1940s when, looking to reduce government expenditures and with the Bureau of Indian Affairs (BIA) in its sights, Congress commissioned studies to examine possibly eliminating the BIA and ending federal oversight over Indian tribes.¹³⁰ In 1949, the Hoover Commission issued its report stating “that assimilation must be the dominant goal of public policy” and recommending that Indians be completely integrated “into the mass of the population as taxpaying citizens.”¹³¹ With passage of House Concurrent Resolution 108, the United States declared a new policy toward Indians: to abolish federal supervision over tribes as soon as possible and to subject Indians to the same laws, privileges, and responsibilities as other citizens of the United States.¹³²

129. See generally, e.g., Charles F. Wilkinson & Eric R. Biggs, *The Evolution of the Termination Policy*, 5 AM. INDIAN L. REV. 139 (1977).

130. *Id.* at 146 (“Both sides of Congress criticized the administrative cost of the [Indian Reorganization] policy and its slow rate of progress toward ultimate assimilation.”). Perhaps not ironically, Congress based its studies on the pre-contact philosophy of René Descartes and the Domesday Survey of 1089. VINE DELORIA, JR., CUSTER DIED FOR YOUR SINS: AN INDIAN MANIFESTO 59–60 (Univ. of Okla. Press 1988) (1969). In 1085, William the Conqueror commissioned a census of land ownership called “domesday”—or by which it is sometimes referred, “doomsday” (meaning “day of accounting or reckoning”). See *Frequently Asked Questions*, DOMESDAY BOOK ONLINE, <http://www.domesdaybook.co.uk/faqs.html> (last visited Dec. 31, 2013). This survey assessed the value of land and its assets for purposes of taxation. *Id.* René Descartes was a 17th-century philosopher who articulated “philosophical skepticism,” a philosophy that rejects any idea that could be doubted in order to acquire a firm foundation for genuine knowledge. See RENÉ DESCARTES, MEDITATIONS ON FIRST PHILOSOPHY, at xix, 12 (John Cottingham ed., trans., Cambridge Univ. Press rev. ed. 1996) (1641).

131. FRANCIS PAUL PRUCHA, THE GREAT FATHER: THE UNITED STATES GOVERNMENT AND THE AMERICAN INDIANS 1029 (1984) (internal quotation marks omitted).

132. H.R. Con. Res. 108, 83d Cong. (1953) (enacted). In 1950, former director of the War Relocation Authority, Dillon S. Myer, was appointed Commissioner of the BIA to pursue the Hoover Commission’s “recommendation of complete integration.” Wilkinson & Biggs, *supra* note 129, at 147 (footnotes omitted) (internal quotation marks omitted). The War Relocation Authority was the United States government agency responsible for

Opposed by many Indian tribes, the Termination Policy was actually an amalgamation of laws and programs designed to rapidly assimilate tribes into non-Indian society. Tribal assets were liquidated with the proceeds distributed per capita to member Indians.¹³³ Relocation of on-reservation Indians to off-reservation urban areas was encouraged.¹³⁴ Supervision of many areas transferred from the federal government to the individual states.¹³⁵

Public Law 280 (PL-280) was one particularly troublesome statute that Congress passed during the Termination Era.¹³⁶ With it, Congress granted certain states criminal and civil jurisdiction over Indian country within their borders, and it gave other states the option to assume civil and criminal jurisdiction over Indian country at a later time.¹³⁷ Wilkinson and Biggs note that the Termination Era's individual legislative and administrative prerogatives had several common consequences for affected tribes. These included fundamental changes in land ownership, the end of the federal/tribal trust relationship, imposition of state jurisdiction, the end of state tax exemptions, and the discontinuation of special federal programs.¹³⁸

the Japanese-American internment camps of WWII. *Id.* In his role as BIA Commissioner, some had referred to Myer as “[a] blundering and dictatorial tin-Hitler.” *Id.* at 173 n.86 (quoting Felix S. Cohen, 62 *YALE L.J.* 348, 389 n.158 (1953)).

133. See Wilkinson & Biggs, *supra* note 129, at 152.

134. See PRUCHA, *supra* note 131, at 1064.

135. *Id.* at 1044 (“[Public Law 280] provided that for all the Indian country within the states of California, Minnesota, Nebraska, Oregon, and Wisconsin[,] . . . jurisdiction over criminal offenses and civil causes would rest with the states.”). Prucha categorizes the Termination Era generally as:

- (1) repealing laws that set the Indians apart from other citizens and thereby ending certain restrictions that were deemed discriminatory;
- (2) ending services provided by the [BIA] for Indians by transferring responsibility for those services to other agencies of the federal government, to state and local governments, to private agencies, or to the Indians tribes;
- (3) freeing individual Indians from federal supervision and guardianship and removing them from restrictions and disabilities applicable only to Indians; [and]
- (4) terminating federal responsibility for the affairs of specified tribes.

Id. at 1014.

136. Public Law 280, ch. 505, 67 Stat. 588 (1953) (codified as amended at 18 U.S.C. § 1162 (2012), 28 U.S.C. § 1360 (2012), and 25 U.S.C. §§ 1321–1326 (2012)).

137. *Id.* at 588–90 (conferring jurisdiction “for all criminal offenses and civil causes of action committed or arising on Indian reservations” in Alaska, California, Minnesota, Nebraska, Oregon, and Wisconsin); Wilkinson & Biggs, *supra* note 129, at 159.

138. Wilkinson & Biggs, *supra* note 129, at 152–53.

The Termination Era, although publicly espoused as the Indian “Emancipation Proclamation,”¹³⁹ soon ground to a halt as Indians and some non-Indians alike opposed it. State governments, initially in support of the policy, quickly realized the burdens entailed in adopting PL-280 as well as assuming what had previously been federal responsibility.¹⁴⁰ However, the damage had been done. Tribal assets, often consisting of only the land and environmental resources on which the tribes depended, were gone, and the tribes in states affected by PL-280 remained under the jurisdiction of their respective state governments, which had historically been (and many would say still are) their “deadliest enemies.”¹⁴¹

By the 1960s, the new era of civil and human rights emerged in the United States, and executive programs, such as the Economic Opportunity Act, included the “Forgotten American.”¹⁴² Some tribes who had been affected by Termination fought back, eventually achieving reinstatement of their federally recognized status.¹⁴³ In 1970, President Richard Nixon officially rejected Termination and urged Congress to adopt legislation that would provide for greater tribal autonomy and control of their people, lands, and resources.¹⁴⁴ His recommendations affirmed the government-to-government relationship between the United States and Indian tribes and explicitly acknowledged the ongoing vitality of tribal sovereignty.¹⁴⁵ Yet, Termination remains one of the most destructive policies toward American Indians in United States history,

139. See Arthur V. Watkins, *Termination of Federal Supervision: The Removal of Restrictions over Indian Property and Person*, 311 ANNALS AM. ACAD. POL. & SOC. SCI. 47, 50 (1957), as reprinted in DOCUMENTS OF UNITED STATES INDIAN POLICY 240 (Francis Paul Prucha ed., 3d ed. 2000) (“Following in the footsteps of the Emancipation Proclamation of ninety-four years ago, I see the following words emblazoned in letter of fire above the heads of the Indians—*these people shall be free!*”).

140. STEPHEN E. CORNELL, *THE RETURN OF THE NATIVE: AMERICAN INDIAN POLITICAL RESURGENCE* 124 (1988).

141. *United States v. Kagama*, 118 U.S. 375, 384 (1886) (noting that “[b]ecause of the local ill feeling, the people of the states where [Indians] are found are often their deadliest enemies”).

142. Economic Opportunity Act of 1964, Pub. L. No. 88-452, 78 Stat. 508; see also Special Message to the Congress on the Problems of the American Indian: “The Forgotten American,” 1 PUB. PAPERS 335, 336, 343 (Mar. 6, 1968), as reprinted in DOCUMENTS OF UNITED STATES INDIAN POLICY 249–50 (Francis Paul Prucha ed., 3d ed. 2000) (proposing new policies of “self-help, self-development, and self-determination” and an end to termination).

143. See, e.g., Menominee Restoration Act, 25 U.S.C. §§ 903–903g (2012).

144. See 116 CONG. REC. 23,132 (1970) (message from President Richard Nixon).

145. See *id.*

and, as discussed below, genomic science could be used to justify a renewed termination of Indian tribes' federally recognized status.

B. 21st Century Termination

*“[T]he memory of congressional committees and bureaucrats in Washington ‘terminating’ the existence of hundreds of tribes across Indian country stands as a chilling reminder to Indian peoples that Congress can unilaterally decide to extinguish the special status and rights of tribes without Indian consent.”*¹⁴⁶

As previously discussed, science of the 19th and 20th centuries has been used as conclusive proof of the inferiority of Indians and reinforcement of the notion that this “improvable breed” was destined for extinction.¹⁴⁷ While theories espoused by researchers of phrenology, craniometry, and eugenics had historically been accepted as fact, these theories have since been rejected by modern researchers as “quackery.”¹⁴⁸ However, before these pseudosciences were discredited, they had “[taken] root in American thought and contributed to American racial prejudice.”¹⁴⁹

In the 21st century, the newest scientific theories of migration, championed by genomic scientists, are quickly becoming “facts” in the American consciousness, and notions of Native Americans’ “scientific” inferiority continue to be embraced.¹⁵⁰ Wilkinson and Biggs wrote that the drive for termination in the 1950s involved not only “trim[ming] the federal budget” but also concerns about “the tax-exempt status of Indian lands” and feelings of “reverse discrimination” among the general

146. DAVID H. GETCHES ET AL., CASES AND MATERIALS ON FEDERAL INDIAN LAW 200 (6th ed. 2011).

147. See *supra* Part III.

148. BIEDER, *supra* note 79, at 12.

149. *Id.*

150. See, e.g., Hsieh, *supra* note 97, at 364 (stating that “many indigenous populations . . . have high rates of inbreeding” (citing Zeshan Q. Khan, *Colonialism Revisited: Insights into the Human Genome Diversity Project*, 3 J.L. & SOC. CHALLENGES 89, 95–96 (1999)); see also Tiffany Cruz Gonzalez, Note, *The Intersection of Intellectual Property and Race in the Twenty-First Century: An Examination of the Interpretation of Racial Categories in Patent Law*, 8 HASTINGS RACE & POVERTY L.J. 1, 16 (2011) (arguing that genomic science could cause a “shift back” to 19th-century biological understandings of race and result in “changes in: (1) government policy; (2) the legitimacy of science; (3) overall human development; and (4) the allocation of property rights”).

public.¹⁵¹ When considering population genomics in light of these conclusions, it becomes clear that this new science could be used as justification for another termination of the trust relationship between tribes and the federal government.

1. Trimming the Federal Budget

The Termination Era for Indian tribes followed the worst financial crisis in U.S. history—the Great Depression. The financial and environmental disasters of the 1930s led to the Roosevelt administration’s New Deal policies.¹⁵² However, economic recovery was agonizingly slow and it was not until the United States “imposed rationing, recruited 6 million defense workers, . . . drafted 6 million soldiers, and ran massive deficits to fight World War II” that recovery ensued.¹⁵³

The “Indian New Deal” took the form of the Indian Reorganization Act of 1934 (IRA).¹⁵⁴ Congress designed the IRA to restore tribal

151. Wilkinson & Biggs, *supra* note 129, at 139 (stating that “[t]ax administrators in most western states resent[ed] the tax-exempt status of Indian lands, while other state officials push[ed] to extend the full range of state laws onto the reservation[s],” and that “the special, separate status” of domestic dependent nations within the U.S. legal system fostered “notions of ‘reverse discrimination’”).

152. A well-known environmental disaster, often referred to as “the Dust Bowl,” primarily affected the Great Plains region; agricultural mismanagement and drought in areas such as Oklahoma and Colorado led to “black blizzards” (caused by topsoil blown in from hundreds of miles away), loss of crops, and at times, infestations of grasshoppers and jackrabbits. See Christopher Klein, *10 Things You May Not Know About the Dust Bowl*, HISTORY (Aug. 24, 2012), available at <http://www.history.com/news/10-things-you-may-not-know-about-the-dust-bowl>. Sixty percent of the population was driven from the area, inspiring the songs of Woody Guthrie and the Pulitzer-Prize winning work by John Steinbeck, *The Grapes of Wrath*. THE READER’S COMPANION TO AMERICAN HISTORY (Eric Foner & John A. Garraty eds., 1991), available at <http://www.history.com/topics/dust-bowl>.

153. See generally Gene Smiley, *Great Depression*, LIBRARY OF ECONOMICS AND LIBERTY, <http://www.econlib.org/library/Enc/GreatDepression.html> (last visited Jan. 2, 2014); see also *The Great Depression (1929–1939)*, THE ELEANOR ROOSEVELT PAPERS PROJECT, <http://www.gwu.edu/~erpapers/teaching/glossary/great-depression.cfm> (last visited Jan. 2, 2014).

154. Indian Reorganization Act, ch. 576, 48 Stat. 984 (codified at 25 U.S.C. §§ 461–479 (2012)). There has been much debate as to whether the IRA bolstered tribal sovereignty or undermined tribal governments. See GETCHES ET AL., *supra* note 146, at 188. For example, tribal constitutions and charters were subject to approval by the Secretary of Interior, and many tribes ended up with boilerplate documents modeled after non-Indian institutions. See Comment, *Tribal Self-Government and the Indian Reorganization Act of 1934*, 70 MICH. L. REV. 955, 955–79, as reprinted in DAVID H.

governments by allowing tribes to organize as self-governing communities under constitutions or business charters.¹⁵⁵ By doing so, tribes would be given the opportunity to exercise their “inherent powers of a limited sovereignty which has never been extinguished.”¹⁵⁶ These inherent sovereign powers included regulating the use of property and prescribing duties and procedures for carrying out the tribe’s governmental will.¹⁵⁷ However, as the U.S. economy recovered, this policy was supplanted by Termination.

Currently, the United States is facing what some experts call “the worst financial crisis since the Great Depression”¹⁵⁸ and has faced unprecedented environmental disasters, including oil spills, devastating hurricanes, droughts, and record-breaking floods.¹⁵⁹ Also, much like the IRA era, when tribes got “their first taste of self-government in nearly

GETCHES ET AL., *CASES AND MATERIALS ON FEDERAL INDIAN LAW* 192–93 (6th ed. 2011). In addition, tribes were given only one opportunity to adopt or reject an IRA form of government and once rejected, they did not have the option to reconsider. *See id.* at 191; *see also* 25 U.S.C. § 478 (2012).

155. *See* Indian Reorganization Act, ch. 576, 48 Stat. 984 (codified at 25 U.S.C. §§ 476–477 (2012)).

156. U.S. DEP’T OF THE INTERIOR, OPS. OF THE SOLICITOR OF THE DEP’T OF THE INTERIOR RELATING TO INDIAN AFFAIRS, 1917–1974, at 445, 447 (1979), *available at* <https://archive.org/details/opinionsofsolici01unit>.

157. *Id.* at 452.

158. Jon Hilsenrath et al., *Worst Crisis Since ‘30s, with No End Yet in Sight*, WALL ST. J., Sept. 18, 2008, at A8, *available at* <http://online.wsj.com/article/SB122169431617549947.html> (quoting Mark Gertler, economist at New York University); *see also* LINDA LEVINE, CONG. RESEARCH SERV., R41017, *JOB CREATION PROGRAMS OF THE GREAT DEPRESSION: THE WPA AND THE CCC I* (2010), *available at* http://www.law.umaryland.edu/marshall/crsreports/crsdocuments/R41017_01142010.pdf (“With the exception of the Great Depression, the recession that began in December 2007 is the nation’s most severe according to various labor market indicators.”).

159. *See, e.g., 100 Days of the BP Spill: A Timeline*, TIME, <http://www.time.com/time/interactive/0,31813,2006455,00.html#ixzz2c4MRRhnY> (last visited Jan. 2, 2014); *Tsunami Hits Japan: The Most Devastating Natural Disasters of the 21st Century*, N.Y. DAILY NEWS (Mar. 14, 2011), <http://www.nydailynews.com/news/world/tsunami-hits-japan-devastating-natural-disasters-21st-century-gallery-1.14725> (detailing “Super Tuesday tornado outbreak” of 2008, California wild fires in 2009, and stating Hurricane Katrina in 2005 was “one of the top 5 deadliest hurricanes to ever hit the United States”); Klein, *supra* note 152 (“America’s worst drought since 1956 has hit farm states hard and sparked memories of the epic dry spell that helped produce the Dust Bowl.”); *Superstorm Leaves Widespread Flooding, Power Outages*, ABC NEWS, <http://abcnews.go.com/topics/news/hurricane-sandy.htm> (last visited Jan. 2, 2014); Adam Silverman & Donna Leinwand Leger, *Irene Causes Vermont’s Worst Flooding in 83 Years*, USA TODAY, Aug. 30, 2011, at 3A, *available at* <http://usatoday30.usatoday.com/weather/storms/story/2011-08-29/Irene-leaves-waterlogged-mess-in-Vermont/50175534/1> (referring to Hurricane Irene).

half a century,”¹⁶⁰ the current congressional policy toward Indians is self-determination, which promotes a government-to-government relationship with Native Nations.¹⁶¹ As a result of the federal/tribal trust relationship, the government has spent billions of dollars “taking care” of Indians and in an attempt to settle past “wrongful” actions.¹⁶²

2. Concerns About Indian Lands

During the IRA era, the United States was in the throes of the Great Depression, and many of its people suffered from an economic downturn. At the same time, the federal government pushed to exploit natural resources within reservation boundaries and created work-relief programs like the Works Projects Administration (WPA) and the Civilian Conservation Corps (CCC) to assist with recovery.¹⁶³ “Under the [IRA], tribes were urged to create governments that mimicked the United States’ model.”¹⁶⁴ Ezra Rosser and Rebecca Tsosie state that this policy was motivated (at least in part) to “facilitate[] greater access to natural

160. DELORIA, *supra* note 130, at 55.

161. See 116 CONG. REC. 23,132 (1970) (message from President Richard Nixon).

162. See Rob Capriccioso, *Interior Releases Tribal Economic Data Not Gathered from Tribes*, INDIAN COUNTRY TODAY MEDIA NETWORK.COM (July 12, 2012), <http://indiancountrytodaymedianetwork.com/article/interior-releases-tribal-economic-data-not-gathered-from-tribes-123059> (“[T]he Obama administration doled out over \$3 billion in Indian country as part of its American Recovery and Reinvestment Act (ARRA) spending in 2009.”); see also U.S. DEP’T OF STATE, ANNOUNCEMENT OF U.S. SUPPORT FOR THE UNITED NATIONS DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLES 7, 9 (2010), available at <http://www.state.gov/documents/organization/153223.pdf> (listing administration expenses for the benefit of tribes, including \$500 million in Health Care and Education Reconciliation Act funds, \$271.8 million in Department of Agriculture funds, “a \$760 million settlement with Native American farmers and ranchers . . . [relating to alleged] discrimination by the Department of Agriculture in loan programs,” and a \$1.5 billion settlement agreement for *Cobell v. Salazar*, which addressed historical accounting and trust-account mismanagement by the federal government). According to one source, “German scientists and political leaders . . . concluded that the nation’s post-World War I economic . . . woes [were caused, at least in part, by] state expenditures for the benefit of the biologically inferior.” Sundquist, *supra* note 6, at 250.

163. Rebecca Tsosie, *Climate Change, Sustainability and Globalization: Charting the Future of Indigenous Environmental Self-Determination*, 4 ENVTL. & ENERGY L. & POL’Y J. 188, 208–09 (2009) (stating reservation “lands contained rich reserves of coal, oil, and gas,” and that BIA officials felt that reservation “lands should be used for ‘industrial development’ by non-Indian lessees, rather than sitting in ‘unproductive idleness’ in the hands of Indian owners”) (footnotes omitted); see generally Levine, *supra* note 158.

164. Erin Ruble & Gerald Torres, “*Perfect Good Faith*,” 5 NEV. L.J. 93, 123 (2004).

resources” on the reservation.¹⁶⁵

Today, reservations continue to be mined for precious resources such as water, coal, and uranium as the United States faces energy shortages and gas prices continue to skyrocket.¹⁶⁶ The tax-exempt status of Indian lands (especially in light of Indian gaming) is hotly contested, and disagreement over the acquisition of land in trust, on behalf of Indian tribes, has reached the Supreme Court.¹⁶⁷

3. Reverse Discrimination

Wilkinson and Biggs point to concerns of reverse discrimination¹⁶⁸ as one of the Termination Era’s motivations. Since the Republic’s founding, states have itched to extend their laws and control onto reservation lands, and the special status of Indian tribes has caused continued conflict.¹⁶⁹

Today, backlash against Affirmative Action and perceived

165. Ezra Rosser, *Ahistorical Indians and Reservation Resources*, 40 ENVTL. L. 437, 455 (2010); Rebecca Tsosie, *supra* note 163, at 209 (stating that tribal councils created by the IRA were “seen as merely ‘rubberstamping’ decisions that had already been made by BIA officials”); *see also* Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 LEWIS & CLARK L. REV. 1065, 1074 (2008) (noting a lack of tribal political sovereignty and how the federal government made many decisions that pertained to the use and development of Indian natural resources).

166. *See, e.g.*, John Broder, *Closing of Mine on Tribal Lands Fuels Dispute over Air, Water and Jobs*, N.Y. TIMES, Jan. 1, 2006, at 12, available at <http://query.nytimes.com/gst/fullpage.html?res=F10B10FB3B540C728CDDA80894DE404482>.

167. *See* *Carcieri v. Salazar*, 555 U.S. 379, 388, 395 (2009) (holding that the Secretary of the Interior’s authority under IRA, to take land into trust for Indians, is limited to tribes that were “under the federal jurisdiction of the United States when the IRA was enacted”); *see also* RIGHTS OF INDIGENOUS PEOPLES COMMITTEE, INTERNATIONAL LAW ASSOCIATION 25 (2012), available at <http://www.ila-hq.org/en/committees/draft-committee-reports-sofia-2012.cfm> (stating that the Obama administration acquired “over 34,000 acres of land in trust on behalf of Indian tribes, which is a 225 percent increase since 2006” (footnote omitted)). *See generally* *Indian Reservation*, GLENDALEAZ, <http://www.glendaleaz.com/indianreservation/> (last visited Jan. 2, 2014) (detailing dispute over Tohono O’Odham Nation’s application to the U.S. Department of Interior to take land into trust, in Glendale, Arizona, for the purpose of developing a casino on the site).

168. *Black’s Law Dictionary* defines *reverse discrimination* as the “[p]referential treatment of minorities . . . in a way that adversely affects members of a majority group.” BLACK’S LAW DICTIONARY 535 (9th ed. 2009).

169. *See* *Worcester v. Georgia*, 31 U.S. (6 Pet.) 515, 596 (1832), *abrogation recognized by* *Nevada v. Hicks*, 533 U.S. 353 (2001) (holding laws of Georgia have no force within Cherokee lands).

advantages of being tribal members are noted almost daily in the media. For example, in a recent *Rolling Stone* article, pop star Justin Bieber stated that he had enough Indian heritage to “get free gas.”¹⁷⁰ *Indian Country Today*, a media network owned by the Oneida Indian Nation, states the problem: “What . . . ought to matter . . . is that Bieber is an 18-year-old with an estimated net worth of over \$100 million, and yet even to him the concept of ‘Indian or Inuit’ is closely tied to the concept of ‘free gas.’”¹⁷¹

4. How Genomic Science Can Lead to a New Termination

“[W]e must consider that the scientific object of Native American DNA (or the definitive absence of such markers) will be important in re-making Native American identity in the 21st century.”¹⁷²

As we have seen, the current economic and natural-resource struggles in the United States echo those of the IRA era, an era that led to the termination of Indian tribes’ special status and rights. While tribes are sovereign governments with the power “to make their own laws and be ruled by them,”¹⁷³ that authority is subject to the plenary power of Congress¹⁷⁴ and the federal/tribal trust relationship, which derived from centuries-old notions of Indians’ inferiority and the view that they were wards of the federal government in need of protection from the states.¹⁷⁵

170. Josh Eells, *Justin Bieber: Mannish Boy*, ROLLING STONE, Aug. 2, 2012, at 35, 36, available at <http://www.rollingstone.com/music/news/justin-bieber-mannish-boy-the-2012-cover-story-20120802>.

171. *Canadian Pop Star Justin Bieber Believes He’s Indian Enough to Get Free Gas*, INDIAN COUNTRY TODAY MEDIA NETWORK.COM (July 22, 2012), <http://indiancountrytodaymedianetwork.com/2012/07/22/canadian-pop-star-justin-bieber-believes-hes-indian-enough-get-free-gas-124753>; see also Amy Harmon, *Seeking Ancestry, and Privilege, in DNA Ties Uncovered by Tests*, N.Y. TIMES, Apr. 12, 2006, at A1, available at <http://www.nytimes.com/2006/04/12/us/12genes.html> (“Americans of every shade are staking a DNA claim to Indian scholarships, health services and casino money.”).

172. Kimberly TallBear, *Native-American-DNA.com: In Search of Native American Race and Tribe*, in REVISITING RACE IN A GENOMIC AGE 235, 249 (Barbara Koenig, Sandra Soo-Jin Lee & Sarah Richardson eds. 2008).

173. *Williams v. Lee*, 358 U.S. 217, 220 (1959).

174. See *United States v. Kagama*, 118 U.S. 375, 380, 384 (1886) (holding that tribes are subject to the will of Congress).

175. *Cherokee Nation v. Georgia*, 30 U.S. (5 Pet.) 1, 17 (1831) (“[Indian] relation to the United States resembles that of a ward to his guardian. They look to our government for protection; rely upon its kindness and its power; appeal to it for relief to their wants;

However, Alex Tallchief Skibine reminds us that “[a]s tribes become more politically sophisticated, more economically self-sufficient, and . . . more educated, it has become hard to view them as weak and defenseless.”¹⁷⁶ “Why then,” he questions, “should the tribes benefit from special rules . . . that may place them at a competitive advantage vis-a-vis non-Indian[s]?”¹⁷⁷

Scientists have debated exactly how tribes came to inhabit the New World for decades, with little regard for the beliefs of Indians themselves.¹⁷⁸ Nonetheless, just as Sepúlveda, Morton, and the eugenicists of the early 20th century did, population geneticists generally present their models of migration as conclusive fact rather than as a theoretical possibility.¹⁷⁹ As these theories gain acceptance in mainstream society, it would be no surprise—at least for those versed in the history of federal–tribal relations—that given the current indicators, Congress or the courts may very well use genomic science to justify another termination of the trust relationship.

In the 1950s, many hailed termination of the federal/tribal trust

and address the president as their great father.”); *United States v. Kagama*, 118 U.S. 375, 383–84 (1886) (“Indian tribes *are* the wards of the nation. . . . Because of the local ill feeling, the people of the states where they are found are often their deadliest enemies.”).

176. Alex Tallchief Skibine, *Judicially Dismantling Indian Country in the 10th Circuit: Lessons from Hydro Resources and Osage Nation*, TURTLETALK 24 (2011), available at <http://turtletalk.files.wordpress.com/2011/03/dismantling-indian-country.pdf>.

177. *Id.* at 24. Professor Skibine argues that “[t]he real challenge for tribal advocates in this twenty first century will be to convince courts that the venerable and traditional legal principles that have shaped American *Exceptionalism* in Federal Indian law should still be applied even though Indian tribes are no longer weak, defenseless, or even dependent.” *Id.* at 24–25.

178. Hopkins, *supra* note 63, at 42 (“[These theories] presume that the Americas were once vacant until they were populated by outsiders. Why do [they] not consider that Indigenous Peoples of the Americas were always here . . . ?”); *see also* *Navajo Nation v. U.S. Forest Serv.*, 408 F. Supp. 2d 866, 889, 892 (D. Ariz. 2006) (finding as fact that “[i]n the Navajo religion, the creation of the Navajo people took place at the Peaks” and that “the Havasupai [believe that] the Peaks are the origin of the human race”); *We Are All Africans Under the Skin*, REDIFF.COM (Nov. 27, 2002), <http://www.rediff.com/news/2002/nov/27inter.htm> (“I am a scientist and I demand evidence. And religion is not about evidence but about belief.”).

179. *See, e.g., We Are All Africans Under the Skin*, *supra* note 178 (“We are all descendants of people who lived in Africa recently. We are all Africans under the skin.”). *But see* Simon Moya-Smith, *Harvard Professor Confirms Bering Strait Theory Is Not Fact*, INDIAN COUNTRY TODAY MEDIA NETWORK.COM (July 31, 2012), <http://indiancountrytodaymedianetwork.com/opinion/harvard-professor-confirms-bering-strait-theory-is-not-fact-126465> (stating that the Bering Strait theory is a “hypothesis about history . . . not [a] fact”).

relationship as the “emancipation” of the American Indian. Recent advances in genome science, particularly DNA evidence, are offered as irrefutable proof that “[r]acism is . . . scientifically incorrect.”¹⁸⁰ TallBear states that “the genetic paradigm that ‘we are all related’ may seem anti-racist and all-inclusive . . . [h]owever, . . . [it could] usurp claims to identity and perhaps legal rights” of indigenous peoples.¹⁸¹ Tsosie agrees, stating that while policymakers seem committed to the United States as a pluralist society, “[a]ll too often, these norms mask policies that have severe and detrimental results for Native peoples as distinctive cultural groups.”¹⁸²

Jeremy Waldron adds that the tribes’ unique status in the United States is grounded in the tribes’ assertion that they were the “first inhabitants” and have occupied their traditional lands since “the dawn of time.”¹⁸³ One must ask: What happens to this status when population geneticists offer scientific evidence that Native Americans are not “native” at all—that in actuality, they came from somewhere else?¹⁸⁴

Unfortunately, the courts have already suggested the answer. *Bonnichsen v. United States* involved a dispute between scientists and tribes over skeletal remains (referred to as “Kennewick Man”) estimated by carbon dating to be between 8,340 and 9,200 years old.¹⁸⁵ Although DNA testing was unsuccessful because of the age and condition of the

180. *We Are All Africans Under the Skin*, *supra* note 178.

181. TallBear, *supra* note 30, at 417; *see also* Kimberly TallBear, *DNA, Blood, and Racializing the Tribe*, 18 WICAZO SA REV. 81, 83 n.10 (2003) (“Despite talk of multiculturalism, there is much historical and contemporary evidence of U.S. government efforts to limit this country to one cultural nation.”).

182. Tsosie, *supra* note 91, at 402; *see also* Laura Underkuffler, *Human Genetics Studies: The Case for Group Rights*, 35 J.L. MED. & ETHICS 383, 391–92 (2007) (noting that “[c]ommon heritage” arguments are . . . a way to preclude, in a single stroke, the assertion of any interests by the opposing, smaller group”).

183. Jeremy Waldron, *Indigeneity? First Peoples and Last Occupancy*, 1 N.Z. J. PUB. & INT’L L. 55, 71, 75 (2003).

184. *See, e.g., We Are All Africans Under the Skin*, *supra* note 178.

185. *Bonnichsen v. United States (Bonnichsen IV)*, 367 F.3d 864, 868 (9th Cir. 2004). The scientists considered the skeleton “one of the most important American anthropological and archaeological discoveries of the late twentieth century,” and wanted the opportunity to study the remains. *Id.* at 868–69. Tribes in the Colombia River region (where the bones were found) opposed the study and claimed the remains under the “cultural affiliation” prong of the Native American Graves Protection and Repatriation Act (NAGPRA). *Id.* at 870 & n.8; *see also* Native American Graves Protection and Repatriation Act, 25 U.S.C. §§ 3001–3013 (2012). The court held “that Kennewick Man’s remains [were] not Native American human remains within the meaning of NAGPRA and that NAGPRA does not apply to them. Studies of the Kennewick Man’s remains by Plaintiff-scientists may proceed.” *Bonnichsen IV*, 367 F.3d at 979.

bones,¹⁸⁶ other testing suggested that Kennewick Man's morphological characteristics more closely resembled those of Polynesians and southern Asians, rather than Native Americans.¹⁸⁷

Tsosie interprets the dispute over Kennewick Man as "a way to prove (scientifically, of course) that the 'first Americans' were not the ancestors of contemporary Native American people."¹⁸⁸ Harry mirrors this belief, stating that the case "not only extinguishes a right under NAGPRA to repatriate, [but] it is also a direct attack on all . . . rights [of] Indigenous peoples."¹⁸⁹ She adds that "[i]f Native Americans are 'proven' not to be the original inhabitants of the United States, then there are no governmental obligations to recognize . . . Indigenous rights."¹⁹⁰

Fletcher reminds us that, in decisions involving American Indians rendered by the U.S. Supreme Court under Rehnquist and Roberts, "the Court has surprised the parties . . . by basing its reasoning on areas of law not even briefed by the parties and by completely ignoring relevant precedent."¹⁹¹ Skibine came to the same conclusion and stated that "the Court has promoted its own notions of what the place of Indian tribes should be within our federal system."¹⁹²

Finally, no discussion of the Termination Policy's possible return would be complete without pointing out that, even though non-Indians in the United States generally consider themselves to be much more culturally sensitive and enlightened than their 19th-century counterparts, the fact is that Native Americans today continue to be targeted and judged as savage and inferior. Nearly every week, media reports reflect "the medieval thinking of old Christendom [that] continues to colonize the minds of . . . the 21st century."¹⁹³

186. *Bonnichsen v. United States (Bonnichsen II)*, 217 F. Supp. 2d 1116, 1127 & n.27 (2002).

187. *Bonnichsen IV*, 367 F.3d at 978.

188. Tsosie, *supra* note 66, at 89.

189. Harry, *supra* note 64, at 177.

190. *Id.*

191. Matthew L.M. Fletcher, *The Supreme Court and the Rule of Law: Case Studies in Indian Law*, 55 FED. LAW. 26, 32 (2008).

192. Alex Tallchief Skibine, *Formalism and Judicial Supremacy in Federal Indian Law*, 32 AM. INDIAN L. REV. 391, 393 (2007-08); *see also* *Different Horse v. Salazar*, No. CIV 09-4049, 2011 WL 3422842, at *5 (D.S.D. Aug. 4, 2011) (stating "the Supreme Court in *United States v. Sioux Nation of Indians* did not question whether the United States could take [Indian] land. Instead, the question was what legal theory fit the taking" (citations omitted)).

193. Steven Newcomb, *Radio Evangelist Preaches an Ugly Message*, INDIAN COUNTRY TODAY, Mar. 2, 2011, at 8, available at <http://indiancountrytodaymedianetwork>

The United States government also seems to have retained its “colonial” attitude. In March 2011, a brief submitted by the United States, as part of a military commission case, equated the Seminole Nation’s historic actions, in then-Spanish Florida against the U.S. encroachment in Seminole Nation lands, to the al Qaeda terrorist organization.¹⁹⁴ Just a few months later, it was revealed that the name “Geronimo” was used as code for “the most wanted man in the world”—Osama bin Laden.¹⁹⁵ Columnist Steven Newcomb sums the situation up as follows: “Apparently, having an African American President in the

.com/2011/02/18/radio-evangelist-preaches-ugly-message (referring to statement of Bryan Fischer, director of Issues Analysis for the American Family Association (AFA) and host of the talk-radio program, *Focal Point*. “In all the discussions about the European settlement of the New World, one feature has been conspicuously absent: the role that the superstition, savagery and sexual immorality of native Americans played in making them morally disqualified from sovereign control of American soil.” Rob Schmidt, *Text of Fischer’s Racist Screech*, NEWSPAPER ROCK (Feb. 9, 2011), <http://newspaperrock.bluecorncomics.com/2011/02/text-of-fischers-racist-screed.html>; see also, e.g., Krista Allen, *Diné Worker Fired for Speaking Navajo*, NAVAJO TIMES (May 10, 2012), <http://navajotimes.com/news/2012/0512/051012fir.php>; *Student Suspended for Speaking Native American Language*, INDIAN COUNTRY TODAY MEDIA NETWORK.COM (Feb. 7, 2012), <http://indiancountrytodaymedianetwork.com/article/student-suspended-for-speaking-Native-American-language-96340> (explaining how a 12-year-old Menominee student was suspended for teaching fellow students to say “Hello” and “I love you”); Vincent Schilling, *Another Indian Student in Alabama Asked to Remove Eagle Feather*, INDIAN COUNTRY TODAY MEDIA NETWORK.COM (June 25, 2013), <http://indiancountrytodaymedianetwork.com/2013/06/25/another-indian-student-alabama-asked-remove-eagle-feather-150091> (explaining how the Assistant Principal of Pennington High School, and former history teacher, when asked “if he understood what the eagle feather meant[, stated,] ‘Oh yeah, I know you all smoke peace pipes and what you smoke in them’”).

194. Carol Rosenberg, *Bitter Analogy in War Crime Case: Indians, al Qaeda*, MIAMI HERALD (Mar. 24, 2011), <http://www.miamiherald.com/2011/03/23/2130766/war-court-filing-comparing-seminoles.html>; see also Appellee’s Response to the Specified Issues at 25, *United States v. Bahlul*, 820 F. Supp. 2d 1141 (U.S.C.M. Comm’n R. 2011) (No. 09-001), available at <http://turtletalk.files.wordpress.com/2011/03/bahlul-brief-irt-specified-issues-11-mar-2011.pdf> (“[N]ot only was the Seminole belligerency unlawful, but, much like modern-day al Qaeda, the very way in which the Seminoles waged war against U.S. targets itself violated the customs and usages of war.”).

195. Jake Tapper et al., *Osama Bin Laden Operation Ended with Coded Message ‘Geronimo-E KIA,’* ABC NEWS (May 2, 2011), <http://abcnews.go.com/Politics/osama-bin-laden-operation-code-geronimo/story?id=13507836> (“After a 40-minute search of the compound, punctuated by firefights, bin Laden was dead, and the cryptic ‘Geronimo-E KIA’ code sent relief through the White House. E stood for enemy and KIA for killed in action.”). Cf. *Native Americans Object to Linking Geronimo to Bin Laden*, CNN (May 6, 2011), <http://www.cnn.com/2011/US/05/05/bin.laden.geronimo/> (reporting “that ‘Geronimo’ was used in the raid to refer to bin Laden, but [actually] was code for the act of capturing or killing bin Laden, not for the man himself”).

White House is not enough to overturn the more than 200-year American tradition of treating and thinking of Indians as enemies of the United States.”¹⁹⁶

When all is said and done, it appears that French critic Jean-Baptiste Alphonse Karr might be correct when it comes to indigenous peoples: The more things change, the more they stay the same.¹⁹⁷

VI. WHAT CAN TRIBES DO?

*“[T]he fight for indigenous peoples—and for communities more broadly who are regularly subject to the scientific gaze—is to debate which meanings and whose meanings inform law and policy[, and]. . . . [t]o make sure . . . that our stories are heard as clearly as those of anthropologists and geneticists when the state acts to influence our lives.”*¹⁹⁸

*“[T]he crux of the issue for geneticists at the millennium [is]: Who decides what genetic problems are important? Traditionally, it has been the scientists defining the research questions, with indigenous peoples as passive pincushions.”*¹⁹⁹

Several scholars have appealed to the research community to change their approach and understanding when working with Native Nations or their members.²⁰⁰ However, Harry reminds us that “Indigenous peoples need to be active participants [in research] . . . to ensure their perspectives and interests are represented and protected.”²⁰¹ In this part, I summarize some of the tools tribal governments can use to protect and

196. Steven T. Newcomb, *Geronimo: Indian Wars Continue Ad Nauseam*, INDIAN COUNTRY TODAY, May 3, 2011, at 5.

197. Jean-Baptiste Alphonse Karr, *July 1848*, 6 LES GUÊPES 274, 278 (1862) (“Plus ça change, plus c’est la même chose.”), available at <https://archive.org/details/lesgupes06/karruoft>.

198. TallBear, *supra* note 30, at 423.

199. JONATHAN MARKS, WHAT IT MEANS TO BE 98% CHIMPANZEE: APES, PEOPLE, AND THEIR GENES 217 (2003).

200. See, e.g., Caplan & Moreno, *supra* note 108, at 621; see also Drabiak-Syed, *supra* note 49, at 177, 215–16 (advising researchers to respect and honor indigenous peoples’ potentially different views of what constitutes a harm or benefit of the research); Jacobs et al., *supra* note 65, at 686 (suggesting research institutions “consult[] with local communities; negotiate[] the complexities of consent; train[] members of local communities in science and health care; and train[] scientists to work with indigenous communities”).

201. Harry, *supra* note 64, at 192–93.

advance the interests of their communities in the context of genomic research.

One option that tribes may choose is to ban all genetic testing within their communities. The Navajo Nation did just this when they approved their “Moratorium on Genetic Research Studies Conducted Within the Jurisdiction of the Navajo Nation.”²⁰² Tribes can also pass legislation to protect genetic information and protect against genetic discrimination.²⁰³ However, enforcement of such a ban can be difficult. As part of the Termination Policy in the 1950s, tribal members who had been living on the reservation were strongly encouraged to relocate to urban areas.²⁰⁴ According to a New York Times article from 2013, the Census Bureau estimated that seven out of ten “Indians and Alaska Natives now live in a metropolitan area,”²⁰⁵ thus their tribes would not have jurisdiction over them.²⁰⁶

Even within a reservation, individual members of a tribe may feel that they have a right to participate in genetic testing. For example, Phil Bluehouse, a member of the Navajo Nation, had his DNA tested as an “indigenous representative” for the Genographic Project.²⁰⁷

Another option that tribes might consider is creating their own biobank²⁰⁸ as a charitable trust for the benefit of their members. Only

202. RES. HEALTH AND SOC. SERVS. COMM. NAVAJO NATION COUNCIL, HSSCAP-20-02 (2002) (on file with author) (approving a moratorium on genetic investigations, research, or studies conducted within the Navajo Nation).

203. See, e.g., 3 H.C.C. § 3 (2005), available at http://www.ho-chunknation.com/media/19586/3hcc03_research.pdf.

204. Wilkinson & Biggs, *supra* note 129, at 147 (stating that the BIA’s “Voluntary Relocation Program . . . encourage[d] and assist[ed] ‘surplus’ reservation residents, if they were employable, to move to urban areas from the reservations” (footnotes omitted)).

205. See Timothy Williams, *Quietly, Indians Reshape Cities and Reservations*, N.Y. TIMES, Apr. 14, 2013, at A14, available at <http://www.nytimes.com/2013/04/14/us/as-american-indians-move-to-cities-old-and-new-challenges-follow.html>.

206. While a detailed explanation of tribal jurisdiction is outside the scope of this Article, such jurisdiction is generally confined to certain actions involving Indians that take place in Indian country. See 18 U.S.C. § 1151 (2012) (defining the term “Indian country”); see also *United States v. Lara*, 541 U.S. 193, 204–05 (2004).

207. Press Release, *The Genographic Project: Indigenous Representatives Each Have a Story to Tell*, NATIONAL GEOGRAPHIC (Apr. 14, 2005) (quoting Bluehouse, “I think this project may confirm the journey we, as Navajos, have been telling for a long time”), available at <http://press.nationalgeographic.com/2005/04/14/the-genographic-project-indigenous-representatives-each-have-a-story-to-tell/>.

208. A biobank is a collection of biological samples donated by volunteers and used by researchers to perform studies much like a library. *About Biobanking*, MAYO CLINIC, <http://www.mayo.edu/research/centers-programs/mayo-clinic-biobank/about> (last visited

researchers with permission from the tribe would have access to samples. A tribe could create an Institutional Review Board (IRB) office or agency within their reservation, or join with other tribes in creating a regional IRB. For example, not only does the Navajo Nation IRB office serve the Navajo Nation, but it also acts as the Indian Health Service IRB in the Four Corners region.²⁰⁹ Also, the Alaska Native Science Commission (ANSC) was created to “bring together research and science in partnership with the Native community.”²¹⁰

Tribes can also contract with an outside IRB office to review research proposals, but in any agreement, tribes should include detailed requirements for any responsibilities the office may have to the tribe and its members, including those that flow from access to traditional or sacred knowledge and member genetic information.²¹¹ The tribe should also require a contract for any individual researcher or institution that wishes to conduct research on the reservation, or with tribal members as participants, and include such a “statement of responsibilities” in the document.²¹²

Jan. 3, 2014); *see also* Harry, *supra* note 64, at 184 (“[S]amples collected from Indigenous peoples [may] ultimately end up in a gene bank . . . held by military, federal, academic, or private facilities for use in future medical or non-medical research.” (footnote omitted)).

209. Telephone Interview with Dr. Alan Trachtenberg, Chair, IHS Nat’l IRB (NIRB) IHS Human Research Prots. Adm’r (July 27, 2012); *see also* *Human Research Participant Protection in the Indian Health Service: Indian Health Service Institutional Review Boards (IRB)*, INDIAN HEALTH SERVICE, http://www.ihs.gov/Research/index.cfm?module=hrpp_irb (last visited Jan. 3, 2014).

210. ALASKA NATIVE SCI. COMMISSION, <http://www.nativescience.org/> (last visited Jan. 3, 2014). ANSC goals are to:

- 1) Facilitate the inclusion of local and traditional knowledge into research and science.
- 2) Participate in and influence priorities for research.
- 3) Seek participation of Alaska Natives at all levels of science.
- 4) Provide a mechanism for community feedback on results and other scientific activities.
- 5) Promote science to Native youth.
- 6) Encourage Native people to enter scientific disciplines.
- [And] 7) [e]nsure that Native people share in the economic benefits derived from their intellectual property.

Mission & Concerns, ALASKA NATIVE SCI. COMMISSION, <http://www.nativescience.org/about/concerns.htm> (last visited Jan. 3, 2014).

211. Harry, *supra* note 64, at 189 (“It is . . . essential for tribes to lay the ground rules for use of their peoples’ genetic material before the research project commences.”).

212. *See* Harry & Kanehe, *supra* note 110, at 40 (stating that “tribal code . . . should set out the intent of the act to protect the cultural, spiritual, and environmental welfare of the tribe. . . [so that] the tribe would be able to assert [civil jurisdiction over] a non-Indian researcher.”). It is important to note that if the contract is breached, the damage done to the community may be such that no legal remedy will be sufficient to repair. *See*,

Any contract can require consent not only from the individual member participant but also from the tribe. However, the tribe should be careful not to use government approval as a way to convince their members to agree to the research.²¹³ The contract should also explicitly state who “speaks for the nation” and can give consent for the research, whether it be executive, legislative, or religious bodies.

Any consent document can specify that members may withdraw their samples, regardless of whether the sample has been de-identified, already shared, or even if the sample is necessary for the integrity of the project. The document can require that biological samples be returned to the individual, or to the tribe, after the specific study is concluded and require informed consent from the member, or the tribe, for every secondary²¹⁴ or new use of samples. The contract can also require that affirmative consent be obtained before any transfer of previously taken biological samples, or a member’s medical records, takes place.

Finally, tribes can educate their members about their individual rights, the requirements of the tribe, and best practices regarding informed consent. However, a tribe should ensure that these informational meetings do not become recruitment drives for research rather than educational sessions.

VII. CONCLUSION

*“Every man is a Custer under this dreadful legal system. He is able to challenge tribal existence and territory at his own whim and for his own reasons.”*²¹⁵

e.g., Drabiak-Syed, *supra* note 49, at 222–23 (detailing group and individual cultural and spiritual harms in Havasupai dispute); *see also* Radhika Rao, *Genes and Spleens: Property, Contract, or Privacy Rights in the Human Body?*, 35 J.L. MED. & ETHICS 371, 378 (2007) (“Contract law’s ability to safeguard individuals depends upon their position in the genetic market, as well as their level of knowledge and power.”).

213. *See* McGregor, *supra* note 24, at 365 (“Investigators have no right to expect anyone to participate in research; participants have no duty to participate in research. The advancement of scientific knowledge is not such an important value that it trumps the interests of subjects understanding the risks of the research they are being asked to join—groups and cultural risks included.”).

214. Whitener, *supra* note 3, at 234 (“Secondary data analysis is a complex issue that indigenous communities must face given the U.S. stance on data sharing.” (footnote omitted)).

215. William H. Rodgers, Jr., *Treatment as Tribe, Treatment as State: The Penobscot Indians and the Clean Water Act*, 55 ALA. L. REV. 815, 824 (2004).

*"[N]o occurrence is sole and solitary, but is merely a repetition of a thing which has happened before, and perhaps often."*²¹⁶

As we have seen, science has played a role even in the earliest days of the New World's colonization. In the 19th and 20th centuries, scientists presented "conclusive proof" of the inferiority of Indians, and they reinforced the notion that this "improvable breed" was destined for extinction. Over time, tribes became natural control groups for scientific study, and technology brought with it even greater interest in indigenous peoples and the role their DNA could play in research for biomedical advances, human origin, and evolution.²¹⁷

Today, population geneticists rush to collect indigenous DNA, and use it to support theories meant to "clos[e] the gaps of what science knows today about humankind's ancient migration stories."²¹⁸ Just as the discredited pseudoscience experts of the 19th century did, population geneticists of today employ a call for urgent action, pleading for help in creating "the largest collection of anthropological genetic data ever assembled, before modern day influences erase it forever."²¹⁹ They present these theories as conclusive fact that "the Americas were . . . vacant until they were populated by outsiders."²²⁰

Some experts call these genomic "discoveries" a form of biocolonialism and warn that they bring with them the danger of assimilation and "loss of political and economic autonomy" for indigenous peoples.²²¹ While tribes are sovereign governments with the power to "make their own laws and be ruled by them,"²²² they are subject to the plenary power of Congress.²²³ Economic, property, and reverse-

216. MARK TWAIN, *THE JUMPING FROG: IN ENGLISH, THEN IN FRENCH, THEN CLAWED BACK INTO A CIVILIZED LANGUAGE ONCE MORE BY PATIENT, UNREMUNERATED TOIL* 64 (1903).

217. See Hsieh, *supra* note 97, at 364.

218. *Introduction: A Landmark Study of the Human Journey*, *supra* note 29.

219. *Explorers: The Genographic Project*, *supra* note 32; see also Kalb, *supra* note 32, at 54 (stating that Genographic Project's "goal is to collect DNA from indigenous populations . . . fast, before whole populations die out and leave their ancestral homelands").

220. Hopkins, *supra* note 63, at 42 ("Perhaps such immigration theories are part of a larger effort to dissuade guilt associated with the invasion of the Americas by Europeans, and thereby lessen the significance of the subsequent genocide of Indigenous Peoples.").

221. Whitt, *supra* note 19, at 214–15, 220–21.

222. *Williams v. Lee*, 358 U.S. 217, 220 (1959).

223. See *United States v. Kagama*, 118 U.S. 375, 379–80 (1886) (holding that tribes are subject to the will of Congress).

2014]

Genomic Research in Indian Country

43

discrimination concerns fueled the termination of the federal/tribal trust relationship in the 1950s, effectively dissolving the existence of many Indian tribes across the United States.

These same concerns exist today as the United States faces “the worst financial crisis since the Great Depression,”²²⁴ the status of reservation lands is vehemently challenged, and Native Americans continue to be targeted and judged as savage and inferior. Even though tribes have a number of tools that they can use to help protect their genetic information from exploitation, as they become more politically savvy and economically self-sufficient, they run the risk that they will no longer be viewed as “wards” of the government. Given the current indicators, Congress or the courts may very well use genomic science to justify a renewed termination of the special status and rights of Native Americans for the “good of the nation” and for the “benefit” of the tribes.

224. Hilsenrath, *supra* note 158, at A8.