

The (Un)Settling of America:
Science and the Search for the First Americans

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ABSTRACT

The practice of science in the search for the First Americans is a flawed endeavor. Not only is science constrained by the shifting centers of cultural power external to science, but also by the institutions, elites, and cognitive values internal to science. Substantive disagreement over a cultural past is a reflection of unstabilized power relationships in the present. Although science traditionally is believed to speak truth to governmental power, federal law dictates that American Indian traditions hold an epistemological status equal to the methods of science when determining the cultural affiliation of, and access to, pre-European human remains. Consequently, discovery and examination of the most important First American artifacts occur only as a product of a negotiation between scientists and the very groups that frequently oppose them.

This is a case study of the practice of science in its search for the First Americans in this unstable environment. This dissertation deconstructs: (1) the conflicts between the methods of science and the traditional beliefs of modern American Indians; (2) the power struggles for primacy of place internal to the sciences themselves; and (3) the interactions with external authorities such as government agencies, the press, universities, and museums. It is an examination into how the issues have been defined and how differences in cultural myths, scientific theories, research methodologies and public policy remain unsettled in modern America. It is an investigation of the blurred boundaries between science and myth as well as between fact and theory that ultimately weaken the credibility of science as a cultural mechanism for interpreting the natural world. Finally, this dissertation concludes that the absence of a firm American cultural ground upon which to place an epistemological fulcrum has greatly contributed not only to the First American identity search remaining unresolved, but also to the instability of the very science which is conducting the search.

Dedication

To my late father who never graduated from high school, but taught me the importance of education and, especially, hard work.

Author's Acknowledgements

For their continuing patience, guidance, and support, I thank my committee—Skip Fuhrman, Ann Laberge, Peter Schmitthenner, and Matthew Goodrum.

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Section I. Introduction

Overview

Substantive disagreement over a cultural past is a reflection of unstabilized power relationships in the present. This dissertation is a case study of the practice of science in this unstable environment as it has been employed in the search for the First Americans. It is not an attempt to determine the validity of any specific theory or material artifact; rather, it is an investigation into the practice of science as it relates to a search to explain a particular human existence. It is concerned with how personal, organizational, and cultural power has been manifested through scientific concepts, government policy, American Indian tribes, the public, and the scientists themselves in the search for the First Americans. It is an examination into how the issues have been constructed and, finally, the manner in which (as well as degree to which) differences in cultural myths, scientific theories, research methodologies and public policy remain unsettled in modern America. As this examination of the search for the First Americans shows, perceptions of the past can be as unstable as any projections of the future.

Compounding the challenges faced by scientists, modern Native Americans have used the U. S. political system to gain a voice in defining the history of America's indigenous peoples. As a direct result, in 1990 the U.S. Congress passed the Native American Graves Protection and Repatriation Act (NAGPRA) requiring that American Indian folklore and oral traditions be granted equal epistemological status with science in regard to the disposition of American Indian funereal artifacts and human remains.

There is an inverse, and perhaps even a perverse, symmetry in the relationships created in the search for the First Americans. As anthropologist Randall McGuire has termed it, “the descendants of the conquerors study the ancestors of the conquered.”¹ Moreover, the broader scientific community within which First American science must function is increasingly perceived as being suspect. In President Obama’s 2008 inaugural address, he stated that “we will restore science to its rightful place and wield technology’s wonders.”² What is science’s rightful place in American society, and specifically in the search for the First Americans, how did it get dislodged from being there? Can the federal government on the one hand “restore” science to some privileged position, but also enforce the provisions of the Native American Graves Protection and Repatriation Act?

One of the more challenging aspects of this research project will be to trace instances not only where observations from different scientific domains have led to validation or invalidation of a particular theory, but alternatively where observations in one domain have been shaped by the theories of a different domain.

The analytical tools associated with Science Studies especially lend themselves to deconstructing the practice of science in the search for the First Americans, the conflicts between science and the traditional beliefs of modern American Indians, and the power relationships internal to and among the sciences, American Indian groups, and public institutions such as federal and state governments, the press, universities, and museums. Although there are books on the search for the First Americans that focus on

¹ Randall H. McGuire, *Archaeology as Political Action* (Berkeley: University of California Press, 2008), 141.

² Barack Obama, January 20, 2009, *Inaugural Address*, <http://www.whitehouse.gov/the-press-office/president-barack-obamas-inaugural-address>.

archaeology or are for the popular press, there are no book-length treatments of this subject that address the dynamics across the scientific, cultural, and governmental realms; moreover, there are few offerings of even article length that approach the issues with the interdisciplinary tools of Science Studies. The nearest book-length analogues of the approach being taken in this dissertation are those of Naomi Oreskes in her examination of the twentieth-century geological community's fifty-year rejection of tectonic plate theory³ and Mario Biagioli in his placing of Galileo in the social context of the turn of the seventeenth century.⁴

The data points for this dissertation are written materials supplemented by visits to museums and archaeological sites. Much of the necessary materials are the written products not only of American archaeologists, bioanthropologists, linguists, and geneticists, but also of American Indian scholars and the policy statements issued by modern American Indian organizations, the U.S. Congress, the Department of the Interior, the various U.S. courts, and the popular press. Research dealing with the quest for the First Americans selectively covers the myths of centuries, several sciences, the policies of the federal government, the politics of American Indian organizations, and the popular press, all within the context of the substantive science studies literature.

Nomenclature

Given the intensity of the debate surrounding the issues to be explored in this dissertation, particular attention must be paid to the often unarticulated power

³ Naomi Oreskes, *The Rejection of Continental Drift: Theory and Method in American Earth Science*, (New York: Oxford University Press, 1999).

⁴ Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: University of Chicago Press, 1993).

relationships embedded in the terminology employed, and the extent, if any, to which there is a discernable influence on the practice of science. As philosopher Paul Feyerabend observed, subtle classification that is sensed rather than comprehended can affect perceptions.⁵ As will be demonstrated in this dissertation, several issues associated with nomenclature have moved well beyond being considered subtle to being openly contentious.

Paleoamericans

A fundamental issue arises immediately around simply what to call the first people to enter the New World. Until the early 1960s, the name commonly used in the scientific community was “Early Man.”⁶ Today, anyone addressing this subject inevitably must choose between either Paleoamerican or Paleoindian to describe the first inhabitants of the Americas. All parties agree that such people are indeed Paleoamerican—that is, ancient *American*. However, some—especially those sympathetic to modern American Indian interests—consider the use of Paleoamerican to be a *de facto* statement that modern American Indians are *not* the direct descendants of the First Americans. Modern American Indians consider the proper term to be Paleoindian—ancient *Indian*—a recognition that their habitation and culture should be considered as unbroken in the Americas since the first humans arrived. Conversely, the defenders of using Paleoamerican believe that there is as yet no finally conclusive scientific basis for that position; modern American Indians could well be the

⁵ Paul Feyerabend, *Against Method* (Fourth Edition) (London: Verso, 2010), 170.

⁶ Bruce B. Huckell and J. David Kilby, “Late Pleistocene North America and Early Paleoindians,” in Huckell, Bruce B. and J. David Kilby, ed. *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Washington, DC: Society for American Archaeology, 2004), v.

descendants of a later, but still ancient, wave of migration from Asia and the very first American migrants may well have died out and left no modern descendants. Since many modern American Indian oral traditions hold that their cultural groups have been here continuously from the first peopling of the New World (whatever their version of “first” might be), *prime facie* acceptance of these oral traditions would lead one to conclude that Paleoindian and Paleoamerican capture identical concepts. Some interpret usage of Paleoamerican as a political statement that modern American Indians are definitively *not* Paleoamericans.

The issue became especially politically charged with the 1996 discovery of the remains of the Kennewick Man (as termed by scientists), or the Ancient One (according to American Indians), when they engaged in a legal confrontation over scientific access to the remains.⁷ Ironically, the terms Paleoindian and Paleoamerican, the distinctions between which are vitally important to American Indians, are both rooted in the very European-centric culture that they disavow. Paleoamerican and Paleoindian are both designations by Western culture that create a chronological distinction between the people of an ancient past and ones of the modern present—a discontinuity that would appear to invalidate the very cultural continuity that American Indians espouse. Use of *Paleoindian*, the characterization preferred by American Indians, implies the existence of a more recent, and culturally distinct, *Neoindian*.⁸ The nomenclature of First American science would appear to have the power to make the cultural past discontinuous with the present.

⁷ David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 205.

⁸ Edwin N. Wilmsen, “An Outline of early Man Studies in the United States,” in Bruce B. Huckell and J. David Kilby, eds. *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Society for American Archaeology, 2004), 13.

Recognizing that there is no consensus, this dissertation will employ the term *First Americans* to describe the first humans to set foot in the Western Hemisphere. Such a designation is sufficiently broad to accommodate, without prejudice, any descendents these First Americans may, or may not, have begat.

American Indians

A similar issue arises in the terminology identifying the *modern* indigenous peoples living in the U.S. Depending upon the audience being addressed, the names include Native Americans, First Peoples, First Nations, American Indians, Original People, Indigenous People, Aboriginal People, Amerindians, and Amerinds. Such putatively racist terms as savage and redskin, except perhaps among sports teams, have been widely discredited and are not seen in recent academic literature. Even looking to the U.S. governmental process for a politically adjudicated name is not particularly helpful. The name of the most recent substantively relevant legislation is *Native American Graves and Repatriation and Act*. However, the title of the recently opened Smithsonian Institution museum is the National Museum of the *American Indian*. Moreover, important political activists and academic figures who claim an indigenous heritage, such as Vine Deloria, Jr., refer to their culture as *Indian*. This dissertation will follow the example of the Smithsonian Institution and Vine Deloria, Jr. and use the term American Indian to describe the indigenous culture extant at the time of the European arrival.

Pre-Clovis

Contention also appears in constructing the terminology for the cultural periods. Perhaps the best example is the so-called *Clovis* culture, the long-reigning archaeological type-site in New Mexico that First American scientists for many years believed, incorrectly as it turned out, represented the cultural tool-kit of the First Americans. The authority of this Clovis-first typology made it the standard against which all other finds were to be compared and interpreted. As a consequence, the Clovis-first paradigm produced accusations of anthropological imperialism on the part of U.S. scholars. “Much of the discussion of the peopling of the New World uses North American Terms (the label ‘pre-Clovis’ generally applied, is irrelevant in South America where Clovis has never been found).”⁹ Even the archaeological site of Monte Verde (ironically located in South America), which has now displaced Clovis as the earliest consensus First American archaeological site, is still referred to as a *pre-Clovis* site. For seventy years, the cultural authority granted to the Clovis-first paradigm so dominated the discussion that a sanctified chronological marker such as B.C. might well be borrowed and used by archaeologists to stand for *Before Clovis*. Nevertheless, although *pre-Clovis* has an inherent bias, the term is so prevalent that it will be retained in this dissertation.

Myth

One of the occasional difficulties in a research project is in identifying a specific word that can express a key concept that is being brought to the foreground. A

⁹ David J. Meltzer, “Why Don’t We Know When the First People Came to North America?” in Bruce B. Huckell and J. David Kilby, eds. *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Society for American Archaeology, 2004), 26.

fundamental part of this dissertation involves delineating the multifaceted relationships among myth, science and other forms of cultural authority. In English, however, *myth* has a taint about it of being a fable or a fairy tale—something important, perhaps, but also something not rooted in reality. For the purposes of this dissertation, myth will be used to describe a statement concerning the natural world that is widely held within a culture and is generally accorded a status of being true, but at the same time is not necessarily (but might be) demonstrable according to the scientific methods of its time.

First American Science

There is a continuing debate within the academic science studies community as to whether the range of methodologies that modern Western culture uses to investigate nature has such a commonality that it may be termed a single science, or whether it is sufficiently diverse that the proper term, therefore, is the plural sciences. In this distinction, the emphasis is on identifying a specific intellectual domain—e.g., physics, biology, chemistry—that is believed to be characterizing the natural world with a domain-specific set of methodologies. In this dissertation, the examination of the practice of science(s) is not through these domains, but rather through attempts by scientists, of whatever ilk, to solve one particular puzzle—the discovery and characterization of the First American. Any particular technique or finding may be claimed by physicists, archeologists, anthropologists, or biologists, and, in practice it can be, and frequently is, claimed by more than one discipline. To emphasize that the context of this examination of the practice of science is the puzzle of searching for the First Americans, and also to avoid being drawn into the conundrum of science versus the sciences, this dissertation will use the phrase First American science to capture the

suite of methodologies employed. However, this dissertation does include an examination of the conflicts internal to First American science which, at times, fracture along the traditional scientific disciplines espoused by individual scientists.

Structure of the Dissertation

Beyond the initial Introduction (Section I), the Conclusions (Section V), and the Bibliography, this dissertation is composed of three major Sections, each with several Chapters. Section II, “First American Theories, Myths, and Evidence,” briefly outlines the range of American Indian myths and the historical development by modern scientists of First American theories and their associated evidence. Section III, “First American Science,” investigates the practice of anthropology, archaeology, bioanthropology, genetics, linguistics, and physics-based dating methods as the constituent components of First American science. In addition, there is an examination of the roles and contributions of laboratories and museums in the practice of First American science. Finally, Section IV, “Communities,” examines the various social contexts—politics, culture, and identity—within which First American science is practiced. A synopsis of the issues addressed in each of the Sections follows.

First American Theories, Myths, and Evidence (Section II)

For people who are a product of scientifically-based western culture, it is difficult to find common referents between science and American Indian creation myths involving entities such as Tiny Little Duck or the Spider Grandmother. Successful employment of truth statements is a powerful social lever. If a culture is structured around a particular form of truth, some element of that culture typically is empowered

to translate truth in ways that dominate cultural values and, therefore, social behavior. The truth statements for both the practice of First American science and for the traditions of modern American Indians fall into this category. Some scholars contend that there is no inherent conflict between the bodies of knowledge and methodologies of science compared with that of creational myths because they are concerned with different matters.¹⁰ As a practical matter, however, it is difficult to disentangle how these truths are translated into social power. As socially motive forces, the power-elite for both science and myth attempt to legitimize the basis of their truth statements by appealing to factors external to the statements themselves. For example, science appeals to the rigor of its methodology while cultural identity appeals to the sacred nature of its texts or oral traditions. Juxtaposing cultural authorities of such incongruent expressions of social power gives rise to contradiction and, therefore, epistemological conflict.

Section II, “First American Theories, Myths, and Evidence,” as addressed in Chapters 1-5, examines the search for the First Americans through the relationships across the myths, theories, and material evidence of both American Indian traditions as well as the Euro-American culture of the modern sciences. Central to this examination are archaeological sites at Clovis (Blackwater Draw), New Mexico, Monte Verde, Chile, and Meadowcroft Rockshelter, Pennsylvania, and how material evidence has been used, and, perhaps, abused by First American scientists to support conflicting theories. In addition, the status of Atlantis as a source for the First Americans is examined as both a

¹⁰ see for example the work of Stephen Jay Gould *addressing* Non-Overlapping Magisteria (*NOMA*) in *Leonardo’s Mountain of Clams and the Diet of Worms*, contending that religion and science were not inherently in conflict

scientific as well as a mythological statement. It is not that science is necessarily less speculative than myth, but rather, as Richard Feynman reportedly characterized it, science is imagination in a straight jacket. Atlantis will show that the methodological constraints imposed by the straight jacket change through time, with substantive implications.

First American Science (Section III)

The modern self-image of service to humanity that is embedded in some scientists was already evident in the nineteenth century. On October 21, 1898 aboard the steamer *Germanic*, Jeremiah Curtin dedicated a book entitled *Creation Myths of Primitive America* to John Wesley Powell who had lost an arm serving in the Union forces in the American Civil War and subsequently directed the U. S. Geological Survey as well as the Bureau of Ethnology at the Smithsonian Institution. In the dedication, Curtin wrote: “You lost your right hand in fighting to save American unity...The same kind of impulse that sent you to the field of battle to serve the country and world, sent you to the field of science to serve as a geologist and an explorer...Through your labors, combined with those of the men whom you have associated with you, the world has learned more of the great primitive race of our country than it learned from the discovery of the continent till the day when the Bureau was founded.”¹¹ Curtin’s dedication revealed two important points. First, he demonstrated a recognition of the influence of the scientific elite of the community through his sycophantic appeal to the good graces of Powell, certainly one of the dominant figures in American geology, archaeology, and ethnography of that period. The second was a declaration of the self-

¹¹ Jeremiah Curtin, *Creation Myths of Primitive America* (New York: Benjamin Blom, 1969).

mindful role of then-modern science in providing *the* definitive statement on the “primitive race” in America; there is no mention of American Indian myth as an epistemological resource even though the book which includes Curtin’s dedication is about the creation myths of these very same people.

Section III, “First American Science” in Chapters 6-10 examines the unstabilized power relationships between the sciences as they are employed in the search for the First Americans. Although the written reports of First American scientists reflect the most widespread representation of scientific production, they are not the only sources to be explored. First American science, especially the field of archaeology, at its core is a science of materiality, of artifacts. Moreover, it is not only the artifacts themselves that are important in the scientific debate, but also their physical context—their *in situ* relationships—are critical as well. One manifestation of this physicality is the archaeological sites where not only the artifacts themselves are recovered, but also where the laboratory techniques of recovery and the positional relationships are also available for inspection by the First American scientific community. A second manifestation of this physicality is the prominent display of First American-related artifacts at publicly accessible museums. As a representative sample of this physical aspect of First American science, I visited what is regarded as the Clovis-culture type-site at Blackwater Draw, New Mexico and also visited what is considered to be a potentially significant pre-Clovis site at Meadowcroft Rockshelter, Pennsylvania. In addition, I visited the Hall of Human Origins at the Museum of Natural History and the National Museum of the American Indian, each a part of the Smithsonian Institution in

Washington, D. C., and also visited the Blackwater Draw Museum in Blackwater Draw, New Mexico.

Community (Section IV)

One of Michel Foucault's contributions to the history of science was the concept of an epistemological grid in western societies.¹² According to Foucault, there are unquestioned and powerful normative constructions that are so fundamental to our cultural fabric that a concerted effort is required to separate them from the societal background noise. Unless the underlying values are identified, historians have little prospect of differentiating meaningfully between the characteristics of modern science and the broader contextual mores of society at large. Although scholars have attempted to create a distinction between what is external and what is internal to science, this distinction has largely been discredited in science studies. This raises the issue as to whether the very concept of a *first* American is value-neutral. Does the problem itself have a set of contextual assumptions that structures whether, and what kind of, science can answer it (or not), what constitutes an observation, and what might comprise an acceptable answer? In some quarters, it is inherently unacceptable, even racist, to conduct research examining whether the First Americans might have migrated from what is now considered to be Europe, or even to conclude that the First Americans migrated into the new world from Asia across a Bering Strait land bridge.

“Community,” as Section IV addresses in Chapters 11-13, is a concept central to many aspects of First American science. It is an important social mechanism that not only shapes the boundaries of science and myth, but also validates who is considered to

¹²Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1970).

be a scientist or a member of a tribe. It motivates and rewards, and it produces a value system which legitimizes or rejects theories, myths, observations, and methods. Any objectivity that First American science is accorded is a function of a group's practice of science rather than of any single individual's efforts.¹³ A community has power-structures, institutions, elites, and normative constraints. Understanding community dynamics and their constituent elements is an important part of understanding science in the context of its search for the First Americans.

With a near-consensus in the science studies literature that community values play some role in the practice of modern western science, it is important to examine how these values are, if at all, modified from time to time and how fluid might be the modification process. In the United States, it is clear that the government—primarily, but not exclusively, at the federal level—is significantly involved not only in funding scientific projects and shaping their goals, but also in creating acceptance for scientific methodologies. Science may speak truth to the power of the federal government, but that same political power has great influence over how First American science is to be practiced.

In the United States, federal law is the most intrusive form for externally dictating cognitive values to the scientific community. U. S. law grants American Indian traditions and oral history equal epistemological status with the methods of First American science for determining the cultural affiliation of, and therefore access to, pre-European human remains and funerary objects. There have, of course, been objections to governmental intervention from members of the scientific community, as captured by

¹³ Helen E. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 74.

the comment of Douglas W. Owsley of the National Museum of Natural History, Smithsonian Institution: “Positions taken by those persons or organizations opposing careful scientific study undermine attempts to learn about the pre-history and settlement of this hemisphere.”¹⁴ Taking a diametrically opposing position, in *Red Earth, White Lies*, Vine Deloria, a scholar and American Indian, criticized the demeaning role of science and trumpeted the ontological value of American Indian traditions.¹⁵ This, in turn, led James Adovasio, a First American scientist who is excavating the potentially pre-Clovis Meadowcroft Rockshelter, to conclude that Deloria was engaged in “an impassioned (and largely ill-informed) diatribe against the matter of human evolution, the existence of the Bering land bridge, and the continuing failure of the sciences to confirm the creation stories of Native American myth...In response to such assaults, he denied the underpinning validity of any and all science, its findings, and its methods.”¹⁶ As is obvious, participating in the search for the First Americans is not for the socially sensitive.

Bibliography

There is an abundance of literature on the science, myths, and politics of the search for the First Americans. However, it tends to be scattered across the several scientific disciplines involved, American Indian organizations, and the federal government—and covers a five-hundred-year period. Included in this dissertation is an

¹⁴ Douglas W. Owsley, “From Jamestown to Kennewick: An Analogy Based on Early Americans,” in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, Oregon State University, Robson Bonnicksen, Editor. (Corvallis, Oregon: Center for the Study of the First Americans, 1999), 128.

¹⁵ Vine Deloria Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact* (New York: Scribner, 1995).

¹⁶ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003), 124.

extensive fifty-plus-page Bibliography which addresses the entire range, both chronology and disciplinary, of materials available.

Section II. First American Theories, Myths and Evidence

Popular wisdom in modern American culture holds that there is a clearly discernible distinction between myth and scientific theory, and also between theory and evidence. Moreover, there is also a belief that science is a discipline whose theories are open to modification based upon the best available evidence. As Section II demonstrates, an examination of the myths, theories and evidence associated with the search for the First Americans challenges these popular conceptions.

Chapter 1, “American Indian Myths,” not only catalogues the range of existential myths held by modern American Indian groups, but also identifies elements of myths that, in later chapters, also appear in scientific theories. Despite the variation in the details across these myths, they are generally consistent in affirming an existence that American Indians arose indigenously in the Western Hemisphere and were not a migration from elsewhere—establishing an immediate confrontation with the contending theories of science, none of which hypothesize that the First Americans are a product of an indigenous existential creation.

Chapter 2, “Euro-American Theories,” describes the evolution of western scientific theories from the first fifteenth-century European contacts with the New World through today. Important to this evolution are changes in the cultural context within which these scientific theories are created.

Chapter 3, “Clovis-First,” examines the development of the twentieth-century Clovis theory which argued that the First Americans came from Asia via a Siberian-Alaskan land bridge to the New World 13,000 years ago and within 1,000 years

populated the entire Western Hemisphere. Despite increasingly contradictory evidence, this now-discredited theory was fiercely protected for seventy years by its defenders.

Chapter 4, “Pre-Clovis: Monte Verde and Meadowcroft,” discusses the practice of science in the development of two specific theories and their supporting material evidence that have challenged the Clovis-first model. The Monte Verde excavation site in Chile has provided evidence of an earlier culture that is now acknowledged to have dislodged the Clovis-first theory. The Meadowcroft Rockshelter is a strong—but as yet not a consensus—candidate for also identifying a culture older than Clovis.

Finally, Chapter 5, “Case Studies: Atlantis and Chinese Bestiary,” provides two separate case studies. First, it investigates how Atlantis was, for a time in the nineteenth century, accepted as a legitimate scientific theory supported by material evidence as the original source of the First Americans, and concludes that, at least in this instance, it may be possible only in retrospect to distinguish between science and myth. Second, Chapter 5 also examines Chinese history for indications of an ancient myth of Asians having departed to the north-east to cross from Siberia into Alaska.

Chapter 1. American Indian Myths

Cultures hold, and even revere, an existential myth. It may be a source of power for a dominant class or religion, provide a comforting structure for social continuity, or reinforce a sense of cultural superiority. At the C. G. Jung Institute during the winter of 1961-1962, Marie-Louise von Franz (1915-1998), a noted Jungian psychologist and scholar, gave a series of lectures on creation myths that were published in 1972 as *Creation Myths*. According to von Franz, “creation myths are of a different class from other myths...there is always a certain *solemnity* that gives them a central importance...as far as the feeling and emotional mood which accompany them are concerned, creation myths are the deepest and most important of all myths.”¹⁷ Vine Deloria, Jr., a noted American Indian scholar and political activist, echoing the conclusions of von Franz, stated that “every human society maintains its sense of identity with a set of stories which explain, at least with satisfaction, how things came to be. A good many societies begin at a creation and carry forward a tenuous link of events which they considered to be historical.”¹⁸ Yet, in the United States there is a particular fascination surrounding the First Americans that is difficult to understand in these terms. This intense interest by a dominant European-centric culture is in identifying an exact source for the First Americans—the people of another culture.

At the times of the commonly acknowledged European arrivals, approximately 1000 C.E. by the Vikings and 1492 C.E. by Christopher Columbus, there was no European presence—linguistically, culturally, or phenotypically. For the conquering western

¹⁷ Marie-Louise von Franz, *Creation Myths* (Boston: Shambhala Publications, 1972), 1.

¹⁸ Vine Deloria, Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*. (NY: Scribner, 1995), 37.

European culture, the roots of the Judeo-Christian impetrative to dominate nature ran deep.¹⁹ As Dana Villa explained, the European conquest of the Western Hemisphere objectified the earth itself.²⁰ It represented perhaps the last great barrier to human dominion over its physical circumstance. It may be difficult, however, for a culture to distinguish between its self-perceived superiority and the grandeur of *Homo sapiens* at large. There is no civilization in which its creation myth recounts that the god(s) passed them by and chose, instead, to anoint a neighboring civilization. The cultural authority that sustains an existential myth does not provide for a people to have been an inconsequentially distant relation of the first people; there must be a direct lineal descent from the creative primogenitor. As a cultural act, the social construction of a society's creation myth is one of the few defining events in its history. However, when that myth is successfully challenged, then the creation myths of other societies are suspect as well. As pointed out by Deloria, "when secular science defeated Christian fundamentalism, in its victory it was able to promulgate the belief that *all* accounts of the creation or of spectacular catastrophic specific events were superstitions devised by ignorant peoples to explain the processes of the world around."²¹

The characteristics of creation myths, according to von Franz, are common across cultures. Typically, they fall into such categories as the awakening of consciousness; creation from above; creation from below; germs and eggs; a mechanistic god, such as the Chinese P'an Ku who is a master in all crafts; and, the Egyptian God Ptah who used

¹⁹ The relationship between the Judeo-Christian ethos and the Western concern with dominion over nature is a recurring theme in science studies literature, but many attribute an early articulation to Lynn White, "The Historical Roots of our Ecological Crisis," *Science* Vol. 155, no. 3767 (March 19, 1967), 1203-1207

²⁰ Dana Villa, *Arendt and Heidegger: The Fate of the Political* (Princeton: Princeton University Press, 1996), 190.

²¹ Deloria, *Red Earth, White Lies*, 39.

a potter's wheel to create the world and the other gods.²² American Indian creation myths generally conform to this model, and can be categorized as describing an existential birth by: jumping, falling, or being pushed from the sky; arising from the earth or mud; appearing from the lake, ocean, or river; or being born in and climbing out of an underworld.²³ Simultaneous with this creation, in many American Indian traditions they are also given an immediate awareness that they have been created.²⁴ According to Teresa Pijoan, an history professor at the University of New Mexico at Valencia, "Some have a creator, and some don't and a few seem to have grafted a creator onto an older story that had none, perhaps under the influence of Christianity."²⁵ Pijoan also concluded that there appears to be no relationship between the geographical area or linguistic roots, on the one hand, and the particular category of creation myth indigenous to an American Indian tribe.²⁶

Prefiguring both von Franz and Pijoan, in 1898 Jeremiah Curtin published a book, also entitled *Creation Myths*, that is a straightforward and readable account of 22 creation stories of American Indian groups. Considering the obvious racial and other social biases typical of his time, outside of the "Introduction" chapter, there is no overt attempt to provide a pejorative interpretation of any of these myths; the only seeming constraint would be that faced by all ethnologists—Curtin's ability to accurately capture the cultural values and priorities of non-Western civilizations within the conceptual boundaries imposed by an American-culture and English-language epistemological grid. Compounding this difficulty is the contention by American Indian scholars such as Vine

²² von Franz, *Creation Myths*, 132-133.

²³ Teresa Pijoan, *American Indian Creation Myths* (Santa Fe: Sunstone Press, 2005), 8-9.

²⁴ Deloria, *Red Earth, White Lies*, 233.

²⁵ Pijoan, *American Indian Creation Myths*, 8.

²⁶ *Ibid.*, 8-9 .

Deloria, Jr. (1933-2005)—a member of the Sioux tribe; a prolific author; an academic scholar with degrees in science, theology and law; and a continuing challenger to Eurocentric thinking in the search for the First Americans—that as much as 90 percent of traditional American Indian “information” has never been printed and is therefore not available to scientists or the public.²⁷ To the extent that this is the case, it would further constrain the ability of Western scholars to understand American Indian myths.

The existence of Curtin’s *Creation Myths* resulted from the continuing popular interest in the indigenous cultures of America. Based upon interviews of “Indians” in California, Mexico, and Guatemala, it is a compilation of consecutive-Sunday articles written in 1895 for the *New York Sun* of “myth-ales as I might think of sufficient value to appear in the paper.”²⁸ Curtin employed a surprisingly modern concept of what he termed the American *system* to capture the intricate set of relationships between the mental and physical domains that are necessary to create a complex myth. According to Curtin, “The American creation myths, as far as we know them, form simply a series of accounts of the conflicts, happenings, and various methods by which the first world was changed into the world now existing.”²⁹ Embedded within these creation myths, Curtin believed, were “models upon which faithful Indians are to fashion their lives at all times and places.”³⁰ These myths were not simply interesting stories, but rather formed an essential element of the American Indian value system.

²⁷ Deloria, *Red Earth, White Lies*, 11.

²⁸ Jeremiah Curtin, *Creation Myths of Primitive America* (New York: Benjamin Blom, 1969), 487. First published as *Creation Myths of Primitive America: In Relation to the Religious History* (Little, Brown, and Company, 1898).

²⁹ *Ibid.*, *xiii*.

³⁰ *Ibid.*, *xx*.

The descriptive range of creative agency for American Indians is quite extensive. For the Pawnee it was Tiny Little Duck; for the Crow, it was Old Man Coyote; Mandan, the Lone Man; Yakima, the Wooden Stick People; and Hopi, the Spider Grandmother.³¹ Knud Rasmussen in his book *The Eagle's Gift* asked a Noatak River Eskimo named Apatac how the world was created. "Nobody can know anything for sure about the beginning of life. But whoever opens his eyes and his ears and tries to remember what the old people said, might fill the emptiness of his thought by this or that knowledge."³² For the American Indian, Curtin concluded that "The wisdom of his nation is more valid, more reliable than the wiriness of his own senses. His eyes and ears might be deceived by tricksters, but not by the truth delivered to great men among his own people, preserved by them sacredly and passed down to others."³³

Why do Americans study American Indian myths? As Curtin captured it in 1898: at the time that the Europeans arrived, the myth systems of the American Indians were intact. There was no culturally-sanctioned process by which they were challenged. "Human history has no second example of a single system of thought developed over such a vast area."³⁴ For modern Americans, the appeal of the search for the First Americans is still rooted in a quest for confirmation of a cultural existential myth.

University of Cambridge physicist Stephen Hawking began *A Brief History of Time* with the story of a skeptic who challenged a philosopher (Hawking hypothesized that it was Bertrand Russell) with the statement that the "world is really a flat plate

³¹ Pijoan, *American Indian Creation Myths*. Pijoan provides a very readable catalogue of American Indian myths.

³² von Franz, *Creation Myths*, 28. This myth is reported by Knud Rasmussen in his book *The Eagle's Gift*, and discussed by von Franz.

³³ Curtin, *Creation Myths*, xxii.

³⁴ Curtin, *Creation Myths*, xxv.

supported on the back of a giant tortoise.” When asked what supported the tortoise, the person responded that “it’s turtles all the way down!”³⁵ The existential myths of American Indians suffer from the same potential epistemological challenge. Although their traditions identify a primal creative agency, the same myths do not typically explain the origin of the usually animate agency, nor do they explain the occasional presence of other contemporaneous aboriginal tribes in their myths. It is, perhaps, this inability of American Indians to provide an explanation that relates their creation stories to their demonstrable material surroundings that provides First American science its most significant lever for challenging these myths.

There is discipline as well as power in capturing concepts through the written word. Bruno Latour, Steve Woolgar, and others have described science as ultimately the sum of its written reports, its so-called inscription devices.³⁶ The act of writing denaturalizes a myth.³⁷ Commitment to writing is one form of assigning boundaries to the physical possibilities of an oral tradition. Scientific analysis is another and is, perhaps, even more constraining than being captured by words. For a Western, science-based culture, the contest is perceived as being between laboratories and written reports, on the one hand, and campfires and oral traditions on the other.

The power to define the past is of value as a mechanism for negotiating current power relationships and, therefore, influencing the future. For American Indians, myths are a part of an enduring social fabric and are non-argumentative. They have a status

³⁵ Stephen Hawking, *A Brief History of Time: From the Big Bang to Black Holes*. (New York: Bantam Books, 1988), 1.

³⁶ Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton: Princeton University Press, 1986).

³⁷ Gerard Naddaf, “Allegory and the Origins of Philosophy,” in *Logos and Muthos: Philosophical Essays in Greek Literature*, edited by William Wians (Albany: SUNY Press, 2009), 102.

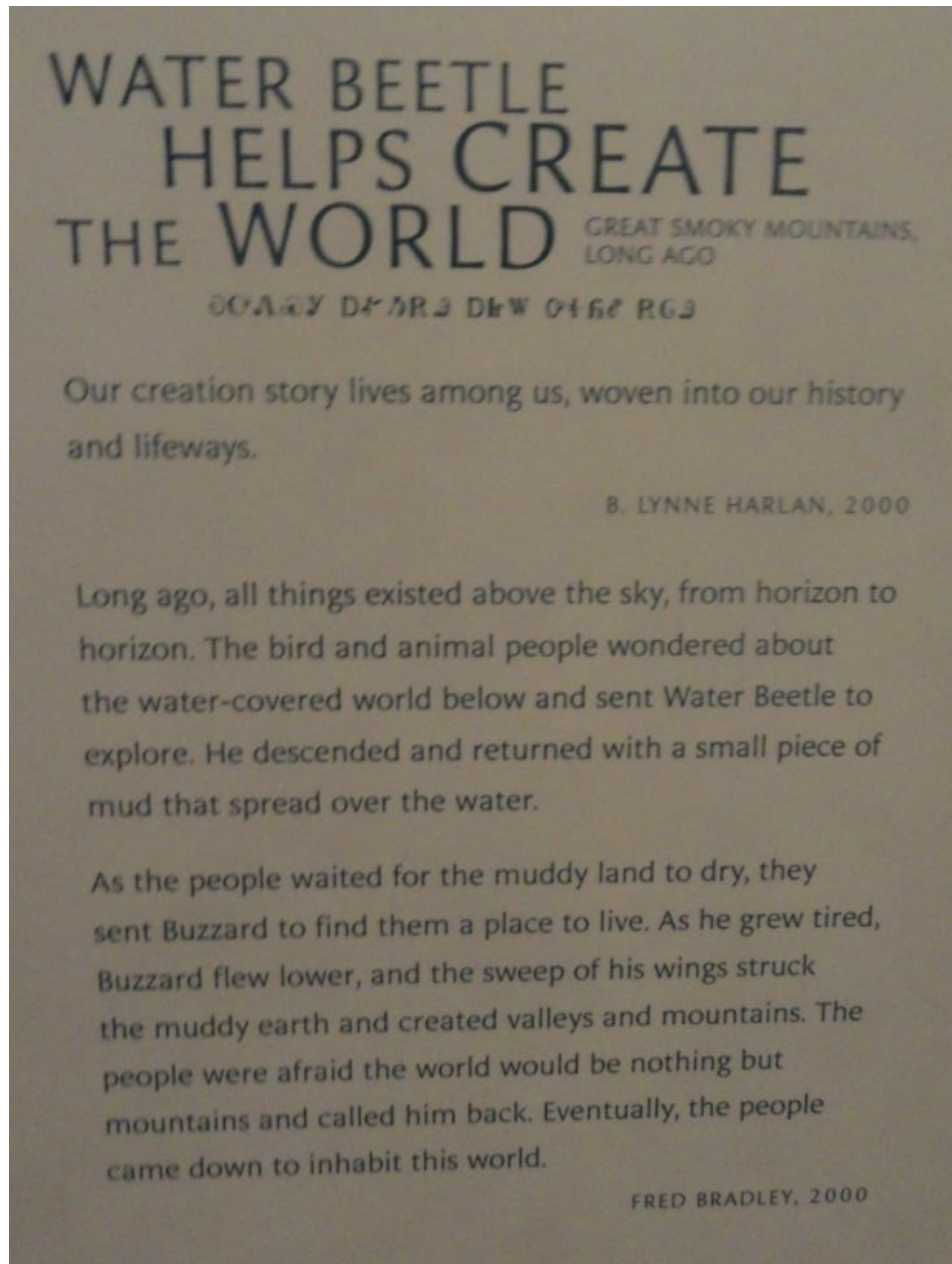
that is believed to be a non-discoverable part of human knowledge. This does not, however, mean that there is no social value to myths. Even in a science-based culture, they may be part of an ethical structure that governs the mores of that society. According to Gerard Naddaf, a professor of philosophy at the University of York, myth can provide both a causal explanation for the present social, and even natural, order along with some assurance of legitimacy and continuity. Myth operates to integrate potentially conflicting elements of the religious, cultural, historical, social, and political realms.³⁸ The challenge that First American science presents to American Indian myths is that the material artifacts analyzed by modern science may destabilize a long-standing social order with vested interests. For some cultures, principally ancient but some modern as well, something accorded the status of myth is not irrational, but rather is considered to be a fundamental part of reality, “a liberation from excessive abstraction and objectivism,” according to Kathryn Morgan, a professor of philosophy at the University of Toronto.³⁹ For such cultures, myth creation and maintenance is an ontologically definitive process.

The Smithsonian Institution National Museum of the American Indian (NMAI) is a representational gallery of American Indian culture more than it is a traditional science-based museum. The exhibits were prepared by community curators approved by, and often supplied by, the tribe whose culture was being exhibited. As such, it provides an interesting indigenous insight into some of the specific American Indian creation myths. As seen in Figure 1, a placard by the Cherokee tribe described the roles

³⁸ Naddaf, “Allegory and the Origins of Philosophy,” 121, footnote 10.

³⁹ Kathryn A. Morgan *Myth and Philosophy from the Presocratics to Plato* (Cambridge: Cambridge University Press, 2000), 1. See also discussions in G.E.R. Lloyd. *Demystifying Mentalities* (Cambridge: Cambridge University, 1990) and L. J. Hatab, *Myth and Philosophy: A Contest of Truths* (La Salle: Illinois, 1990).

that Water Beetle and Buzzard played in aiding “the bird and animal people,” presumably including the Cherokee, to descend from above the sky and inhabit the world.



*Figure 1. Water Beetle plaque-Smithsonian Institution. Exhibit from the Smithsonian Institution National Museum of the American Indian.*⁴⁰

⁴⁰ Picture taken by Robert V. Davis, July 29, 2010 at the Smithsonian Institution National Museum of the American Indian

At another Smithsonian Institution NMAI exhibit, the Tohono O’odham tribe provided (see Figure 2, below) a water-borne depiction of human origins through the creational agencies of Earth Medicine Man, Buzzard, Coyote, and termites.

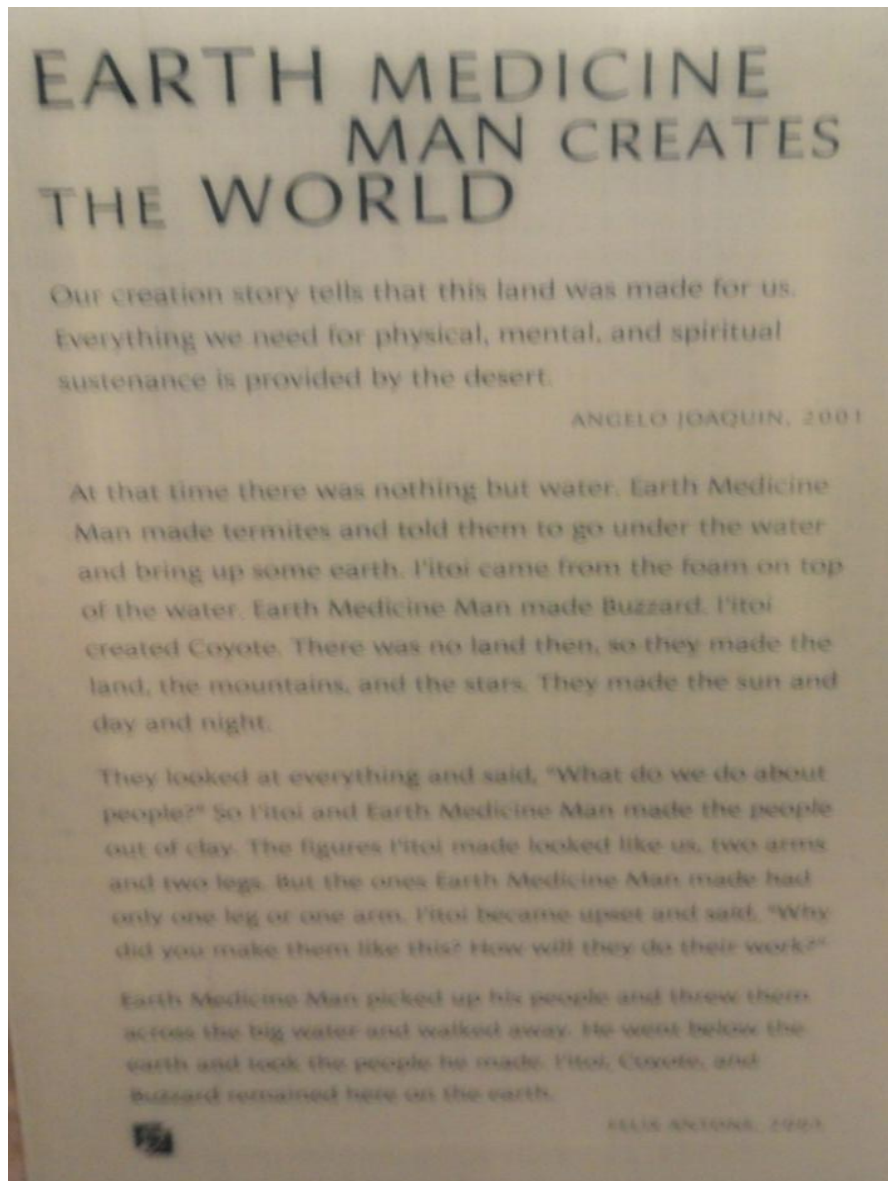


Figure 2. Earth Medicine plaque-Smithsonian Institution. Exhibit from the Smithsonian Institution National Museum of the American Indian.⁴¹

⁴¹ Picture taken by Robert V. Davis, July 29, 2010 at the Smithsonian Institution National Museum of the American Indian

A third exhibit of the Ka'apor tribe of Brazil, shown in Figure 3, portrayed its own creation as being "from the beginning of time," with the creative agency provided by "Mair."

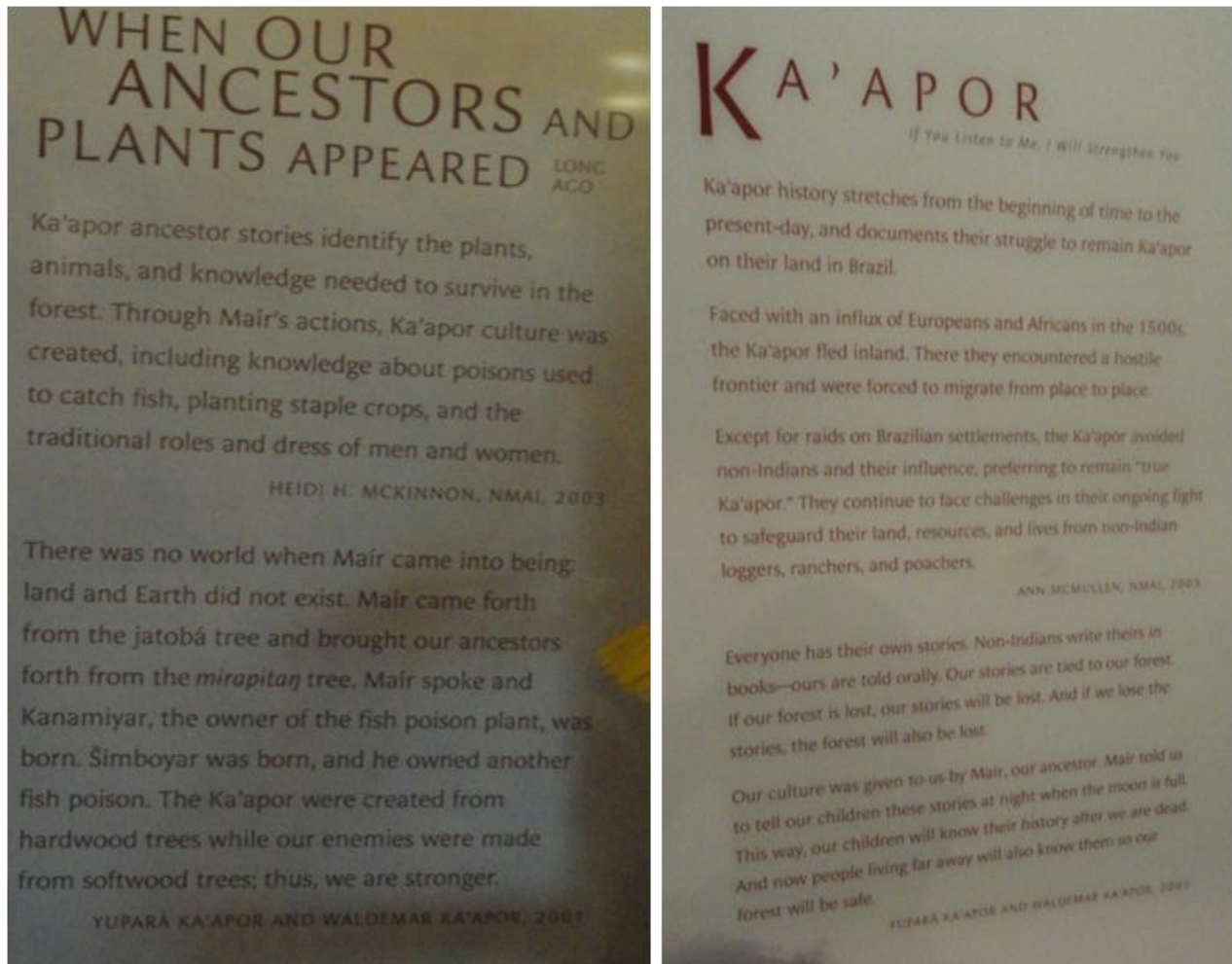


Figure 3. Ka'apor tribe plaques-Smithsonian Institution. Exhibit from the Smithsonian Institution National Museum of the American Indian.⁴²

In yet a fourth exhibit, the Pamunkey tribe of Virginia offered a less mythic statement as to its origins. Perhaps the most interesting element of their exhibit was a statement, as shown in Figure 4, of their existence in Virginia for "at least 12,000 years." It is not clear as to whether their historical memory has an actual calculation that

⁴² Both pictures taken by Robert V. Davis, July 29, 2010 at the Smithsonian Institution National Museum of the American Indian

reaches back to that time, or whether they are basing it on the results of First American science. Regardless, such an antiquity would chronologically place their culture as one of the original inhabitants of the New World.

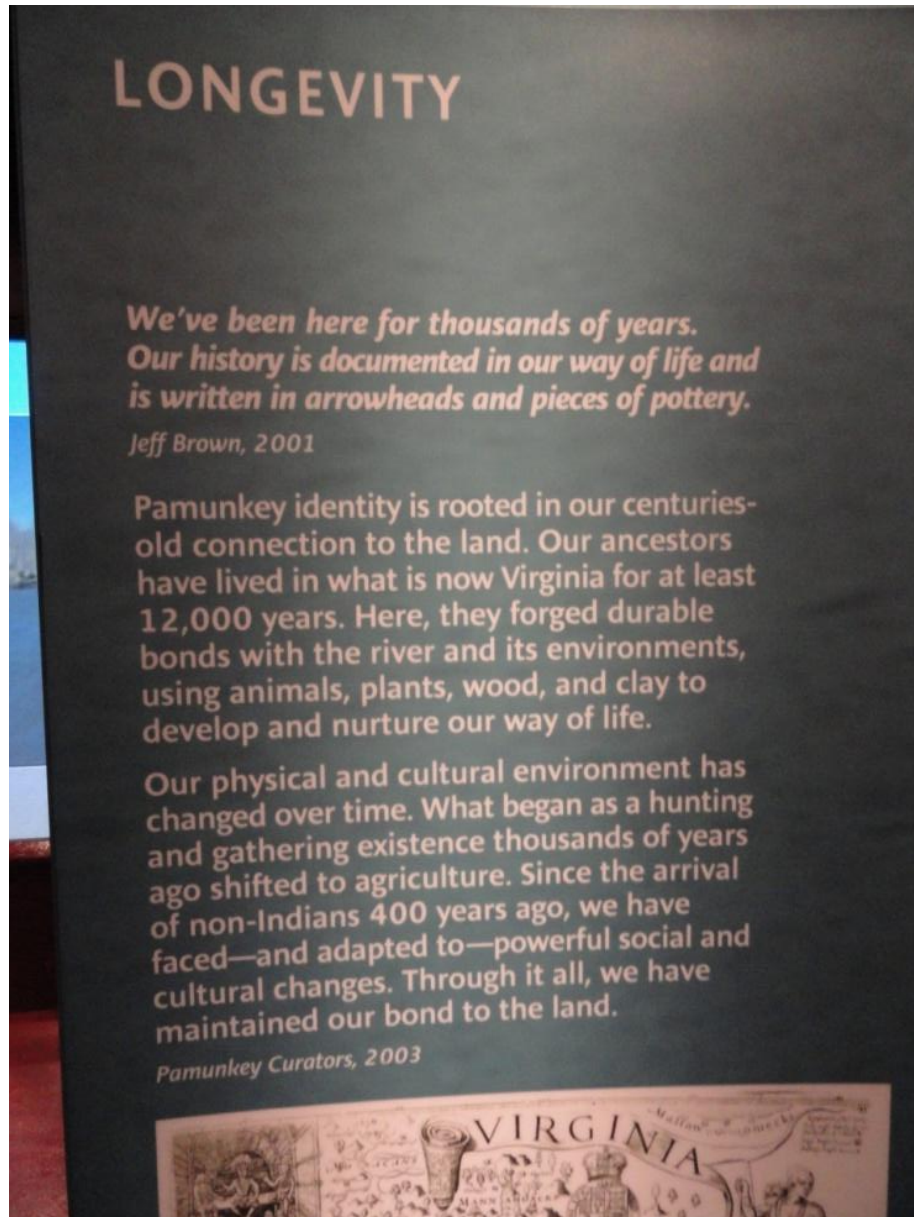


Figure 4. Pamunkey tribe plaque-Smithsonian Institution. Exhibit from the Smithsonian Institution National Museum of the American Indian.⁴³

⁴³ Picture taken by Robert V. Davis, July 29, 2010 at the Smithsonian Institution National Museum of the American Indian.

Finally, in what might be considered a bit of hyperbole, as shown in Figure 5, the Smithsonian Institution NMAI itself states that "the true significance of 1492" is its being "the most profound event in human history."

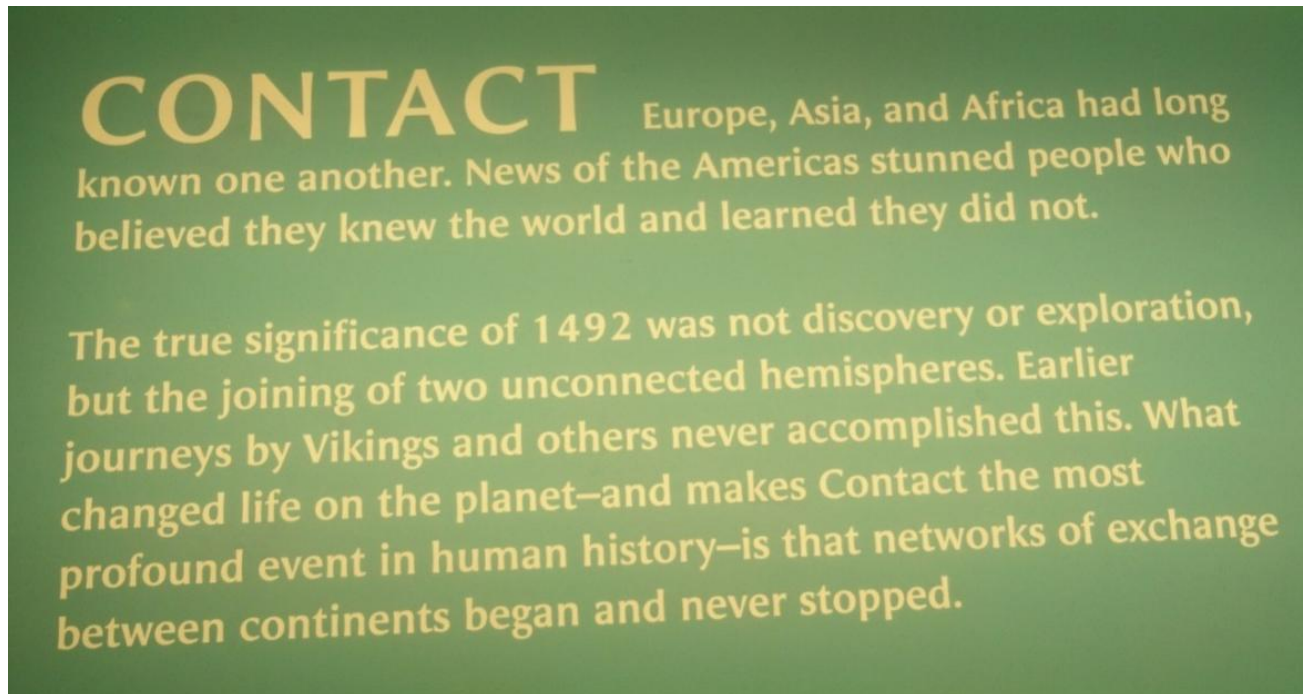


Figure 5. *Contact plaque-Smithsonian Institution.* Exhibit from the Smithsonian Institution National Museum of the American Indian.⁴⁴

Although other events, e.g., the migration of *Homo sapiens* itself out of Africa, could arguably be considered of more import, the statement itself provides an indication of the cultural importance that modern American culture, as expressed through its preeminent museum system, attaches to the search for the First Americans.

⁴⁴ Picture taken by Robert V. Davis, July 29, 2010 at the Smithsonian National Museum of the American Indian

Chapter 2. Euro-American Theories

Introduction

The challenge for First American scientists is inelegantly, but aptly, captured by archaeologist James Adovasio who asked “who the hell are these people, where did they come from, and when did they get here?”⁴⁵ This chapter will lay out how the answers to these key questions in the search for the First Americans have been continually revised within the dominant Euro-American⁴⁶ culture beginning at the time of the initial fifteenth-century contact and continuing even through today.

One theoretical contention that this dissertation need not address is human evolution *per se*; there is a consensus, at least to date, that human skeletal remains and material artifacts found in the Americas are all associated with modern *Homo sapiens*.⁴⁷ As a result, the substantive challenges facing First American scientists are determinations of the propinquity of cultural relationships rather than determinations of corporeal evolution. The anatomical and genetic distinctions that receive so much attention in defining the *Homo sapiens* ancestral tree in Africa, Europe and Asia play a much different role in the search for the First Americans. Physical distinctions among early Americans, while of some interest in and of themselves, are for First American scientists tools to be used to make estimations of social relationships. Consequently, much of the 500-year-old debate within the Euro-American culture has been consumed

⁴⁵James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery*, (New York: The Modern Library, 2003), 4.

⁴⁶ For the purposes of this discussion, I have chosen to use the term Euro-American to describe the culture in the geographical area that has become the United States. While there are certainly distinctions that might be made between European and American views in the search for the First Americans, they are of minor significance when compared with those held by American Indians as discussed in the previous chapter. There is a continuity of culture in what is captured here as Euro-American, as opposed to the significant discontinuity presented by American Indian beliefs.

⁴⁷ T. Goebel, M. R. Waters and D.H. O'Rourke, “The Late Pleistocene dispersal of modern humans in the Americas.” *Science* Vol. 319, (2008), 1498.

with conforming what is *believed* to have been discovered about the First Americans to the foundational cultural *truths* of the dominant Euro-American culture. A popular adage attributed variously to Mark Twain and Will Rogers states that what gets us into trouble is not what we don't know, but rather what we think we know for sure that just isn't so. The Euro-American cultural baseline—what is accepted as being known for sure—has been unstable in the search for the First Americans for the past five centuries as a result of the continuing redefinition of the cultural ontological judgments derived from biblical tenets, racial hierarchies, evolutionary theory, and the development of modern geological determinations of an ancient earth.

Edwin N. Wilmsen, in his 1965 article in *American Antiquity*, divided the five centuries of vacillating Euro-American thoughts on the First Americans into six periods: 1520-1780, 1780-1859, 1859-1890, 1890-1925, 1925-1950, and 1950 to the present.⁴⁸ The first phase, 1520-1780, centered on the conjectures of Europeans who, for the most part, had never been to the New World. As the Americas became populated by educated men, from 1780 to 1859 the theorizing began to be based upon direct observations, such as those by Thomas Jefferson, associated with the nascent development of modern anthropology, archaeology, and geology. Wilmsen's next phase in the search for the First Americans, 1859-1890, grappled with the implications of biological evolution and geological antiquity. Against this background, the search began for New World analogues to the ancient human remains being found in Europe. Educated, but professionally untrained, amateurs became involved in "discovery" of artifacts upon

⁴⁸ Edwin N. Wilmsen, "An Outline of early Man Studies in the United States," in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, Bruce B. Huckell and J. David Kilby, eds. (Washington, DC: Society for American Archaeology, 2004), 3.

which exaggerated, and routinely disproven, claims of antiquity were built. Between 1890 and 1925, the almost unconstrained speculation of the prior period led, according to Wilmsen, to the creation within the newly developing community of First American scientists of a proscription against the possibility of truly ancient (Pleistocene) human remains in the Americas. It was during this period that key figures such as William Henry Holmes (1846-1933) and Aleš Hrdlička (1869-1943) developed their intellectual approaches. The next period, 1925-1950, not only brought professionalism to archaeology, but also laid the foundation for what has been an almost visceral skepticism by leading First American scientists of the last 75 years toward any evidence that suggested human occupation of the New World prior to 13,000 years ago, and an autonomic disbelief in any theory which contradicted the thesis that the Clovis culture—so named because of its initial discovery near Clovis New Mexico—was not the culture of the First Americans.⁴⁹

Figure 6 shows the proposed routes of the First Americans into the New World through North America as conjectured by many Euro-American scientists. The primary contention has been that of a footpath across what is now the Bering Strait on a land bridge that was exposed during the last Ice Age, followed by a rapid expansion southward between the Cordilleran Glacier and the Laurentide Ice Sheet. Also shown in Figure 6, however, are alternative theories for possible northern-latitude maritime entries from both Asia and Europe which bypass the Beringian land bridge.

⁴⁹ Wilmsen, “An Outline of early Man Studies,” 3.

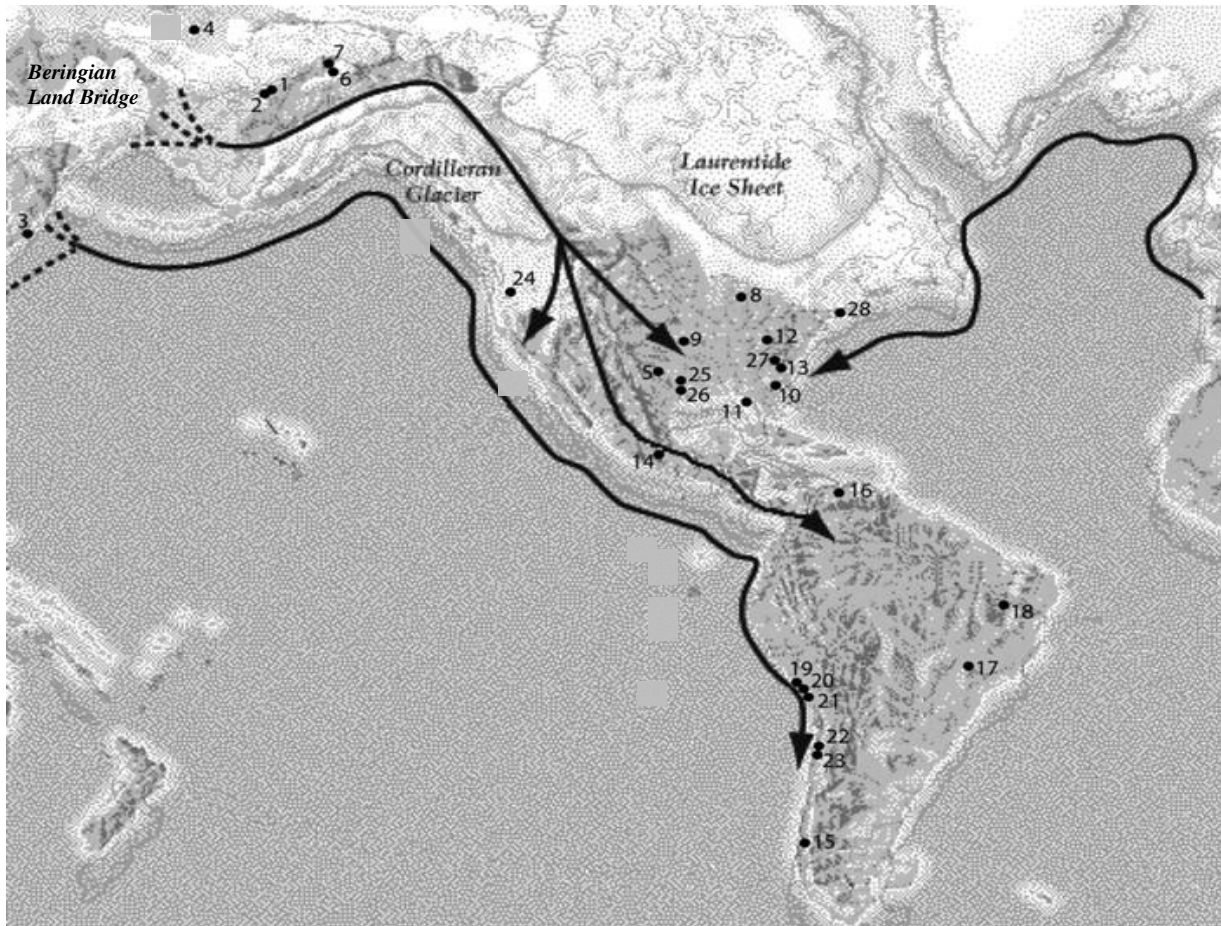


Figure 6. Map of possible migration routes to New World.⁵⁰

Early Theories (1500 to 1800)

The concept of a “New” World, frequently attributed to Peter Martyr (1457-1526) in *De Orbe Novo (On the New World)*,⁵¹ was a late fifteenth-century, European-centric statement of cultural, temporal, and geographical hegemony over Western Hemisphere civilizations. As it became apparent over the next few decades after the publication of this book that this large land mass was not contiguous with the Old World, explanations that accommodated European cultural myths were needed regarding the origins of the

⁵⁰Map from Thomas D. Dillehay, “Probing Deeper into First American Studies,” *Proceedings of the National Academy of Sciences* 106 (2009): 973. (Fair Use determination attached.)

⁵¹ See Pietro Martire d’ Anghiera, *De Orbe Novo: The Eight Decades of Peter Martyr d’Anghera*, translated and edited by Francis Augustus MacNutt (New York: Putnam, 1912).

New World's indigenous peoples. Speculation included the Lost Tribes of Israel, Romans, Phoenicians, Mongols, Welsh, Hindus, Carthaginians and survivors of the lost continents of Mu and Atlantis.⁵² By 1578 William Bourne published in London *Booke Called the Treasure for Travellers* with an entire chapter titled "The Peopling of America."⁵³ The first significant documented conjecture that the indigenous Americans were originally from Asia came in 1590 when, after living in what are now Mexico and Peru, Jesuit missionary José de Acosta (1539-1600) speculated that they had migrated across something like what is now known as the Bering Strait between Russia and Alaska.⁵⁴

One of the difficulties faced was not only a determination of the geographical origins of the inhabitants of the Western hemisphere, but also a determination of their genealogical origins. In short, regardless of their physical origins, a seminal question to be addressed was the extent to which the aboriginal peoples could be considered human. In the absence of any clear biblical reference, the prevailing belief for the initial Spanish settlers was that the American Indians were not human. Indeed, a few even supported an Aristotelian view of spontaneous generation from mud. Aureolus Phillipus Theoprattus Bombastus von Hohenheim (1493-1541), known as Paracelsus, espoused the radical opinion that American Indians were not descendents of the biblical Adam

⁵² David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 64.

⁵³ Justin Winsor, "The Progress of Opinion Respecting the Origin and Antiquity of Man in America," *Narrative and Critical History of America*, Vol.1, edited by Justin Winsor, (Boston: Houghton, Mifflin, 1889), 369; cited in Wilmsen, "An Outline of early Man Studies," 3.

⁵⁴ David L Browman and Stephen Williams, *New Perspectives on the Origins of Americanist Archaeology*. (Tuscaloosa: The University of Alabama Press, 2002), 35. see José de Acosta, *Historia natural y moral de las Indias (The Natural and Moral History of the Indies)*. Seville: Casa Juan de Leon, 1590.

and Eve, but rather had been separately created and had no souls.⁵⁵ According to Paracelsus, “It is most probable that they are descended from another Adam...it is credible that they were born there after the deluge, and perhaps they have no souls.”⁵⁶ Such a view facilitated treating the American Indians as an inferior species to be exploited as a part of the Spanish and Portuguese economic development of the New World. Some, such as the Dominican Bartolomé de las Casas (c. 1484–1566), opposed such a view and personally supported the Lost Tribes of Israel as the origin.⁵⁷ This, however, again presented the challenge of locating their more specific geographic and genealogical origins. The convenient solution of a nonhuman origin gradually was no longer considered viable.

During the 1640s, there was an intense debate in the Netherlands. Hugo Grotius posited that the American Indians were principally Scandinavians with Ethiopian, Chinese, and Moluccan influences. Johannes de Laet and George Horn countered that American Indian origins were a combination of Scythians, pre-Columbian Spanish, Welsh and Polynesians. In 1702, Cotton Mather (1663-1728) wrote in *Magnalia Christi Americana* that “probably the Devil decoyed these miserable savages hither, in hopes that the gospel of the Lord Jesus Christ would never come here to destroy or disturb his absolute empire over them.”⁵⁸ Thomas Hobbes (1588-1679) reflected the embedded conception of “savage” peoples of his time in doubting that the indigenous inhabitants of the Americas had possessed the necessary cultural sophistication to build the ancient

⁵⁵ Adovasio, *The First Americans*, 5.

⁵⁶Paracelsus quoted in *Memoirs Read Before the Anthropological Society of London*, 1863-4, Vol 1, (London: Trubner and Co, 1865), 354.

⁵⁷ Wilmsen, “An Outline of early Man Studies,” 3-4.

⁵⁸ Wilmsen, “An Outline of early Man Studies,” 4. Cotton Mather quotation is Wilmsen quoting Samuel G. Drake.

mounds and monuments of the Americas discovered by European explorers, leading him to conclude that their life was “solitary, poor, nasty, brutish, and short...For the savage people in many places of America...have no government at all, and live at this day in that brutish manner, as I said before.”⁵⁹ Georges-Louis Leclerc (1707-1788), known as Comte de Buffon and one of the critical figures in the establishment of modern biology, wrote in his influential multi-volume, *Histoire naturelle, générale et particulière* that both the people and the animals in the New World were inferior to those of the Old.⁶⁰

Despite this contentious assortment of First American origin possibilities, Asia as the primal source continued to figure prominently. In 1648, the Russian Semyon Dezhnyov (c. 1605–1672) is now believed to have been the first European to have sailed through the narrow channel separating the Asian and North American landmasses. However, there apparently was little recognition at the time of his feat. In 1728, Vitus Bering (1681-1741) successfully traversed that same strait which is now accorded his name. As knowledge of Bering’s successful trip began to spread, the Asian connection found ready support and was echoed in speculation such as that of Thomas Jefferson in his 1784 *Notes on the State of Virginia*.⁶¹ In 1794, Jesuit Ignaz Pfefferkorn (c. 1725-1798) wrote in *Description of the Province of Sonora* that “To me it is almost certain

⁵⁹Thomas Hobbes, “Of the Natural Condition of Mankind as Concerning Their Felicity and Misery” Chapter XIII of *Leviathan or The Matter, Forme and Power of a Common Wealth Ecclesiasticall and Civil*, 1651. <http://oregonstate.edu/instruct/phl302/texts/hobbes/leviathan-c.html>.

⁶⁰ Georges-Louis Leclerc, Comte de Buffon, *Histoire naturelle, générale et particulière* (1749–1789)

⁶¹ Thomas Jefferson, *Notes on the State of Virginia, Written in the Year 1781, Somewhat Corrected and Enlarged in the Winter of 1782, for the Use of a Foreigner of Distinction, in Answer to Certain Queries Proposed by Him, 1782*, (Paris, 1784).

that the first inhabitants of America really came by way of this strait.”⁶² But this view still remained only one suggestion among many.

Theories of the Nineteenth Century

The nineteenth century was an especially dynamic period in the development of what has become First American science. Biology, physics, chemistry, anthropology, archaeology, philosophy, and geology—the constituent elements of First American science—were each stabilizing into an independent discipline utilizing a particular suite of methodologies to address specific puzzles presented by the physical world. During this period several important advances were made in these nascent disciplines. First, geologists such as Georges Cuvier (1769-1832) and Charles Lyell (1797-1875) were breaching Bishop James Ussher’s (1581-1656) 6,000-year barrier and establishing the age of the earth as being at least in the millions of years. Second, Charles Darwin (1809-1882), Alfred Russel Wallace (1823-1913), and others employed this expansion of geological time as a critical element to support their theory of biological evolution. Finally, archaeologists such as Jacques Boucher de Perthes (1788–1868), Hugh Falconer (1808-1865), William Pengelly (1812-1894), and Joseph Prestwich (1812-1896) were finding ancient tools that could be dated against the chronology of the newly defined geological record.⁶³

Human origins history is replete with anecdotes that capture the emotions and prejudices of a particular time. Charles Lyell (1797-1875), considered a founder of modern geology and related fields such as paleontology, barred women and children,

⁶² Pfefferkorn quoted in Wilmsen, “An Outline of early Man Studies,” 3-4.

⁶³ Wilmsen, “An Outline of early Man Studies,” 7.

due to their sensitive nature, from his public lectures because of the sacrilegious implications of his findings.⁶⁴ According to archaeologist James Adovasio, “It is little wonder, then, that when white Americans came across the most monumental works of the original inhabitants of North America, they assumed them to be the product of some other, master race long since vanished: the mound builders.”⁶⁵ Built upon a nineteenth century framework of cultural beliefs that included a hierarchy of races, the conceptual options available to early First American scientists included only those that differentiated pejoratively between the indigenous inhabitants of the Western Hemisphere and the Caucasian creators of the dominant Euro-centric culture.

With the professionally trained scientist replacing the educated gentleman of leisure as the principal investigator of natural phenomena, with the ever-increasing evidence of the antiquity of humans in Africa, Europe, and Asia, and with the European assessment of the primitive nature of the indigenous cultures of the Western hemisphere, there was little reason to doubt that evidence would be discovered confirming a comparable human antiquity in the New World. In North America, the most obvious manifestations of an ancient civilization were the burial mounds scattered throughout the continent. Prominent in the archaeological histories were the excavations of Caleb Atwater. Both James Adovasio and Edwin N. Wilmsen cite Atwater’s 1820 *Transaction from American Antiquarian Society* in Boston later self-published in 1833 as *Writings of Caleb Atwater*.⁶⁶ Based upon Atwater’s examination of the mounds along the Ohio River, he hypothesized that North America had been

⁶⁴ Adovasio, *The First Americans*, 35.

⁶⁵ Adovasio, *The First Americans*, 10.

⁶⁶ A modern reprint is available through Applewood books, Carlisle, Massachusetts.

populated via the Bering Strait first by pastoral farmers and shepherds and then by savage hunters migrating from India who were the ancestors of the modern American Indian.⁶⁷ Wilmsen credited Atwater as providing "a new perspective" based upon what "were probably the first systematically controlled archaeological observations in the Americas."⁶⁸

As the source of the First Americans, a recurring myth has been that of a Jewish origin for the New World inhabitants. According to American scholar and politician Ignatius Donnelly (1831-1901), there was "scarcely a custom known to the Jews that does not find its counterpart among the people of the New World."⁶⁹ However, Donnelly challenged any direct Jewish colonization of the Americas, not believing that "they left their flocks and herds, marched across the whole face of Asia, took ships and sailed across the greatest of the oceans to a continent of the existence of which they had no knowledge."⁷⁰ Donnelly then proceeded to attribute what he believed to be similarities between Jewish and American Indian cultures to the fact that both had a common cultural antecedent—Atlantis. His analysis was clearly intended to demonstrate cultural similarities between the two groups, but supporting only an indirect colonization of the New World by Jews. Where Donnelly concluded that Jews populated the New World via Atlantis, the Book of Mormon described Jews as migrating directly across the ocean. The Mormon view of the Jewish migration is but a part of a more general apocalyptic war between God and Lucifer that saw a division of humanity into light and dark-skinned, including American Indian, peoples. The Book of Mormon

⁶⁷Adovasio, *The First Americans*, 16-17.

⁶⁸ Wilmsen, "An Outline of early Man Studies," 6.

⁶⁹ Ignatius Donnelly, *Atlantis: The Antediluvian World*, with an introduction by E. F. Bleiler (New York: Dover Publications, 1976), 198. First published 1882 by Harper & Brothers.

⁷⁰*Ibid.*, 209.

told of Jews crossing the ocean to North America and then splitting into the godly Nephites and the savage Lamanites that were marked by a red skin. For many years Mormons reportedly told American Indians that acceptance into the Church of Latter-Day Saints would lighten their skin.⁷¹

Along with the First American theories associated with the Lamanites, Jews, and Atlantis, there were many others offered by both reputable scientists as well as what might charitably be termed intellectual speculators. What can be judged as a scientifically acceptable view is a function of a particular time, place, and set of social values. For example, John Wells Foster (1815-1873), an early geologist and paleontologist who in retrospect held what would now be considered highly racist views, catalogued many of the First American origin theories as being no more than conjecture. Foster dismissed notions that the First Americans had been Northmen arriving via Vinland or Welsh serving under Prince Madog in the southern United States; and he also rejected such purported evidence as ancient Danish runes on Dighton rock in Massachusetts; Hebrew letters on the Holy Stone of Newark in Ohio; the Cincinnati tablet with Egyptian-like cartouches in Ohio; and the Round Tower of Newport built in Rhode Island by the Norse.⁷²

With the proliferation of theories as to the origins of the First Americans and their relationship, if any, to modern American Indians, scholars began to catalogue the disparate narratives. One of the earliest comprehensive efforts was that of Justin Winsor (1831-1897), Librarian of Harvard University, in an eight volume *Narrative and*

⁷¹Adovasio, *The First Americans*, 18.

⁷² John Wells Foster, *Pre-Historic Races of the United States of America* (Chicago: S. C. Griggs and Company, 1873).

Critical History of America that was for many years a standard reference text for those studying American history.⁷³ Published between 1884 and 1889, Winsor, as both author and editor of the volumes, described not only the explorations and settlements of the European nations, but also specifically addressed the search for the First Americans in the 1889 Volume 1 entitled “Aboriginal America.”

In the evolution of First American science, the nineteenth century was an interesting mélange of unsupportable speculation occurring simultaneous with the development of the initial scientific methodologies upon which the foundations of First American science would ultimately rest.

The Twentieth Century

Archaeological discoveries in 1929 near Clovis, New Mexico provided a scientifically supported theory that the first settlers were the “Clovis” people who had migrated 13,000 years ago⁷⁴ from Asia across a Bering Strait land bridge at the end of the last Ice Age, and that they had swept through Alaska, populating all of the Americas in a mere 1,000 years. Despite what, in retrospect, was significant contradictory evidence, the Clovis-first paradigm bested all challenges for 70 years, and is still supported by a dwindling number of First American scientists. While these debates were largely archaeologically centered, genetics, linguistics and bioanthropology have increasingly generated both supporting and contradictory observations for virtually every theory.

⁷³ Justin Winsor. *Narrative and critical history of America*. Vol. 1-8, (Boston and New York: Houghton, Mifflin and Co, 1884-1889).

⁷⁴ This is 13,000 years ago in chronological years from the present. As later described in more detail, this is approximately calibrated to 11,500 radio-carbon year before the present, with the “present” defined as 1950.

As both scientific and popular First American theories have evolved since the late fifteenth century, the predominant, but not sole, narrative has been that of an Asian source and a lack of comparable antiquity vis-à-vis the peopling of the Old World. “The near-universal consensus that America’s first peoples were bygone Asians occurs no matter the differences of evidence and opinion regarding exactly where in Asia they originated.”⁷⁵ Even if such a consensus indeed existed, there would still remain the debate surrounding the physical path (land bridge across the Bering Strait or coastal maritime), the antiquity (pre-, mid- or post-Ice Age transit), the number of migratory pulses from Asia, and the extent, if any, to which modern American Indians are the direct descendants of the First Americans. “Of the possible entry routes into the Americas, Beringia, a land bridge from Siberia to the interior and coastal areas of Alaska and northwest Canada, is the most viable. Entry from the Atlantic side of the hemisphere is a competing proposal.”⁷⁶ Although constituting a distinctly minority opinion, reputable scientists have supported alternative theories citing Europe as a source of the First Americans.

It is difficult to create a functional taxonomy of First American theories. Establishing taxonomic relationships requires identification of commonality across the entities being evaluated, even if the relationship is as simple as a binary presence or absence of some quality. Some First American scientists would seem not to have heard of the aphorism that the absence of evidence is not evidence of absence. A declaration of the *first* Americans is simultaneously a definition of *non*-Americans, a declaration that something does not exist, that no other earlier culture will be found. The difficulty in

⁷⁵ Meltzer, *First Peoples*, 184.

⁷⁶ Dillehay, “Probing deeper,” 971.

accepting such an approach is that in 1908 what was then believed to be evidence of the First Americans at Folsom, New Mexico was replaced in 1929 by the First Americans at Clovis, New Mexico who, in turn, have recently been replaced by the First Americans at Mont Verde, Chile who might, someday soon, be supplanted by the First Americans at Meadowcroft Rockshelter in Pennsylvania or at Buttermilk Creek in Texas.

Although determination of chronological relationships are paramount in First American science, *quantitative* metrics that might be used for structuring the relationships are either missing or rely heavily on so-called expert opinion. Potentially differentiating, and frequently contradictory, *qualitative* elements of the theories that have been offered include migration patterns; existential myths; and colonial, western, indigenous, religious, biblical, historical, scientific, and economic sentiments. Although there have been efforts to create a taxonomy of the physical structures of classes of artifacts, there is disagreement among the experts over even such a straightforward judgment as to what constitutes “fluting” (a narrowing of the base) on a stone spear head. Furthermore, because of the politically charged atmosphere surrounding the search for the First Americans, judgments on a single physical factor such as fluting has also been perceived as a way to assert an American hegemonic umbrella over the identity of the first inhabitants throughout the entire New worlds..

With the increasing professionalization of First American science at the beginning of the twentieth century, the elite of the profession began to question human antiquity in the New World. In the late nineteenth century, William Henry Holmes (1846-1933) began assuming ever more powerful positions under the tutelage of John Wesley Powell (1834-1902) first in the U. S. Geological Survey and then in the

Smithsonian Institution Bureau of American Ethnology, and indicated a clear disbelief that humans had been in the Americas as long as in Europe.⁷⁷ In 1903, Holmes appointed Aleš Hrdlička (1869-1943), a trained physician, to be Assistant Curator in Charge of physical anthropology at the Smithsonian Institution National Museum. As a result of this official position, a forceful personality, and his unwavering theoretical position, for decades Hrdlička dominated both the doctrine and the methodologies associated with the search for the First Americans. Echoing the position taken by Holmes, Hrdlička aggressively and successfully opposed those who argued for the great antiquity of the First Americans. For Hrdlička, it was clear that there was no human antiquity, and that analysis of the physiological, cultural, and linguistic characteristics of the indigenous Americans demonstrated an absence of the diversity that would result from great antiquity.⁷⁸ As a result, very early in the twentieth century “Early Man in America was dead so far as most anthropologists were concerned.”⁷⁹ To his credit, not only has no meaningful evidence, to date, been discovered to refute Hrdlička’s skepticism concerning a great antiquity for the First Americans, he was largely responsible for the professionalization and institutionalization of the methodologies of First American science. His efforts, however, have not been without criticism. As archaeologist James Adovasio characterized it, “One can, a bit wildly, think of Holmes and Hrdlička as the Doc Holliday and Wyatt Earp of early-twentieth-century

⁷⁷W. H. Holmes, *Handbook of Aboriginal American Antiquities, Part 1, Introductory: The Lithic Industries*. Bulletin of the Bureau of American Ethnology 60. (Washington, DC: U.S. Government Printing Office 1919), 75.

⁷⁸Aleš Hrdlička, “The Origin and Antiquity of the American Indian,” *Annual Report of the Board of Regents of the Smithsonian Institution for 1923*, (Washington, DC: U.S. Government Printing Office, 1925), 481-4.

⁷⁹Wilmsen, “An Outline of early Man Studies,” 10.

anthropology, running all abusers of the proper scientific method out of Tombstone.”⁸⁰ During the first half of the century, First American science was largely a top-down enterprise.

As the twentieth-century debates over human origins stabilized world-wide, for Africa the chronological range covered a few millions of years, and in Europe the debate centered over the past few hundred-thousand years. But for the New World, the debate narrowed to only the most recent few tens-of-thousands of years. Despite this great temporal constriction for the arrival of the First Americans, the intensity of the acrimonious debate was not proportionately reduced. Writing in 1989, archaeologist David Meltzer stated that “Advocates of a pre-12,000 B.P.⁸¹ human population assert that their evidence is valid and is rejected by skeptics only because of deep-set historical biases. That assertion is not well-founded.”⁸² Adovasio in 2003 vehemently countered that the long-reigning theory that no pre-12,000 B.P. Americans existed had no basis in fact. “Such a belief is, of course, not science. And it is not logical. It is, in fact, more like a religious dogma.”⁸³ Meltzer, however, believed the process of First American science to be much more deliberative than that described by Adovasio. For Meltzer, “Each new candidate for great antiquity brings with it fresh claims, but the outcome remains the same. Skeptics raise questions. Debate ensues. The claim is accepted by some, rejected

⁸⁰Adovasio, *The First Americans*, 97.

⁸¹ B.P. stands for “Before Present,” and indicates that the years are not chronological years, but rather are radio-carbon years, which do not exactly equate to chronological years. Moreover, Before Present does not mean before 2011, but rather before 1950 when radio-carbon dating began being used. This is discussed in more detail later in this dissertation. 12,000 B.P. translate approximately to 13,500 chronological years ago.

⁸² David J. Meltzer, “Why Don’t We Know When the First People Came to North America?” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, Bruce B. Huckell and J. David Kilby, eds. (Washington, DC: Society for American Archaeology, 2004), 25.

⁸³ Adovasio, *The First Americans*, xviii.

by others, the remainder wait and see.”⁸⁴ Despite the vigor of the discord internal to science, it should be remembered that what is being described here does not include the, at times, much more rancorous confrontations to First American science by the political activists representing the cultural equities of the American Indian community.

Current First American Theories

Although there is certainly an intensity to the debate surrounding the search for the First Americans, the general commotion centers on a relatively few theories. In other words, there are multiple avenues of attack upon each theory rather than a moderate number of challenges to each of a range of theories. Regardless of the specific science that may be employed, the noteworthy theories separate into three domains.

First is the specific and long-reigning theory called *Clovis-first*, which will be discussed in detail in Chapter 3. There is no doubt of the existence of the Clovis culture in North America. Rather, the argument concerns whether or not Clovis was the first occupation of the New World, with the alternative theories for an earlier arrival diverging by only a few thousands of years. The second set of contending theories addresses the geographical path by which the First Americans—whether Clovis or not—came to the New World; did they come via a Bering land-bridge at the end of the last Ice Age or did they come via a coastal route? Third, although most evidence indicates that the First Americans came from Asia, reputable scientists continue to develop theories that include a European origin for the First Americans—to be distinguished from the ancestors of modern American Indians who might well have migrated from Asia, but might also not be descended from the First Americans.

⁸⁴ Meltzer, “Why Don’t We Know,” 25.

Occupying primacy of place for contentiousness as well as for importance to the deliberations has been the Clovis-first theory. From 1930 to 1999 (and for a few still today) the reigning First American theory was that 13,000 years ago the New World was occupied in a single migratory wave from Asia across the Bering land-bridge that dashed all the way to Tierra Del Fuego in fewer than 1,000 years and, in the process, hunted to extinction all of the indigenous mega-fauna including saber-toothed tigers, mammoths and giant sloths. As befits a long-standing theory that is in the process of being rejected, Clovis-first has been attacked from many directions. The most substantive path of invalidation has been to show that Clovis-first was wrong because the Clovis culture was not actually first. Artifacts from the Monte Verde site in Chile have now been shown to predate the Clovis culture. The second attack on Clovis-first has been to challenge the mega-fauna extinction theory. While not critical to the Clovis-first model, hunting the mega-fauna to extinction fits a sort of bravado that was inherent in the Clovis-first model that painted the first inhabitants of the New World as being so vigorous as not to only quickly conquer an entire hemisphere by creating a new form of Paleolithic technology, but also to dominate the animal world that it found there. The third avenue of attack, from within as well as external to science, has been to challenge that the First Americans came via the Bering land bridge. Alternative maritime routes have been suggested for both the east and west coasts. It is possible that the Clovis culture could have come via a coastal route, but that was not a part of the Clovis-first paradigm. Finally, a few reputable First American scientists believe that the New World was settled by descendents of an ancient European Solutrean culture.

Beringia

During the cold war, many Americans became acutely aware that the Soviet Union was only a few miles across the waters of the Bering Strait from Alaska. Such a small separation achieved a comedic iconic status when in a September 11, 2008 interview with ABC's Charlie Gibson, then Vice Presidential candidate Sarah Palin stated that "you can actually see Russia from land here in Alaska."⁸⁵ The proximity, but physical separation, of the New and Old Worlds is a modern stabilized fact, what might be termed common knowledge. Yet geologists believe that as recently as 10,000 years ago toward the end of the last ice age, a person could have traveled by land eastward from Europe, traversed Asia, and crossed into the Western Hemisphere without being conscious of having changed continents.

The United States National Oceanographic and Atmospheric Administration (NOAA) maintains a web site "Summary of 100,000 Years" that provides for non-technical readers a brief overview of the past 100,000 years in 10,000 year increments. As NOAA points out, there have been ice-age cycles for the past 2.6 million years, with the last full ice-age cycle occurring between 60,000 and 20,000 years B.P. Pertinent to this dissertation is that there was an abrupt cooling 15,000 years B.P. (called Last Glacial Maximum) opening a Beringia land bridge for potential migration between Siberia and Alaska, followed by an equally pronounced warming (called Younger Dryas) 11,600 years ago after which the Beringia land bridge disappeared.⁸⁶

⁸⁵ EXCERPTS: Charlie Gibson Interviews Sarah Palin, *ABC World News*.

<http://abcnews.go.com/Politics/Vote2008/story?id=5782924&page=3> (accessed June 18, 2011)

⁸⁶ United States National Oceanic and Atmospheric Administration (NOAA), "Summary of 100,000 Years," <http://www.ncdc.noaa.gov/paleo/ctl/100k.html> (accessed October 20, 2011)

As shown in Figure 7 below, during the maximum extent of the glacial ice, sufficient water had been absorbed into the glaciers that the Pacific Ocean was as much as 400 hundred feet lower than it is today, exposing between Siberia and Alaska a land bridge that geologists have termed Beringia.

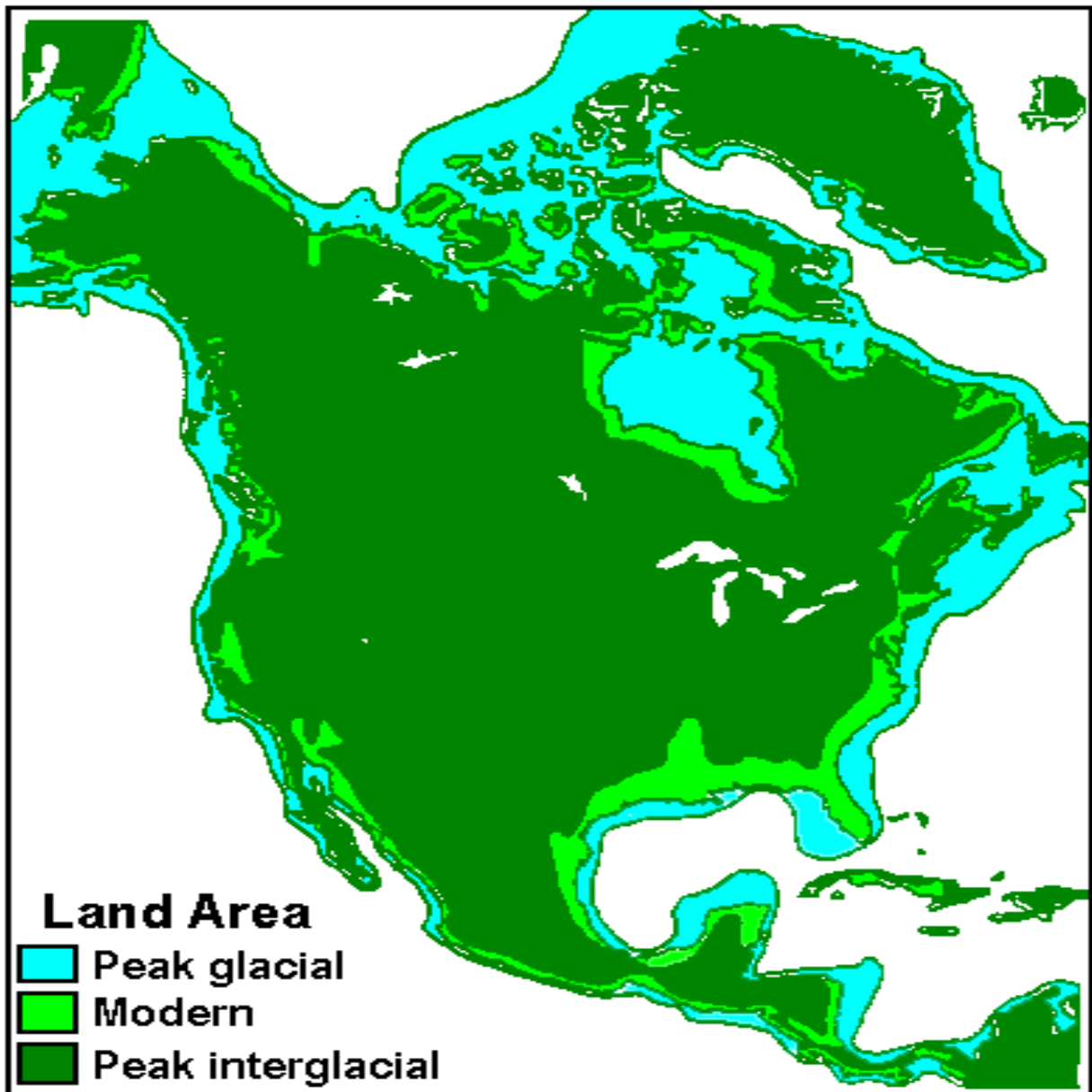


Figure 7. Map of coastal boundaries during last ice age.⁸⁷

⁸⁷ Montana University, <http://www.homepage.montana.edu/~geol445/hyperglac/eustasy1/> (Fair Use determination attached.)

Because First American scientists have, to date, discovered material evidence supporting human occupation of the New World only within the last 15,000 years, they have tended to focus upon the migratory availability of the Beringian land bridge only during the Last Glacial Maximum. However, with the alternating expansion and contraction of the glaciers in the northern hemisphere, there would have been several exposures of the Bering land bridge over the past 100,000 years. Archaeologist Stuart Fiedel compared estimates by four scientists as to the availability of the land bridge for migration between Asia and North America and concluded that there were no fewer than six land bridge availabilities over the past 100,000 years.⁸⁸ Although such an analysis may not refute either the Clovis-first model or an initial migration via Beringia, it does provide a basis for the creation of alternative models upon which a successful search for disconfirming material evidence might be sought.

Regardless of when a Bering land bridge migration might have occurred, as archaeologist James Adovasio acknowledged, “During Paleolithic times, migrants would have been insensitive to the act of crossing from one continent to another whether via Beringia or along its southern coast.”⁸⁹ As straight- (and strait-) forward as the glacial history may be, there is significant contention as to whether the First Americans did indeed arrive in the New World via the Beringian land bridge. That *some* early migration could well have occurred by this foot path is generally not contested. What is debated is whether the *First* Americans arrived in this manner. The challenges come from those: (1) in the American Indian community that believe their ancestors were here

⁸⁸ Stuart Fiedel, *Prehistory of the Americas* (second edition), (Cambridge: Cambridge University Press, 1997).

⁸⁹ Adovasio, *The First Americans*, 46.

from the beginning of time; (2) who believe that the First Americans came from Europe; and (3) who support a coastal (maritime) migration.

Criticism of the Beringia-first model from some parts of the American Indian community is not gentle. When commenting on the Kennewick Man debate, Vine Deloria, Jr. described the idea of the First Americans as having arrived in the New World after a migration across the Bering Strait as “a myth with little to recommend it.”⁹⁰ In *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*, Deloria also commented that the Bering Strait theory “has been around so long that people no longer feel they have to explain or defend it – they can merely refer to it.”⁹¹ For Deloria and other American Indian activists, the scientific thesis of a primal migration via Beringia does not reflect tribal memories and traditions. Some of these traditions do mention boats and maritime migrations. “The Hopi and Colvilles, for example, and others speak of the experience of a creation, such as the Yakimas and other Pacific Northwest tribes. Some tribes even talk about migrations from other planets.”⁹² It is not difficult to understand why scientists have not accommodated within their theories an interplanetary origin for the First Americans. On the other hand, Deloria is quite correct that science has generally accepted migration across Beringia as a virtual material artifact as opposed to a theory which is itself a social construction built upon truly material evidence. As Jace Weaver, director of the Institute of Native American Studies and professor of religion and law at the University of Georgia, pointed

⁹⁰ Vine Deloria, Jr. in the “Foreword” to Thomas, David Hurst, *Skull Wars: Kennewick, Archaeology, and the Battle for Native American Identity* (New York: Basic Books, 2000), xvii.

⁹¹ Vine Deloria, Jr. *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*. (NY: Scribner, 1995), 45.

⁹²Ibid., 97.

out, “The Bering Strait theory is simply that—a theory.”⁹³ Although theories such as polygenesis and interplanetary travel may appear outlandish, Weaver contended that the freedom to consider such theories “is vitally important in freeing the imagination and opening up the seams of what has been largely a closed discussion...The truth is nobody knows the origins of the Native tribes on this continent.”⁹⁴ Nevertheless, not only within science but also in popular American culture, Beringia as a source of ancient migration to the New World has become a *fact*, a culturally stabilized bit of knowledge.

There is criticism of the Beringia land bridge model from within the First American scientific community as well. An excellent example is the 2006 Ph.D. dissertation by Thomas George Arnold at Simon Fraser University in Canada. Based upon an examination of 600 published radiocarbon dates, Frazier devoted 263 pages to answering two questions: (1) could eastern Beringia (what is now Alaska and western Canada) have supported a migratory population immediately prior to the appearance of the Clovis culture; and (2) did a biogeographic corridor through the ice sheets exist prior to 11,500 B.P., 13,000 chronological years, that could have supported a north-to-south migration. Arnold concluded that Beringia could indeed have hosted a human population prior to the appearance of Clovis and there could, therefore, presumably have been an antecedent culture. However, he also concluded that “the ice-free corridor could not have been used as a north-to-south human migration route...[and] other alternatives must now be considered to account for the arrival of Paleoindian cultures in

⁹³ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 25.

⁹⁴ *Ibid.*, 25.

southern North America.”⁹⁵ Arnold's work echoes that of Harvard archaeologist Carol Mandryk whose research indicated that even if there had been an ice free corridor, there was insufficient vegetation to support the wild game which would have been a critical food element necessary for the survival of a migrating people. According to Mandryk, "It's very clear people couldn't have used this corridor until after 13,000 years ago...They came down the coast. I don't understand why people see the coast as an odd way. The early people didn't have to be interior big-game hunters, they could have been maritime adapted people.”⁹⁶ Although the conclusions by Arnold and Mandryk certainly cannot be considered a definitive refutation of the thesis that Beringia was the migratory path of the First Americans, they do demonstrate that its status as a *fact*, as a bit of stabilized knowledge, appears to be unwarranted.

The artifactual dating associated with the Clovis model serendipitously matched the timing of a possible entry into North America via Beringia when some First American scientists believe there would have been land routes passable through the receding glaciers. Consequently, leading scientists have frequently taken a dismissive attitude toward potential evidence that entry may have actually been sea-borne. With the recent challenges to the Clovis-first model, renewed attention is being paid to the coastal model. For example, human remains at Arlington Springs on Santa Rosa Island off the coast of California appear to pre-date Clovis.⁹⁷ Since the obvious *maritime*

⁹⁵ Thomas G. Arnold, “The Ice-Free Corridor: Biogeographical Highway or Environmental Cul-de-Sac”, Ph.D. Dissertation, Department of Archaeology, (Simon Fraser University, 2006), iii.

⁹⁶ From a website maintained by Raymond Hames, Chair of the Anthropology Department at the University of Nebraska – Lincoln http://www.unl.edu/rhames/monte_verde/MonteVerde.htm accessed April 25, 2011

⁹⁷ Jon M. Erlandson, Torben C. Rick, René L. Vellanoweth and Douglas J. Kennett, “Maritime Subsistence at a 9300 Year Old Shell Midden on Santa Rosa Island, California,” *Journal of Field Archaeology* Vol. 26, No. 3 (Autumn, 1999), 255-265.

implications of an *island* archaeological site cannot be challenged, in such instances protection of the Clovis-first paradigm is typically manifested via challenges to the dating techniques.

Migration Modeling

The successful practice of First American science relies increasingly upon mathematically-based skills located outside of the fields of archaeology and anthropology. For example, independent of any particular First American theory are techniques involving computer simulations and stochastic modeling that can be applied to human demographics such as migration dynamics, reproduction success, and technological innovation. As pointed out in 2000 by archaeologists David G. Anderson, at the University of Tennessee, and J. Christopher Gillam, at the South Carolina Institute of Archaeology and Anthropology, there had been relatively few continental-scale studies undertaken to determine how landscape features such as rivers, mountains, passes, and lake shores might facilitate or, alternatively, impeded the progress of colonizing peoples.⁹⁸ Migratory-path modeling, especially when accompanied by biogeographical analysis such as that referenced earlier by Thomas George Arnold, can be a powerful tool for bounding feasible First American theories.

As David Meltzer has acknowledged, "there are subtle assumptions in this dispute that might constrain the manner in which the problem is approached or the

⁹⁸ David G. Anderson and J. Christopher Gillam. "Paleoindian Colonization of the Americas: Implications from an Examination of Physiography, Demography, and Artifact Distribution," in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, p 50. Article of the same title also originally published in *American Antiquity*, 65(1), 2000, p44

evidence is evaluated."⁹⁹ Meltzer then proceeded to list some of these important, and largely unsubstantiated, suppositions including Aleš Hrdlička's 1926 belief that the First Americans were "dribbling over from northeastern Asia, extending probably over a long stretch of time;" Paul Martin's 1973 view that the earliest migration resulted from a "one-time event involving 100 individuals;" C. Vance Haynes's 1987 contention that evidence of the arrival of the First Americans should "logically lead" to the Clovis culture; and R. E. Morlan's 1987 assumption that the first Americans were a product of "arrow-like purposeful migrations."¹⁰⁰ Meltzer's retrospective look at these specious assumptions embedded in the works of prominent twentieth-century First American scientists can only embolden the critics, both internal and external to science, of such theories as Clovis-first and migration across Beringia. Especially egregious is a conclusion that the migration was *purposeful*. Migrations by Moses or the Pilgrims could conceivably be described as purposeful since there is a written record purporting to reflect their motivational intent. However, based upon scant archaeological evidence, it is difficult to comprehend how the psychological state of a prehistoric population could accurately be judged by a First American scientist separated from them by fifteen millennia.

The use of statistical modeling can facilitate identification of assumptions that might, in hindsight, be as questionable as some of those cited above. However, it can also be used to determine the feasibility of models that might otherwise appear counter-intuitive. The goal of Anderson and Gillam was to identify the paths, dispersal rates, and geographical logic behind the initial population migration in an attempt to provide

⁹⁹ Meltzer. "Why Don't We Know," 35.

¹⁰⁰ Ibid., 35.

boundaries within which First American theories could reasonably be constructed.¹⁰¹ To do this, they postulated two different migration models which were named for the visual patterns created when their movements were displayed across a map of the New World.

The first model, called “string-of-pearls,” assumed that once a population grew to a sufficient size, a subgroup splintered and moved into an adjacent territory. The second, or “leap-frog,” model conjectured that the splintering group moved a significant distance from the founding population. In both scenarios, this process provided a continuing geographical expansion of the population.¹⁰² According to the string-of-pearls scenario, it would require over 5000 years for colonizers arriving through Beringia to reach the southern tip of South America; this period would be reduced to approximately 4000 years if the population took a maritime route down the west coast of the hemisphere. The leap-frog model, however, dispersed the population much more quickly over the terrain, and required fewer than 1000 years to range from Alaska to the southern tip of South America—which makes feasible the rapid expansion required by the Clovis-first model. Moreover, according to Anderson and Gillam “the distribution of [Clovis] fluted points in the lower 48 states in dense but widely separated clusters, many occurring in resource rich locations, coupled with a more widespread low density distribution, in fact, suggests early populations did use a leap-frogging movement strategy.”¹⁰³

Clearly, there is value in the application of statistical models that can help establish credible boundaries for the creation of First American theories. For example,

¹⁰¹Anderson and Gillam, “Paleoindian Colonization of the Americas,” 49.

¹⁰² Ibid., 62.

¹⁰³ Anderson and Gillam, “Paleoindian Colonization of the Americas,” 63-65.

there is a certain intuitive disbelief associated with a Clovis-first model that required Paleolithic colonizers in a mere 1000 years to populate the entire Western hemisphere on foot, using stone tools, crossing formidable geographic barriers, while continuously adapting to new landscapes with significant climatic changes. However, using reasonable assumptions, Anderson and Gillam demonstrated that the rapid expansion required by the Clovis-first model was not impossible.

Solutrean

Not all scientists are convinced that the First Americans, to be distinguished from modern American Indians, were from Asia. A few reputable First American scientists, such as Bruce Bradley at the University of Exeter and Dennis Stanford at the Smithsonian Institution Museum of Natural History contended that the first route of entry was by Europeans via the east coast and that the First Americans were the descendants of the twenty-thousand year old Franco-Cantabrian Solutrean culture in which originated in the Paleolithic Iberian peninsula and came across the Atlantic Ocean to first populate America via the east coast. Although Bradley and Stanford did not dismiss Beringia as providing a possible path to the New World for later migrations, their argument challenged Beringia's importance since it necessitated acceptance of a European origination as well as a maritime route across the diminished expanse of the North Atlantic during the last ice age.¹⁰⁴ While this is a distinctly minority view, the Monte Verde dislodgement of the Clovis-first theory has opened avenues for reconsideration of contradictory evidence. For example, stone tools found at the Cactus

¹⁰⁴ Bradley, B., and D. Stanford. "The North Atlantic Ice-edge Corridor: A Possible Palaeolithic Route to the New World." *World Archaeology* 36 (2004): 459–478.

Hill, Virginia and Page Ladson, Florida sites do not resemble the Clovis tool kit, appear to have no antecedents in Siberia and Beringia, but have similarities to those of the ancient Solutrean culture in Europe.¹⁰⁵ There are obvious political considerations outside the scientific community that compound the difficulty in this model gaining acceptance within the community itself. On the one hand, there are elements in the public that could be expected to support a European model for racist reasons. On the other, there are also those who may reflexively discount the Solutrean model without directly addressing its evidentiary merits in order to preemptively preclude any appearance of racism. From time to time—more often in the public press, at least blatantly, than in the scientific community—racism is a factor in the discussions, as was evident in the press reports on the remains of the Kennewick Man.

The Upper Paleolithic Solutrean culture is a particular collection of stone tools documented to have been in southwestern France and Iberia in the period ranging from 25,000 to 19,700 years ago; hence the mantra of “Iberia not Siberia” that is offered by Solutrean proponents in countering their colleagues who espouse an Asian origin. Some archaeologists believe that not only can the Cactus Hill and Page Ladson artifacts be tied to an antecedent Solutrean origin, but that many of the distinctive characteristics of Clovis material artifacts can also be linked to a Solutrean origin. Moreover, the oldest and most productive Clovis sites are in the southeastern United States, and not, as might be presumed, in the Western United States and Canada nearer the Bering land bridge which many scholars contend was the path of the original migration which produced the Clovis culture. In support of the Bradley and Stanford hypothesis, during

¹⁰⁵ Dillehay, “Probing deeper,” 973.

the last Ice Age, the uncovering of the continental shelves meant that Europe was separated from North America by only 1,400 miles broken by occasional land and glacial islands.¹⁰⁶

The thesis of an European Solutrean origin, however, is not without its difficulties. The most obvious is that, with the exception of rare discoveries such as that of the Kennewick Man, there is little fossil or genetic evidence that archaic Europeans, and specifically the Solutreans, roamed the New World. Moreover, even if it could be conclusively proven that the Solutreans were indeed an antecedent culture to Clovis, that would only confirm them as even earlier Americans, but not necessarily the *First* Americans—precisely the problem that plagued the Clovis-first theory. Finally, as James Chatters and others have pointed out, the Clovis culture arose approximately 13,500 years ago; yet the Solutrean culture was supplanted in Europe by the Magdalenian culture about 19,700 years ago. So, where did the Solutrean culture disappear for 6,000 years until it purportedly reestablished itself in the New World as the Clovis culture?¹⁰⁷ If it arrived in the New World 20,000 years ago, where is the evidence? These questions have yet to be answered.

Conclusion

The Clovis-first model was the initial theoretical product of modern First American science which, based on a marriage of material evidence and modern scientific methods, offered a comprehensive explanation for the First American origin (Siberia), physical entry path (Beringia), cultural toolkit (Clovis fluted points), area

¹⁰⁶ James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 260.

¹⁰⁷ Chatters. *Ancient Encounters*, 261.

settled (entire Western Hemisphere), and environmental adaptation (hunted megafauna to extinction). It bested all challenges for seven decades and was accorded the respect of presumptive veracity that a reigning paradigm enjoys. Clovis-first provided the foundation which stabilized scientific as well as popular knowledge associated with the search for the First Americans. The problem, however, is that many First American scientists now believe the Clovis-first model was wrong. The excavations at Monte Verde, Chile have shown that there was indeed at least one New World culture that predated Clovis, with an increasing expectation that other sites—such as Meadowcroft Rockshelter, Page Ladson, and Cactus Hill—offer additional pre-Clovis challenges. Unfortunately for those who support a pre-Clovis arrival, there are no associated comprehensive theories. First American scientists now know that other culture(s) existed before Clovis, but there is scant material evidence as to where they came from or how they got there upon which to build a broad explanatory theory.

Chapter 3. Clovis-First

In 1906, the Santa Fe Railroad operated a small station in eastern New Mexico called Riley's Switch. As a part of the search for an official name for the town that was developing around it, the daughter of a railroad official was permitted to suggest a name. Captivated by her study of a fifth-century Frankish king who had become Christian, the daughter suggested Clovis. In May of 1909 the town of Clovis was officially incorporated.¹⁰⁸ As a result, one of the first indigenous cultures of the New World has been irretrievably encumbered with a name prominently associated with a alien European culture.

The theory against which all other First American science has been measured for the past 80 years has been the “Clovis-first” paradigm. In 1929 at Blackwater Draw near Clovis, New Mexico, the material artifacts that became the Clovis cultural “toolkit” were unearthed and the culture was subsequently successfully dated to 13,000 years ago—the then-oldest documented evidence of human presence in the western hemisphere. As shown below in Figure 8, these stone artifacts have a shape that is characteristic of a culture that existed only in the New World, and only for a limited period time.

¹⁰⁸ Curry County, New Mexico, Chamber of Commerce. <http://www.clovisnm.org/aboutus/history.htm>. (accessed Sept 2, 2010)



Figure 8. Clovis stone tools.¹⁰⁹

Blackwater Draw, New Mexico—the physical location which produced the original Clovis artifacts—is actually located some 14 miles southwest of Clovis. The closest town, albeit a small one, is Portales, New Mexico which is 6 miles still farther south,¹¹⁰ as shown in Figure 9.

¹⁰⁹David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 238, Plate 8. (Fair Use determination attached.)

¹¹⁰Lienke Katz, *The History of Blackwater Draw*. (Portales, NM: Eastern New Mexico University, 1997), 1.

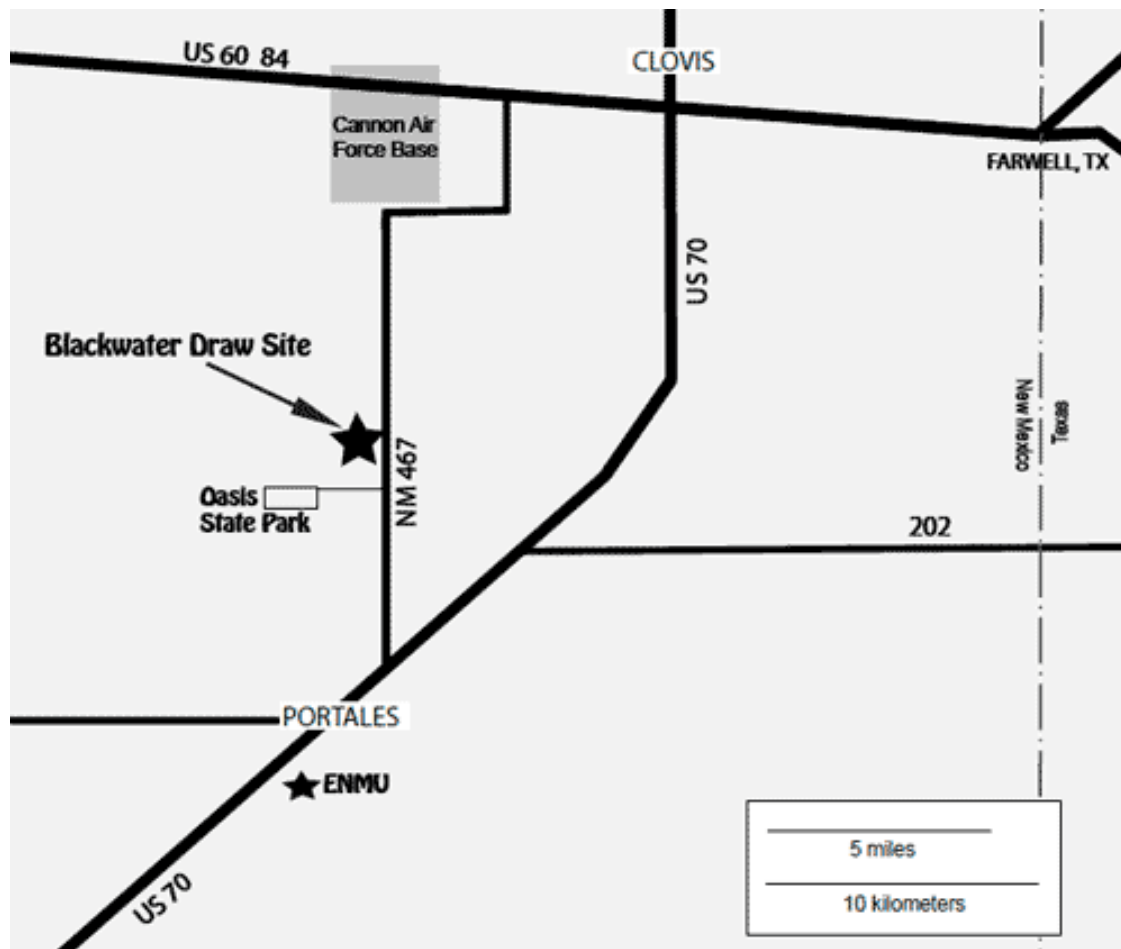


Figure 9. Map of Blackwater Draw, NM area. Blackwater Draw location between Clovis and Portales in eastern New Mexico near the Texas border.¹¹¹

In 1929, local resident Ridgely Wightman discovered and sent to the Smithsonian Institution a piece of mammoth bone and a stone point that he had found in Blackwater Draw. Consequently, Wightman, a non-scientist, can be credited with the discovery of what became known as the Clovis culture.¹¹² According to the October 20, 1932 *Portales Valley News*, "many prehistoric bones are being uncovered at the highway gravel pit northwest of Fort Palace and there is an interesting display of these bones in the show window of Ed J. Neer's store. Centuries ago monsters roamed the prairies where

¹¹¹ Eastern New Mexico University, <http://www.enmu.edu/services/museums/blackwater-draw/locality.shtml> . (accessed May 6, 2011). (Fair Use determination attached.)

¹¹² Katz, *The History of Blackwater Draw*, 17.

Portales now stands and one can visualize the strange animals after looking at the bones now being uncovered."¹¹³

From its beginning, the artifacts discovered at the Blackwater Draw site have demonstrated the unique intersection that the search for the First Americans has created among science, popular public interest, American Indian myths, and governmental politics. As shown in Figure 10 below, the site has been designated by the U. S. government as a National Historic Landmark. However, the statement that the Clovis culture is “traditionally accepted as the earliest occupation of the New World” is generally now not sustainable.

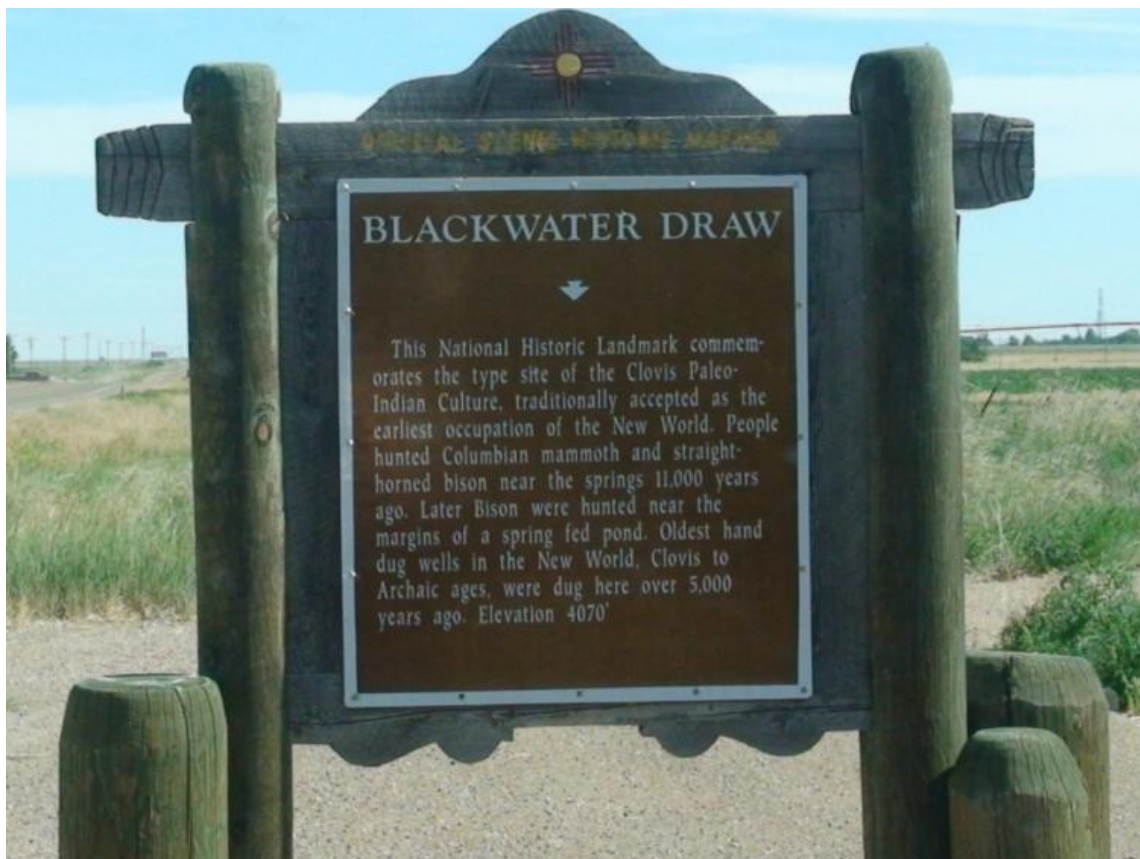


Figure 10. *Blackwater Draw, NM-National Historical Landmark plaque.* Blackwater Draw marker proclaiming its designation as a National Historic Landmark.¹¹⁴

¹¹³ Ibid., 16.

¹¹⁴ Picture taken by Robert V Davis on June 5, 2010 at Blackwater Draw, New Mexico.

In early 1933, E. B. Howard, of the University of Pennsylvania, and John Cotter, of the Philadelphia Academy of Natural Sciences, reported the first successful results by professionally trained investigators.¹¹⁵



Figure 11. 1933 Clovis expedition party. Clovis Expedition party of 1933 with members of the International Geological Congress. Left to right: R. Prall, Victor Van Straelen, Peter Anderson, Lady Smith Woodward, Sir Arthur Smith Woodward, Chester Stock, John C. Merriam, Jake McGee, R.W. Wilson, Ridgely Whiteman, Edgar B. Howard, and either F.D. Bode or H.D. Curry.¹¹⁶

A participant in that excavation commented some years later that "We excavated industriously, in our quest for mammoth bones and artifacts. Not quite as modern archaeological practice requires, but not without method."¹¹⁷ That excavation continued to 1936, and a subsequent one was conducted by E. H. Sellards, of the University of

¹¹⁵ Katz, *The History of Blackwater Draw*, 8.

¹¹⁶ Katz, *The History of Blackwater Draw*, 9. (Fair Use determination attached.)

¹¹⁷ This is Dr. John Carter being quoted from 1997 recollections of his participation in the 1936 -37 participation in Blackwater draw excavations, cited in Katz, *The History of Blackwater Draw*, 8.

Texas, from 1948 to 1956 which is credited with documenting the Clovis culture as being the oldest in North America.¹¹⁸ Figure 12 below shows the now-covered location of a primary excavation site at Blackwater Draw.



*Figure 12. Blackwater Draw, NM excavation site. On the lower level are bison bones contemporaneous with the Clovis culture.*¹¹⁹

After scientists knew what to look for, variations of this Clovis toolkit (principally associated with a lanceolate fluted projectile point, scrapers, and ivory, antler, and bone implements) were found throughout North America. Despite the absence of convincing evidence of these tools having been found in South America—based largely on an erroneous belief that Clovis was older than any found in South America—the Clovis-first

¹¹⁸ Eastern New Mexico University,. <http://www.enmu.edu/services/museums/blackwater-draw/locality.shtml> (accessed May 6, 2011)

¹¹⁹ Picture taken by Robert V. Davis on June 5, 2010.

model contended that the Clovis people crossed the Beringian land bridge from Asia during the latter part of the last ice age, and very quickly spread through North America, and rapidly populated the entire southern continent as well. The stature of the Clovis theory became such that any archaeological evidence hinting at an earlier peopling was termed “*pre*”-Clovis—not worthy of an independent designation—and its scientific value usually discounted. Associated with the Clovis model were assertions about the number of subsequent migrations from Alaska, the precise route of entry (between or around glaciers), and whether the Clovis people were responsible for the extinction in the western hemisphere of mega-fauna such as the mammoth and the mastodon. With the near-consensus of the past decade that archaeological evidence from Monte Verde, Chile disproves the Clovis-first model, there is now no clear theory explaining who the first Americans were and by what route they entered the New World.

The Clovis-first paradigm had been able to offer both archaeological sites (observations) as well as an associated explanatory model (theory) in its support. While there are several sites—some are more contested than others—that are now believed to predate the Clovis sites, there is currently no associated explanatory theory to support their existence. The Kuhnian thesis that one paradigm cannot be overturned, even in the face of contradictory evidence, until there is a suitable replacement would appear not to be sustained in this instance. The single most important pre-Clovis site is that of Monte Verde II. Its antiquity (14,000 years ago), location (Chile), and rigorous archaeological documentation have shown the Clovis-first model to be untenable. Other important pre-Clovis sites include Meadowcroft Rockshelter (Pennsylvania), Page-Ladson (Florida), Cactus Hill (Virginia) and Paisley Cave (Oregon).

In 1990, a *Science* article entitled "Clovis Counterrevolution" described the, at times, vicious debate between the Clovis and pre-Clovis First American science communities.¹²⁰ Indeed, the major academic figures can generally be placed in one of two camps. The most prominent people in the Clovis-first intellectual encampment—characterized in *Science* as the "Clovis police"¹²¹—are: Thomas Lynch of Cornell University who is generally credited with primacy of place in the development of the Clovis-first theory; Dina Dincauze of the University of Massachusetts; Paul Martin of the University of Arizona; and C. Vance Haynes, also at the University of Arizona. Haynes is generally credited with being the leading proponent providing the continuing force behind the Clovis-first theory. Some, such as Karl Butzer, an archaeologist at the University of Texas, believe that the adamant skepticism of the Clovis-First supporters may well have become a cult which dismissed "any kind of evidence, regardless of what it is."¹²² The phrase "Clovis police" is so commonly applied to the protectors of the Clovis-first theory that numerous entries are listed on an internet search, even after modifying it to "Clovis police archaeology" to eliminate references to the Clovis city police department.

Those supporting a pre-Clovis arrival in the New World, and who frequently are associated with a specific pre-Clovis archaeological site, most prominently include Tom D. Dillehay of Vanderbilt University (Monte Verdi site in Chile); James Adovasio of Mercyhurst College (Meadowcroft Rockshelter in Pennsylvania); and Dennis Stanford of the Smithsonian National Museum of Natural History (precursor Solutrean culture from

¹²⁰ Eliot Marshall, "Clovis Counterrevolution," *Science*, New Series, Vol. 249, No. 4970 (Aug. 17, 1990), 738-741.

¹²¹ *Ibid.*, 738.

¹²² Karl Butzer is quoted by Eliot Marshall in "Clovis Counterrevolution," *Science*, New Series, Vol. 249, No. 4970 (Aug. 17, 1990), 739.

Europe). Also included in the pre-Clovis group have been those that have received less academic and popular press coverage in the United States because their research is centered outside the U.S., including Alan Bryan and Ruth Gruhn of the University of Alberta in Edmonton (Taima-Taima in Venezuela); and Jacques Cinq-Mars of the Canadian Museum of Civilization (Blue Fish Caves in Canada). There are, however, a few leading First American scientists that may have tendencies toward one theoretical commitment or the other, but whose public expressions can be better described as academic statesmanship rather than consistent support for any particular position. One of the prominent few who might fall into this mediator role is David J. Meltzer at the Southern Methodist University.

The focus of the First American debate has typically centered on whether, when, and how a migration occurred at the end of the last Ice Age from Siberia to the New World by means of a land bridge called Beringia. However, as the genetic evidence indicates, a Beringian migration may well have been both ways. Reflecting the popular American interest in the search for the First Americans, an August 2, 1996 *New York Times* article titled "'American' Arrowhead Found in Siberia," proclaimed that archaeologists Sergei B. Slobodin and Maureen L. King had discovered a Clovis point in Siberia that radiocarbon dating indicated was only 8,300 years old. That would place it in Siberia some 2000 years after the demise of the Clovis culture in the New World.¹²³ Since that report by Slobodin and King appeared, however, the existence of Clovis-type cultural artifacts in Siberia has generally been discounted.

¹²³ John Noble Wilford, "'American' Arrowhead Found in Siberia," *New York Times*, Aug. 2, 1996, A6.

One of the more romantic notions associated with the Clovis theory is that not only were these occupiers of the New World the first to arrive, but as they sped from Alaska all the way to Tierra del Fuego, they were such consummate masters of their domain that they hunted the mega-fauna to extinction. What has not been answered, however, is that if Clovis sped so quickly throughout South America, why did the much more culturally advanced Aztec and Maya civilizations not also expand to larger areas?

Although Carl Sauer is credited as having proposed seventy-five years ago that early man had killed off the North American big-game animals through the use of fire drives,¹²⁴ Paul Martin is generally recognized with proposing in 1967 the theory that the Clovis hunters caused the extinction of the mega-fauna in his 1967 *Nature* article entitled "Pleistocene Overkill."¹²⁵

Although there is still support in some quarters for Martin's thesis, today it has generally been discounted. Martin documented that the rise of the Clovis culture and the demise of the mega-fauna occurred during approximately the same period, but never successfully identified a causal relationship. As James Adovasio summarized the critique, for the Clovis-first theory to be valid, it would be necessary for a small band of as few as 25 male super-predators to have conducted a blitzkrieg consisting of: penetrating through the glaciers of North America; inventing the Clovis stone tools; covering 6000 miles in possibly as few as 500 years to reach Tierra del Fuego; reproducing at the astonishing rate of 3.4 percent annually; adapting almost instantaneously to a broad range of new ecological challenges; and driving to extinction

¹²⁴ See Carl O. Sauer, "A Geographic Sketch of Early Man in America," *Geographical Review* Vol. 34, No. 4 (Oct., 1944), 529-573

¹²⁵ Martin, Paul S. "Pleistocene Overkill." *Natural History* 76, no. 10 (1967): 32-38.

across one-fourth of the world's land mass all animals that weighed more than 100 pounds.¹²⁶ That such seemingly implausible theories can be put forward by reputable modern scientists lends credence to the arguments of those such as Vine Deloria, Jr. who contend that American Indian myths are as substantively explanatory of the physical world as are First American scientific theories.

In addition to the conjecture that the Clovis culture was responsible for the disappearance of the mammoths and saber tooth tigers, there is even more that has been associated with the Clovis theory that caters to the popular imagination. There is not only the question of Clovis cultural beginnings, but also uncertainty as to its demise. Just as it arose swiftly, it also disappeared swiftly. In 2006, Lawrence Berkeley National Laboratory geologist Richard Firestone theorized that a comet struck the Earth 12,900 years ago and led to the death not only of the Clovis culture, but also to the extinction of the mega-fauna. While it may be hard to resist the romantic notion that the demise of the First Americans, mammoths, and saber-tooth tigers could only be produced through extraterrestrial intervention, David Meltzer of Southern Methodist University and Vance Holliday of the University of Arizona, two of the preeminent First American scientists, recently provided a detailed rebuttal of the comet theory.¹²⁷

A principal reason behind the intense skepticism surrounding pre-Clovis sites is that there have been many such sites thought to have been discovered that were later properly dismissed for lack of sufficient evidence, such as Tule Springs, Nevada; Holly Oak Delaware; and Calico Hills, California where Louis Leakey famously erred.¹²⁸

¹²⁶ Adovasio, *The First Americans*, 123-128.

¹²⁷ "Undiscovery of the Year: Clovis Comet," in *Archaeology*, January/February 2011, 30.

¹²⁸ Eliot Marshall, "Clovis Counterrevolution," *Science*, New Series, Vol. 249, No. 4970 (Aug. 17, 1990), 741.

Although such a dismissive approach may have some intuitive comfort, it is difficult to understand how an academically trained scientist can contend that scientific observations in one case are either stronger or weaker because of unrelated observations in another instance made at a different time and a different place. This bias in First American science, according to *Science*, "dates back to the tenure of Aleš Hrdlička and William Henry Holmes at the Smithsonian Institution in the 1920s," and continues today from a self-interest in preserving the status quo.¹²⁹

As with any major scientific endeavor, the search for the First Americans has produced its share not only of worthwhile endeavors, but also a certain number of mysterious undertakings. One example reminiscent of an Indiana Jones movie is that of an Argentine who excavated for nearly 3 years at Blackwater draw, left no notes, and is now a Paris-based art dealer for Russian oligarchs. In 1967, Alberto Isequilla, believed to have then been a graduate student at either the Sorbonne¹³⁰ or at the University of Paris,¹³¹ arrived at Blackwater Draw and began a major excavation project. So much earth was removed, as shown in Figure 13, that the area became known as Isequilla's Pit.

¹²⁹ Ibid., 741.

¹³⁰ Katz, *The History of Blackwater Draw*, 25.

¹³¹ Artinfo, "Russian Money Feeds International Art Boom."

<http://www.artinfo.com/news/story/25136/russian-money-feeds-international-art-boom/>

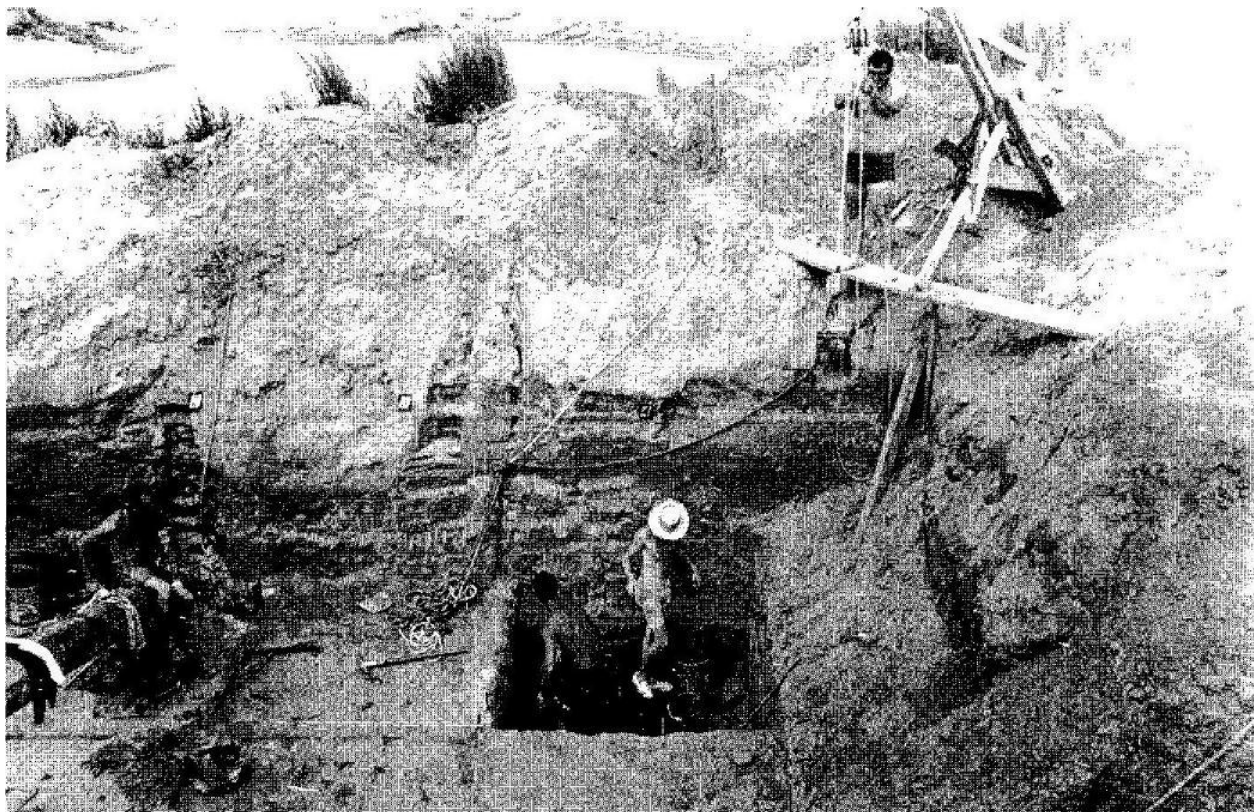


Figure 13. 1960s Isequilla's Pit at Blackwater Draw, NM excavation site. View of "Isequilla's Pit" taken during the 1960s excavation.¹³²

By 1969, after digging his enormous hole, Isequilla "just left."¹³³ After the 1969-1970 excavation season, a plastic cover was placed over the pit. In 2009, the overburden which had accumulated over the 40 year period was removed. Figure 14 shows the Pit in June of 2010.

¹³² Katz, *The History of Blackwater Draw*, 25. Original photograph from the Blackwater Draw archives. (Fair Use determination attached.)

¹³³*Ibid.*, 25.



Figure 14. 2010 Isequilla's Pit at Blackwater Draw, NM excavation site. Picture taken of "Isequilla's Pit" in June 2010.¹³⁴

The Eastern New Mexico University (ENMU) Archaeological Field School now uses the site as a training area for excavations. According to David Kilby, an anthropology professor at ENMU, "Little is known of the extent of excavations or the nature of what was encountered, and Isequilla's 1967-1969 fieldwork remains a poorly known episode in the history of research at the Blackwater Draw site."¹³⁵ Isequilla is now believed to be living in France, possibly as an art dealer. As a search of the internet shows, there is indeed a Paris-based art dealer named Alberto Isequilla who is apparently involved in the expanding art market for Russian oligarchs. Isequilla reportedly did not finish his dissertation and his field notes have disappeared. "We have

¹³⁴ Picture taken by Robert V. Davis on June 5, 2010.

¹³⁵ David Kilby, Eastern New Mexico University home page.

<http://academic.enmu.edu/kilbyd/fieldprojects.html> (accessed May 6, 2011).

this depression out here and a hole that he filled in with sand. No one knows, for sure, exactly what he excavated, how deep they got or what the results were.”¹³⁶

Amid the challenges mounted against the Clovis-first model, to the Clovis-associated mega-fauna extinction, and to the Clovis extraterrestrial demise theory, it must be remembered that there is no meaningful dispute among First American scientists that Clovis was indeed a very early New World culture, created a unique set of material tools, and populated much of North America. Clovis, however, is also important as an example of a form of scientific practice that creates a theory that rests upon a particular set of material evidence, and then denies the legitimacy of other evidence because it does not conform to the rigidified theory. The absence of contradictory evidence when a paradigm is created does not necessarily provide any insight as to whether such evidence may ever exist. In the case of the Clovis culture, the Clovis-first model was considered so “validated” in the minds of many First American scientists that it was granted a concreteness that surpassed the physicality of those artifacts that directly challenged its validity. As Meltzer concluded, “The assumptions that the earliest migration involved a single, homogenous population and that pre-12,000 B.P. occupations must be ancestral to Clovis, are not well-founded...All this, in turn, has implications for why we may not know when the first people came to North America.”¹³⁷

Discussion of the settlement of the New World has been rancorous in the First American science community. Moreover, it has occurred simultaneously with the

¹³⁶ *Clovis News Journal*, <http://www.enjonline.com/articles/dig-34373-site-isequilla.html> (accessed May 6, 2011).

¹³⁷ David J. Meltzer, “Why Don’t We Know When the First People Came to North America?” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B. Huckell and J. David Kilby (Washington, DC: Society for American Archaeology, 2004), 26.

relatively peaceful approach to establishing the human migration into Australia.¹³⁸ As Arthur J. Jelinek, an archaeologist at the University of Arizona has pointed out, “This situation [the Clovis versus pre-Clovis controversy] stands in strong contrast to that in Australia, where, in less than 30 years, many fewer archaeologists than have been active in New World Paleoindian research have produced undisputed evidence of a human presence beyond 30,000 B.P. in widely separated regions, and strong indications of human activity 10,000-20,000 years earlier...There are now well over 30 sites known in Australia with dates greater than 17,000 years, and over half a dozen with convincing dates in excess of 30,000 years.”¹³⁹ Yet, there is a natural inclination to compare the First Australian and First American searches since Australia and the Western Hemisphere are the only continental landmasses for which archaeological investigations have been conducted on recent colonization by anatomically modern human beings.¹⁴⁰ As anthropologist Arthur J. Jelinek concluded, if the First Americans arrived prior to 15,000 years ago, they left no archaeological record as did their Australian counterparts who arrived 40,000 years ago. If the First Americans simply “disappeared after leaving a few ephemeral traces of their presence to confound the archaeological

¹³⁸ Bruce B. Huckell and J. David Kilby, “Late Pleistocene North America and Early Paleoindians,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B. Huckell and J. David Kilby (Washington, DC: Society for American Archaeology, 2004), vii.

¹³⁹ Arthur J. Jelinek, “Perspectives from the Old World on the Habitation of the New,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. by Bruce B. Huckell and J David Kilby, 45.

¹⁴⁰ David G. Anderson and J. Christopher Gillam, “Paleoindian Colonization of the Americas: Implications from an Examination of Physiography, Demography, and Artifact Distribution,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B Huckell and J David Kilby, 61-62.

community...then they were merely a historical curiosity and of little import or interest for the cultural development of the New World.”¹⁴¹

¹⁴¹Jelinek, “Perspectives from the Old World,” 47.

Chapter 4. Pre-Clovis: Monte Verde and Meadowcroft

There are some elements of the Clovis model that appear beyond dispute. It is impossible to dispute the existence of the Clovis cultural toolkit, and it must also be acknowledged that the Clovis culture is the first that has been found with a widespread dispersal across the North American continent. What can be, and indeed has been, alleged is that the Clovis culture never arrived in South America, that the Clovis civilization did not lead to the extinction of the mega-fauna in North America, that the American Indians are not descendents of the Clovis people, and that the people who produced the Clovis culture were not the First Americans. It is this final contention, that there were *pre-Clovis* cultures, that has generated considerable acrimony among First American scientists. The two most prominent pre-Clovis sites are Monte Verdi in Chile which is now widely believed to have disproven the Clovis-first model, and Meadowcroft Rockshelter in Pennsylvania which is the most prominent of the remaining pre-Clovis sites which have yet to be granted the status of also disproving the Clovis-first model.

Monte Verde, Chile

One of the enduring debates in the philosophy of science is the (im)possibility of demonstrating a conclusive proof for any particular scientific theory. Indeed, there is a significant body of thought based upon the work of Karl Popper that holds that for any theory to be considered scientific, it must potentially be able to be falsified; that is, there must be some conceivable test that, if successfully conducted, would disprove the theory.¹⁴² Although repeated instances of successful excavations of Clovis sites may

¹⁴²Karl R. Popper. *The Logic of Scientific Discovery*, (London: Routledge, 1992), first published in English in 1959 by Hutchinson and Company.

reinforce the importance of the Clovis culture, it only takes one instance of a successful excavation of a *pre*-Clovis site to disprove the Clovis-first model. In this case, the necessary single-instance of disproof was the excavation at Monte Verde, Chile during the last three decades of the twentieth century.

The Clovis-first theory enjoyed the appearance of being confirmed by a broad and deep material record. However, in retrospect, the theory was composed of an amalgamation of largely independent theories that can best be termed fellow-travelers—the ultimate success of any particular subordinate theory was neither dependent upon the success of the Clovis-first theory itself nor dependent upon any other subordinate theory. The relationship can, perhaps, be described as a political accommodation. Some First American scientists were aware that the parts from which Clovis-first was assembled had a tenuous relationship. David Meltzer noted that a successful challenge to the Clovis-first theory need only successfully demonstrate a pre-12,000 B.P. material record; it need not specifically disprove such associated theories as a Beringia crossing or a human-driven extinction of the mega-fauna. According to Meltzer, “the question of whether people were present at a given time must be kept separate from more complex questions about how they lived.”¹⁴³ Nevertheless, the burden that Monte Verde now carries is that, while it has displaced Clovis as the earliest documented human occupation in the New World, there is no associated theory describing from where those people came, by what path they arrived, and to what extent their descendents survived in the New World. Within this theoretical vacuum, there is little reason to believe that

¹⁴³David J. Meltzer, “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B. Huckell and J David Kilby (Society for American Archaeology, 2004), 31.

Monte Verde will be immune from having attached to it an assortment of fellow-traveler theories whose success will be tied to the success of Monte Verde.

The Monte Verde excavation site is a few hundred miles south of Santiago, Chile near Puerto Montt and next to Chinchihaupi Creek. In what has become a typical scenario of a significant archaeological discovery, in 1975 some old bones were serendipitously discovered by a non-archaeologist.

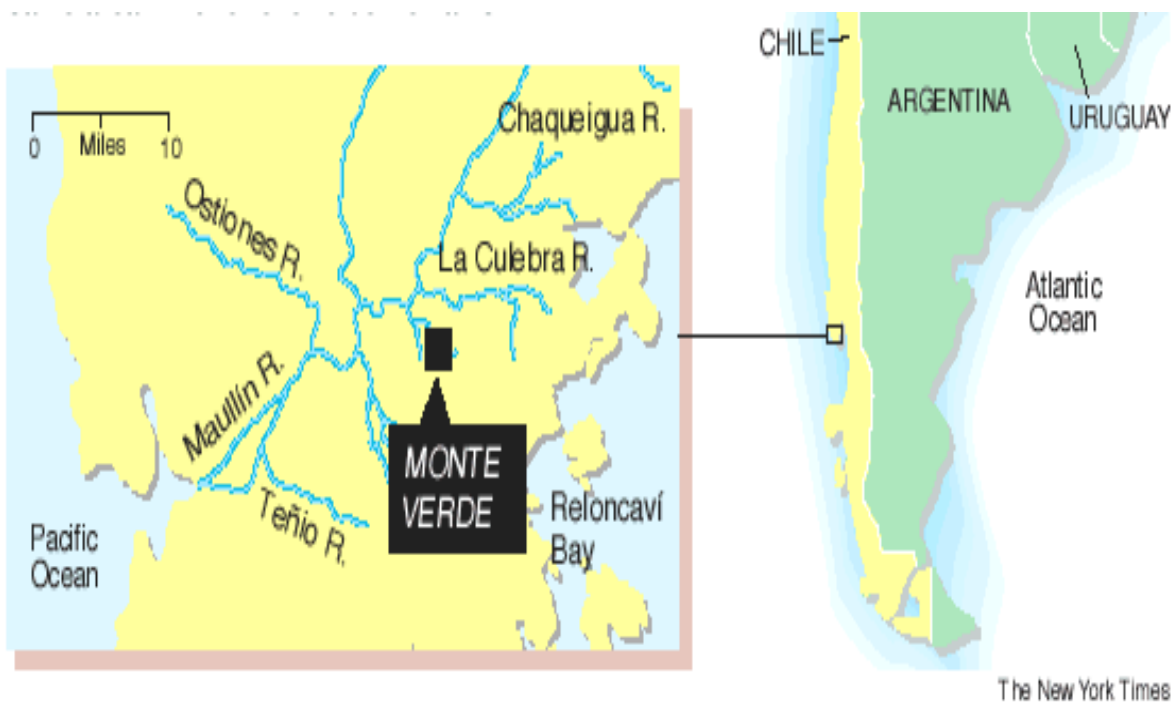


Figure 15. Map of Monte Verde, Chile area. Location Map for pre-Clovis excavation of Monte Verde, Chile.¹⁴⁴

Archaeological excavations began in 1976 under the auspices of Tom D. Dillehay and Mario Pino of the Southern University of Chile in Valdivia. Dillehay is now at the University of Kentucky-Lexington. Because the site had been covered by a water-saturated peat bog, the deterioration of normally perishable materials such as wood and

¹⁴⁴John Noble Wilford, “Chilean Field Yields New Clues to Peopling of Americas,” *New York Times*. <http://www.nytimes.com/library/national/science/082598sci-monteverde.1.GIF.html> (accessed June 25, 2011) (Fair Use determination attached.)

textiles was greatly reduced because the water prevented the decay-inducing effects of oxygen.¹⁴⁵ In the search for the first Americans, the implications of the Monte Verde excavation are profound. Not only is the human occupation 1000 years older than the Clovis culture, it is 10,000 miles from what was the potential colonization route in Beringia.

There are two levels of excavation at the site. The upper, or younger, level is designated MV – II with an estimated age of 14,500 years ago. As discussed below, it is at this level that the material evidence refutes the Clovis-first model. Nevertheless, it does not necessarily invalidate all of the associated sub-theories associated with Clovis-first. For example, First-American scientists are not able to precisely determine the dates during which humans might potentially have crossed Beringia and penetrated the ice fields of North America, nor able to confirm or refute the mega-fauna extinction theory. Although the dates for MV-II are sufficiently earlier than Clovis to refute Clovis-first, the chronological difference is not so large as to *require* a coastal penetration scenario.

While MV-II alone is sufficient to disprove Clovis-first and to require a re-writing of the First American scenario, the possible implications of Monte Verde are even greater. Beneath the level of MV-II, Dillehay has found material evidence of human-associated activity at a level, termed MV-I, dated at 33,000 B.P. Dillehay has yet to publish his final report for MV-I and, therefore, First American scientists have not yet reviewed his results. As leading First American scientists have termed it, the status of

¹⁴⁵David J. Meltzer, Donald K. Grayson, Gerardo Ardila, Alex W. Barker, Dena F. Dincauze, C. Vance Haynes, Francisco Mena, Lautaro Núñez, and Dennis J. Stanford, “On the Pleistocene Antiquity of Monte Verde, Southern Chile,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby (Society for American Archaeology, 2004), 295.

MV-I “remains unresolved.”¹⁴⁶ If, however, Dillehay’s findings are accepted, MV-I will require a completely new script for human colonization of the Western Hemisphere. It will be a direct challenge to Beringia, mega-fauna overkill, and Siberia as sub-theories for the First Americans. “Associated radiocarbon determinations indicate an age of at least 33,000 years B.P. The chances seem good that these materials indicate a significant early human occupation in the region.”¹⁴⁷ Pending publication, however, of Dillehay’s findings with regard to the MV-I excavation, the focus of First American scientists understandably remained concentrated on the implications of MV-II. The principal human-occupied area excavated at MV-II has now been destroyed by a meandering stream, logging activities, and road construction.¹⁴⁸

Because of the historically intense—frenzied might be more appropriate—scrutiny of any challenge to the Clovis-first model, Dillehay did not publish his final report associated with MV-II until 20 years after he began the excavation. In First American science, the boundary between what constituted a material fact and its associated explanatory theory seemed to have disappeared, with the Clovis-first model giving every indication of having been honored with the status of fact, rather than explanatory theory, by many in the First American scientific community. The material artifacts associated with MV-II in no way challenged the validity of the material artifacts related to the Clovis-first theory. However, the material artifacts associated with MV-II absolutely challenged the Clovis-first theory itself.

¹⁴⁶Ibid., 295.

¹⁴⁷Ibid., 298.

¹⁴⁸Ibid., 296-298.

The difficulties in an archaeological excavation lie in two areas. The first is a determination of a human presence, frequently in the absence of any human biological remains. Consequently, the evidence is typically composed of materials that reflect human activity. Documenting this activity is more difficult than might be imagined, since natural and animal-related activities are capable of fracturing stone and marking wood or bone in a nearly perfect replication of a human effort. Once a human-related activity has been determined, the second challenge for First American scientists is to chronologically situate the human presence. The overwhelming majority of the Clovis sites had no direct evidence of human presence in the form of skeletal remains; consequently, the significance of the sites was based upon evidence of human-related activity in the form of artifacts. However, at Monte Verde, Dillehay was in the envious position of having direct evidence of a human presence. As shown in Figure 16 below, what was judged to be a clear human footprint was preserved in the peat bog. Once a chronological determination was made—and supported by other evidence of human activity such as tent pegs, tools, and bits of woven basketry—Dillehay offered to First American scientists a sufficiency of evidence at MV-II to overturn the Clovis-first model.



Figure 16. Human footprint at Monte Verde, Chile excavation site.¹⁴⁹

There was not, however, an immediate broad acknowledgment of the validity of Dillehay's findings. First American science is a community endeavor, and MV-II not only challenged the reigning paradigm of Clovis-first, but also confronted the authority of the elite members of the First American scientific community who had for decades actively supported a Clovis-first theory. After two decades of publishing shorter topic-specific articles, in 1997 Dillehay produced the long-awaited second volume of his research entitled *Monte Verde, A Late Pleistocene Settlement in Chile: The*

¹⁴⁹Vanderbilt University, Department of Anthropology.
http://www.vanderbilt.edu/AnS/Anthro/Anth210/monte_verde.htm (accessed June 26, 2011). (Fair Use determination attached.)

Archaeological Context and Interpretation.¹⁵⁰ Also in 1997, what *Archaeology* termed a "blue ribbon commission" of First American scientists conducted a site visit at Monte Verde.¹⁵¹ In October of 1997 this group, which included strong proponents as well as long-standing skeptics of the Clovis-first model, jointly authored a report in *American Antiquity*. They concluded by consensus that "the MV-II occupation at the site is both archaeological and 12,500 [B.P. or 14,000 chronological] years old, as T. Dillehay has argued."¹⁵²

Despite the 1997 legitimizing of MV-II by the consensus of the elite of First American science, the caustic exchanges that are characteristic of the academic community continued. Junius Bird of the American Museum of Natural History, who Jace Weaver called the "dean" of paleo-Indian archaeology "joined in dismissing the discovery and attacking Dillehay."¹⁵³ In an October 1999 article, Stuart Fiedel attacked Dillehay's product as well as his professionalism.¹⁵⁴ In a December 1999 response by Dillehay and nineteen scholarly co-authors entitled "On Monte Verde: Fiedel's Confusions and Misrepresentations," Fiedel was accused of "misunderstanding of and

¹⁵⁰Tom D. Dillehay, *Monte Verde, A Late Pleistocene Settlement in Chile: The Archaeological Context and Interpretation*, ed. (Smithsonian Institution Press, Washington, D.C., Vol. 1/1989, Vol. 2/1997).

¹⁵¹"Monte Verde Under Fire," *Archaeology*, October 18, 1999 .

<http://www.archaeology.org/online/features/clovis/> (accessed June 26, 2011)

¹⁵²The full author citation is provided here since the authors constituted the group of senior scientists who performed the site inspection: David J Meltzer (Southern Methodist University), Donald K. Grayson (University of Washington), Gerardo Ardila (Universidad Nacional de Colombia), Alex W. Barker (Dallas Museum of Natural History), Dena F. Dincauze (University of Massachusetts), C. Vance Haynes (University of Arizona), Francisco Mena (Museo Chileno de Arte Precolombino), Lautaro Núñez (Universidad Católica del Norte), and Dennis J. Stanford (Smithsonian Institution), "On the Pleistocene Antiquity of Monte Verde, Southern Chile," *American Antiquity*, Vol. 62, No. 4, Oct., 1997, 659-663. Tom Dillehay and James Adovasio also attended the site visit but did not join in co-authoring the article because they were involved in the site excavation. Robson Bonnicksen attended the preliminary meeting in the US but did not travel to the site .

¹⁵³Jace Weaver, "Indian Presence with No Indians Present: NAGPRA and Its Discontents," *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 23.

¹⁵⁴Stuart Fiedel, "Artifact Provenience at Monte Verde: Inconsistencies and Confusion," *Scientific American Discovering Archaeology*. October 1999.

inexperience with” research design and analysis as well as “factual and interpretative errors and misrepresentations.”¹⁵⁵ With the unstabilized power relationships involved in the search for the first Americans, and with no consensus theory to replace the now discounted Clovis-first model as to the colonization of the New World, pettiness appears to rule. As Dillehay commented, “Instant-opinion-hurling has become something of a sport in the study of the first Americans—a sport that reveals our arbitrary understanding of...the peopling of the Americas.”¹⁵⁶

Balanced against the intramural squabbling among First American scientists, however, is a commitment in some quarters to what is advertised as the objectivity of science. As Meltzer has pointed out, it only requires one site to disprove Clovis-first. “Just as there is no compelling evidence to accept a pre-Clovis occupation, there is no compelling evidence to deny one either.”¹⁵⁷ This proscription would not appear to capture how First American science has responded to challenges to Clovis-first. The difficulty, perhaps, is that while Clovis-first has been overturned, Monte Verde has offered no alternative explanatory theory. In the absence of a new explanatory paradigm, the attacks are frequently *ad hominem*—since there is no message, attack the messenger.

¹⁵⁵Tom D. Dillehay (University of Kentucky), Michael B. Collins (University of Texas), Mario Pino (Universidad Austral de Chile), Jack Rossen (Ithaca College), Jim Adovasio (Mercyhurst College), Carlos Ocampo (Universidad de Chile), Ximena Navarro (Universidad Catolica de Chile), Pilar Rivas (UCA, S.A.), David Pollack (Kentucky Heritage Council), A. Gwynn Henderson (Kentucky Archaeological Survey), Jose Saavedra (Casa de la Cultura, Chile), Patricio Sanzana (Consejo Nacional de Desarrollo Indigena, Chile), Pat Shipman (Penn State University), Marvin Kay (University of Arkansas), Gaston Munoz, Anastasios Karathanasis (University of Kentucky), Donald Ugent (Southern Illinois University), Michael Cibull (University of Kentucky), and Richard Geissler (University of Kentucky), “On Monte Verde: Fiedel’s Confusions and Misrepresentations,” 1. www.uky.edu/Projects/MonteVerde/monteverde.pdf (accessed June 26, 2011).

¹⁵⁶Tom D. Dillehay, “The Battle of Monte Verde,” *The Sciences*, Jan/Feb. 1997, 32; cited in DillehayJace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 23-24.

¹⁵⁷ Meltzer, “Why Don’t We Know,” 38.

Meadowcroft Rockshelter, Pennsylvania

On July 13, 1974, James Adovasio, then a professor of anthropology at the University of Pittsburgh, received a radiocarbon-dating report from the Smithsonian Institution documenting ages of $12,975 \pm 650$ B.C. and $13,170 \pm 165$ B.C. from two different human-associated fire pits in Meadowcroft Rockshelter in what is now western Pennsylvania.¹⁵⁸ In a 1977 article early in the excavation process, Adovasio and his co-authors announced that “seven classes of artifactual remains” were discovered, including hundreds of items of “lithic, bone, wood, shell, basketry, cordage, and ceramic materials.”¹⁵⁹ According to Adovasio, Meadowcroft Rockshelter “stirred up not only scholars but also many of today’s Native American peoples by casting doubt on the legitimacy of their claim to be the descendants of the first Americans.”¹⁶⁰

The Monte Verde and Meadowcroft Rockshelter excavations share many common facets. First, excavations began in the 1970s at both locations as a result of serendipitous discoveries by amateurs. Second, the excavations have been led by credentialed academics—Tom Dillehay at Monte Verde and James Adovasio at Meadowcroft Rockshelter—who were, and still are, recognized members of the archaeological community. Third, both excavations have been conducted in a decades-long environment of intense skepticism by First American scientists because of the challenges that each site presented to the Clovis-first theory. Finally, either alone was capable of profoundly affecting what had been well-confirmed theories with regard not only to the identity of the First Americans but also to the timing of their arrival.

¹⁵⁸ Adovasio, *The First Americans*, xiii-xiv.

¹⁵⁹ J. M. Adovasio, J. D. Gunn, J. Donahue, and R. Stuckenrath, “Meadowcroft Rockshelter, 1977: An Overview,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B. Huckell and J. David Kilby, (Society for American Archaeology, 2004), 261.

¹⁶⁰ Adovasio, *The First Americans*, xv.

Despite the congruence between these two projects, there has also been an area of substantive difference specifically related to the social context within which each excavation has been conducted. At Monte Verde, based upon the material evidence which ultimately produced a successful challenge to the Clovis-first model, Dillehay's efforts conformed to the general mores of the First American science community. During the period during which he conducted his excavation and prepared his findings, he typically refrained from the personal pettiness that the search for the First Americans has seemed to generate. After 25 years of research and publication, in 1997 he fully cooperated with the inspection of Monte Verde by the elite of the First American science community. In addition, when Stewart Fidel attacked his final report, as described above, Dillehay responded not alone, but with a brief article supported by 19 co-authors, including many pre-eminent First American scholars. By comparison, James Adovasio has made clear his disdain for the manner in which the search for the First Americans science has been dominated by a select few who, according to Adovasio, have not been even-handed in evaluating evidence which challenged the reigning Clovis-first paradigm.

To date, Meadowcroft has not been granted Monte Verde's status as having successfully challenged the Clovis-first model. A case might be made that this is at least partially due to Adovasio's difficult relationship within his own scientific community. However, the more substantive reason is that, unlike Dillehay, he has yet to publish a detailed report on the results of his excavation. In 2003 he published a book titled *The First Americans: In Pursuit of Archaeology's Greatest Mystery* written for the popular

press.¹⁶¹ Although it was a summary of his work at Meadowcroft Rockshelter and an entertaining survey of the First American search, he not only did not provide an academically rigorous presentation, but he also continued his pejorative insinuations about the First American scientific community. Once Adovasio has finally published his findings, it will be an interesting historical case study to determine the extent, if any, to which the social dynamics between Adovasio and the pre-eminent First American scholars played a significant role in either delaying the demise of the Clovis-first paradigm or in Meadowcroft Rockshelter being acknowledged as a legitimate pre-Clovis site.

Regardless of his relationship with First American scientists, Adovasio has been effective in garnering support outside of the scientific community. Meadowcroft Rockshelter has been awarded recognition by both state and federal governments as having significance as a First American excavation site. As shown below in Figures 17 and 18, the Pennsylvania Historical and Museum Commission and the U. S. Department of the Interior have recognized Meadowcroft Rockshelter as documenting the presence of humans in North America “nearly 16,000 years” or “at least 16,000 years” ago, respectively.

¹⁶¹James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003).

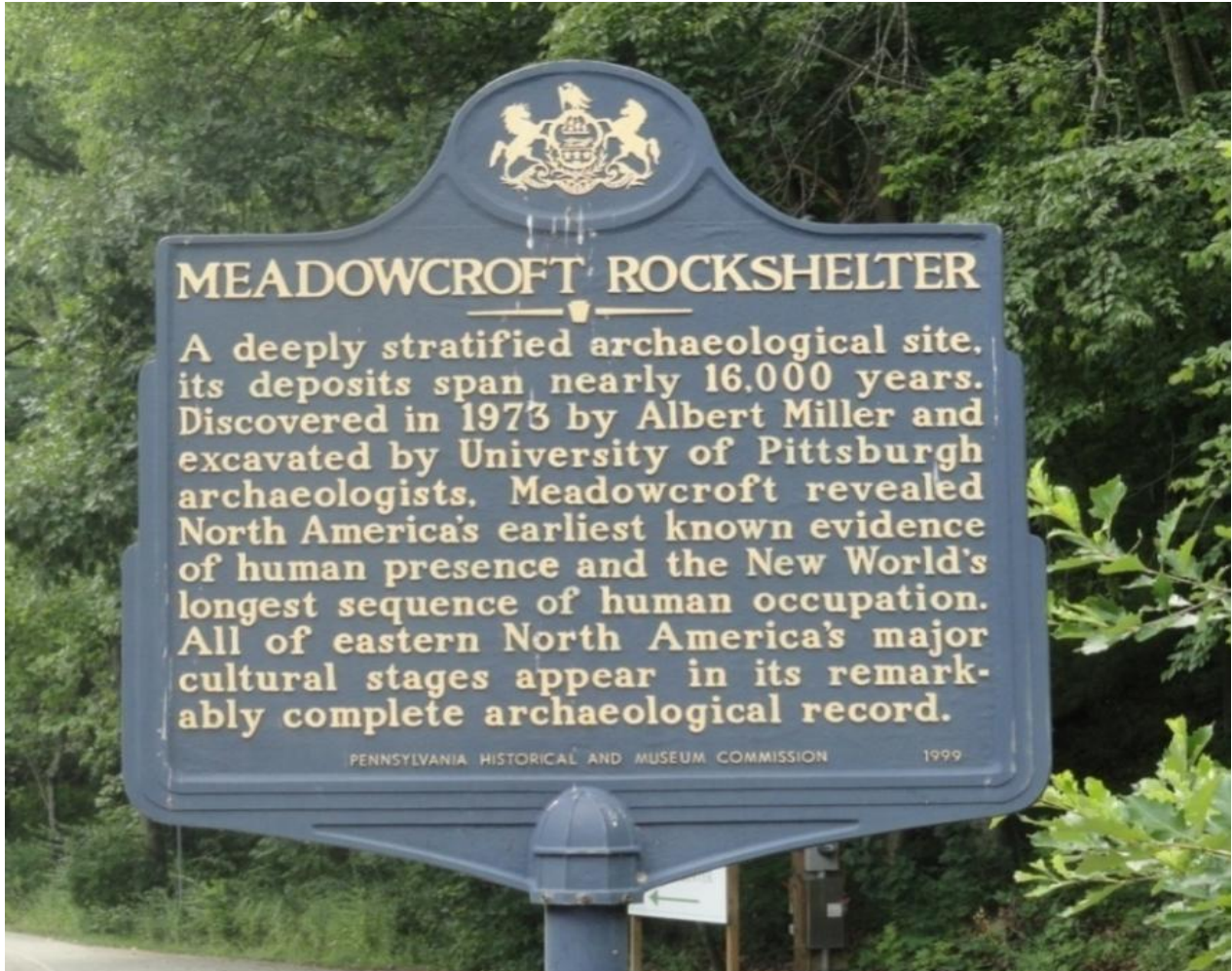


Figure 17. Meadowcroft Rockshelter, PA-Pennsylvania Historical and Museum Commission plaque ¹⁶²

¹⁶²Photograph taken on July 17, 2010 by Robert V. Davis

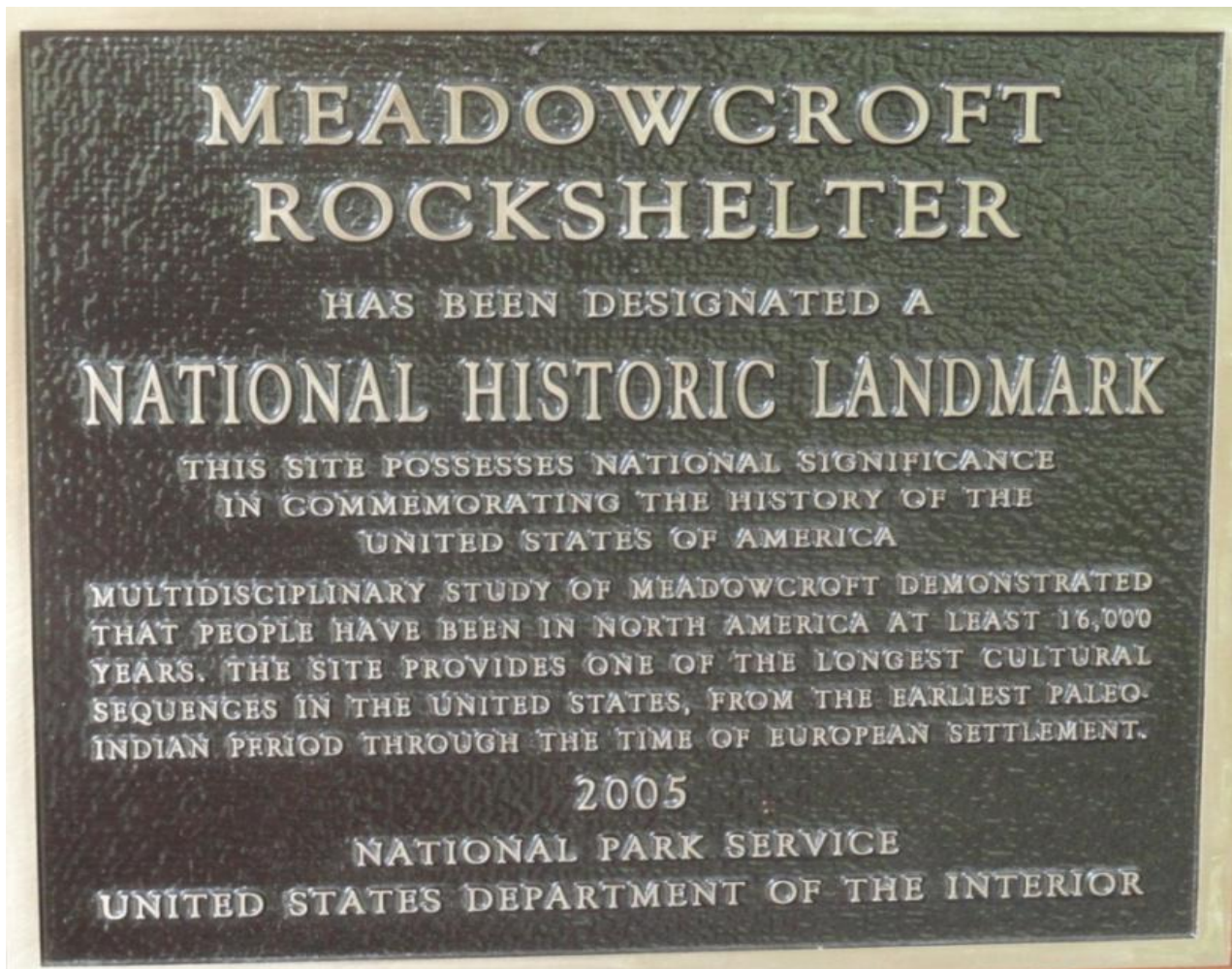


Figure 18. Meadowcroft Rockshelter, PA-National Historical Landmark plaque.¹⁶³

These were statements by governmental organizations with recognized scholarly expertise—as well as political and funding power—that not only must the Clovis-first model be incorrect, but also that Meadowcroft Rockshelter is to be accepted as having a special status in the search for the First Americans because of its extreme antiquity. Although the significance of simple historical markers and the motivations behind their being erected might be questioned, governmental power plays an influential role in how the search for the First Americans is to be conducted.

¹⁶³Photograph taken on July 17, 2010 by Robert V. Davis

Adovasio has also succeeded in making the excavation site itself accessible to the public at large, and also in preserving his archaeological methodology for inspection by both the public as well as First American scientists. As shown in Figure 19 below, the Rockshelter has been attractively covered against the elements and the locations of the items of material evidence removed for analysis have been meticulously tagged.



Figure 19. Meadowcroft Rockshelter, PA excavation site.¹⁶⁴

As discussed in Chapter 11, the modern American commoditization of First American heritage is captured at Meadowcroft Rockshelter where, for a fee, daily tours are available to the public accompanied by a knowledgeable, but amateur, guide.

¹⁶⁴Photograph taken on July 17, 2010 by Robert V. Davis

Chapter 5. Case Studies: Atlantis and Chinese Bestiary

Distinguishing between a scientific theory or a traditional myth¹⁶⁵ becomes easier with the luxury of employing an historical context. Some theories that are held to be scientific in one generation are believed to be mythical by the next. The first case study examines the evolution from nineteenth-century science to twentieth-century-myth of Atlantis as a source for the First Americans. The second investigates Chinese mythology as a potential historical source for myths of an original Asian homeland for the First Americans.

Atlantis

One of the more conceptually elastic theories is that the First Americans came from Atlantis. Such flexibility allowed the indigenous origins to intertwine Plato, the bible, geography, anatomy, geology, linguistics, and material artifacts. Genetics and carbon dating were among the few sciences missing from the late nineteenth-century search for the First Americans. The ontological beauty of offering Atlantis as an explanation is that a detractor—in an Alice-in-Wonderland application of Popper’s falsifiability postulate—must demonstrate that something that then did not exist, indeed, *never* existed. How does one scientifically falsify the creative power of the human imagination?

¹⁶⁵ The reader is reminded that in the introduction to this dissertation, myth was defined as being a statement concerning the natural world that is widely held within a culture and is generally accorded a status of being true, but at the same time is not necessarily (but might be) demonstrable according to the scientific methods of the time. Myth will continue to be used in that manner here to describe theories—e. g., a racial hierarchy—that are not true according to the science of our time, but may still be believed in some quarters. Some may call such discredited notions “pseudo-science,” which means not authentic science despite it appearing science-like. However, once such concepts have been debunked by the scientific method itself, there is no “pseudo” involved; they are simply not science. Racial science no longer even has the trappings of science. To call such theories “pseudo-science” would inappropriately award them an unmerited status not available to American Indian myths. Such scientifically discredited theories are here called myths to reflect that they are believed by some elements of society without having any modern scientific basis.

Those that espoused the Atlantean theory have included some well-respected intellects employing what appeared to be a scientific methodology accompanied by substantive evidence. As Everett Franklin Bleiler (1820-1910) – a scholar of science fiction and pseudoscience – concluded, not only are the originators of enduring myths frequently unknown, a single person is rarely credited with the creation of more than one noteworthy myth. However, Ignatius Donnelly not only has the distinction of having created three of what Bleiler terms “golden” myths, but also did so believing, at the time, that he was carrying out modern science. In addition to the myth of Atlantis as a source of the first Americans, Bleiler credits Donnelly with espousing not only a mathematical proof that Bacon had written Shakespeare’s plays and hidden a cipher message in them, but also that geological features are the result of catastrophes from the sky.¹⁶⁶ Typical of most enduring myths, there is enough of a factual basis in each of these to sustain it in a suggestive imagination.

Although popular belief might contend that one role of science is to debunk myth, Donnelly’s work is interesting as a demonstration that the practice of science itself can be a source of what may one day turn out to be myth widely considered to be of the fantastical type. Of particular interest in the search for the First Americans is that in *Atlantis: The Antediluvian World*, which Bleiler calls “the most influential pseudo-scientific work of the later nineteenth century,”¹⁶⁷ Donnelly laid the foundation for the belief that Atlantis was the original birthplace of the American Indian. This work is cited

¹⁶⁶ E. F. Bleiler in the introduction to Ignatius Donnelly, *Atlantis: The Antediluvian World*. (New York: Dover Publications, 1976), v.

¹⁶⁷ Donnelly, *Atlantis*, 22.

by modern archaeologists as a (formerly) scientifically-based statement that “the existence of the mid-Atlantic continent of Atlantis was not fable but historical fact.”¹⁶⁸

Plato’s *Timaeus* and *Critias* have generally been credited as providing the first instance of the existence of Atlantis. Donnelly himself declared that there is nothing improbable in Plato’s narrative. “It is a plain and reasonable history of a people.”¹⁶⁹ In searching for a factual basis for Plato’s account, scholars over the last two centuries have attempted to draw parallels between Atlantis and ancient civilizations in Minoan Crete, Egypt, and Persia. In an odd parallel to American Indian myths, Donnelly (among others) believed that Plato’s account could be taken literally, and that there was a matching historical reality.¹⁷⁰ For Donnelly, Atlantis was not a myth, but rather had a substantive association with history. Despite the now-seemingly ludicrous nature of the idea of an Atlantean colonization of the New World, Donnelly’s mid-nineteenth-century theory did not conflict with the little hard information on pre-Columbian civilizations available at that time.¹⁷¹

Donnelly’s *Atlantis* had much the same appearance typical of other early ethnographic books of the mid-nineteenth century. There are charts, graphs, maps, portraits, alphabetic tables, and architectural drawings. Donnelly believed that the pre-Columbian civilizations of the Americas were the result of colonies launched from Atlantis and were based on the Atlantean culture and language.¹⁷² He believed that the “shores of Atlantis were not far distant from the West India Islands; a people possessed

¹⁶⁸James M. Adovasio, *The First Americans: In Pursuit of Archaeology’s Greatest Mystery* with Jake Page (New York: The Modern Library, 2003), 27-28.

¹⁶⁹ Bleiler in the intro to Donnelly, *Atlantis*, xviii-xix.

¹⁷⁰ Bleiler in the intro to Donnelly, *Atlantis*, xii.

¹⁷¹ *Ibid.*, xiv.

¹⁷² Donnelly, *Atlantis*, 98.

of ships could readily pass from island to island until they reached the continent...all the traditions of Central America and Mexico point to some country in the East, and beyond the sea, as the source of their first civilized people; and this region, known among them as 'Aztlan.'"¹⁷³

Although the end result may have been inadvertently to create an enduring myth, Donnelly is credited with using facts, theories and methodologies that were generally acceptable in his time. His analysis of Atlantis "had a certain low degree of fit within the knowledge of 1880. By 1890 it had far less, and by 1900 it had none at all."¹⁷⁴ Bleiler concluded that *Atlantis* cannot now be considered serious science and was inaccurate in its major conclusions.¹⁷⁵ Yet, Donnelly's analysis was predicated upon the standards of then-modern science, and contained many of the elements today considered to be scientifically acceptable methodologies.

Donnelly's first task was to physically position Atlantis to support his theory. If Atlantis were to have existed, as shown in Figure 20, he placed it along the Atlantic Ridge, a geologically appropriate location, especially considering that plate tectonics was not accepted by the geological community until 75 years later.

¹⁷³ Ibid., 348.

¹⁷⁴ Bleiler in the intro to Donnelly, *Atlantis*, xviii-xix.

¹⁷⁵ Ibid., xix.

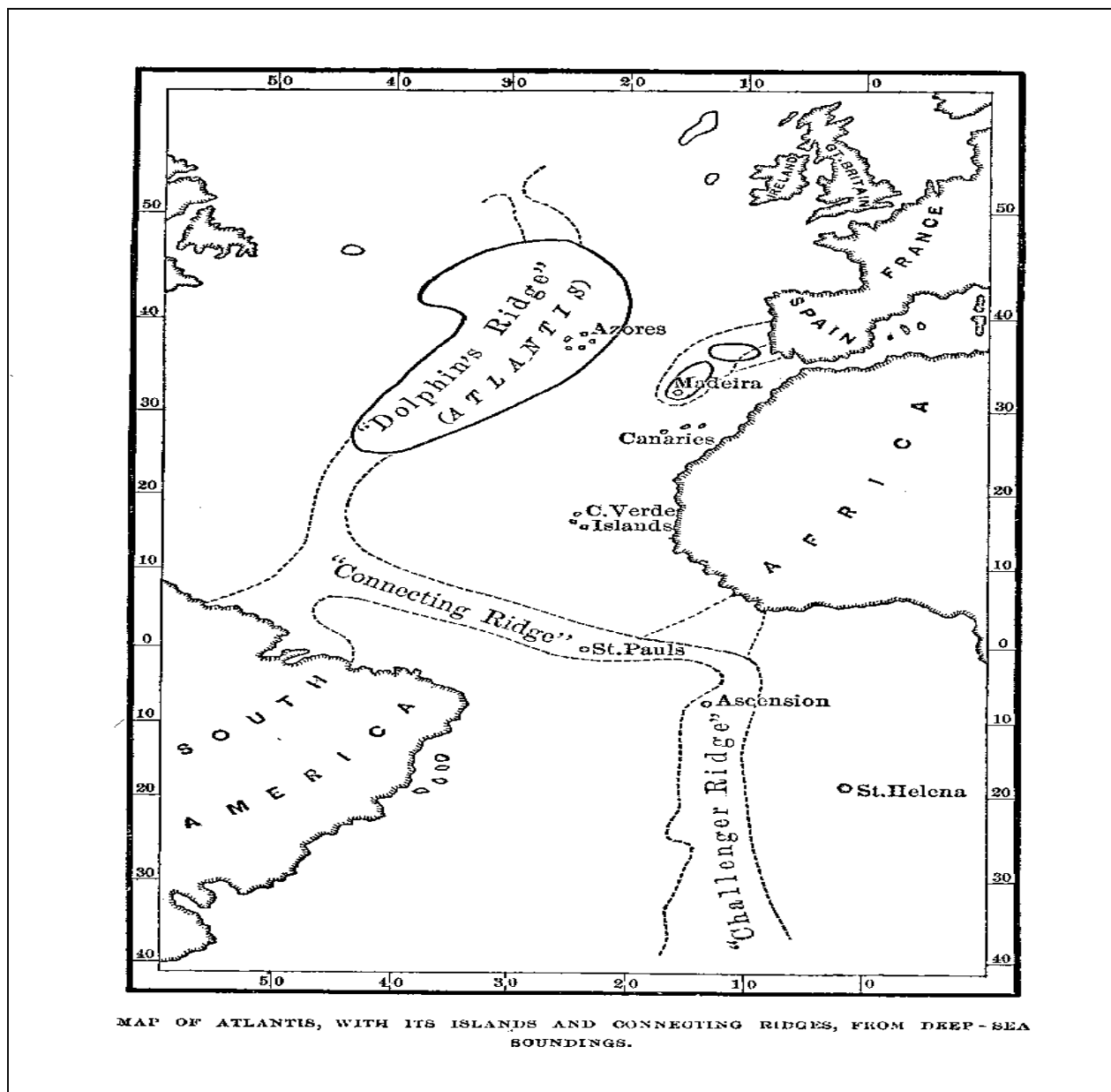


Figure 20. Ignatius Donnelly Map of possible Atlantis location.¹⁷⁶

Donnelly also included in his analysis a search for commonality in material artifacts, a practice still central to the scholarship of current First American science. As seen in Figure 21, he attributed a common Atlantean cultural source as explaining the

¹⁷⁶ Donnelly, *Atlantis*, 47. (Fair Use determination attached.)

similarity in arch construction in Mycenae and Central America. In what might have been an early expression of the central conceptual flaw at the root of social constructivists, it apparently never occurred to Donnelly that the similar approaches to nature were attributable to the universal constancy of gravity and compressive/tensile strength of stone, rather attributable to a common socially-constructed approach to arch-building in the two locations.

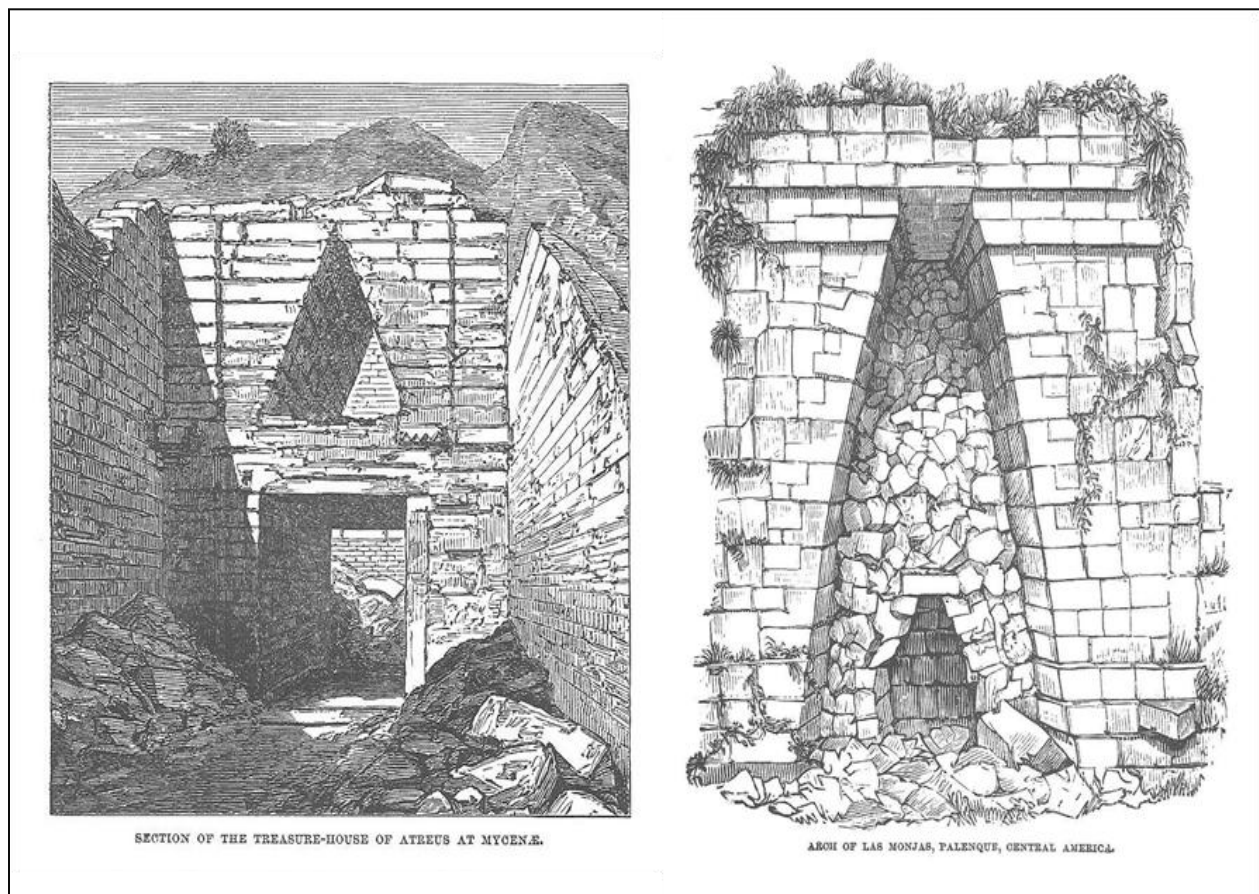


Figure 21. Ignatius Donnelly Mycenae and Central American arches.¹⁷⁷

As is the case in modern First American science, Donnelly also employed, albeit very rudimentarily, the tools of bioanthropology, specifically craniometry, to support his

¹⁷⁷ Donnelly, *Atlantis*, Mycenae sketch 354, Central American sketch 355. (Fair Use determination attached.)

case for Atlantis. As shown in Figure 22, he posited that there was a highly similar cranial shape between that of the indigenous Central Americans and that of ancient Egyptians. This commonality, he concluded, was a result of their common ancestry in Atlantis.

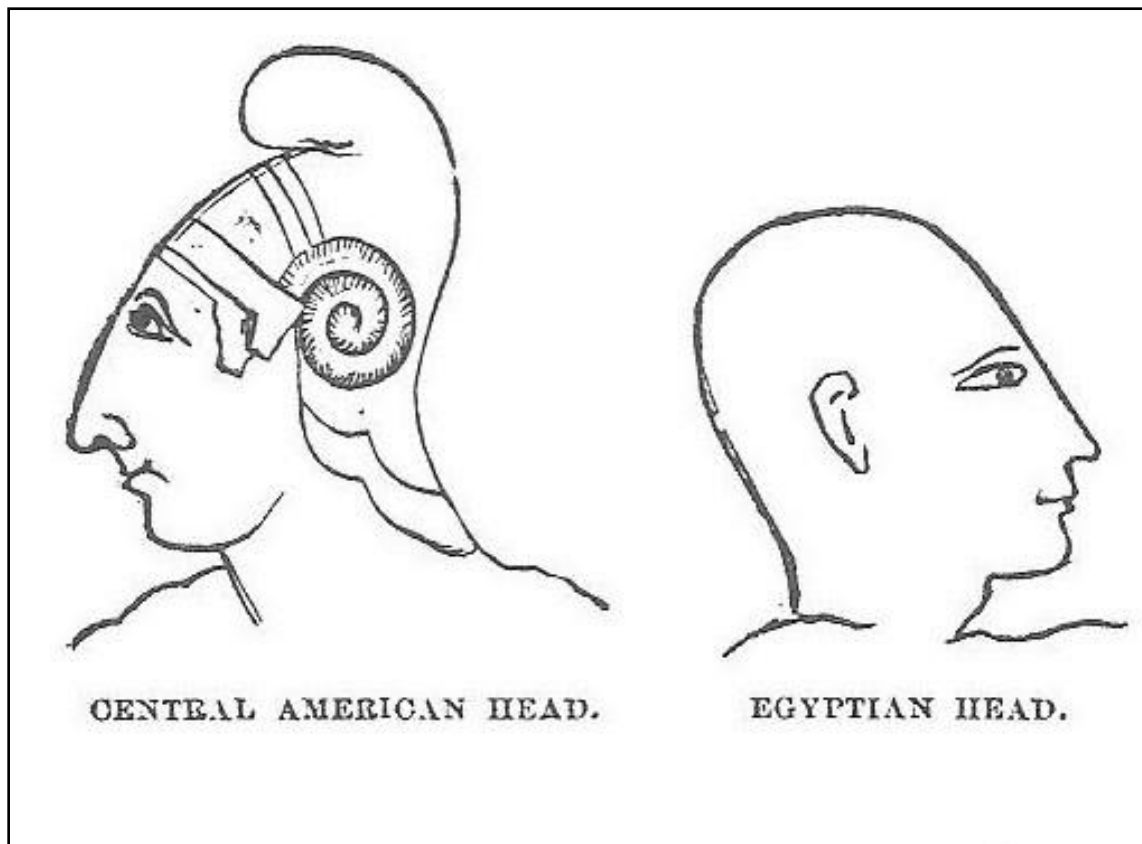


Figure 22. Ignatius Donnelly *Egyptian and Central American skulls*.¹⁷⁸

Again prefiguring the approaches used in the current search for the First Americans, Donnelly conducted a detailed linguistic analysis in an attempt to find commonality between modern languages that could be used to support Atlantis as the

¹⁷⁸ Donnelly, *Atlantis*, 274. (Fair Use determination attached.)

source for populating the New World. Not surprisingly, Donnelly contended that he had found just such evidence. As James Adovasio, an archaeologist prominent in the First American debate, characterized it, Donnelly found the linguistic similarity between the words Aztlán and Atlantis too obvious to be coincidental.¹⁷⁹ Thus, as was the case with the construction of arches, Donnelly had his connection. Table 1 is Donnelly's chart showing the reputed linguistic commonality between the Dakota Sioux dialect and other languages, including Latin, English, and Sanscrit (*sic*).

COMPARISON OF DAKOTA, OR SIOUX, WITH OTHER LANGUAGES.								
Latin.	English.	Saxon.	Sanscrit.	German.	Danish.	Sioux.	Other Languages.	Primary Signification.
Pinso...	See, seen..	Seon.....	.....	Sehen.....	Sigt.....	Sin.....	.....	Appearing, visible. Beating.
	Pound....	Punian....	.....	.....	.....	Pau.....	W., Pwynian....	
Vado..	Went....	Wendan..	.....	.....	.....	Winta.....	.....	Passage
	Wend....		.....	.....	.....	.....	.....
Qui.....	Town....	Tun.....	.....	Zaun.....	Tun.....	Tonwe.....	Gaelic, Dun.....	{Sioux dimin. Wi- peua.
	Who.....	Hwa.....	Kwas.....	Wir.....	.....	Tuwe.....		
Ego.....	Weapon..	Wepn....	.....	Wapen....	Vaapen....	Wipe.....	.....	Centre, heart.
	I.....	Ic.....	Agam....	Ich.....	Jeg.....	Mish.....	.....
Cor.....	Core.....	.....	.....	.....	.....	Co.....	Gr., Keap.....	Centre, heart.
	Eight....	Achta....	Aute....	Acht.....	Otte.....	Shaktogan..	Gr., Окто.....	
Canna...	Cane.....	.....	.....	.....	.....	Can.....	{ Arm., Canen.. } Heb., Can..... } W., Cawn..... }	Reed, weed, wood.
	Pock....	Poc.....	.....	Pocke....	Pukkel....	Poka.....	Dutch, Poca....	
Pock....	With.....	With....	.....	Wider....	.....	Wita.....	Goth., Gewithan.	Swelling.
	Doughty..	Dohtig...	.....	Taugen...	Digitig... {	Dita..... }	.....
Tango...	Tight....	Tian.....	.....	Dicht....	Digit.....	Ditaya... }	.....	Hot, brave, daring.
	Touch... }	Taecan...	.....	Ticken...	Tekkan... {	Tan..... }	.....
Tactus..	Take.... }	.....	.....	.....	.....	Htaka.... }	.....	Strain.
	Child.....	Cild.....	.....	Kind.....	Kuld.....	Cin.....	.....
Work....	.....	Wercan..	.....	Wirken...	.....	Woccan... }	Dutch, Werkan. }	Progeny.
	.....	.....	.....	.....	.....	Hecon.... }	Span., Hecho.. }	
Shackle...	.....	Seoacul..	.....	.....	.....	Shka.....	{ Ar., Shakala... } Dutch, Schakel. } Teton, Shakalan }	To bind (a link).
	Query....	.....	.....	.....	.....	Kuiva.....	.....
Shabby....	.....	.....	.....	Schabig...	Schabbig...	Shabya.....	.....

Table 1. Ignatius Donnelly comparison of languages.¹⁸⁰

As seen in Table 2, Donnelly also analyzed the alphabets—including Mayan, Irish, Hebrew, and Ethiopian—and again found a basis for Atlantis as a First American source.

¹⁷⁹ Adovasio, *The First Americans*, 27-28.

¹⁸⁰ Donnelly, *Atlantis*, 116. (Fair Use determination attached.)

The Alphabet.

	Maya	Maya	Supposed Intermediate Forms	From the Stone of Moab 850 B.C.	Phœnic Phœnician	Phœnician & Carthage etc.	Old Greek	Old Hebrew	Samaritan	Ethiopian	Irish	Later Greeks	Hiemic Egyptian
A			de	X	X	X	A	Ⲁ	Ⲁ	Ⲁ	Ⲁ	Α	Ⲁ
B			cg	g	gg	g	B	Ⲃ	Ⲃ	Ⲃ	Ⲃ	Β	Ⲃ
G			Δ	γ	γ	γ	Γ	Ⲅ	Ⲅ	Ⲅ	Ⲅ	Γ	Ⲅ
D				Δ	Δ	Δ	Δ	Ⲇ	Ⲇ	Ⲇ	Ⲇ	Δ	Ⲇ
HE.				ε	ε	ε	ε	Ⲉ	Ⲉ	Ⲉ	Ⲉ	Ε	Ⲉ
V			fP	Y	Y	Y	Υ	Ⲋ	Ⲋ	Ⲋ	Ⲋ	Υ	Ⲋ
Z				I	I	I	Σ	Ⲍ	Ⲍ	Ⲍ	Ⲍ	Ζ	Ⲍ
CH.				H	H	H	Θ	Ⲏ	Ⲏ	Ⲏ	Ⲏ	Θ	Ⲏ
T				X	⊕	⊕	⊕	Ⲑ	Ⲑ	Ⲑ	Ⲑ	Ⲑ	Ⲑ
I				z	z	z	z	Ⲓ	Ⲓ	Ⲓ	Ⲓ	Ι	Ⲓ
K			cf	y	Y	Y	Y	Ⲕ	Ⲕ	Ⲕ	Ⲕ	Κ	Ⲕ
L			cb	6	l	l	l	Ⲗ	Ⲗ	Ⲗ	Ⲗ	Λ	Ⲗ
M			w	w	44	γ	γ	Ⲙ	Ⲙ	Ⲙ	Ⲙ	Μ	Ⲙ
N			s	γ	γ	γ	γ	Ⲛ	Ⲛ	Ⲛ	Ⲛ	Ν	Ⲛ
SSX				f	f	f	f	Ⲝ	Ⲝ	Ⲝ	Ⲝ	Ξ	Ⲝ
O			o	o	o	o	o	Ⲟ	Ⲟ	Ⲟ	Ⲟ	Ο	Ⲟ
P			h	γ	γ	γ	γ	Ⲡ	Ⲡ	Ⲡ	Ⲡ	Π	Ⲡ
Q			*φ	φ	φ	φ	φ	Ⲣ	Ⲣ	Ⲣ	Ⲣ	Ϟ	Ⲣ
R				Δ	Δ	Δ	Δ	ⲣ	ⲣ	ⲣ	ⲣ	Ρ	ⲣ
S				w	w	γ	z	Ⲥ	Ⲥ	Ⲥ	Ⲥ	Σ	Ⲥ

Table 2. Ignatius Donnelly comparison of alphabets.¹⁸¹

Donnelly exhibited some nimble reasoning in tying together Asiatic migration, Beringia, Atlantis and assorted catastrophic floods.

It has been the custom to ascribe the recognized similarities between the Indians of America and the Chinese and Japanese to a migration by way of Behring's (sic)

¹⁸¹ Donnelly, *Atlantis*, 219. (Fair Use determination attached.)

Strait from Asia into America; but when we find ... such distinct recollections of the destruction of Atlantis in the Flood legends of the American races, it seems more reasonable to conclude that the resemblances between the Othomi [a Mexican “race”] and the Chinese are to be accounted for by intercourse through Atlantis.¹⁸²

Ignatius Donnelly was not the only scholar in the early development of First American science who addressed the role of Atlantis. In *Prehistoric Races*, in 1873 John Wells Foster also situated Atlantis as a central part of his thesis for explaining the populating of the New World. Citing the work of the Charles-Étienne, Abbé Brasseur de Bourbourg (1814-1874), a French archaeologist and ethnographer, to whom he attributed the beginnings of American ethnology, Foster agreed that “the words *Atlas* and *Atlantic* have no satisfactory etymology in any language known to Europe. They are not Greek, and cannot be referred to any known language of the Old World. But in the Nahuatal (or Toltecan) language we find immediately the radical *a*, *atl*, which signifies water, man, and the top of the head.”¹⁸³ Foster did, however, discount assertions by George Catlin that such ancient cities as Palenque and Uxmal are tied to Atlantis because Catlin contended that the evidence showed that “the ocean has been their bed for thousands of years, and that the earth on which one treads, and the whole face of the country in which they stand, bear incontestable proofs of the same fact.”¹⁸⁴ It may seem ironic to us that Foster, a leading scientist of the nineteenth century could accept what now appears to be such specious reasoning with regard to linguistic similarities, yet dismissed an argument that Palenque or Uxmal might have descended from an

¹⁸² Ibid., 435-436.

¹⁸³ John Wells Foster, *Pre-Historic Races of the United States of America* (Chicago: S. C. Griggs and Company, 1873), 397-398.

¹⁸⁴ Ibid., 398. Foster does not give Caitlin’s first name but it must certainly be George Caitlin the historian and painter of American Indian culture. Foster cites the work as being from “Revue des Deux Mondes,” March 1867 page 154.

Atlantean civilization because the geology appeared oceanic, a theory that modern plate tectonic theory might now support.

As a case study, Atlantis demonstrates the full range of issues associated with the search for the First American. First, it provides an example of the difficulty, except in retrospect, of distinguishing science from myth. Second, in the latter half of the nineteenth century, reputable scientists could make a case based upon acceptable data and methodologies that not only did Atlantis exist, but that it was a prime candidate for the origin of the First Americans. This, of course, is now considered both dubious science and a specious conclusion. The sciences evolve; what is considered to be acceptable in one generation may well be considered erroneous in the next. Finally, it provides an example as to how myths can endure by co-opting the trappings of scientific authority.

Chinese Bestiary

The focus of the search for the first Americans is physically as well as conceptually centered in the Western Hemisphere. It is an investigation into where people came *from*—Atlantis, Solutrean-Europe, Asia via Beringia, or Phoenicia. Since many First American scientists believe Beringia was the path for the first migration, looking to Siberia for pre-cursor cultures might prove illuminating. However, as David Meltzer acknowledged, “Siberia is so poorly known archaeologically that there is no

reason to believe that the earliest sites there have yet been found...Before we can talk about the peopling of Siberia, Siberia will have to be peopled by archaeologists.”¹⁸⁵

Outside of the search for genetic or linguistic roots, there is not a substantial core of scholarship that investigates the cultural myths that might lend some insight into Asian people that *went to* the New World. If American Indians are correct that their myths retain an accurate representation of their existential experience of thousands of years ago, a case might be made that the myths of the possible mother-ship cultures may have some bearing on the First Americans. There might be a cultural myth of having *sent* people to the New World.

The paucity of scholarship is, of course, principally a function of the improbability of examining any artifacts of the Atlantean, Phoenician, or Solutrean cultures; examination of written records is of even higher improbability. There is, however, one viable option in the written records of China. The Chinese have the longest continuous record of written history on earth. While the genetic evidence indicates that modern American Indians are not direct descendents of the Chinese, but rather are descendents of a common ancestor, ancient Chinese records have frequently been consulted by Western scholars as a source of confirmation for otherwise mythic events such as floods and celestial occurrences. Bones and turtle shells with written histories date approximately to 1200 B.C. during the Shang Dynasty (c. 1700-1046 B.C). This indicates not only an early and sophisticated system capable of preserving a written system of cultural beliefs, but also that 3,000 years ago the Shang culture already had an

¹⁸⁵ David J. Meltzer, “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, 29-30.

ancient history that they believed was worth preserving. If the American Indians have an oral tradition of their existential origins that is difficult to document beyond a few generations, but they would have anthropologists believe reaches back thousands of years, the question arises as to what written records might exist in the Chinese culture that would indicate a knowledge that any people, Chinese or otherwise, might have departed toward the northeast of Asia, especially in view of the geneticists' hypothesizing that, after the initial migration from Asia to the New World via Beringia, there was doubtless a two-way migration of both humans and animals.

In 6 *B.C.*, the Western Han dynasty Emperor Ming was presented with a completed compendium that was a several-hundred-year effort to capture knowledge that Chinese scholars believed was being lost. The *Guideways through Mountains and Seas* (山海经 *Shānhǎi Jīng*), written between the fourth and first centuries B.C.E., is perhaps *the* classic ancient history of Chinese beliefs. According to a modern translation by Richard Strassberg, it “is a unique and enduring record of a wide range of beliefs held by the ancient Chinese about their world, encompassing religion, mythology, geography, flora, fauna, minerals, and medicine.” The geographical import of the work is evident in that, while 经 (*jīng*) may be translated as guideways, classic book, or collection, 山 (*shān*) and 海 (*hǎi*) are geographical terms meaning mountain(s) and sea(s), respectively. Strassberg calls it an “encyclopedic cosmography.”¹⁸⁶ It is an authoritative cultural statement. As best understood by the Chinese of 2400 years ago, it was history, not myth.

¹⁸⁶ Richard E. Strassberg, ed. and trans., *A Chinese Bestiary: Strange Creatures from the Guideways Through Mountains and Seas* (Berkeley: University of California Press, 2002), xiii.

Unlike American Indian myths which were exclusively oral in nature, the Chinese were not only among the first to use written symbols, but they then proceeded to make, and retain, extensive records of the monumental as well as the mundane. *Shānhǎi Jīng* is a catalogue of the natural world within and surrounding the ancient Chinese homeland. The first part can be considered a map of sorts showing the location of particular mountains, plants, and minerals.¹⁸⁷ However, as Strassberg indicated, *Shānhǎi Jīng* also “identifies some ninety-five foreign lands and tribes...The ethnographic data includes peoples confirmed in historical texts as well as highly fantastic groups located in mythological realms.”¹⁸⁸ The more interesting foreign people are endowed with ears so long that they must use their hands to carry them, and others are variously one-eyed, one-armed, or without intestines.¹⁸⁹

Shānhǎi Jīng described China as being surrounded not only by *shān*, mountains, but also by *hǎi*, seas, that are believed to be both physical oceans and, allegorically, the vast expanses of desert on China’s western borders. Chinese scholar Zhang Huang (章潢) (1527-1608) attempted in *Compendium of Diagrams* (图书编, *Túshūbiān*), published in 1613, to capture pictorially the knowledge that had been amassed in ancient China, including that of the *Shānhǎi Jīng*. As shown in Figure 23 below, the existential myth of China was perceived to be of a culture surrounded by vast expanses of deserts and seas. To the northeast of the diagram were the Long-Thighs People and the Long Arms People;

¹⁸⁷ Ibid., 10.

¹⁸⁸ Ibid., 55.

¹⁸⁹ Ibid., 55.

to the southeast was the Land of the Midgets; to the southwest the Land of Gentlemen; and to the northwest the Land of the People without Calves.¹⁹⁰

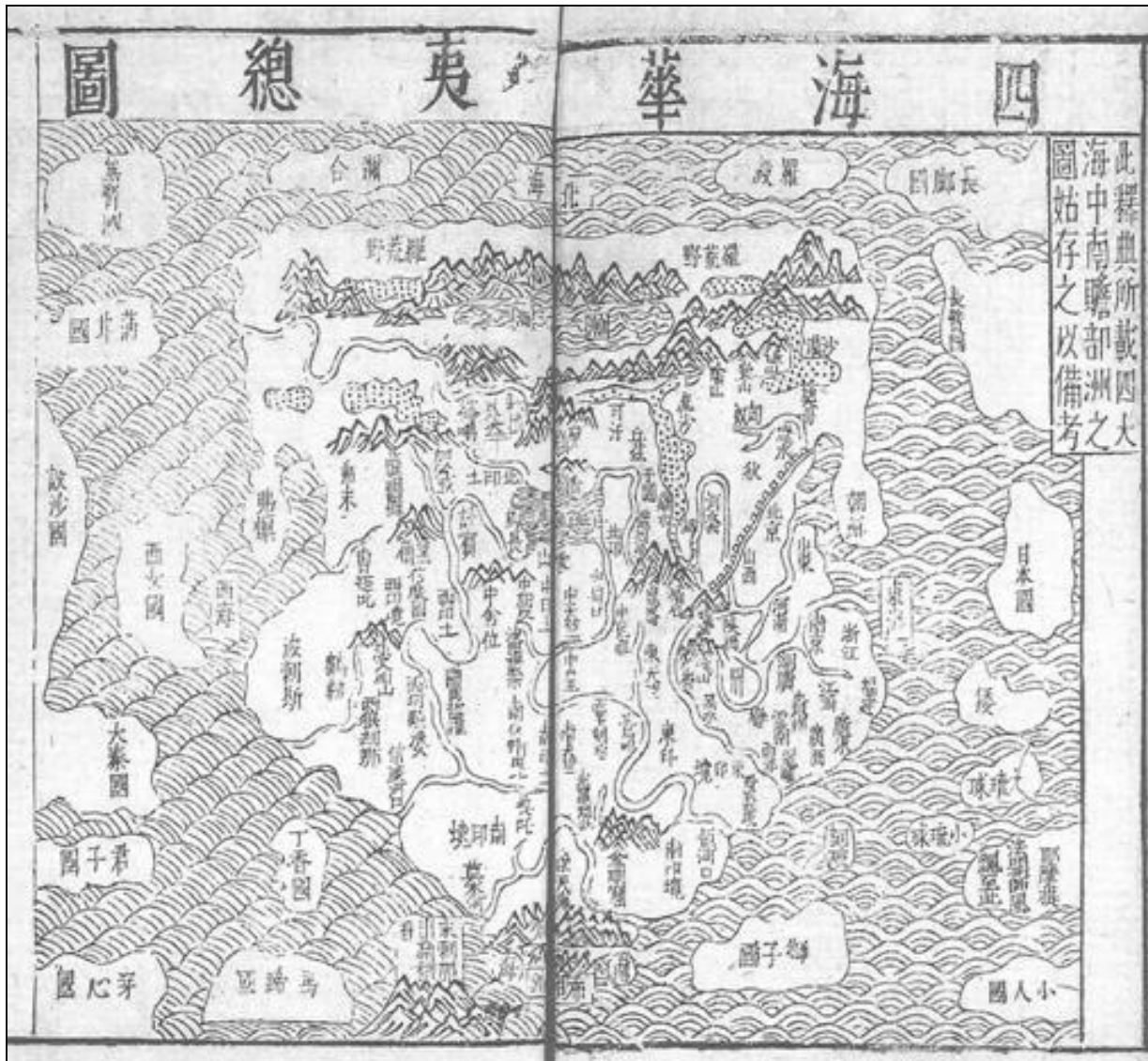


Figure 23. Ancient Chinese map of area surrounding China. A copy of the "General Map of the Four Seas, China, and the Barbarians," from the 1613 *Compendium of Diagrams* (图书编, *Túshūbiān*) by Zhang Huang.¹⁹¹

¹⁹⁰ Ibid., 35.

¹⁹¹ Zhang Huang, "General Map of the Four Seas, China, and the Barbarians," from the 1613 *Compendium of Diagrams* (图书编, *Túshūbiān*). Source: Strassberg; original attribution to Bibliothèque Nationale de France, Paris. (Fair Use determination attached.)

Interestingly, there are lands identified beyond the seas with non-Chinese inhabitants, including to the northeast, which would be the direction of Beringia. There is, however, no indication of a migration by the Chinese or by the foreigners of the northeast that might support the Beringian hypothesis. Nor is there any indication of a two-way migration between Asia and the New World as suggested by geneticists.

The absence in Chinese mythology of any indication of a migration, either by sea or across a land bridge, to the New World cannot be considered disproof of either those America Indian oral histories that speak of an existential migration or of modern science which proposes a migration from Asia. It does, perhaps, suggest the unimportance of the peopling of the Western Hemisphere in the myths of the Old World.

Section III. First American Science

The previous Section II, “First American Theories, Myths and Evidence,” examined the relationships between First American Science and American Indian myths, and also situated within the context appropriate to their times the development of specific scientific theories purportedly explaining the origins of the First Americans.

Section III, “First American Science,” investigates the practice of science in the United States as dedicated to the search for the First Americans. First American science—that is, the application of scientific methodologies to determine the identity of the original inhabitants of the Western Hemisphere—has as its constituent elements subfields of several of the traditional scientific domains, including anthropology, archaeology, bioanthropology, genetics, linguistics, and physics. In addition, important to understanding the practice of First American science is the role played by laboratories and museums as mechanisms for interpreting not only the physical evidence, but also the methodologies employed in the search for the First Americans.

Chapter 6, “Anthropology and Archaeology,” captures the nature of the unstabilized practices of two disciplines situated at the very core of First American science. Examined are the frequently contentious relationship between anthropology and archaeology, and also what is best described as the recent rejection by leading anthropologists of anthropology as a scientific undertaking,

Chapter 7, “Bioanthropology,” probes the application of scientific methodologies which measure the human form, and the historic difficulties in translating these biological metrics into meaningful statements concerning culture. Chapter 7 characterizes the manner in which First American science has historically

accommodated the influence of a then-dominant culture to produce, for example, scientific corroboration for theories associated with racial inequality.

Chapter 8, “The Other Sciences: Genetics, Linguistics, and Physics,” captures the critical role in the search for the First Americans of the practice of a broad range of sciences. Although there has been a several-hundred-year attempt to look for clues in linguistic relationships, in the last half of the twentieth century, genetics and physics have contributed DNA analysis and carbon dating to the ensemble of analytical tools available to scientists. Yet, examination shows that the limitations which constrain the results of both genetics and physics are frequently unacknowledged not only by the public, but by First American scientists themselves.

Chapter 9, “Laboratories,” addresses the difficulty in identifying precisely where and under what circumstances observations are conducted in the search for the First Americans. Where, or even whether, an excavation takes place is frequently the result of negotiations between scientists and American Indian groups that actively oppose the practice, results, and even existence of First American science.

Chapter 10, “Museums,” documents the important function played by traditional museums in both reflecting as well as shaping popular American culture. In addition, the unique nature of every First American science excavation and the impossibility of replication dictates that every significant excavation site must become a museum display preserving the methodology associated with the discovery and removal of its artifacts.

Chapter 6. Anthropology and Archaeology

The practice of First American science is a problematic undertaking given the existential challenges to archaeology and anthropology from inside as well as outside of the disciplines. Anthropologists are currently trying to decide if anthropology is a science; archaeologists are uncomfortable as a sub-domain of anthropology; archaeologists also question whether their discipline is a science; and both anthropology and archaeology must survive in a post-modernist world that has shifted the ontological balance between American Indian myths and First American science.

The internecine squabbling within science can seem outright bizarre to those outside of the community involved. For example, in 2006, the International Union for Quaternary Research (IUQR) wrote to the International Commission on Stratigraphy (ICS) to complain that the ICS had defined the Pleistocene epoch in such a manner as to cover only a part of the Ice Age. The IUQR demanded that if the ICS did not acceptably redefine the Pleistocene, then the IUQR would consider it a “unilateral and hostile” act.¹⁹² As *archaeologist* David Meltzer commented, “we demanded nothing less than control over our period of geological time.”¹⁹³

Archaeology rests uneasily within the intellectual embrace of Anthropology. In the United States, it has been relegated to a subdiscipline of anthropology since the time of Franz Boas (1858–1942), one of the founders of American anthropology.¹⁹⁴ The dynamics across archaeology, anthropology and science in general are complex and

¹⁹² International Union for Quaternary Research (IUQR) letter of 2006 cited in David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009) 29.

¹⁹³ David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 29.

¹⁹⁴ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003), 95.

contentious. In “Why Don’t We Know When the First People Came to North America,” David Meltzer stated that “demonstrating that there were humans in America before 12,000 B.P. is strictly an archaeological issue.”¹⁹⁵ This is not just a defense against American Indian myths, but is also an attempt to erect a barrier against the potentially more powerful intellectual domains presented by other sciences. It is not that Meltzer, whose writings would lead one to consider him a statesman rather than a radical in archaeological politics, does not recognize that other sciences might provide *some* insight. “Data from an array of fields would seem to narrow the number and timing of migrations [from Asia to the New World], but that evidence is at best circumstantial and cannot be used to constrain what is strictly an archaeological matter.”¹⁹⁶ It appears that data can be tainted by not being produced archaeologically. Archaeologists are certainly not oblivious to the contributions of the other First American sciences, but they apparently believe that they, as archaeologists, should dictate what results from the other sciences are to be considered legitimate in the search for the first Americans.

There are, however, contrary opinions from within the discipline. As Randall H. McGuire, an anthropologist at SUNY Binghamton, has indicated, archaeologists should respect the power inherent in their community while recognizing the politics involved. As McGuire stated, “Archaeology is always political...but this does not mean that we should give up our authority as good crafts persons. Speaking truth to power requires that we maintain the authority of our craft.”¹⁹⁷

¹⁹⁵ David J. Meltzer, “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, 37.

¹⁹⁶ David J. Meltzer, “Why Don’t We Know,” 25.

¹⁹⁷ Randall H. McGuire, *Archaeology as Political Action* (Berkeley: University of California Press, 2008), xii.

There has not always been an acknowledgement of the political aspects of science. Thomas Jefferson, one of the first American practitioners of archaeology, in 1809 maintained a belief in the conflict-free nature of science. “These [scientific] societies are always in peace, however their nations may be at war. Like the republic of letters, they form a great fraternity spreading over the whole earth, and their correspondence is never interrupted by any civilized nation.”¹⁹⁸

Conventional wisdom would have us believe that the soft sciences—such as sociology and anthropology—covet the greater cultural authority western society grants to the hard sciences—such as chemistry and, especially, physics. Archaeology is stigmatized, in some quarters, by those who consider it to be “a social science—which means almost automatically soft and imprecise.”¹⁹⁹ These soft sciences, so this wisdom goes, attempt whenever possible to mimic the methodologies and vocabularies of the hard sciences.

Those modern intellectual disciplines that profess to most accurately characterize human interactions with the world are typically self-described as being based on science—unless, apparently, that discipline is anthropology. Richard Feynman, one of the preeminent physicists of the twentieth century, is reported to have stated that “philosophy of science is about as useful to scientists as ornithology is to birds.”²⁰⁰ Interestingly, anthropology, the epistemological approach central to the search for the First Americans, is currently embroiled in a controversy over distancing itself from

¹⁹⁸ “Jefferson and the American Philosophical Society” by Gilbert Chinard *Proceedings of the American Philosophical Society* Vol. 87, No. 3, Bicentennial of Thomas Jefferson (Jul. 14, 1943), 263-276.

¹⁹⁹ Adovasio, *The First Americans*, 95.

²⁰⁰ This is attributed to Feynman, but as with many aphorisms attributed to famous sources, there is no definitive documentation as to time and place of utterance.

science and is engaging in a philosophical discussion as to what constitutes a meaningful way of knowing nature.

The American Anthropological Association, the AAA, was founded in 1902 and has advertised itself as being “the world’s largest professional organization of anthropologists and others interested in anthropology, with an average annual membership of more than 10,000,” and as such “represents all specialties within anthropology—cultural anthropology, biological (or physical) anthropology, archaeology, linguistics and applied anthropology.”²⁰¹ On November 20, 2010, an existential crisis in anthropology erupted when the Executive Board of the AAA adopted a new long-range plan that removes science as an anthropological endeavor. As contained in an openly broadcast email to anthropologists and the public from Peter N. Peregrine, President of the rival Society for Anthropological Sciences, the edited text of the controversial changes is as follows (the additions are underlined and the deletions are lined through):

Section 1. The purposes of the Association shall be to advance ~~anthropology as the science that studies~~ public understanding of humankind in all its aspects, ~~through~~ This includes, but is not limited to, archeological, biological, ~~ethnological,~~ social, cultural, economic, political, historical, medical, visual, and linguistic anthropological research; The Association also commits itself and to further the professional interests of ~~American~~ anthropologists, including the dissemination of anthropological knowledge, expertise, and interpretation. ~~and its use to solve human problems.~~

Section 2. To advance ~~the science of anthropology~~ the public understanding of humankind, the Association shall: ~~Foster and support the development of special anthropological societies organized on a regional or functional basis;~~ Publish and promote the publication of anthropological monographs and journals; Encourage anthropological teaching, research, and practice; ~~act to coordinate activities of members of the Association with those of other organizations concerned with anthropology,~~ and maintain effective liaison with related sciences knowledge disciplines and their organizations.

Section 3. To further the professional interests of anthropologists, the Association shall, ~~in addition to those activities described under Section 2: Take action on behalf of the entire profession and integrate the professional activities of anthropologists in the special aspects of the~~

²⁰¹ American Anthropological Association Website, <http://www.aaanet.org/issues/press/AAA-Responds-to-Public-Controversy-Over-Science-in-Anthropology.cfm>, accessed December 13, 2010.

science; and promote the widespread recognition and constant improvement of professional standards in anthropology.²⁰²

The AAA executive board has deleted all specific references to science as a part of anthropology. In addition, it has deleted the reference to "American" in section 1. The mission is no longer to "advance the science of anthropology" but rather is to "advance the public understanding of humankind." Geoffrey A. Clark, at Arizona State University, concluded that the AAA over the past couple of decades has been undergoing an intellectual Balkanization,²⁰³ that anthropology has no discernible conceptual framework,²⁰⁴ and that anthropology is "divided against itself (and therefore rather incoherent)."²⁰⁵ Anthropology was born through the separation of science from myth. Now, apparently, the AAA is on a path to their reengagement.

Reflecting the popular status of anthropology in American culture, these changes have been widely addressed in press articles ranging from the *New York Times*, to *Psychology Today*, and to *Inside Higher Ed*. The *Times* captured the crux of the issue: "The decision has reopened a long-simmering tension between researchers in science-based anthropological disciplines—including archaeologists, physical anthropologists and some cultural anthropologists—and members of the profession who study race, ethnicity and gender and see themselves as advocates for native peoples or human rights."²⁰⁶ In an email to the *Times*, Virginia Dominguez, President of the AAA and an University of Illinois anthropologist, indicated that the word science "had been dropped

²⁰² Attachment to November 23, 2010 email by Peter Neal Peregrine, accessed December 13, 2010, <http://www.unl.edu/rhames/AAA/AAA-LRP.pdf>

²⁰³ Geoffrey A. Clark. "Should One Size Fit All? Some Observations on Killich and the Goldberg," *The SAA Archaeological Record*, Vol. 10, No. 1. January 2010, 39.

²⁰⁴ *Ibid.*, 40.

²⁰⁵ *Ibid.*, 41.

²⁰⁶ Nicholas Wade, *New York Times*, "Anthropology as Science: Statement Deepens a Rift," December 9, 2010 <http://www.nytimes.com/2010/12/10/science/10anthropology.html?scp=2&sq=nicholas%20wade&st=cse> accessed December 13, 2010.

because the board sought to include anthropologists who do not locate their work with the sciences.”²⁰⁷ Although it may be appropriate for the organizational documents of a professional association to reflect whatever membership that they desire to recruit and whatever professional standards they hope to maintain, it is, however, difficult to envisage physicists or chemists situating the conceptual center of their preeminent professional associations outside of science as anthropology is now attempting to do.

In a November 25, 2010 article in *Psychology Today* titled “No Science, Please, We’re Anthropologists,” Alice Dreger—who earned a Ph.D. in the history and philosophy of science from Indiana University and is currently Professor of Clinical Medical Humanities and Bioethics at Northwestern University’s Feinberg School of Medicine—described those who wish to separate anthropology from science as “fluff-head cultural anthropological types who think science is just another way of knowing...You can usually tell the ones who are fluff-heads by their constant need to look like superheroes for oppressed peoples, and you can tell the non-fluff-heads by their attention to data.”²⁰⁸ In an email to Dreger, Stuart Plattner, former Program Director for Cultural Anthropology at the National Science Foundation, called the revised AAA platform “another step in the conversion of Anthropology from a social science into an esoteric branch of journalism.”²⁰⁹ Raymond Hames, Chair of the Anthropology Department at the University of Nebraska Lincoln, stated that “advocacy is what we do as citizens in a

²⁰⁷ Virginia Dominguez cited in Nicholas Wade, “Anthropology as Science: Statement Deepens a Rift,” *New York Times*, December 9, 2010 (accessed December 13, 2010)

<http://www.nytimes.com/2010/12/10/science/10anthropology.html?scp=2&sq=nicholas%20wade&st=cse>

²⁰⁸ Alice Dreger, “No Science, Please, We’re Anthropologists,” *Psychology Today*, November 25, 2010, <http://www.psychologytoday.com/blog/fetishes-i-dont-get/201011/no-science-please-were-anthropologists> (accessed December 13, 2010).

²⁰⁹ Stuart Plattner cited in Alice Dreger, “No Science, Please, We’re Anthropologists,” *Psychology Today*, November 25, 2010, <http://www.psychologytoday.com/blog/fetishes-i-dont-get/201011/no-science-please-were-anthropologists> (accessed December 13, 2010).

democratic society. Even as anthropologists we must advocate on the basis of fundamental science. Science has a special currency in courts, public opinion, and in the legislative process. If we purge science from our mission statement we lose our credibility, the ability to advocate for effective change, and hence our power to do good. We become just another special interest group.”²¹⁰ In a November 30, 2010 *Inside Higher Ed* article entitled “Anthropology Without Science,” Hames has also asked that if children were dying of dysentery should scientists accept as an explanation that a violated taboo has made the gods angry, or should they determine how fecal matter might have contaminated the water supply?²¹¹ The *Inside Higher Ed* article described the debate as: “to one group, objective truth as revealed by science is an ideal to pursue, while to the other, that notion poses problems because it embodies Westernized and colonial ideals...Some argued that being an anthropologist, by necessity, meant that one had to advocate on behalf of one’s subjects.”²¹²

Just as observations are theory-laden, theories which attempt to describe ways in which the natural world functions are themselves culture-laden. Any methodical approach structures the subject matter such that certain kinds of explanation are appropriate and others are not.²¹³ This does not, however, mean that all approaches are equally effective in providing functionally useful characterizations of the natural world. Questions can be framed only if potential answers can be imagined, and culture

²¹⁰ Raymond Hames cited in Alice Dreger, “No Science, Please, We’re Anthropologists,” *Psychology Today*, November 25, 2010, <http://www.psychologytoday.com/blog/fetishes-i-dont-get/201011/no-science-please-were-anthropologists>, accessed December 13, 2010.

²¹¹ Raymond Hames cited in “Anthropology Without Science,” *Inside Higher Ed*, November 30, 2010, <http://www.insidehighered.com/news/2010/11/30/anthroscience>, accessed December 13, 2010

²¹² “Anthropology Without Science,” *Inside Higher Ed*, November 30, 2010, <http://www.insidehighered.com/news/2010/11/30/anthroscience>, accessed December 13, 2010

²¹³ Helen E. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 98.

stimulates and simultaneously constraints such imaginings. It appears that the AAA is attempting to position its epistemological domain outside of the cultural operating assumptions, whatever they might be, that govern both science and traditional knowledge. Even if the AAA could succeed in finding that special epistemological place, it is not clear what, if anything, can be accomplished through such an approach other than better positioning a politically correct AAA in their envisaged post-modernist world. Whether science does or does not better capture the operational characteristics of the natural world is less important for the success of the AAA's effort than the fact that practitioners of science believe that to be the case and may seek membership in a professional association which is compatible with that view. The distinction to be made here is between what constitutes a culturally appropriate approach to nature—the particular methodologies of science or the vast range of traditional lore—as opposed to how scientists themselves structure the professional associations of their discipline. The AAA leadership has indicated that they believe that however the profession of anthropology may be defined, at a minimum it does not require a commitment to science; many approaches to nature are now welcome. According to Edward Said, “of all the modern sciences, anthropology is the one historically most closely tied to colonialism, since it was often the case that anthropologists and ethnologists advised colonial rulers on the manners and mores of native people.”²¹⁴ Claude Levi-Strauss

²¹⁴ Edward Said, *Culture and Imperialism*, (New York: Alfred A. Knopf, 1993), 152; cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 28, note 4.

called anthropology “the handmaiden of colonialism.”²¹⁵ The AAA is attempting to situate itself as to be outside of the shadow of such accusations.

The central questions in the search for the First Americans are straightforward: where did they come from; who were they; when did they come; are any of their descendants still living today? As David Meltzer pointed out, “there is only the broadest agreement among the different disciplines on the central questions related to the peopling of the Americas.”²¹⁶ As can be seen in the debate over the AAA mission statement changes, difficulties arise in the fundamentally dissimilar approaches that the different sciences take in translating these seemingly simple questions into theoretical structures which shape their research regimes and, ultimately, their observational boundaries. At times, it even appears that a theory purporting to explain the arrival of the First Americans can assume some of the cultural trappings normally associated with a mythological status. According to archaeologist Tom Dillehay, the power of the Clovis-first paradigm as an explanation for the First Americans effectively excluded some paths of research, and its demise has produced “fresh thinking.”²¹⁷ James Adovasio called it the “Clovis Bar.”²¹⁸ Moreover, reputable archaeologists appear to believe that findings from the non-archaeological sciences *must* fit into archaeological practice. Archaeologist David Meltzer stated that it is “wrong to dismiss archaeological evidence because it fails to match the chronological expectations derived from nonarchaeological sources...If a site is found that is older than it ‘should’ be based on evidence from language, teeth, and

²¹⁵ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 15.

²¹⁶ Meltzer, *First Peoples in a New World*, 202.

²¹⁷ Tom D. Dillehay, “Probing Deeper into First American Studies,” *Proceedings of the National Academy of Sciences* 106 (2009): 971.

²¹⁸ Adovasio, *The First Americans*, xvi.

genetics, then that nonarchaeological evidence will have to be adjusted accordingly.”²¹⁹ In instances such as this, it is difficult to distinguish between a religious practice which denies legitimacy to material evidence challenging a revered myth, and the manner in which First American science can be practiced by denying legitimacy to material evidence which challenges a reigning archaeological paradigm. The public, Vine Deloria, Jr. has asked, needs to know how "does archaeological speculation differ from Erich von Daniken's citation of the Nazca lines is evidence of early spaceman?"²²⁰ Although interdisciplinary approaches may prove productive, as Meltzer feared they may also generate theoretical contradictions, methodological conflicts, and *ad hoc* posterior re-interpretations. "Neither genes nor languages can be dated; only archaeological materials can," wrote David Meltzer.²²¹ Yet the dating mechanism that Meltzer would have archaeological materials rely upon, is borrowed from physics. Furthermore, the carbon-14 decay that forms the basis of dating First American associated artifacts, must be translated from radiocarbon-years to chronological years based upon counting tree rings for the past 15,000 years. While First American scientists have grown accustomed to this process, it should be noted that the archaeological dates given are expressed in terms of the probability of the date being included within a specified range. Given the nature of the debate, there is more at stake than simply providing chronological markers. The inter-domain boundaries are quickly drawn. The issue is how the different disciplines interact and how that interaction leads, if it does, to a clearer picture of the First Americans.

²¹⁹ Meltzer, "Why Don't We Know," 29.

²²⁰ Vine Deloria, Jr. in the "Foreword" to David Hurst Thomas, *Skull Wars: Kennewick, Archaeology, and the Battle for Native American Identity* (New York: Basic Books, 2000), xviii.

²²¹ Meltzer, *First Peoples in a New World*, 12.

Critiques of the rigidity associated with archaeological theories come from both inside as well as outside the profession. Keith W. Kintigh, a professor of anthropology at Arizona State University, commented that a considerable portion of archaeology is still "theoretically in an earlier age."²²² Vine Deloria, Jr., a scholar and American Indian political activist, stated that "In methodological terms there is a major problem in bringing non-Western traditions within the scope of serious scientific perspective, and that is the inherent racism in academia and in scientific circles. Some of the racism is doctrinaire and unforgiving – for instance, the belief that, for a person or community possessing any knowledge that is not white/Western in origin, verification and articulation are unreliable."²²³ Despite the hurdles suggested by Deloria, Thomas W. Killion, an archaeologist at Wayne State University, has suggested that the practice of archaeology has begun to change as a result of the challenges presented by the non-Western traditions.²²⁴ Although the self-image of First American archeology presents itself as if it were a positivist science, it is far from clear whether its knowledge is truly cumulative or simply a succession of new "facts." Geoffrey A. Clark, Regent's Professor in the School of Human Evolution and Social Change at Arizona State University, is concerned over "the fad-like, insubstantial nature of what passes for 'theory' in American archaeology...Hypotheses are never really confirmed or disconfirmed (most of them cannot even be formulated in a testable way), questions are

²²² Keith W. Kintigh. "Repatriation as a Force of Change in Southwestern Archaeology" in Thomas W. Killion, ed. *Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice* (Santa Fe: School for Advanced Research Press, 2008), 204.

²²³ Vine Deloria, Jr. *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*. (NY: Scribner, 1995), 49.

²²⁴ Thomas W. Killion. (2008) "Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice," Chapter 1 in Thomas W. Killion ed., *Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice*. (Santa Fe: School for Advanced Research Press, 2008), 9.

never really answered in archaeology – after a while, they simply ceased to be ‘interesting.’”²²⁵

Even as these fundamental tensions ripple across anthropology, archaeology, and American Indian myths, there is also an existential turmoil internal to archaeology itself. The first significant concern to archaeologists is deciding whether they indeed are scientists. According to David Killick and Paul Goldberg, even when university archaeology programs offer coursework in what is termed archaeological *science*, graduate students are not required to take it, and most do not.²²⁶ As a result, “most archaeologists don't know enough science to be able to collaborate effectively with scientists who don't know any archaeology.”²²⁷ As a part of a series of dueling articles, Geoffrey A. Clark expressed concern over the “contention that archaeology is a science in its own right.”²²⁸ Michael Shott expressed doubt as to whether archaeology offers any explanatory power since it only describes the material record and then borrows anthropological theory to devise simply “plausible accounts” of the past.²²⁹

Finally, whether archaeology is or is not a science, there also appears to be no clear consensus as to whether archaeology is, or even should be, practiced independently of anthropology. Killick and Goldberg insisted that archaeology is “a discipline in its own right,”²³⁰ Clark countered that archaeology is *not* a discipline

²²⁵ Clark. “Should One Size Fit All,” 41.

²²⁶ David Killick and Paul Goldberg, “A Quiet Crisis in American Archaeology,” *The SAA Archaeological Record*, Vol. 9, No. 0. January 2009, 8.

²²⁷ *Ibid.*, 9.

²²⁸ Clark. “Should One Size Fit All,” 39.

²²⁹ Michael Shott. “Crises and Solutions in American Archaeology,” *The SAA Archaeological Record*, Vol. 10, No. 1. January 2010, 38.

²³⁰ Killick and Goldberg, “A Quiet Crisis,” 10.

separate from anthropology.²³¹ As a result of all of these perturbations, Shott has eloquently concluded that "the archaeological patient is ill."²³² James Adovasio, in his typically blunt manner believed that the contentiousness internal to First American science has not only produced "an astounding amount of silliness and even profound stupidity has been taken as serious thought," but also raised the question as to "whether the field of archaeology can ever be pursued as a science."²³³

²³¹ Clark. "Should One Size Fit All," 41.

²³² Shott. "Crises and Solutions," 38.

²³³ Adovasio, *The First Americans*, xvi.

Chapter 7. Bioanthropology

A popular American television motif is that of an esoteric specialist who is called in to examine human remains as a part of a police investigation. On television, this expert might calculate certain skeletal ratios, examine the shape of the skull and pelvis, and study the dental structure and wear patterns. Based upon the results, the expert extracts a range of information from the remains—as well as the environs within which they are discovered—including sex, race, age, time since death, and incidents of major skeletal trauma possibly including cause of death. As James Chatters, a principal expert involved in the Kennewick Man case characterized it, in the context of a crime scene such an expert is practicing forensic anthropology; when the human remains are ancient and are not related to a criminal investigation, the specialist is practicing bioanthropology.²³⁴ The same trained investigator using identical techniques on two anatomically indistinguishable *Homo sapiens* skeletons can be considered to be practicing different sciences depending upon the final consumer of the data.

Although genetics now tends to assume center stage in the application of the biological sciences to the First American conundrum, the study of ancient human skulls and teeth have both made substantive contributions to the debate over the last century. This tension between genetics and bioanthropology for primacy of scientific place is recurrent in the academic literature. For example, a group of First American scientists stated that “The cranial morphology of the earliest Americans...is significantly different from that of more recent Native Americans...Accordingly, Paleoamericans came to the New World first and were later replaced by ancestors of modern Native Americans.

²³⁴James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 112

Genetic data do not support this model...Thus, although the Paleoamerican sample is still small, the morphological differences are likely the result of genetic drift and natural selection, not separate migrations.”²³⁵ Here we have an authoritative statement that, at once, cites the results of craniometry, yet simultaneously awards a privileged position to the results of genetics. The study of teeth also provides both illumination and contradiction for the results of the other sciences. The academic jockeying is evident in the writings of scientists themselves. For example, Stuart Fidel believes that “the most convincing evidence for the Asian origin of the Native Americans comes not from archaeology but from physical anthropology [i.e., bioanthropology] and geology.”²³⁶

Science cannot be practiced in the absence of data. One of the constraining factors for bioanthropologists involved in the search for the First Americans is the limited number of temporally suitable human remains available for examination. As shown in Figure 24, there are only a few dozen skeletal remains that have ever been discovered in the U.S., few of them are complete, and an increasing number have been claimed for reburial by American Indian groups and are therefore no longer available for analysis.

²³⁵ T. Goebel, M. R. Waters, and D. H. O'Rourke. “The Late Pleistocene Dispersal of Modern Humans in the Americas.” *Science* 319 (2008): 1498.

²³⁶ Stuart J. Fiedel, *Prehistory of the Americas*. 2nd ed. (Cambridge: Cambridge University Press, 1992), 39.

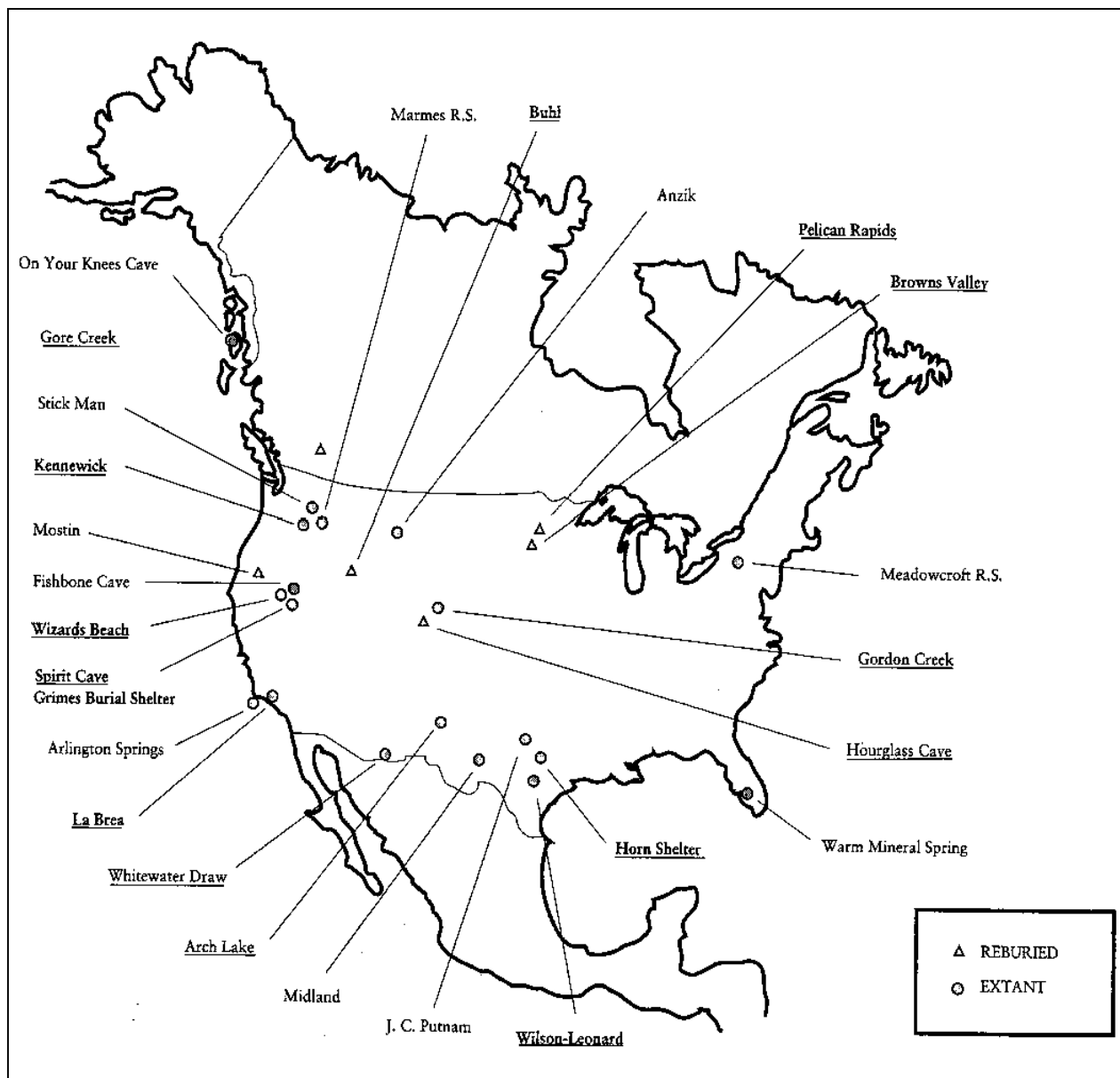


Figure 24. Ancient human remains found in North America.²³⁷

Racism, in fact or as a diversionary debating stratagem, looms large in the search for the First Americans. For First American scientists, “the concept of race is best

²³⁷ Chatters. *Ancient Encounters*, 192. (Fair Use determination attached.)

described as an expression of cultural ideology and not a biological reality.”²³⁸ Although modern archaeological theories must be sensitive to the racist history of western archaeology, it is not entirely clear when such sensitivity crosses a boundary from being concerned with objectivity and becoming a political correctness that attempts to enforce a particular mindset. Sociologists and geneticists have largely disavowed contentions that there is a meaningful difference, i.e., distinctions beyond phenotype, between races; that assumes, of course, that race itself could be sufficiently well defined for there to be a metric created to measure it. In 1996, the American Association of Physical Anthropology described the concept of pure races as being “untenable.”²³⁹

Biological morphology is the study of the structures and forms of organisms. Craniometry is a subfield of morphology dealing with the measurements of human skulls. With a consensus that morphology is a product of genetic determination, humans related through a closely linked ancestry are believed to share similar physical features and, therefore, craniofacial dimensions.²⁴⁰ The results of craniometrical analysis have been employed since the nineteenth century by social theorists to co-opt the authority of science in an attempt to justify racial stratification. Many of the same arguments that have been employed in the race-as-a-metric debate have been employed in the debates over the significance, if any, of differences in skull shape and size.

The application of the newly emerging methods of nineteenth-century First American science was paramount in the attempts to document the viability of a

²³⁸ Kurt E. Dongoske and Larry Zimmerman, “Working Together on Race and Racialism in American Archaeology.” *SAA Archaeological Record* 10, no. 3 (May 2010): 3.

²³⁹ Kakaliouras, Ann M. “Race is...only as Race Does: Essentialism and Ethnicity in (Bio)Archaeology and Skeletal Biology.” *SAA Archaeological Record* 10, no. 3 (May 2010): 16.

²⁴⁰ Douglas W. Owsley, “From Jamestown to Kennewick: An Analogy Based on Early Americans,” in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, Oregon State University, Robson Bonnichsen, Editor. (Corvallis, Oregon: Center for the Study of the First Americans, 1999), 129.

relationship between skull characteristics and a racial differentiation in capabilities. By the early twentieth century, however, research findings of the likes of Franz Boas challenged the foundation of craniometry. In 1911, Boas “demonstrated that the skulls of Jewish and Italian youths born in New York differed markedly from those of their immigrant parents...Furthermore, Boas showed that head and body form varied more widely within than between populations, and that there was often considerable overlap in the measurements of different races.”²⁴¹ Despite such findings, in some sectors there continued to be a belief that science not only could, but in fact had, documented a substantive association between biologically-based human factors such as intellect, on the one hand, and phenotypically expressed traits such as skin/hair color and skull size, on the other. According to Stuart Fiedel, First American science has, at times, reflected “the racist assumption that Native Americans were backward savages, incapable of devising sophisticated cultures without the benevolent assistance of more advance white-skinned tutors.”²⁴² Perhaps the apex of such pseudo-scientific associations was evident in the Nazi use of physical metrics of racial classification to exterminate Jews and the Rom during World War II.

A belief that modern American Indians were incapable of originating the cultures found in the New World led to what might be better termed as speculations rather than theories. For example, the rise of the Olmec civilization has been attributed to Phoenician exploration of Mexico’s east coast as evidenced by a bearded, Semitic face, called “Uncle Sam,” on a stela at La Venta. The Olmec utilization of jade and the religious use of cat-like figures have been attributed to China’s Shang dynasty. Finally,

²⁴¹ Franz Boas quoted in Fiedel, *Prehistory*, 41.

²⁴² Fiedel, *Prehistory*, 351.

some have speculated that the use in Mesoamerican art and architecture of people sitting cross-legged or the depiction of water lilies can be credited to Buddhist missionaries.²⁴³

Craniometry has been a long-standing part of the scientific tool-kit in the search for the First Americans. In the late nineteenth century John Wells Foster, president of the Chicago Academy of Sciences, included in the *Pre-Historic Races of the United States* a 36-page chapter on the “Crania of the Mound-Builders.”²⁴⁴ While acknowledging that the cranial variations within any particular race are broad, Foster concluded that “in a large assemblage of skulls derived from a particular race, there is a general conformation, a predominant type...which has been regarded among the surest guides in tracing national affinities.”²⁴⁵ Foster concluded that “my observations have led me to infer that the Mound-builders’ crania were characterized by a general conformation of parts, which clearly separated them from the existing races of man, and particularly from the Indians of North America.”²⁴⁶ In other words, modern American Indians did not build the mounds. In describing skulls collected from mid-Western American mounds, Foster also concluded that “Many of these characteristics, which are not conspicuous in a well-developed European skull, indicate an approach towards the lower animals of the anthropoid type.”²⁴⁷ As shown in Figure 25, Foster’s analysis using then-accepted craniometrical methodologies concluded that not only were Europeans scientifically proven to be the most advanced of the races, but that indigenous

²⁴³ Fiedel, *Prehistory*, 350.

²⁴⁴ John Wells Foster, *Pre-Historic Races of the United States of America* (Chicago: S. C. Griggs and Company, 1873), 275.

²⁴⁵ *Ibid.*, 275.

²⁴⁶ *Ibid.*, 275.

²⁴⁷ *Ibid.*, 279.

Australians were the least advanced, with the American Indian mound-builders falling somewhere between.

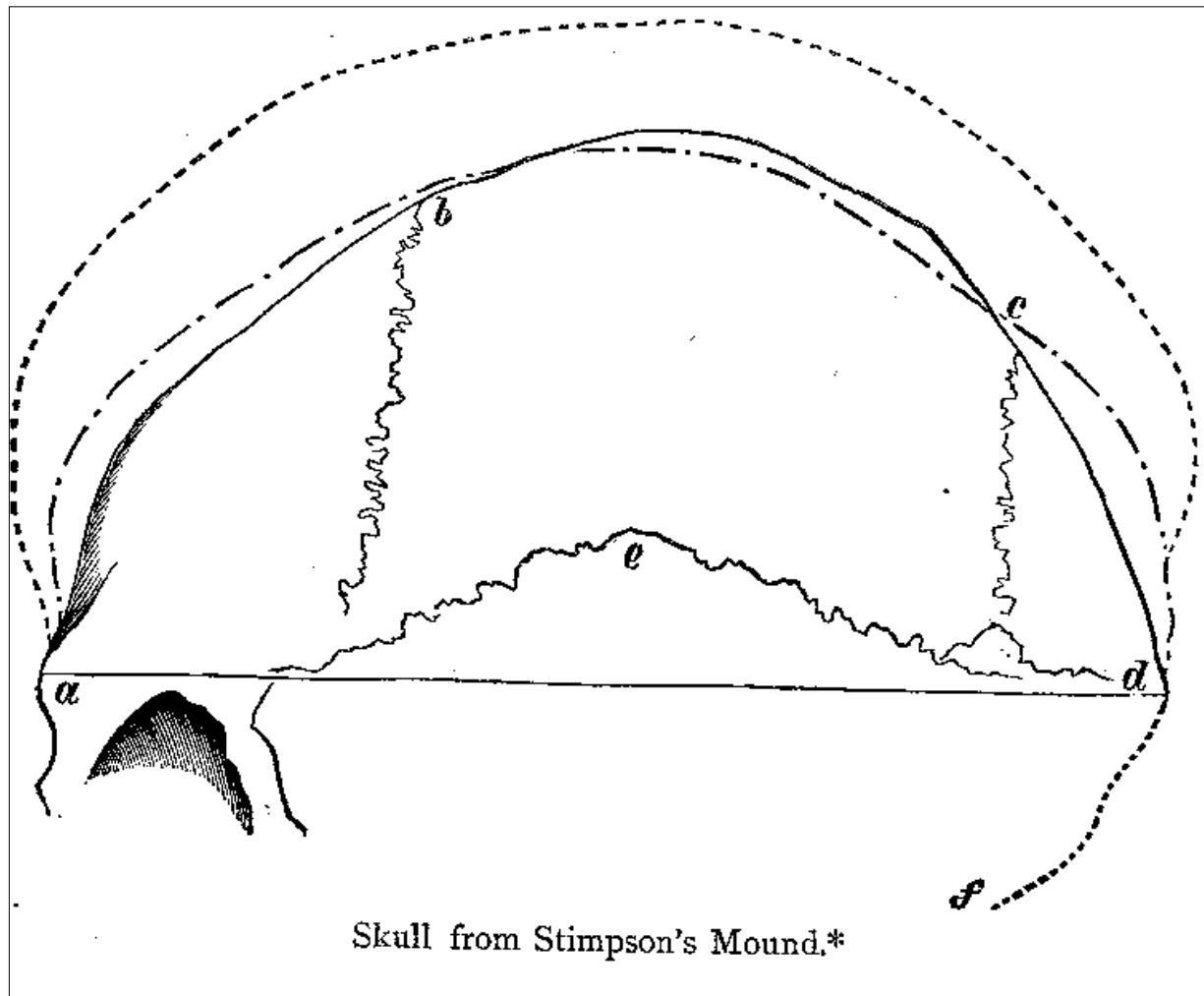


Figure 25. John Wells Foster comparison of skulls . Foster's hierarchy of races based upon skull size. The outer dotted line represents the European, and therefore highest, skull development.²⁴⁸

In another result of his craniometrical analysis on the remains of an American Indian mound-builder shown in Figure 26, Foster stated that “No one, I think, can view this fragment of a skull, with the superciliary ridges projecting far beyond the general

²⁴⁸ Ibid., 277. (Fair Use determination attached.)

contour, both laterally and in front, and the low, flat forehead, with its thick, bony walls, without coming to the conclusion that its possessor was a ferocious brute. The prize-fighter of this day might envy such a frontispiece, adapted to withstand any amount of pommelling, or almost even to turn a musket ball.”²⁴⁹ Based solely on the shape of the skull, Foster was comfortable in projecting behavioral characteristics—a “ferocious brute”—onto the inanimate bones.

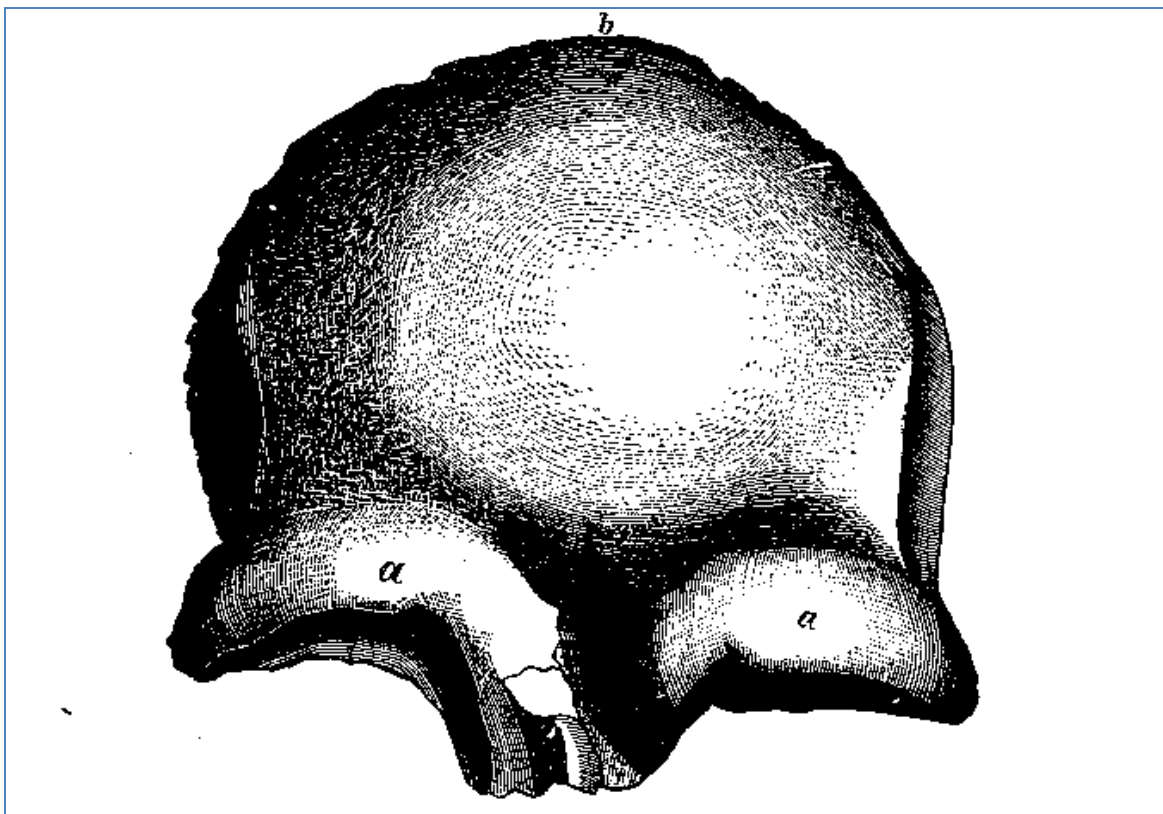


Figure 26. *John Wells Foster primitive skull*. Primitive skull characterized by Foster.²⁵⁰

A predisposition to believe in a difference in mental capabilities—correct or not—gave rise to theories to explain the difference. Physical variations—e.g., cranial shape

²⁴⁹Ibid., 280.

²⁵⁰ Ibid., 280. (Fair Use determination attached.)

and size—were employed as causal factors for the believed disparity in mental capabilities. A value-hierarchy of cultural differentiation was then established to be explained by these physical differences. If Foster and others had produced their research today, it is clear that their conclusions would be considered racist.

Distinguishing between a scientist's personal views and how he practiced his science is not always an easy task for scholars. For example, Samuel G. Morton (1799–1851), a physician and professor at the University of Pennsylvania, held views that today might be considered racist, but who also concluded that the modern American Indian were indeed related to the Ohio mound builders. Unfortunately, as James Adovasio commented, “Morton's findings were easily ignored by believers in a separate, ‘higher’ race,”²⁵¹ a view which Morton may otherwise well have endorsed. In 1981, Morton's scientific practice was the subject of a modern attack by famed Harvard biologist Stephen Jay Gould (1941-2002). In *The Mismeasure of Man*, Gould offered an analysis in which he claimed that Morton had—consciously or otherwise—manipulated his data to fit his racist bias.²⁵² Based upon Gould's analysis, Morton today has become “a canonical example of scientific misconduct.”²⁵³ However, in an interesting turn of events, in June 2011, Jason E. Lewis and five other leading anthropologists published an examination of Gould's review of Morton's work in which they concluded that it was Gould himself who had manipulated his data to fit a preconceived notion of Morton's

²⁵¹ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003), 19.

²⁵² Stephen Jay Gould. *The Mismeasure of Man*, (New York: W.W. Norton & Co., 1981).

²⁵³ Jason E. Lewis, David DeGusta, Marc R. Meyer, Janet M. Monge, Alan E. Mann, Ralph L. Holloway, *PLoS Biology*, “The Mismeasure of Science: Stephen Jay Gould versus Samuel George Morton on Skulls and Bias,” June 2011, Volume 9, Issue 6, 1.

bias and that Morton “did not manipulate data...In fact, the Morton case provides an example of how the scientific method can shield results from cultural biases.”²⁵⁴

The debate continues today as to the extent to which skeletal traits provide substantive information “of a past individual’s or group’s cultural identity, independent of archaeological context.”²⁵⁵ In the nineteenth century, the methodologies of the likes of Foster, Ignatius Donnelly, and others were, for a time, considered within the scientific mainstream. Now, their work is considered to have been unduly influenced by the racism of that time. Morton’s approach, ignored at the time, was first discounted and finally endorsed by modern scholars. An aphorism frequently attributed to Otto von Bismarck states that people should not watch either laws or sausages being made because the process is disconcertingly messy. Perhaps the methodologies of First American bioanthropology should be added to that list.

As is evident from the work of Foster, Donnelly, and Morton, nineteenth century scientists were comfortable in making *culture*-wide projections based upon the *biological* data points of a relative few skulls. With the advent of the twentieth century, theories associated with bioanthropological typology became more dependent upon population analysis. Douglas W. Owsley, Division Head for Physical Anthropology at the Smithsonian Institution National Museum of Natural History, concluded that this shift resulted from advances in genetics and biology that forced scientists to recognize not only the diversity across, but also within, population groups.²⁵⁶ The ability for First American scientists to implement this shift in doctrine was greatly facilitated in the

²⁵⁴ Ibid., 1.

²⁵⁵ Kakaliouras, “Race is...only as Race Does,” 17.

²⁵⁶ Owsley, “From Jamestown to Kennewick,” 133.

second half of the 20th century by the increasing capabilities for data manipulation offered by computers.

Working at the U.S. Armed Forces Human Identification Lab in Tokyo in the 1950s with human remains collected during World War II and the Korean War, Mildred Trotter at Washington University created an anatomical database that provided stature formulas for Mongoloids (including Asians and American Indians), whites, black Americans, and Mexican-Americans. As useful, however, as such a database might be, the remains of the earliest Americans which have been discovered are from a time prior to the divergence of some of these racial groupings.²⁵⁷ The use of modern anatomical standards for judging ancient remains is further compounded by the widely acknowledged reality that the average statistical difference between Negroid, Mongoloid, and Caucasoid as races is less than the range of differences within each group.

Modern skull measurements are called craniofacial morphometrics, a methodology developed during the 1970s by William W. Howells, an anthropologist at Harvard University. Subsequently, Richard Jantz and Steven Ousley developed software called FORDISC which uses an unidentified skull's metrics to provide a probability of its matching any particular human population.²⁵⁸ FORDISC is commercially available and can be ordered through the University of Tennessee at Knoxville.²⁵⁹ FORDISC is used by law enforcement agencies to identify bodies by narrowing the pool of candidates for matching dental-verification and DNA tests. The

²⁵⁷ Chatters, *Ancient Encounters*, 126.

²⁵⁸ *Ibid.*, 175.

²⁵⁹ "FORDISC Software Sales," University of Tennessee-Knoxville. (Accessed August 4, 2011) <https://web.dii.utk.edu/fordisc/login.aspx>

database is currently being updated so that it can provide an estimated age at time of death.²⁶⁰

Automated matching regimes can be extremely valuable in providing matches for modern human remains where there is a robust set of statistics in the database. Matches, however, can only be estimated for population groups which are contained within the database. “One limitation of the program is that it will always assign an unknown skull to the best match among the group of populations with which it is compared.”²⁶¹ Consequently, the atypical remains of an ancient First American candidate is automatically matched against the population in the database which it most closely resembles, notwithstanding that the remains may indeed not be from that population group.

The examination of skulls, skeletons and teeth would seem to be such a straightforward, apolitical discipline that it is hard to imagine that the practice of bioanthropology could be significantly impacted by national policy decisions. However, as a result of the changing political landscape in the United States, including congressional enactment of the Native American Graves Protection and Repatriation Act (NAGPRA), from 1995 to 2005 there has been a decline in the production of bioanthropological academic papers related to American Indians, because “Native Americans are increasingly controlling the terms of how their ancestors’ remains are treated.”²⁶² Moreover, American bioanthropologists are increasingly conducting their primary research projects in other countries to avoid such constraints.²⁶³

²⁶⁰ *Popular Science*, July 2010, 34.

²⁶¹ Chatters, *Ancient Encounters*, 176.

²⁶² Ann M. Kakaliouras. “Toward a ‘New and Different’ Osteology: A Reflexive Critique of Physical Anthropology in the United States since the Passage of NAGPRA” in Thomas W. Killion, ed. *Opening*

Bioanthropology presents an example of dynamics outside of science that can substantively influence how or where a given science is practiced—or even determine what a particular science is. With regard to the particular scientific puzzle of finding the First Americans, not only must bioanthropology function within the boundaries it has negotiated with the other sciences also addressing the same questions, but it also finds that how (as constrained by NAGPRA and other political agendas) and where (for those scientists who shift their research outside of the U.S.) it may be practiced is bounded by considerations traditionally thought to be outside of the scientific domain. According to anthropologist Ann M. Kakaliouras, bioanthropology is “no longer a monolithic scientific discipline.”²⁶⁴ Indeed, it is likely that it never was one, but it may be that bioanthropologists are just now coming to recognize that they have always functioned within a larger social context that structured their discipline.

The difficulty in entirely dismissing craniometry is that it does appear to provide scientists a way of associating human artifacts independent of cultures. Stuart Fiedel concluded that there is sufficient similarity between the mid-line ridge on the top of the skulls of *Homo erectus* discovered in the 1930s in Choukoutien, China to “strongly suggest” a genetic contribution to modern Asians and American Indians.²⁶⁵ Craniometrical analysis also led James Chatters to conclude that Kennewick Man, Stick Man, Horn Shelter Man, and Spirit Cave Man—all ancient human remains discovered in North America—had skull characteristics that were not in common with those of

Archaeology: Repatriation's Impact on Contemporary Research and Practice (Santa Fe: School for Advanced Research Press, 2008), 119.

²⁶³ *Ibid.*, 115.

²⁶⁴ *Ibid.*, 126.

²⁶⁵ Fiedel, *Prehistory*, 25.

modern American Indians.²⁶⁶ What is not clear, however, is the extent to which differentiating between skull shapes allows First American scientists to draw cultural distinctions as well.

In addition to craniometry, dentochronology²⁶⁷ is a separate and important sub-field within bioanthropology that examines the morphology and wear patterns on teeth in order to temporally situate human remains as well as to draw ancestral relationships. Although the examination of teeth as a tool in the search for the first Americans has been less prominent than that of the examination of skulls, it is not a recently developed methodology. In his nineteenth century examination of ancient mounds containing Danish skulls, John Wells Foster commented that the skulls' "front teeth did not overlap as ours do, but met together like a vise."²⁶⁸ Dentochronologists, notably such as Christy Turner, have developed statistical models of the rate of evolution in human teeth which have been used to estimate relationships between population groups through time. Turner identified two major groups of dental characteristics—sinodont and sundadont—that he believed captured the evolution of dental development. Turner's model provides a method of estimating the relationship of populations through time.

Critical to such analysis is the availability of intact ancient human teeth against which the model can be calibrated. As is the case with human skulls, there have been very few human teeth discovered for the period of interest. Not only is there a scarcity of suitable remains in the New World, but there is a parallel void as well in Asian areas from which the First Americans may have originated. If Turner's dental models are

²⁶⁶ Chatters, *Ancient Encounters*, 219-226.

²⁶⁷ dentochronology (the study of teeth) is to be distinguished from dendrochronology (the study of tree rings), both important in the search for the First Americans.

²⁶⁸ Foster, *Prehistoric Races*, 38.

correct, First American scientists could conclude that American Indians had a common ancestor in North China approximately 20,000 B.P.²⁶⁹ If true, this is still sufficiently broad to accommodate both the Bering and coastal migration theories. Nevertheless, it provides little insight as to whether this common ancestor of modern American Indians was the First American or rather was an ancestral source for a later arrival.

A challenge for scientists is in reconciling the findings of the different knowledge domains drawn upon in the search for the First Americans. Well-matched findings based upon independent observations from different scientific disciplines can considerably strengthen the plausibility of the explanatory power of a particular theoretical model. However, competition as well as cooperation across the disciplines can also introduce a level of complexity that makes the task even more difficult.

In the mid-1980s, Joseph H. Greenberg produced what was then believed to be a seminal linguistic analysis that demonstrated that the New World was populated by three separate waves of migration from Asia. About the same time, Turner produced a dendrochronological study that was also considered seminal in which his findings matched the general pattern of three Asian migrations found by Greenberg. In a 1986 article, Greenberg and Turner (joined by S. L. Zegura) concluded that the dental and linguistic (and in this case also genetic) evidence “agree that the Americas were settled by three separate population movements.”²⁷⁰ It is a serendipitous occasion in the scientific community when observations from different intellectual domains can produce independently generated theories that are in complete agreement. It appeared

²⁶⁹ David J. Meltzer. “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, 27.

²⁷⁰ Greenberg, J. H., C. G. Turner II, and S. L. Zegura. “The Settlement of the Americas: A Comparison of the Linguistic, Dental, and Genetic Evidence. *Current Anthropology* 27 no. 5 (1986): 477.

that Turner's dental observations sustained Greenberg's three-part linguistic grouping.²⁷¹ Unfortunately, the Greenberg-Turner thesis was rapidly subjected, apparently with good reason, to brutal criticism. As linguistics professor Lyle Campbell concluded, there were "many problems with these dental-linguistic correlations."²⁷² Most damaging was the contention that the "correlations between tooth groups and Greenberg linguistic classification...were not established entirely independently and then later correlated."²⁷³ Turner had apparently arranged his tooth artifacts according to Greenberg's linguistic groupings, and then "discovered" a correlation between the linguistic and dental evidence.²⁷⁴

One of the strengths of bioanthropology in the popular imagination is that skulls and teeth can be readily understood by the public. Despite the critical First American science contributions of carbon-dating in physics and DNA analysis in genetics, radioactivity and the DNA helix cannot be seen. A skull or a tooth can be held in one's hand allowing a more personal interaction with the artifact. This may, however, result in the popular perceptions surrounding the discovery of skulls and teeth as being more subject to prevailing social influences than are today's physics or genetics.

In the early 1920s, events combined to produce an amusing incident surrounding a tooth found in Nebraska. In the context of those times which culminated with the *State of Tennessee v. John Thomas Scopes* "Monkey" trial in 1925, there was considerable division in the U.S. over the extent to which Darwinian evolutionary theory

²⁷¹ Meltzer. "Why Don't We Know," 27.

²⁷² Lyle Campbell, *American Indian Languages: The Historical Linguistics of Native America* (Oxford: Oxford University Press, 1997), 101.

²⁷³ Lyle Campbell, *American Indian Languages: The Historical Linguistics of Native America* (Oxford: Oxford University Press, 1997), 101.

²⁷⁴ Campbell, *American Indian Languages*, 102.

should be applied to humans. Against that background, a badly-weathered tooth was found in Nebraska which was immediately judged to be that of a prehistoric ape-man—the “Nebraska Primate.” As shown in Figure 27 below, it was prominently displayed alongside other significant primate dental artifacts. Not only did this discovery support the evolutionary argument of the Darwinians, but it also gave the U.S. an important place alongside Europe and Africa in producing evidence of having hosted some form of human antiquity.

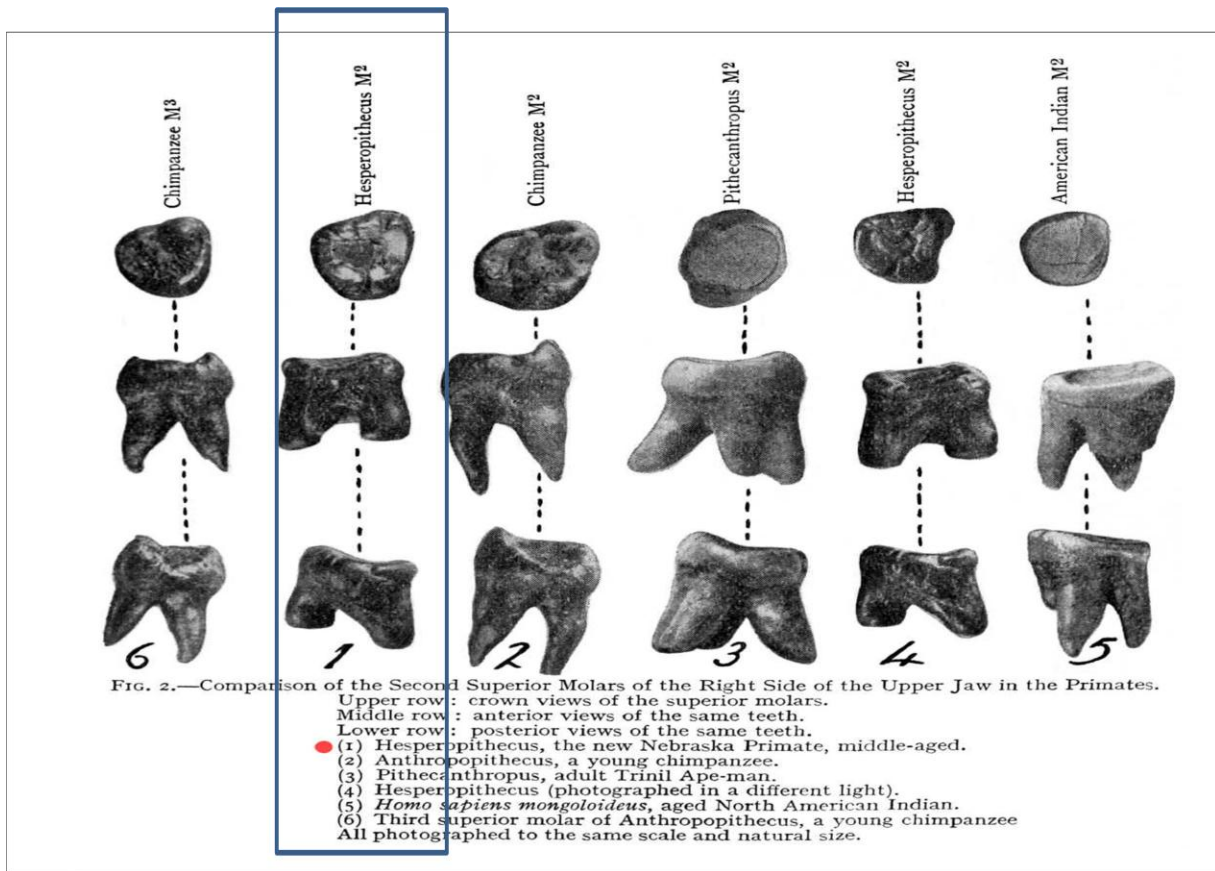


Figure 27. Nebraska primate tooth. Chart showing importance of “Nebraska Primate”²⁷⁵

²⁷⁵ *Nature*, August 26, 1922, 282. (Fair Use determination attached.)

By 1925, the time of the *Scopes* trial, accounts of the Nebraska Primate were appearing in the popular press. In the February 19, 1925 *New York Times*, as shown in Figure 28, the tooth was reported to have been destroyed when it was handed to an assistant at the American Museum of Natural history with the comment “be mighty careful, that tooth is worth a million dollars.” This so rattled the assistant that he dropped the tooth which shattered. Despite this seemingly catastrophic destruction of a priceless artifact, it later was determined that the tooth was only that of a pig, and not a primate. Nevertheless, for a time the tooth figured prominently as proof of an ancient origin for the First Americans.



Figure 28. February 19, 1925 *New York Times*, Nebraska tooth.²⁷⁶

²⁷⁶ "Million-Dollar" Man-Ape's Tooth Shattered; Museum's Prize Falls From X-Ray Man's Hand," *New York Times*, February 19, 1925. (Fair Use determination attached.)

One might believe that it would be difficult to find a reputable scholar that argues that there is a legitimate place for race distinctions in the search for the First Americans. Such is not the case. Ironically, among those articulating a need for a continuing role for race are American Indians—the very people who have seen bioanthropology used, unconsciously or otherwise, for racist purposes against them. In a May 2010 article titled “Working Together on Race and Racialism in American Archaeology,” noted American Indian historian Roger C. Echo-Hawk wrote “most racial Indian archaeologists will stay deeply committed to race. In the story that Indians tell one another around their electronic online campfires, Indian racial identity serves as a unifying source of power in advancing both racial and community social agendas.”²⁷⁷ Echo-Hawk believed that racial identity can be used as a source of social power,²⁷⁸ and that American Indian anthropologists need have little recognition “that science has let go of race in the teachings of the academy. Race ought to continue to serve as an enduring biological truth.”²⁷⁹

This would appear to put bioanthropologists in the delicate position of having to operate not only in an environment where the mainstream American narrative holds that racial classifications have become pejorative distinctions, but also having to examine American Indian culture in such a way that they “must peacefully cultivate neutral ground, neither affirming race in a misguided anti-science way, nor opposing the ability of people to practice treasured belief systems.”²⁸⁰

²⁷⁷ Echo-Hawk, Roger, “Merciless Greetings, Wicked Servants of the Age of Archaeoracialism,” *SAA Archaeological Record* 10, no. 3 (May 2010): 21.

²⁷⁸ *Ibid.*, 21.

²⁷⁹ *Ibid.*, 23.

²⁸⁰ *Ibid.*, 22.

If cultures are free to make up their existential myths independent of science, and if cultures are also free to create self-identities such as race independent of science, is the culture of First American science not also free to examine these myths and identities? The difficulty for bioanthropology is that it has not yet successfully found a way to address this connection between race and the materiality of First American science that is acceptable to scientists, mainstream American culture, and the modern American Indians that are many times the subjects of their studies.

Chapter 8. The Other Sciences: Genetics, Linguistics and Physics

As (self) important as archaeology and anthropology are in the search for the first Americans, many of the advances of the last half century have come from the contributions of other scientific disciplines. This chapter examines these contributions as well as the inherent limitations of genetics, linguistics and physics.

Genetics

The search for the First Americans is, at its most fundamental level, a search for relationships. Even assuming that it were possible simply to *find* the physical remains of the very first human to set foot in the New World, and then to *substantiate* that the remains were indeed the primal First American, the most interesting scientific issues and popular public interests would still be unresolved. The critical discoveries would be those addressing human relationships, the ties of culture, the ancestral tree.

The science of archaeology is suited to the discovery and description of material artifacts. In some situations, it may be able to identify a similarity between tools used at different times and places. It is not, however, well situated as a science to make definitive determinations as to whether that similarity resulted from technology transfer between otherwise unrelated cultures, resulted from independent development, or was nothing more than the discovery of two artifacts used by essentially the same culture at two different times and locations. Even when relevant information can be gleaned from these material artifacts, it is not the provenance of the artifacts that is ultimately of interest in the search for the First Americans, but rather what these items can suggest about their human creators and users.

What First American scientists and the popular American imagination ultimately seek are the cultural ties associated with the First Americans: where did they come from, how did they get here, and are their descendents still here. David Meltzer correctly stated that forming an estimated date for the arrival of the first Americans “cannot be bracketed on a priori grounds, archaeological or otherwise.” Yet Meltzer, a prominent archaeologist, also proclaimed that “the timing of the entry of people into the New World is a question that can be answered only by doing *archaeology* in the New World.”²⁸¹ Despite Meltzer’s contention, the science currently best situated to address these issues is genetics. Archaeology is much less able than genetics to calibrate the distance between human populations. Artifacts are proxies for drawing a relationship between cultures. Similarity in material artifacts is insufficient to confirm descent ties between two populations. Moreover, artifactual dissimilarity is also not sufficient to dismiss biological ties. Genetics, while not perfectly descriptive, is able to offer a path to making judgments about direct relationships between the humans themselves, not between their cultural residue.

As discussed previously, bioanthropology can provide an estimate of human relationships based upon the morphology, the structural traits, of human remains. However, given the scarcity of viable candidates for the remains of the First Americans, genetics provides scientists a mechanism for determining human relationships even when the remains are insufficient to provide morphological information. “More and more, we will see a lot of genetic information coming from fossil remains in which very

²⁸¹ David J. Meltzer. “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, 30. (italics added)

little morphological information exists,” according to Svante Pääbo, a Swedish biologist who is Director of the Department of Genetics at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.²⁸² He was speaking with regard to the results obtained from only a finger of what appears to be an archaic human, a third *Homo sapiens* in addition to Neanderthals and modern humans, called X Woman, discovered recently in southern Siberia. The initial conclusions were based upon mitochondrial DNA, and additional tests are currently being run on nuclear DNA. In addition, human hair can also be used to sequence the ancient human genome according to Eske Willerslev at the University of Copenhagen. Based upon an analysis of the hair, Willerslev concluded that a body found in 1986 buried in ice for 4,000 years is related to people currently living in eastern Siberia, and he is now looking at the hair from ancient mummies in the Western Hemisphere.²⁸³

Archaeologists view themselves as being centered in the past, and, therefore, are to be accorded the status of arbiters of antiquity; they “only see what the Pleistocene left behind.”²⁸⁴ To the extent that this is a valid characterization, it would appear to give archaeology a privileged ontological position vis-à-vis the other sciences in the First American debate. Only they would be able to make conclusive determinations. Yet, an epistemological domain, including archaeology, can only perceive reality within the boundaries created by the methods and value systems extant in that field. Genetics offers a capability not available in archaeology to precisely fix human biological relationships and, therefore, from these biological ties to make projections concerning

²⁸² Jill Neimark, “Pinkie Pokes Holes in Human Evolution,” *Discover*, January 2, 2011, 55.

²⁸³ Jill Neimark. “Pinkie Pokes Holes,” 41.

²⁸⁴ David Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 203.

cultural affiliations. “Archaeologists have trouble enough deciding which stone tool assemblages belong together; we are even harder pressed to link archaeologically detectable patterns with those identified among modern languages or genes.”²⁸⁵

The modern preoccupation with DNA is a daily occurrence. It is not only central to our biological identity, it is also a part of our political debate, our health care research, our judicial system, and a perceived path to a better future. DNA, however, is increasingly also a useful tool in attempting to clarify our past. Genetic evidence has documented a relationship between modern Asians, American Indians, and early Americans. By comparing ancient DNA (*aDNA*), when it is serendipitously available, with modern maternal mitochondrial DNA (*mtDNA*) or paternal non-recombinant Y-chromosomal DNA (*NRY*) material from current populations, geneticists can not only draw relationships between population groups but also project such relationships into the distant past.

According to archaeologist Tom Dillehay, the excavator of the Monte Verde site which is generally credited with disproving the Clovis-first model, genetics has “become a powerful tool in suggesting the origins of the first Americans.”²⁸⁶ Ted Goebel at the Center for the Study of the First Americans believed that “current genetic evidence implies dispersal from a single Siberian population toward the Bering Land Bridge no earlier than about 30,000 years ago (and possibly after 22,000 years ago), then migration from Beringia to the Americas sometime after 16,500 years ago. The archaeological records of Siberia and Beringia generally, but not conclusively, support these findings, as do archaeological sites in North and South America dating to as early

²⁸⁵ *Ibid.*, 207.

²⁸⁶ Tom D. Dillehay. “Probing deeper into first American studies,” *PNAS*, 2009, 974.

as 15,000 years ago.”²⁸⁷ Alternatively, Dillehay suggests that “collectively, the genetic data suggest that all major lineages found in living Native Americans are represented in modern-day populations in northeastern Asia and that there were 1 to 4 separate migrations from somewhere in this region to the Americas.”²⁸⁸ As can be seen from these two examples, reputable scientists can, and do, make divergent conclusions based up on the same genetic data base.

The disbelief that all human “races” with their variations could be traced to a single source was a part of the nineteenth century debate surrounding the nascent fields of evolution and bioanthropology. Charles Lyell (1797-1875), one of the leading figures in geology and evolution theory, was concerned with reconciling the perceived differences in intellect between the “Negro and European” against theories of “a unity of origin” of the races that had subsequently “diverged from the common stock.”²⁸⁹ John Wells Foster concluded that “there will be found continuous and uninterrupted causes which shall explain all the diversities in the different branches of the human family, without the necessity of resorting to independent creations.”²⁹⁰ It was the genetics of the twentieth century that began to provide meaningful answers to these nineteenth century questions of human origin and divergence.

What exactly is the basis of the genetics that First American scientists use in their search? There are two primary tests for using human DNA to determine an ancestral relationship. The first is mitochondrial DNA (mtDNA) which is non-nuclear and traces

²⁸⁷ T. Goebel, M.R. Waters, and D.H O'Rourke. “The Late Pleistocene dispersal of modern humans in the Americas,” *Science*, 2008, 319: 1497.

²⁸⁸ Dillehay, “Probing deeper,” 975.

²⁸⁹ John Wells Foster, *Pre-Historic Races of the United States of America*. (Chicago: S. C. Griggs and Company, 1873). 354. (quoting from Charles Lyell, 1863 *The Antiquity of Man*. John Murray, London, 1863, 338).

²⁹⁰ Foster, *Prehistoric Races*, 355.

a single-nucleotide polymorphism (SNP) and its associated mutations that are passed down maternally. The other is based upon the Y-chromosome (Y-DNA), also called non-recombining Y (NRY), and provides documentation on Y-based SNP and its mutations that are passed down paternally.²⁹¹ The rate of mutation can be estimated and, therefore, provides a sort of genetic clock that can be used to estimate the convergence toward a common ancestor. Based upon the central tendencies of commonality across these mutations, geneticists have created populations called haplogroups.

Having two separate genetics clocks, however, is a problem of its own sort. Since the rate of mutation of mtDNA is faster than that for Y-DNA, it sometimes is considered to provide a more accurate calibration. But the differing mutation rates for mtDNA and Y-DNA can result in different estimates. There are approximately 40 different haplogroups that have been identified for NRY and around 25 for mtDNA.²⁹² As a result, it is difficult to assign one-to-one correspondences between the two haplogroup structures which might permit accurate calibrations between the two systems. Moreover, the two approaches give different answers for genetic relationships. Figure 29 below from the University of Illinois compared haplogroups using both mtDNA and NRY. Each color represents a specific haplogroup. As can be seen, there is significant variation. For example, in South America an NRY analysis would lead us to believe that there is such genetic consistency that virtually the entire indigenous population can be

²⁹¹ Lynette Reid, "Networking Genetics, Populations, and Race," *The American Journal of Bioethics*, Volume 9, Issue 6-7, 2009, 50.

²⁹² The exact number of haplogroups is difficult to extract from the scientific literature. In addition to haplogroups, there are also subgroups that are frequently treated as if they, not the higher-level haplogroup, are the metric for genetic distinctions. Below that is a haplotype. New haplogroups are still being discovered. Forty (NRY) and 25 (mtDNA) are intended to reflect the approximate number of discriminators and should not be considered definitive.

represented within one haplogroup. However, as Figure 29 also shows, the results of an mtDNA analysis are substantively different from that of NRY. Again looking at South America, mtDNA analysis indicates that there are 4 different haplogroups that have provided substantive ancestral DNA. Both answers cannot be correct, and it is possible that neither is entirely accurate.

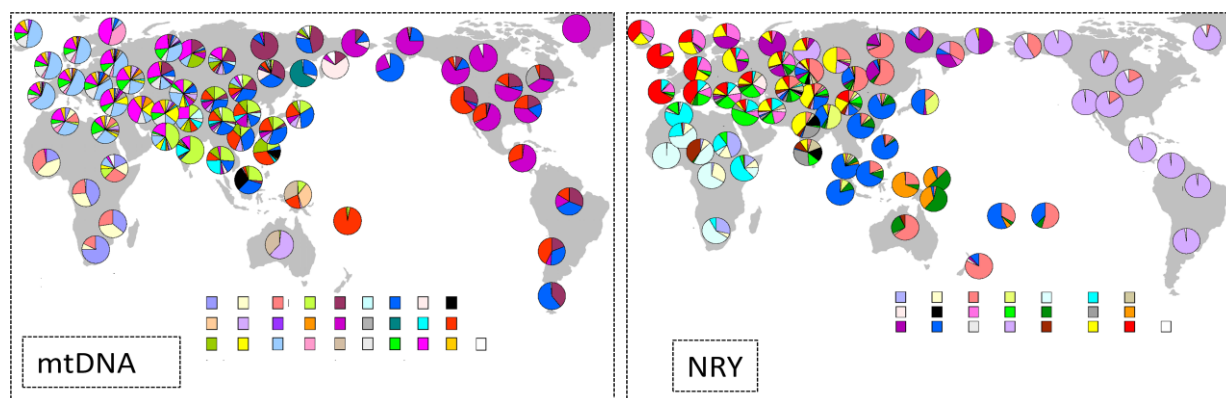


Figure 29. World map of mtDNA and NRY DNA distribution. Comparison of haplogroups of indigenous peoples using mtDNA and NRY single-nucleotide polymorphism (SNP) segments.²⁹³

According to James Chatters, the mtDNA of modern American Indians typically falls into 5 distinct haplogroups. Three of those haplogroups—A, C, and D—are also found today in Siberia. A fourth—haplogroup B—is typical in modern southeast Asians. Finally, haplogroup X—typically Eurasian—is also found in modern American Indians.²⁹⁴ It should be remembered that these associations are not between *First Americans* and *ancient* non-New-World inhabitants, but rather between *modern* American Indians and *modern* Old World inhabitants. The difficulty comes in projecting these relationships back through time. According to David Meltzer, the

²⁹³ University of Illinois, <http://www.scs.illinois.edu/~mcdonald/WorldHaplogroupsMaps.pdf>. (Fair Use determination attached.)

²⁹⁴ James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 234-235.

ultimate reward is “to firmly link the most ancient and most modern Native Americans, determine the number of migrations, from whence and where they came, or even the route(s) traveled.”²⁹⁵

Because American Indian haplogroups are not distributed equally across the New World population, geneticists can draw some conclusions from the variations in the distribution.²⁹⁶ “The pattern is suggestive of a sequence of migrations, a first one with D and C, a second one dominated by B, and a third consisting only of type A individuals. When haplogroup X came cannot be surmised from the geographic patterns, although there is some indication it may have first arrived on the northwest coast of North America.”²⁹⁷ Based upon genetic analysis, Theodore Schurr at the Southwest Foundation for Biomedical Research, concluded that “the American progenitors left their homelands between 24,000 and 35,000 years ago.”²⁹⁸ This is some 10,000 to 20,000 years earlier than either the Clovis or Monte Verde cultures that have been documented by First American Scientists. The roughly one dozen ancient human remains in North America from which mtDNA has been analyzed have produced only haplogroups B, C, and D. “Haplogroup A, the most common haplogroup among living native North Americans, has not yet been found in remains older than 6000 B.C.,” which supports contentions that modern American Indians are descendents from a later migration from Siberia and not the First Americans.²⁹⁹ The subtlety of this analysis, both genetically and politically, is further compounded by aDNA studied by Yale’s

²⁹⁵ Ibid., 207.

²⁹⁶ James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 234.

²⁹⁷ Chatters. *Ancient Encounters*, 235.

²⁹⁸ Ibid., 235.

²⁹⁹ Ibid., 236-237.

Frederika Kaestle at an ancient archaeological site in Windover, Florida. Kaestle concluded that the remains are “not A, not B, not C, not D, and not X. We’ve been able to prove what they’re *not*, but we don’t know what they *are*.”³⁰⁰

Although the genetic analysis supporting the search for the First Americans has largely centered on humans, there are other life forms that have coevolved with humans over the millennia and can be considered markers for a human presence. As an example, the HTLV (Human T-Lymphotropic Virus) retrovirus has recently been used in an attempt to identify prehistoric migrations. If the results of this study are to be believed, “Japanese sailors were the first people to reach the Americas, millennia before Siberians wandered across the Bering Strait.”³⁰¹

Regardless of whether the genetic analysis has been performed on the DNA of humans or on other life forms, genetic science has inserted itself in significant ways into the search for the First Americans. It has identified ties between modern American Indians and current groups in Asia. It has also provided evidence of multiple migrations into the new world. What it has not done is identify either the First Americans or locate their Old World progenitors. As David Meltzer has commented, “Genetic studies thus far cannot confirm conclusively how many major grouping there are of modern native North Americans, much less the presumed number of migrations.”³⁰² The difficulty in reconciling the results of genetics, bioanthropology, archaeology and geology is captured in Figure 30 created by the Center for the Study of the First Americans. As can be seen,

³⁰⁰ Ibid., 237.

³⁰¹ Jocelyn Rice, “20 Things You Didn’t Know About Viruses,” *Discover Magazine*, April 2010, 80.

³⁰² Meltzer, “Why Don’t We Know,” 35.

genetics suggests an earlier arrival date into the New World for the First Americans when compared with archaeological results based upon material artifacts.

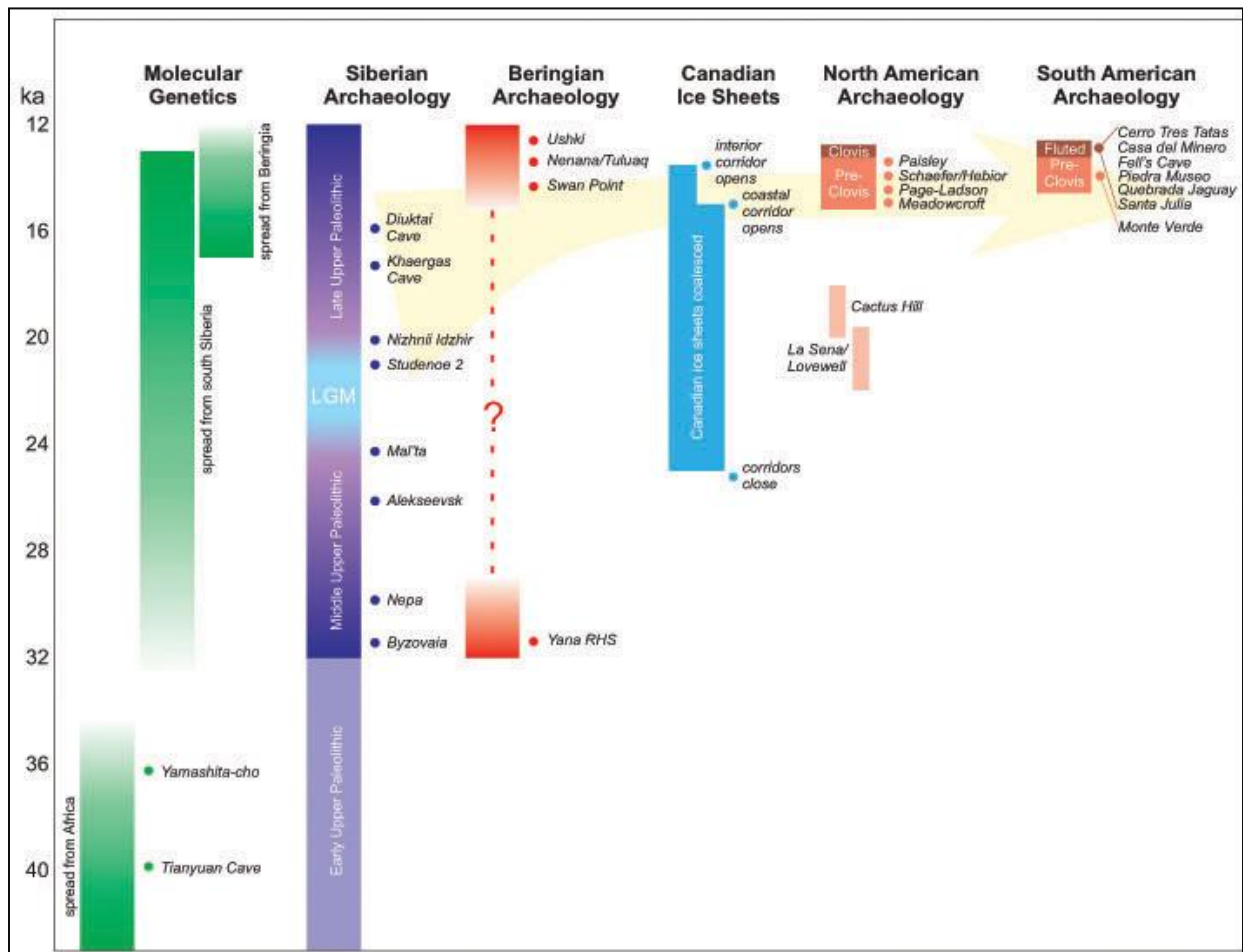


Figure 30. Comparison of Asia-New World migration chronologies. This chart compares the chronologies suggested by different theories of human migration from Siberia to the Western Hemisphere. Note on the left that the molecular genetics chronology indicates a potentially earlier presence in the Americas than material archaeological findings have discovered to date.³⁰³

In the search for the First Americans, genetics suffers much of the same fate as bioanthropology: it is impossible to isolate the practice of genetic science from the social context of politics, race, and cultural identity. As an example, scientists at Arizona State University took blood samples from several hundred Havasupai Indians who live in the

³⁰³ Center for the Study of the First Americans, <http://centerfirstamericans.org/who.php> (accessed March 23, 2010). (Fair Use determination attached.)

Western end of the Grand Canyon. The Indians had given permission for the general study of medical disorders, and apparently many thought that the blood samples were to be used only for a study of diabetes. “When they learned years later that the DNA samples had been used to investigate things they found objectionable, they felt betrayed. Researchers had...traced the tribe’s ancestral origins to Asia, contradicting traditional stories holding that the Havasupai had originated in the Grand Canyon.”³⁰⁴

There are two principle issues involved in the Havasupai controversy. First is the potential ethical issue of performing genetic research without the informed consent of the human subjects. This concern is not confined to the search for the First Americans. The second, and much more subtle, issue is what amounts to a confrontation between genetics as a science and the substantive challenge that it can present to the cultural beliefs of American Indian tribes. The Native American Graves Protection and Repatriation Act (NAGPRA) gives American Indian tribes legal control of human remains, regardless of their age, when a cultural affiliation can be demonstrated between those remains and a particular American Indian group. In recent years, genetics has increasingly been offered as a means for determining such affiliation when other evidence is ambiguous. As demonstrated in the Havasupai example, not only can genetics provide strong evidence as to a biological affiliation, it can also directly challenge the existential myths of an American Indian culture.

In 2000, the Secretary of the Interior—who was given statutory authority by NAGPRA to make cultural affiliation determinations—ordered that DNA tests be conducted on some human remains. This proved to be a controversial directive for both

³⁰⁴ *New York Times*. “Where’d You Go With My DNA?”
<http://www.nytimes.com/2010/04/25/weekinreview/25harmon.html>, (accessed June 13, 2011)

the American Indians and the First American scientists involved. The American Indians objected because DNA testing was an affront to their religion and a belief that cultural identity was based upon more than simple genetics. Interestingly, some of the scientists also objected, arguing that culture is learned and therefore has no relationship to biology.³⁰⁵ As Vine Deloria, Jr. has pointed out, one of the most controversial problems today between First American scientists and American Indian groups is the application of genetics as a proof of tribal affiliation."³⁰⁶

Linguistics

First American linguists are largely trapped in the evidentiary present. In the absence of any evidence of written languages for both the First Americans and even pre-Columbian modern American Indians, linguistic theories can only be validated through comparing known languages of the past few hundred years. If linguistic tools are of value when applied against the written and spoken records in Europe and Asia, they are of considerably less value in the context of the human history of America where there are few written records and none associated with the First Americans. Moreover, in attempting to generate a linguistic tree for American Indians, some scholars contend that modern American Indians are not direct descendants of Paleoamericans; consequently, a linguistic tree that cannot examine a missing branch is of little value. Finally, there is no independent reality against which linguists can recalibrate either their hypotheses of Paleoamerican linguistic relationships or the clock on the rate of linguistic evolution. "One cannot recover fossil languages, at least not until the

³⁰⁵ Chatters. *Ancient Encounters*, 116.

³⁰⁶ Vine Deloria, Jr. M.D. in the "Foreword" to David Hurst Thomas. *The skull wars: Kennewick man, archaeology, and the battle for Native American identity*. (New York: Basic, 2000) xviii.

development of writing.”³⁰⁷ Accurately estimating a linguistic tie between two cultures that is chronologically inaccurate by, say, two thousand years can be the difference between a simply interesting result that ties together two neighboring cultures in Siberia, as opposed to a theory-invalidating result that ties together a culture in Siberia with one in North America. Nevertheless, there has been an active linguistics effort that searches for clues in the languages of modern Native Americans that could lead to an ancestral linguistic convergence that might be associated with the First Americans.

Early in American history there was a sense that linguistic evidence might have a bearing on the source of the First Americans. As a part of Thomas Jefferson’s 1784 excavation of a mound that was determined to have been the product of American Indians, he concluded that linguistics dictated that American Indians and the people of northern Asia had a common origin, and that American Indian languages must be more ancient due to their greater diversity.³⁰⁸ However, Jefferson’s view was not universally shared. Benjamin Smith Barton (1766-1815)—Professor of Medicine, Natural History, and Botany at the University of Pennsylvania—believed that the diversity of American Indian languages was such that they could only have separated from a common origin at a time that predated Bishop Ussher’s earth-creation date of 4004 B.C.E.³⁰⁹

By the nineteenth century, First American scientists were even more confident that linguistics could provide a powerful tool for tracing relationships between modern

³⁰⁷ Alison S. Brooks, “What Does it Mean to be Human? A Behavioral Perspective.” *AnthroNotes: Museum of Natural History Publication for Educators* 31, no. 1 (Spring 2010): 3.

³⁰⁸ Edwin N. Wilmsen, “An Outline of early Man Studies in the United States,” in Huckell, Bruce B. and J. David Kilby, *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Washington, DC: Society for American Archaeology, 2004), 5.

³⁰⁹ Barton, Benjamin Smith. *Observations on Some Parts of Natural History: To Which Is Prefixed an Account of Several Remarkable Vestiges of an Ancient Date, Which Have Been Discovered in Different Parts of North America, Part I* (London: Charles Dilly, 1787), 89. Cited in Wilmsen, “An Outline of early Man Studies,” 5.

and ancient cultures. In 1874, John Wells Foster commented that “The study of languages affords a reliable guide in tracing the migrations of tribes, even where they have become intermingled with other tribes. In the social relations thus established, there would not result a total obliteration of the language of the one tribe, but certain words and forms of speech would be adopted and perpetuated.”³¹⁰ When applied in the context of European languages, Foster believed that they “can be traced back to the Sanskrit as an approximate common source.”³¹¹ Ignatius Donnelly echoed Foster’s confidence in tracing modern Europe’s linguistic roots. “Philology is yet in its infancy, and the time is not far distant when the identity of the languages of all the Noachic races will be as clearly established and as universally acknowledged as is now the identity of the language of the Aryan family of nations.”³¹² Yet the nineteenth century ground in which linguistics proved fertile for documenting European linguistic history was apparently barren in North America for the search for the First Americans. Foster concluded that “the language of the American Indian throws no light upon his origin,”³¹³ and that linguistic efforts to trace the origin of American Indians was “utterly futile.”³¹⁴ He could find no elements of the ancient Hebrew, Welsh, Hindu, Phoenician, Chinese or Scandinavian languages that should be related to modern American Indian languages if those civilizations had supplied the ancestors of modern American Indians.³¹⁵

³¹⁰ John Wells Foster, *Pre-Historic Races of the United States of America* (Chicago: S. C. Griggs and Company, 1873), 318.

³¹¹ *Ibid.*, 318.

³¹² Ignatius Donnelly, *Atlantis: The Antediluvian World*. With an introduction by E. F. Bleiler. (New York: Dover Publications, 1976), 435. First published 1882 by Harper & Brothers.

³¹³ Foster, *Prehistoric Races*, 318.

³¹⁴ *Ibid.*, 319.

³¹⁵ *Ibid.*, 319.

As the fields of anthropology and linguistics each developed into professional academic disciplines in the twentieth century, Edward Sapir (1884–1939) was among the first to combine the domains in his search for the First Americans. Because of the great diversity in American Indian languages, Sapir believed the explanation could be either that American Indians had been in North America for such an extremely long time that their languages had had sufficient time to diverge, or more likely that the divergence resulted from a “series of movements of linguistically unrelated peoples.”³¹⁶

Understanding the application of linguistics in the search for the First American is important for what it reveals in how the science is practiced. It has frequently exposed the boundary lines between the domains involved in the search. In 1987, Joseph H. Greenberg (1915-2001) published what was a then-seminal work entitled *Language in the Americas*.³¹⁷ In it, Greenberg concluded that the myriad languages of the indigenous North American people could be resolved into only three linguistic families, which he named Amerind, Na-Dene, and Eskimo-Aleut.³¹⁸ Figure 31 provides a geographic distribution of Greenberg’s three linguistic groupings. It was generally accepted that these linguistic groupings were the result of three separate migrations from Asia, most likely via Beringia.

³¹⁶ Edward Sapir quoted in David J. Meltzer. “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, p 27.

³¹⁷ J. H. Greenberg, *Language in the Americas* (Stanford: Stanford University Press, 1987).

³¹⁸ *Ibid.*, 38.

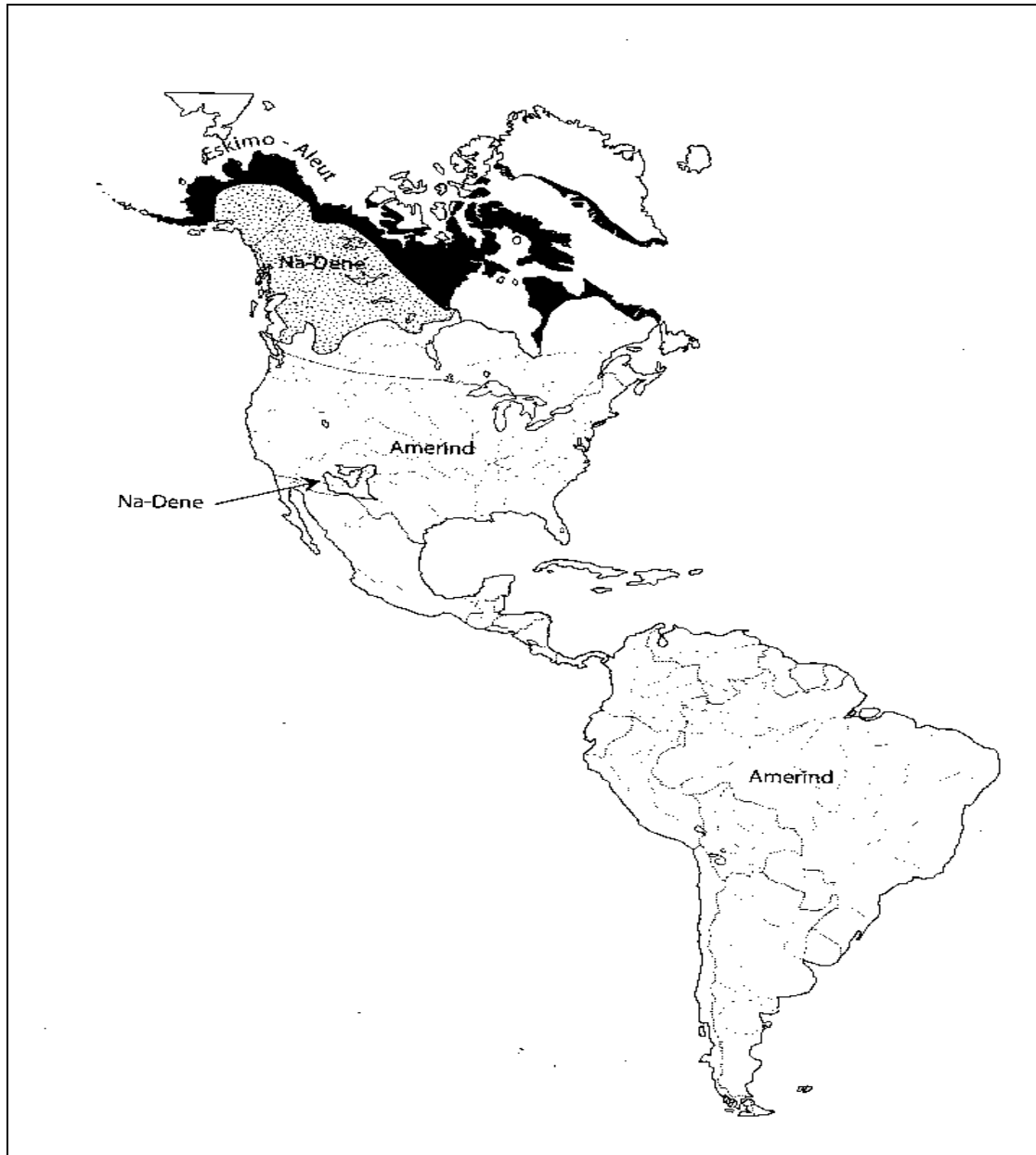


Figure 31. Joseph Greenberg's distribution of New World languages. Distribution of Amerind, Na-Dene, and Eskimo-Aleut linguistic families.³¹⁹

Greenberg's thesis was presented in an increasingly interdisciplinary First American scientific environment that saw in the 1980s a series of papers on dendrochronology by Christy Turner that analyzed the relationships of American Indian

³¹⁹ David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America* (Berkeley: University of California Press, 2009), 145. (Fair Use determination attached.)

and Asian teeth that supported Greenberg's three pulse migration thesis.³²⁰ For Turner, the issue has now become that his findings may have also been unduly influenced by Greenberg's three-migratory-wave thesis.³²¹ Moreover, Greenberg's results have now been challenged as too simplistic. David Meltzer commented that "It is probably no more realistic to infer Pleistocene migration routes to North America by the number and distribution of modern language groups than it would be to infer Hernando de Soto's route by looking at the number and distribution of Spanish dialects in the Southeast today—and at least we know that de Soto spoke Spanish."³²²

Linguists are confronted with the possibility that the results of their work may ultimately be irrelevant in the search for the First Americans. As was indicated in a Smithsonian Institution report, "No American Indian language is derived from an historically known Old World language."³²³

Physics

If archaeology or anthropology were to disappear, the discipline of physics would scarcely notice. If physics, however, were to disappear, First American science would revert to relying on many of the analytical tools of the nineteenth century for dating artifacts. In the search for the First Americans, one method of obtaining observational data is to document the situational environment of an artifact of interest; that is, for

³²⁰For example, see Christy G. Turner, "Sinodony and Sundadonty: A Dental Anthropological View of Mongoloid Microevolution, Origin, and Dispersal into the Pacific Basin, Siberia, and the Americas." In *Late Pleistocene and Early Holocene Cultural Connections of Asia and America*, edited by R. S. Vasilievsky, 72-76. Siberian Branch, Novosibirsk: U.S.S.R. Academy of Sciences, 1983. Turner was prolific in his writings in the 1980s and several other publications are contained in the bibliography.

³²¹ Meltzer, *First Peoples*, 153.

³²² David J. Meltzer. "Why Don't We Know When the First People Came to North America," in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J. David Kilby, 29.

³²³ Smithsonian Institution, <http://anthropology.si.edu/outreach/indbibl/americanindianlanguages.pdf>.

example, to situate the material within its known geological context. The best data, however, is obtained directly from the artifact. For the past 60 years, the principal means of dating human and other life-form remains has been what is popularly called carbon dating.

In 1947, chemist Willard Libby established that the steadily predictable decomposition of the carbon 14 isotope into nitrogen 14 could be used to date ancient human remains. In 1960 Libby was awarded a Nobel Prize for his efforts.³²⁴ Carbon 12, 13 and 14 are taken in by plants through photosynthesis and then ingested by animals in relative proportion to that found in the environment and in their specific diet. Although carbon 12 and 13 are stable, carbon 14 decays. Upon death, carbon 14 is obviously neither absorbed during photosynthesis by plants nor ingested by animals. However, the carbon 14 which was already in the then-dead plant or animal continues to decay into nitrogen 14 at a rate such that after every 5,730 years, 50 percent of the remaining carbon 14 was gone. Based upon this known rate of decay, an estimate can be made as to length of time that has transpired since death. Archaeologists typically provide these dates in carbon-dated years called “B.P.,” that is *before present*—with the present being standardized as 1950 when carbon dating began.

There are, however, limitations to using radiocarbon dating. The most advanced technique currently used by physicists is called accelerator mass spectrometry (AMS) which counts not only the carbon atoms that are decaying, but also counts all of the carbon 14 atoms present in order to make a very precise estimate of the decay ratio. Application of a technique as sophisticated as AMS is constrained, in that any “sample

³²⁴ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003), 113.

that is 35,000 years old will have only 2 percent of its original carbon-14 left. Even a tiny bit of a recent contaminant is enough to skew the radiocarbon date seriously.”³²⁵

An additional difficulty in using carbon dating is that the amount of carbon 14 first in the atmosphere, then in plants, and subsequently in animals has varied over the millennia. By analyzing tree-rings and the carbon trapped in ice caps, scientists have been able to provide a calibration for the radiocarbon dates that permits translation into an approximation of a chronological year. As shown in Table 3, these dates can change by thousands of years, with the commonly accepted Clovis-first date being approximately 11,500 radiocarbon year B.P. (i.e., 1950) or 13,000 chronological years ago.

³²⁵ Adovasio, *The First Americans*, 114-116.

Radiocarbon age	Median calibrated age
<i>(¹⁴C years before present or BP)</i>	<i>(calibrated years before present)</i>
18,000	21,285
17,500	20,635
17,000	20,120
16,500	19,665
16,000	19,170
15,500	18,815
15,000	18,320
14,500	17,475
14,000	16,690
13,500	16,040
13,000	15,350
12,500	14,625
12,000	13,865
11,500	13,340
11,000	12,945
10,500	12,465
10,000	11,485
9,500	10,840
9,000	10,085
8,500	9,440
8,000	8,860
7,400	8,200

NOTE: As derived by OxCal 3.10 (<http://c14.arch.ox.ac.uk/oxcal.php>).

Table 3. Conversion of radio-carbon to chronological years. Approximate equivalence of radiocarbon and calibrated ages, from the last glacial maximum to the early Holocene.³²⁶

The difficulty is further compounded in that the ingestion of carbon is a function of a person’s diet. People who have a diet high in marine food sources have a lower rate of carbon ingestion than do those whose diet is primarily of terrestrial origin.³²⁷ In

³²⁶ David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America*. (Berkeley: University of California Press, 2009), 9. (Fair Use determination attached.)

³²⁷ James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 128.

addition, over the past 10,000 years, human activity has pumped vast amounts of dead-plant carbon into the atmosphere through the burning of wood and hydro-carbons.³²⁸

The question then becomes: when is a year not a year? It is not a year when attempting to calibrate chronological years with those of the different disciplines used in the search for the first Americans. This complexity of the dating problem was aptly captured in a recent article by Ted Goebel, the first footnote of which was as follows: “All ages are presented as ka (thousands of calendar years ago). Dates relating to genetic events are in calendar years based on coalescent methods. Dates relating to archaeological events are derived by calibrating radiocarbon ages. Radiocarbon dates younger than 21,000 ¹⁴C years ago were calibrated with Calib 5.0.1 (IntCal04 curve); older dates were calibrated by using CalPal Online (CalPal 2007 HULU curve).”³²⁹

What Goebel’s methodological caveat means is that a chronological year does not equal a genetic year, which does not equal radio-carbon year. Furthermore, even within a single discipline such as genetics, a mitochondrial DNA (mtDNA) year does not equal a non-recombinant Y-chromosomal DNA (NRY) year. As Goebel continued, “The differences in calculations are the result of several issues, including potential variation in mutation rates, variable and sometimes circular techniques of calibrating coalescent times to calendar years, time-dependency of mutation and/or substitution rates, and effects of genetic drift on the original founding population.”³³⁰

The chronological year has the merit of being easily understood, universally observed, and having been constant within a few seconds since well before human

³²⁸ Adovasio, *The First Americans*, 114.

³²⁹ T. Goebel, M. R. Waters, and D. H. O’Rourke, “The Late Pleistocene Dispersal of Modern Humans in the Americas.” *Science* 319 (2008): 1501.

³³⁰ *Ibid.*, 1498.

existence. It is also the standard against which these various “scientific” years attempt to calibrate themselves. Yet the disparities can be quite large. Geneticists have their problems with establishing chronologies. Geologists have their own set of issues. Carbon dating is a function of the mix of atmospheric gases, which has varied substantially over the period that covers the peopling of the Americas. This all produces a temporal incongruity where 15,000 radiocarbon years ago (i.e., before 1950) equates to over 18,000 chronological years ago (i.e., before 2011). At least that is the discrepancy that scientists currently believe is correct based upon analysis of tree rings and ice core samples.

As advances occur in the ability of physics to provide other mechanisms for dating nature, more complications appear to arise. For example, by determining a point at which radioactive thorium 230 and radioactive uranium 234 reach an equilibrium point in their decay, it is possible to use a different physical clock to calibrate the carbon dating technique. Unfortunately uranium-thorium dates raise questions as to the believed calibration between radiocarbon and chronological dates. First American scientists may now be faced with the prospect that “the actual time of Clovis expansion may have been about 11,500 B.C., not 9500 as indicated by radiocarbon.”³³¹

Other dating-associated problems arise. As discussed above, it is known that radiocarbon years can vary depending upon annual variations in the natural creation of the carbon 14 isotope that is taken in by plants and animals. Consequently, it was necessary to find a reliable mechanism to calibrate radiocarbon years with chronological years. The method of choice has been provided by the science of dendrochronology—the

³³¹ Stuart J. Fiedel, *Prehistory of the Americas*. 2nd ed. (Cambridge: Cambridge University Press, 1992), ix.

counting of annual tree rings, a practice known at least as far back as Leonardo da Vinci—which has provided a calibration back to the start of the Holocene approximately 10,000 years ago.³³² One of the first reported instances of the use of tree rings in support of the search for the First Americans was in 1788 by Manasseh Cutler to date American Indian mounds in Ohio.³³³

As valuable as tree ring counting may be for some purposes, its use as a dating mechanism is generally conceded to extend only through the past approximately 10,000 years. Regardless of who they were or when they came, it is clear to First American scientists that the migrations to the New World happened before that time. Consequently, the calibrations between radiocarbon and chronological years become increasingly more suspect the farther back scientists venture into the critical period of interest in the search for the First Americans.

Physics has contributed other techniques. Some are useful to the period of interest in the First American search. One is thermoluminescence dating, developed in the 1960s, which measures the amount of light released in crystalline materials when heated in a laboratory. The amount of light released is proportional to the time elapsed since the material was formed. Thermoluminescence is useful for dating these minerals between several thousand and a few hundred thousand years ago. It has been used effectively to document the 40,000 year old presence of humans in Australia.³³⁴ The decay of potassium 40 in minerals into argon 40 can only provide estimates beginning

³³² Adovasio, *The First Americans*, 109.

³³³ *Ibid.*, 20.

³³⁴ *Ibid.*, 116-117.

several hundred thousand years ago, since it takes over a billion years for even half of a sample of potassium 40 to decay into argon 40.³³⁵

Despite the several weaknesses cited above to using radiocarbon dating in the search for the First Americans, a cottage industry has arisen offering dating to those who can afford the tariff. At an April 2010 conference sponsored by the Society for American Archaeology, commercial vendors set up booths offering their services. As shown in Figure 32 below, the University of Georgia Center for Applied Isotope Studies provided conference-attendees a brochure with a standard price list for radiocarbon dating based upon either AMS or Liquid Scintillation Counting, to be performed under the supervision of a staff of Ph.D.s.

³³⁵Ibid., 116.

Center for Applied Isotope Studies
CAIS University of Georgia

INFORMATION & PRICE LIST

John E. Noakes, Director
 120 Riverbend Road Athens, Georgia 30602-4702
 (706) 542-1395 (706) 542-6106 Fax

Radiocarbon Dating: Alex Cherkinsky, Ph.D. acherkin@uga.edu (706) 542-6111
 Bone/Tooth Analysis: Alex Cherkinsky, Ph.D. acherkin@uga.edu (706) 542-6111
 Stable Isotope Analysis: Randy Culp, Ph.D. rculp@uga.edu (706) 542-6122
 XRF Analysis: Doug Dvoracek, Ph.D. dvoracek@uga.edu (706) 542-6136

Turnaround time for STANDARD jobs is 30 calendar days. Turnaround time for PRIORITY jobs is 12 business days. Prices may vary for non-profit vs. commercial entities. Non-profit entities include universities, museums, and federal, state or local governments.



**RADIOCARBON DATING by
 ACCELERATOR MASS SPECTROMETRY**

	STANDARD		PRIORITY	
	Non-Profit / Commercial		Non-Profit / Commercial	
Unprepared sample	\$475 / \$525		\$800 / \$850	
Carbon dioxide	\$320 / \$350		\$570 / \$625	
Graphite target	\$200 / \$250		\$450 / \$500	



**RADIOCARBON DATING by
 LIQUID SCINTILLATION COUNTING**

	STANDARD		PRIORITY	
	Non-Profit / Commercial		Non-Profit / Commercial	
Unprepared sample	\$350 / \$385		\$500 / \$550	

Sample preparation and stable isotope ratio ($\delta^{13}\text{C}$) analysis are included (except for bone, \$50 extra)

Figure 32. University of Georgia isotope analysis price list. University of Georgia flyer distributed at the 2010 annual conference by the Society for American Archaeology.³³⁶

The tools of physics have become critical in the evidentiary debates surrounding the search for the First Americans. Yet, as Edwin N. Wilmsen originally wrote as early 1965, “radiocarbon dating is no miraculous tool; sound stratigraphy, observation, and

³³⁶ Publically available brochure obtained by Robert V. Davis at the Society for American Archaeology conference on April 16, 2010 in St. Louis, Missouri. The same information is publicly available also at the University of Georgia Applied Isotope Studies web site: www.uga.edu/cais/index.htm. (Fair Use determination attached.)

correlation with geological and paleontological evidence become even more necessary as more precision in dating becomes possible.”³³⁷

³³⁷ Edwin N. Wilmsen, “An Outline of early Man Studies in the United States,” in Bruce B. Huckell and J. David Kilby. *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Washington, DC: Society for American Archaeology, 2004), 16.

Chapter 9. Laboratories

In 1784, Thomas Jefferson dug into a mound located on his land and concluded that it had been built by the ancestors of American Indians. When it had been built “was a matter of doubt.”³³⁸ Historians frequently refer to Jefferson’s effort as being the first instance of a specific American excavation for archaeological purposes. “Jefferson’s pioneering methodology—the first excavation designed not to recover artifacts but to solve an archaeological question—was sufficiently ahead of his time that it had virtually no real impact on subsequent work for at least another century.”³³⁹ Thus began the creation of the First American scientific laboratory and the methodological search for the First Americans.

For the modern First American scientist, the entire world’s land mass, and some parts of the oceans as well, constitute the potential laboratory. Many scientists have a fixed point, a known location, to which they can repeatedly return to test their hypotheses. Archeologists must first create an expectation, a theory, as to where to even situate a laboratory. Where are they most likely to find material artifacts, to make meaningful observations? In a cave? In a desert? Beneath a body of water? Where there are, or rather *were*, flora and fauna of particular types? As an example, the accidental initial discovery by an amateur of the Clovis cultural toolkit occurred in the high desert area of the American Southwest, as shown in Figure 33 below, and the location for an important First American laboratory was serendipitously created in a dusty arid field that, for a while, was shared with a gravel mining operation.

³³⁸ Thomas Jefferson quoted by James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology’s Greatest Mystery* (New York: The Modern Library, 2003), 15.

³³⁹ Adovasio, *The First Americans*, 15.



Figure 33. Clovis Gravel Pit, 1933. Excavation of Mammoth bones at the Clovis Gravel Pit, in 1933.³⁴⁰

Since Jefferson's time there have been many more sites, including important ones in South America. The more famous tend, naturally, to be those that have produced novel results as well as those that were more contentious. As James Adovasio pointed out, "the cavalcade of loser localities was taken by many archaeologists as proof that no one was or could have been in the New World before the fluted-point makers [Clovis]. Such a belief is, of course, not science. And it is not logical. It is, in fact, more like a religious dogma."³⁴¹

The goal of the First American laboratory is to produce and examine material artifacts from which culture-defining statements can be made. The archaeologist could,

³⁴⁰ Lienke Katz, *The History of Blackwater Draw*. (Portales, NM: Eastern New Mexico University, 1997), 7. Original photo taken by F. D. Bode. (Fair Use determination attached.)

³⁴¹ Adovasio, *The First Americans*, xviii.

ideally and unrealistically, hope to find a living, breathing First American. That being an impossibility, the hope is to find a first order derivative: the *remains* of a First American. However, typically, what is found is a second order derivative: the *material artifacts* left behind by no-longer existing First Americans. Further compounding these difficulties is the reality that only a small subset of the cultural toolkit is likely to survive. Flaked stone tools are frequently the only material evidence recovered from First American archaeological sites.³⁴² As a result, archaeological theory associated with the First Americans is irretrievably linked to methodologies which are structured toward finding stone tools. “Their [nondurable artifacts of wood, bone, or fiber] absence has lent undue importance to the relatively common stone tools. This bias in what has been preserved and what hasn’t has in turn helped create (and sustain) an image of Late Pliocene and early Pleistocene technology that is not only wrong for that time but for virtually all later periods...It is virtually certain that stone was always a minority element in their technological suite.”³⁴³ Moreover, it is believed that stone tools are historically the result of a masculine endeavor, overemphasizing the hunting/killing aspects of First American society; the perishability of materials such as wood, basketry, and cloth results in a unrepresentative view of that society and the roles of women and children.

First American scientists face a particularly daunting evidence-by-proxy challenge. Their task is to development plausible theories regarding prehistoric cultures that might well have no modern progeny. In the absence of a cultural road map, scientists typically prize burial sites for the information that a cadaver and its associated

³⁴² Bruce B. Huckell and J. David Kilby, “Late Pleistocene North America and Early Paleoindians,” in Huckell, Bruce B. and J. David Kilby. *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity* (Washington, DC: Society for American Archaeology, 2004), viii.

³⁴³ Adovasio, *The First Americans*, 76.

funereal artifacts provide. For the First Americans, there are few such remains, and those that exist are typically subject to contentious arguments over physical control of the remains themselves. That then leads scientists on a search for artifacts of any type. Often, the only humanly modified material that has survived through the millennia is stone. However, as valuable as stone may be as an enduring talisman of a cultural past, it may well not be the predominant material tool employed. First American scientists, such as Dennis Stanford at the Smithsonian Museum of Natural History and Richard Morlan at the Canadian Museum of Civilization, believe that pre-Clovis cultures might have predominantly used bone rather than stone in their cultural tool kit. Such a contention is purportedly supported by thousands of bones found in the mudflats of the Old Crow River in the Canadian Yukon.³⁴⁴ Finds such as Old Crow are rare. The Stanford-Morlan thesis may well be correct, and their logic of stone being preferentially preserved by nature has a certain intuitive plausibility, but current evidence is not sufficient either to prove or disprove it.

The determination as to how to construct any particular laboratory is critical for the practice of science in the search for the First Americans. For an archaeologist as well as for a bioanthropologist, the scientific act of discovery is first an act of *physical* discovery; with the initial problem being to select a location on the earth. To obtain funding from a sponsor for an archaeological excavation, it is necessary to demonstrate a reasonable probability of success—the measurement of which is typically against generally prevailing theories. When there is a theory, such as Clovis-first that is believed to be well-confirmed, a proposal to search—i. e., to situate a laboratory and make

³⁴⁴ Stuart J. Fiedel, *Prehistory of the Americas*, (Cambridge: Cambridge University Press, 1992), 53.

observations—for a pre-Clovis site may be perceived as baseless with the resulting consequence that experiments are typically structured and funded to confirm repeatedly the reigning Clovis-first theory and rarely around a meaningful effort for its refutation. With the laboratory existence itself being a direct reflection of a theoretical model, the observations become increasingly theory—and even observer—dependent. As an example, Monte Verde in Chile and Meadowcroft Rockshelter in Pennsylvania—the two greatest challenges to the long-held Clovis-First paradigm—were neither discovered by a scientist nor the result of a specific search based upon a theoretical model. Rather, they were both the results of serendipitous sightings by non-scientists intent on other matters.

What constitutes a laboratory, the context of scientific observation and experimentation, is less clear in the search for the First Americans than might be evident in an investigation into particle physics or the development of pharmaceuticals. “Since the seventeenth century, the laboratory has come to be recognized as the preeminent site for making knowledge in the experimental sciences. It straddles the realms of private seclusion and public display, and calls for means of managing the transitions between them.”³⁴⁵ While philosophers of science may engage in debates concerning the relative merits of induction and deduction as methodologies for drawing conclusions about the nature of the physical world, these same issues play out in a much less esoteric fashion in the daily lives of First American scientists. Is the preferred experimental approach to uncover evidence and then create a theory with some explanatory power, or to establish a working theory and then test it by seeking

³⁴⁵ Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Chicago: The University of Chicago Press, 2005), 84.

observations, typically in a laboratory, that confirm or falsify the theory? In the practice of science in the search for the First Americans, holes are not dug at random. As Ian Hacking observed, a scientist must always begin with some expectation. “We should not...underestimate the pre-theoretical role of invention and fiddling around.”³⁴⁶ First American scientists, in particular, must have some idea of how the material world might produce evidence and what such evidence might look like.

For the First American scientist, there is not only the necessity of identifying a physical location for the laboratory, but there also must be a reasonably accurate temporal assessment. Depth into the earth translates into elapsed geological time. Digging deeply is resource intensive, but failure to explore to an adequate depth precludes discovery of artifacts relating to particular periods in human history and, therefore, excludes examination of entire classes of potential theories. The location of an archaeological laboratory can be situated in such a fashion that the earliest artifacts that might be discovered are those of the Clovis era; without an accepted theoretical model that anticipates a *pre-Clovis* culture, in the absence of a purely serendipitous accident, the material artifacts that form the basis for archeological discovery will not be found because the excavation will be of insufficient depth.

In addition to the difficulty in determining precisely what constitutes a laboratory for the First American scientist, there can be little doubt that, wherever such a laboratory *could* be, the possibilities are disappearing. Just as we modern humans build our social networks in areas associated with sources of food and water, facile modes of transportation, and favorable environmental conditions, so did our ancestors. Access to

³⁴⁶ Ian Hacking, *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science* (Cambridge: Cambridge University Press, 1983), 199.

productive archaeological laboratories would, in many cases, entail destruction, or at least significant disruption, of elements of modern society. The opportunity costs are sufficiently great that vast populated areas of the earth's land mass are off limits to archaeological exploration. Conversely, that same human activity—the creation of roads, cities, and the other trapping of civilization—that creates such a physical barrier for modern archaeologists, has already destroyed archaeological artifacts.

The theory-dependence of observation is central to the First American debate. If scientists situate their laboratories in such a manner as to give discovery of Clovis artifacts the only realistic outcome of the experiment, i.e., the archaeological excavation, then the opportunities are greatly decreased for archaeological results which disconfirm a Clovis-first theory. Although methodological rigor and advanced technological equipment are important in all scientific domains, in archaeology, the theory-laden nature of the location of the laboratory is of especially critical importance.

With the typical within-domain difficulties described above, attempts to situate a laboratory frequently encounter irreconcilable differences between historical discovery and heritage preservation. Situating a laboratory and conducting an experiment which searches for First American evidence confronts the reality that many of the most logical locations are on properties owned either by American Indian tribes or by the U.S. government which, in either case, triggers federal laws and regulations that accord equal status to cultural preservation over the interests of science. Despite the judgmental positions taken by the advocates on either side—see the discussion elsewhere on the Kennewick Man—both science and heritage preservation have, upon occasion, been culturally hegemonic tools tainted by moral ambiguities. Examples range from Stalin's

prohibition against the practice of “Jewish” science to U.S. prohibitions on stem cell research. There may, however, be instances when a normative constraint on the practice of science may provide a balance, not a proscription, for the conflicting cultural authorities of heritage and science. In *The Leviathan and the Airpump*, Steven Shapin and Simon Schaffer drew a direct relationship between social order and the methodologies considered acceptable in the practice of science. There is no question that the imposition of social constraints on what constitutes an acceptable laboratory impacts the practice of First American science while giving some protection to the myths associated with American Indian heritage preservation. What constitutes an observation, a fact, is an outcome produced by a social negotiation. The difficulty in completing a successful negotiation as to what constitutes an observation is that myth and science—each of which has established a form of cultural legitimacy in the search for the First Americans—offer mutually conflicting standards as to the location of a laboratory. The gold standard of technological rationality becomes the mass spectroscopy of carbon decay, the genetic analysis of migrant haplogroups, and geospatial imagery. Instruments routinely employed in physics increasingly bestow their credibility on First American science. New types of instrumentation, however, can also provide an opportunity for a theoretical flexibility which can challenge the social validation of outmoded models.

The short list of significant archaeological sites—legitimized, refuted, or unresolved—must include Clovis, New Mexico (site of the original “Clovis Man” artifacts); Meadowcroft Rockshelter, Pennsylvania (site of potential and contentious pre-Clovis artifacts); Cactus Hill, Virginia (site of potential pre-Clovis artifacts); Monte

Verde, Chile (site generally agreed to have disproven the Clovis-first theory); and Calico Hills, California (site that the famous Louis Leakey erroneously concluded as having disproved the Clovis-first theory). Forty-three of the most prominent sites relevant to the first American debate are depicted in Figure 34 below.

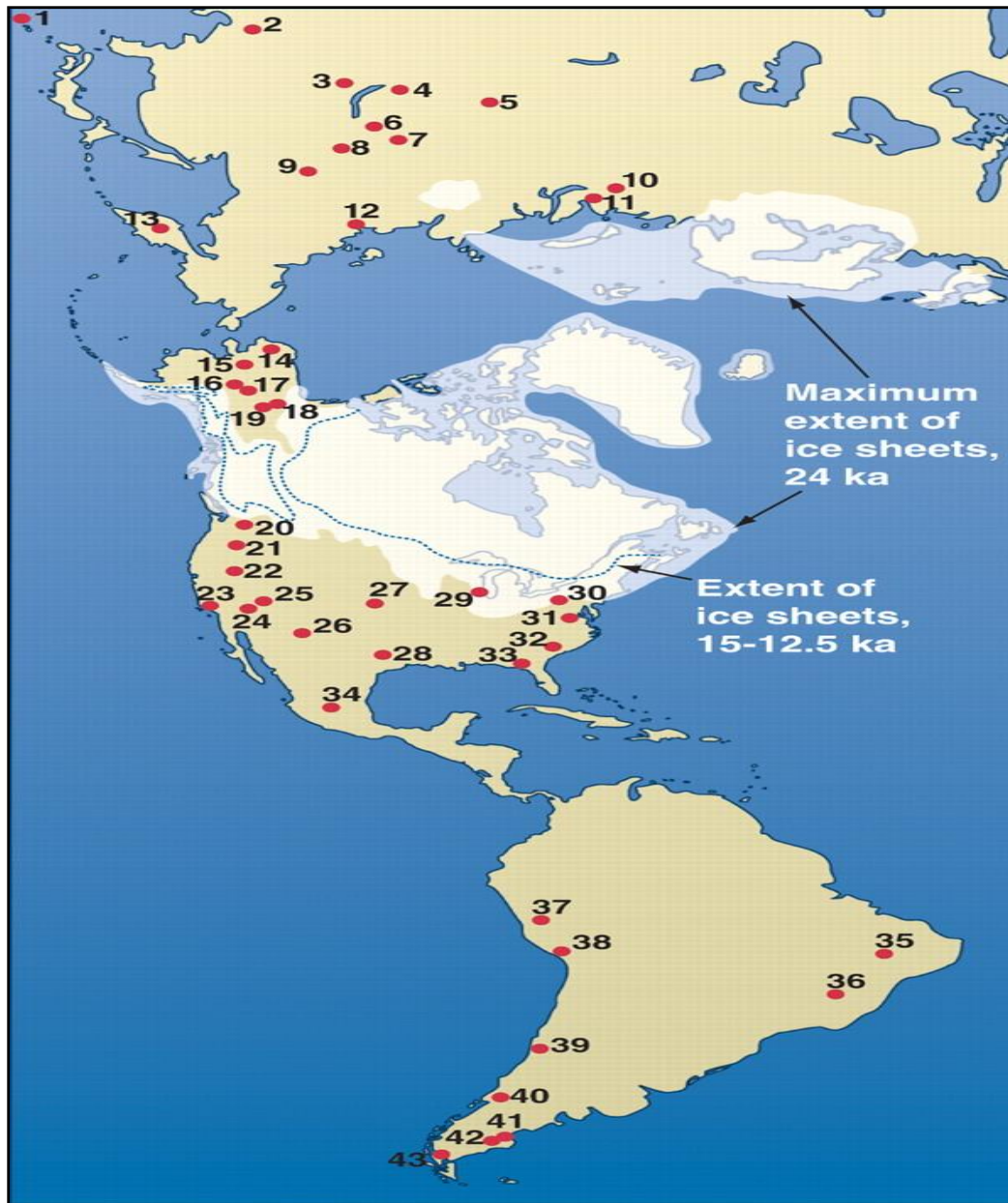


Figure 34. Map of Western Hemisphere excavation sites: 1, Yamashita-cho; 2, Tianyuan Cave; 3, Studenoe-2; 4, Mal'ta; 5, Nizhnii Idzhir; 6, Alekseevsk; 7, Nepa-1; 8, Khaergas Cave; 9, Diuktai Cave; 10, Byzovaia; 11, Mamontovaya Kurya; 12, Yana RHS; 13, Ushki; 14, Tuluq; 15, Nogahabara I; 16, Nenana; 17, Swan Point; 18, Old Crow; 19, Bluefish Caves; 20, Kennewick; 21, Paisley Caves; 22, Spirit Cave; 23, Arlington Springs; 24, Calico; 25, Tule Spring; 26, Pendejo Cave; 27, La Sena and Lovewell; 28, Gault; 29, Schaefer, Hebior, and Mud Lake; 30, Meadowcroft Rockshelter; 31, Cactus Hill; 32, Topper; 33, Page-Ladson; 34, Tlapacoya; 35, Pedra Furada; 36, Lagoa Santa; 37, Pikimachay; 38, Quebrada Jaguay; 39, Quebrada Santa Julia; 40, Monte Verde; 41, Piedra Museo; 42, Cerro Tres Tatas and Cuevo Casa del Minero; 43, Fell's Cave.³⁴⁷

³⁴⁷ T. Goebel et al., *Science* Vol. 319, (2008), 1497-1502. (Fair Use determination attached.)

In his study of Louis Pasteur's nineteenth century research on anthrax, Bruno Latour concluded that laboratories, both culturally and scientifically, are a mechanism for the generation of social power.³⁴⁸ In the search for the First Americans, laboratories are a *reflection* of social power as well. Laboratory location critically constrains the potential results that may be obtained. Where excavation is conducted is mediated by several critical factors, all of which are determined in substantial part by politics. First, much of the funding for First American excavations now comes through the Cultural Resource Management (CRM) agendas of American Indian organizations. Second, the Native American Graves Protection and Repatriation Act (NAGPRA) constrains where excavations may *not* occur. Finally, the location of an archaeological excavation is decisively dependent on a dominant First American theory which, for a 70 year period, was the Clovis–first model.

³⁴⁸ Bruno Latour, "Give Me a Laboratory and I will Raise the World," in K. Knorr-Cetina and M. Mulkay, eds. *Science Observed: Perspectives on the Social Study of Science* (London: Sage, 1983), 141 – 170.

Chapter 10. Museums

An archaeological site serves not only as a laboratory, but is in substantial ways also a museum. It typically becomes a static display of the knowledge production process rather than of the knowledge itself. The artifacts are removed, but the process is left preserved and available for inspection. It is a museum displaying a petrified laboratory methodology. In many ways, the preserved excavation sites which produced the artifacts and the museums to which they were removed are as much a part of the First American scientific record as is any written report or artifact display.

As can be seen in the pictures captured below in Figure 35 from the Meadowcroft, Pennsylvania excavation site and in Figure 36 from the Clovis, New Mexico excavation site, once an excavation is completed, the evidence of the process itself may remain as a monument to a particular methodology for years, and in the case of controversial locations, at times even for decades. As is obvious at both locations, there was a considerable resource commitment, especially at the Meadowcroft Rockshelter, to enclose the excavation site and facilitate access not only for interested professionals, but also by the public at large. As can be seen from the pictures, each of these preserved excavation sites now provides the visitor the sense of being in a museum.



Figure 35. Meadowcroft Rockshelter, PA excavation site. Picture of Meadowcroft Rockshelter, Pennsylvania archaeological site, the location of a controversial pre-Clovis archaeological excavation.³⁴⁹

Figure 35 above documents a clear preservation of the stratigraphic record associated with the recovered artifacts at Meadowcroft Rockshelter. In addition, there are hundreds of tags which permit later association of a particular artifact with the specific location documenting where it was discovered. There is no longer any active excavation underway at the site, and it is now effectively a museum. There are observational platforms, stairways, railings to guide the public, and even electronic screens showing videos of the excavation as it took place. The public is permitted access to the site only upon paying admission, and under the guidance of a knowledgeable, but

³⁴⁹ Picture taken by Robert V. Davis on July 30, 2010.

non-professional, tour guide. Since the original work began in the 1970s, the excavation has been under the supervision of archaeologist James Adovasio, now at the Mercyhurst Archaeological Institute, with funding for the location currently being provided by the admission charges as well as by the Senator John Heinz History Center. Unlike the Blackwater Draw location which is associated with the well-documented Clovis culture, the Meadowcroft Rockshelter is associated with a pre-Clovis culture for which the final scientific report has not yet been published by Adovasio. Consequently, the exact preservation of the archaeological site may well be critical to a later examination by independent First American scientists to confirm the artifactual integrity upon which Adovasio will base his conclusions.

The Blackwater Draw display for the Clovis excavation is under the control of Eastern New Mexico University, and, as shown below in Figure 36, is apparently less well funded than that of Meadowcroft Rockshelter. While Blackwater Draw also has viewing platforms, the building is not particularly attractive; however, it would appear to provide functional sheltering from the environment. Exact preservation of the site is no longer an issue since the material existence of the Clovis culture is well documented not only at this location, but also at many others throughout North America.



Figure 36. Blackwater Draw, NM excavation site. Picture of Blackwater Draw No. 1 excavation site near Portales, New Mexico, location of the initial Clovis culture toolkit.³⁵⁰

There is also a museum for Blackwater Draw artifacts operated by Eastern New Mexico University located nearby in Portales, New Mexico. A representative view is captured in Figure 37 below.

³⁵⁰ Picture taken by author on June 5, 2010.

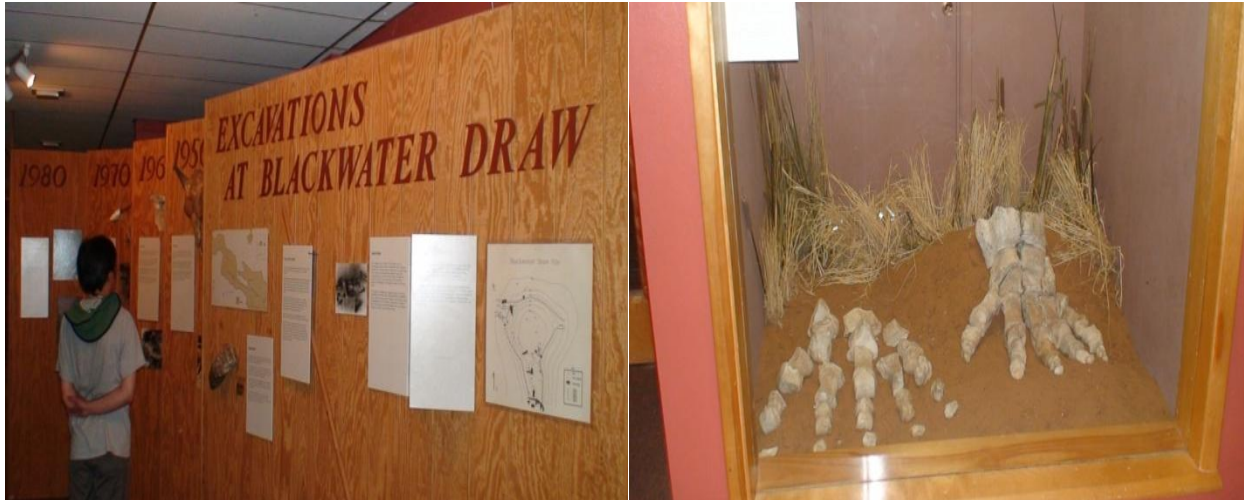


Figure 37. Blackwater Draw, NM Museum. Blackwater Draw museum with Clovis—associated artifacts.³⁵¹

There is an increasing recognition of the importance of museums as knowledge production sites.³⁵² As Jan Golinski has indicated, in field sciences such as the search for the First Americans, “an analysis of science as a localized construction makes no sense, since their knowledge-producing practices are not bound to any delimited space.”³⁵³ The work of First American scientists is not substantially different from Louis Pasteur’s nineteenth-century incorporation of field-situated agricultural livestock as a part of his biological laboratory.³⁵⁴

With the evidentiary abundance of early human presence in Europe, the inclination of First American scientists was to assume a New World parallel, to assume that the human origins theories created in the European context were also appropriate for the New World. “While American archaeology was developing a more scientific approach in the years between 1865 and the turn of the twentieth century, it nonetheless

³⁵¹ Pictures taken by Robert V Davis, June 5, 2010.

³⁵² Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Chicago: The University of Chicago Press, 2005), 95.

³⁵³ *Ibid.*, 98.

³⁵⁴ See Bruno Latour, “Give Me a Laboratory and I Will Raise the World,” in Karin D. Knorr-Cetina and Michael Mulkay, ed. *Science Observed: Perspectives on the Social Studies of Science* (London: Sage, 1983)

lagged far behind the field as practiced by Europeans.”³⁵⁵ Convinced that there was an human origin analogue between the New and Old Worlds, the conceptual space of nineteenth century American archaeological theory included room for little more than what might be called proof by European analogy—and that analogy requiring both digging and static displays.

Joseph Henry (1797-1878), the first Secretary of the Smithsonian Institution alerted travelers what to look for in “Indian country” with regard to remains and artifacts that might document the antiquity of human origins in the U. S.³⁵⁶ Even though Henry was of the nineteenth century generation of American scientists that actively encouraged the looting of Indian burial sites in the search for the First Americans, the Smithsonian Institution oddly presents this desecration as beginning a natural continuum that resulted in the creation of the National Museum of the American Indian. According to the Smithsonian Institution, “the creation of the National Museum of the American Indian is the most recent example of the Smithsonian Institution's commitment to the increase and diffusion of knowledge about Native Americans. It is a commitment which goes back to the first secretary, Joseph Henry.”³⁵⁷ That Henry was committed to the study of American Indians was obvious; however, there is more than a subtle difference between looting and museum-creation as mechanisms for displaying a commitment to knowledge production.

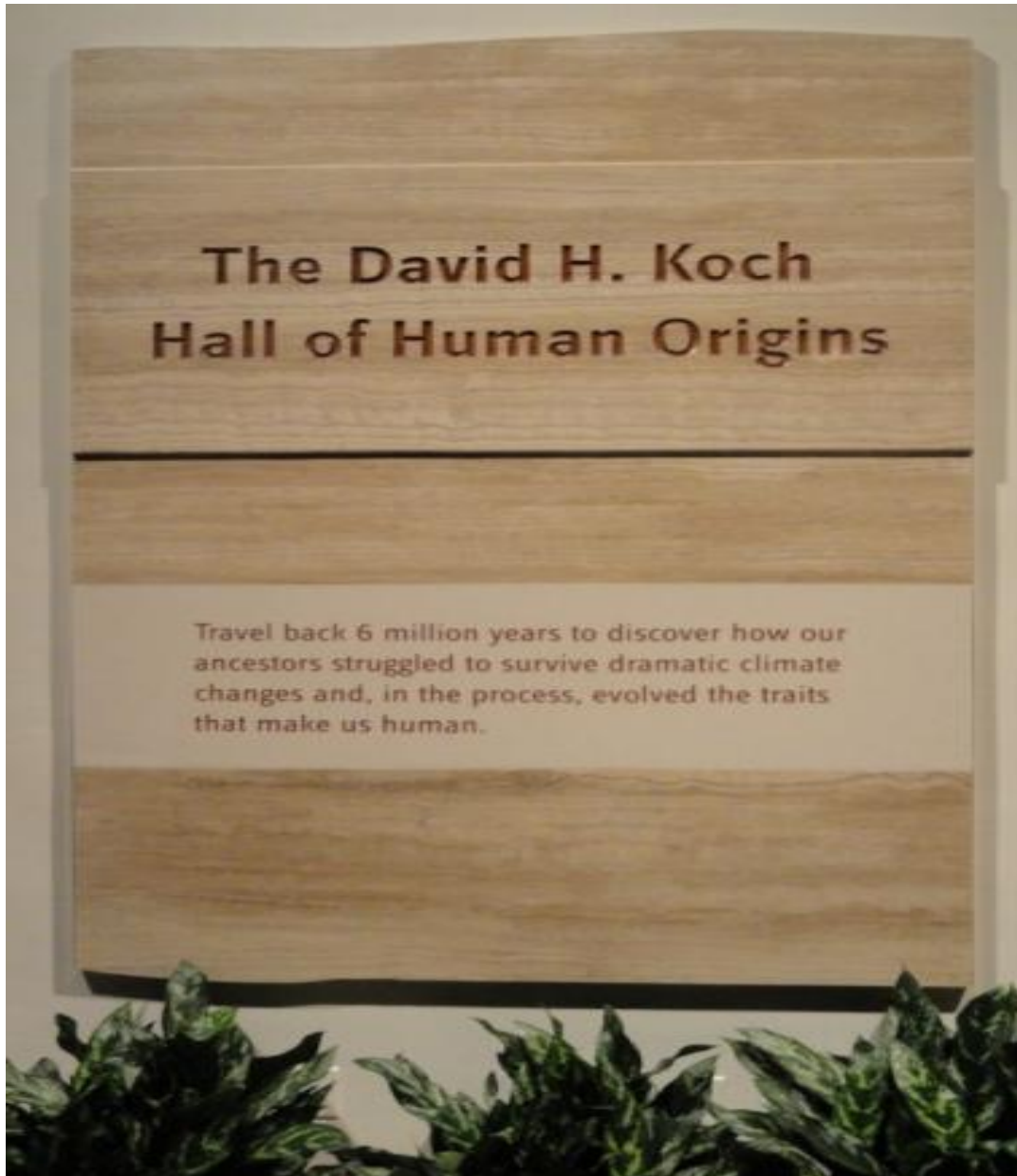
The public interest in human origins is evident in viewing the crowds which visit the David H. Koch Hall of Human Origins in the Smithsonian Institution Museum of

³⁵⁵ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology's Greatest Mystery* (New York: The Modern Library, 2003), 88.

³⁵⁶ *Ibid.*, 87.

³⁵⁷ Marc Rothenberg, ed. “Joseph Henry: Promoter of Anthropology,” *Smithsonian Institution Archives*. <http://siarchives.si.edu/history/jhp/joseph08.htm>, accessed February 17, 2011.

Natural History.³⁵⁸ Another measure of public interest is philanthropic donations, as is apparent from the \$15 million contribution to the Smithsonian by David H. Koch to support the project.³⁵⁹



*Figure 38. Hall of Human Origins plaque-Smithsonian Institution. Entrance to human origins exhibit at the Museum of Natural History at the Smithsonian Institution.*³⁶⁰

³⁵⁸ Observation by the author based on a visit on July 30, 2010.

³⁵⁹ <http://www.kochind.com/files/KochDavid.pdf> accessed February 15, 2011.

On the same July 30, 2010 day that saw a packed crowd at the Human Origins Hall of the Smithsonian National Museum of Natural History, the nearby Smithsonian National Museum of the American Indian (NMAI) was practically empty.³⁶¹ As Shown in Table 4 below, in 2010, the Smithsonian Institution reported that its facilities had a total of 30.2 million visitors. Of that number, only 1.3 million visited the National Museum of the American Indian despite its large building situated prominently on the Washington Mall between the U. S. Capitol, which had 3 million visitors in 2001³⁶² and the other major Smithsonian museums. In 2010, attendance at the Museum of Natural History was 6.8 million. The public was largely walking past the NMAI to visit the other attractions surrounding the Washington Mall.

*Table 4. - Smithsonian Institution Visitors in 2010.*³⁶³

Anacostia Community Museum	58,000
Cooper-Hewitt, National Museum of Design (New York City)	181,000
Smithsonian American Art Museum and The National Portrait Gallery	1.1 million
Freer Gallery of Art	488,000
Hirshhorn Museum and Sculpture Garden	621,000
National Air and Space Museum	8.3 million
National Air and Space Museum's Steven F. Udvar-Hazy Center	1.1 million
National Museum of African Art	310,000
National Museum of American History	4.2 million
National Museum of the American Indian (Washington, D.C.)	1.3 million
National Museum of the American Indian Heye Center (New York City)	300,000
National Museum of Natural History	6.8 million
National Zoo	2.3 million
National Postal Museum	343,000
Renwick Gallery of the Smithsonian American Art Museum	151,000
Arthur M. Sackler Gallery	308,000
S. Dillon Ripley Center	363,000
<u>Smithsonian Institution Building, "The Castle"</u>	<u>1.8 million</u>
Total Visits in 2010	30.2 million

³⁶⁰ Picture taken by Robert V. Davis, July 30, 2010.

³⁶¹ Observation by the author during a visit to both Museums on July 30, 2010.

³⁶² U.S. Capitol Visitor's Center. <http://www.aoc.gov/cvc/upload/CVCFactSheetSummer2007.pdf>, accessed February 15, 2011

³⁶³ Smithsonian Institution. <http://newsdesk.si.edu/about/stats>, accessed February 15, 2011.. (Fair Use determination attached.)

Although a comparison of attendance numbers is relatively straightforward, it is much more difficult to assess the motivations behind attendance or non-attendance at any particular Museum. One possibility is the content itself. In a NMAI exhibit that began in 2006 called “Listening to Our Ancestors: The Art of Native Life along the North Pacific Coast,” it was stated that the “curators from each of these North Pacific Coast communities³⁶⁴ determined the content and selected the objects from the museum’s collection to be included in the exhibition. They provided important information on the unique cultural context of each object.”³⁶⁵ It can certainly be argued that American Indians have a unique insight as to their own interpretation of their culture and its artifacts. This exhibit was apparently presented unfettered by any challenge from First American science. In a discussion with a staff member of the NMAI Resource Center, it was confirmed that the exhibits of the NMAI are not intended to be science, but rather are to be representational of American Indian culture.³⁶⁶ Based upon these attendance figures alone, the American (and foreign visiting) public would appear to attend scientifically centered exhibits in much greater numbers than those representing an American Indian cultural perspective.

Museums can also play subtle, but powerful, roles in reinforcing particular cultural narratives. For example, Figure 39 captured an exhibit at the National Museum of the American Indian which stated that the pre-Colombian cultures of the New World have "memories from the beginning of everything." This is presented as if there were an

³⁶⁴ 11 Native communities, including the Coast Salish, Makah, Nuu-chah-nulth, Kwakwaka’wakw, Heiltsuk, Nuxalk, Tsimshian, Gitksan, Nisga’a, Haida and Tlingit

³⁶⁵ Smithsonian National Museum of the American Indian, Office of Public Affairs.

http://americanindian.si.edu/press/releases/2006-01-23_listening_to_our_ancestors_press_release_for_web.pdf, accessed February 15, 2011.

³⁶⁶ Conversation took place on July 30, 2011 between the author and a Museum staff member in the NMAI Resource Center in Washington, D.C. The Resource Center is now gone and its space is being adapted to another use.

agreed-upon consensus that this was the case, as opposed to presenting it more accurately as being a part of American Indian traditions that are contested by many First American scientists.

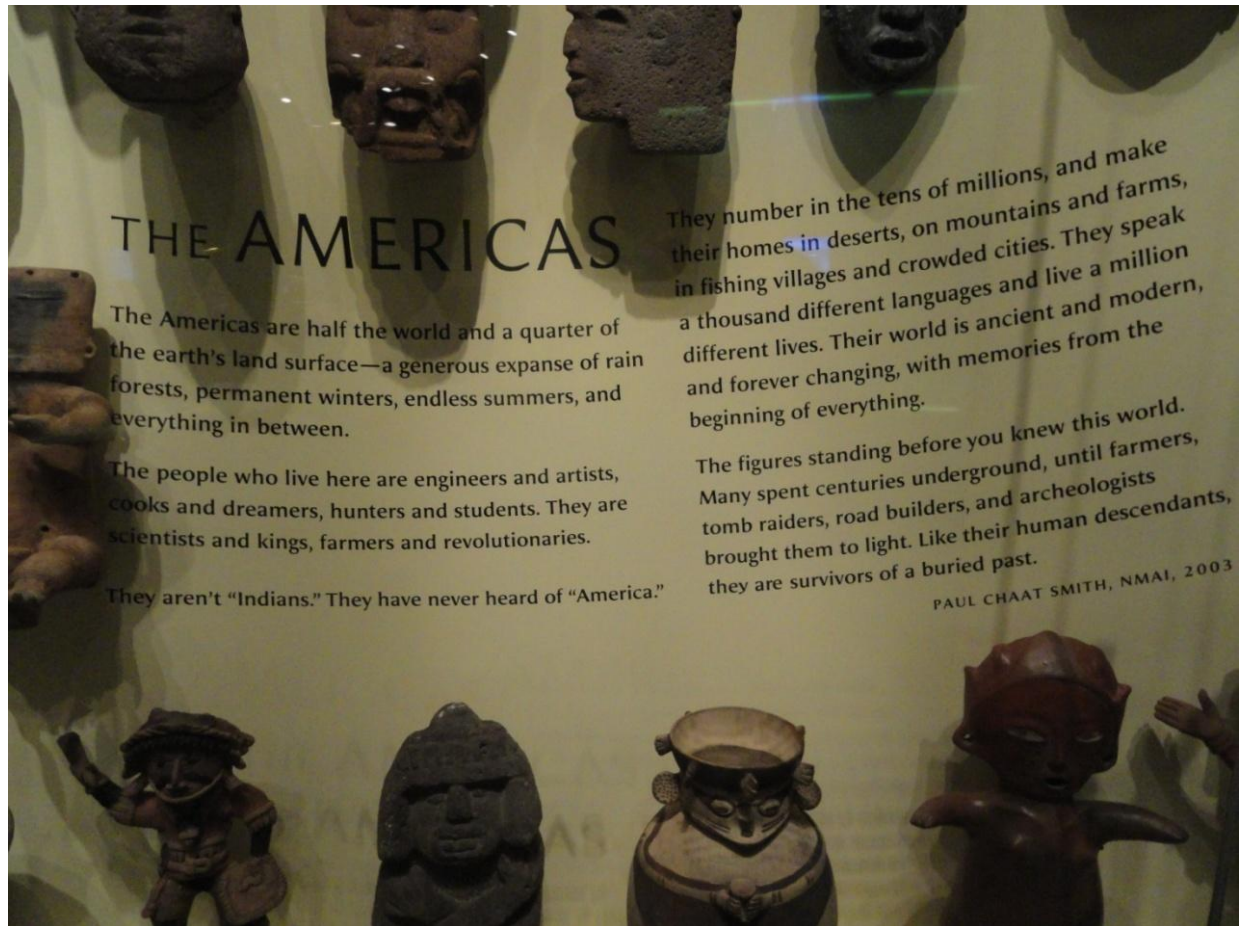


Figure 39. *The Americas exhibit-Smithsonian Institution.* July 2010 exhibit at the Smithsonian Institution National Museum of the American Indian.³⁶⁷

A second example of the subtle implications as to how museums can shape the cultural narrative is contained in Figure 40 below. At the Smithsonian Institution National Museum of Natural History a video with a voiceover narration provides a chronological countdown from the beginnings of human origin to modern times. At one

³⁶⁷ Picture taken by Robert V. Davis, July 30, 2010.

point the viewer is shown that by 17,000 years ago, *Homo sapiens* had occupied the entire world to include the Western Hemisphere. Without clearly articulating it, in this instance the Smithsonian Institution is subtly telling the museum visitor that modern humans had already occupied the New World for four thousand years before the Clovis culture arose. While there is material evidence that Clovis was not the first culture in the New World, the timing of the arrival of the first *Homo sapiens* remains far from being a settled issue. Yet the Museum of Natural History provides what is by archaeological standards a fairly precise date of "about 17,000 years ago."



Figure 40. Human migration exhibit -Smithsonian Institution. July 2010 Smithsonian Institution Museum of Natural History video display indicating that the Western Hemisphere was occupied by *Homo sapiens* prior to the arrival of the Clovis culture.³⁶⁸

³⁶⁸ Picture taken by Robert V. Davis, July 30, 2010.

For First American science, the traditional view of a museum as nothing more than a static display of physical artifacts is obviously misguided. The museum-like nature of these sites where archaeological excavations have taken place is an important element in legitimizing the specific practice of science as conducted at that particular location. Conversely, First American science, as presented in traditional museums such as the Smithsonian Institution, play an important role in enlisting public sentiment in support of a particular theoretical view that results in a determination of the winners and losers in the theories associated with the search for the First Americans.

Section IV. Communities

Section II, “First American Theories, Myths and Evidence,” examined the relationships between First American Science and American Indian myths, and also examined the development of modern scientific theories of the origins of the First Americans. Section III, “First American Science,” investigated the practice of science dedicated to the search for the First Americans.

Section IV, “Communities,” deconstructs the power inherent in a community to determine the methods by which cultural values are acceptably produced, legitimized, and enforced. Communities internal as well as external to First American science continuously patrol the conceptual boundaries that conform scientific practices to accepted norms. As this section shows, unstabilized power relationships across the concerned communities produce cultural fractures that are evident in the political, economic, and legal conflicts within society.

Chapter 11, “Identity and Heritage Preservation,” examines the conflict between First American science and modern American Indians that results from a consciousness of a specific group identify. The ability to define a cultural past influences power in the present and, consequently, shapes the future. The inability of either First American scientists or modern American Indians to succeed in clearly defining the physical and cultural identity of the First Americans has continuing cultural repercussions today.

Chapter 12, “Native American Graves Protection and Repatriation Act” (NAGPRA), details not only the extent to which the conflicts inherent in American culture are embedded in American law, but also how that same law can be used as a tool to intervene in the practice of First American science. NAGPRA, which dictates an

epistemological equality between American Indian tradition and First American science with regard to the disposition of ancient human remains and funerary artifacts, can only be interpreted as a significant erosion in the cultural authority of science.

Chapter 13, “Case Studies: Kennewick Man and Tarim Basin,” explores two instances, one in the U.S. and the other in China, where the full range of contested power is evident across science, myth, evidence, power, and heritage. In 1996, an ancient human skeleton, known as the Kennewick Man, was discovered in Washington state—beginning a political, legal, and epistemological confrontation over disposition of the remains that has yet to reach its final conclusion. In 1934, 4,000-year-old European-appearing mummies were discovered in what is now western China that directly challenge the official history espoused by today’s ethnic Han-dominated Chinese government.

Chapter 11. Identity and Heritage Preservation

In the search for the First Americans, the sacred scientific grail is not the physical remains of the very first *Homo sapiens* to set foot in the Americas. As interesting as that archaeological discovery might be, what is of greater interest are the cultural findings. How did the First Americans view the world? Who are their modern descendents? Who were their ancient ancestors? What was the social structure? How advanced were their tool-making capabilities? As archaeologist James Adovasio has pointed out, First American scientists as well as non-specialists “want the Americas to have been inhabited anciently as opposed to only recently,” which is ironic considering that “Americans pride themselves as a nation on having accomplished a great deal in a very short period of time—going from a rag-tag collection of rebels to the world’s only superpower in little more than two hundred years.”³⁶⁹ An important element driving America’s preoccupation with its first inhabitants is the constant struggle within a society to control the cultural narrative. The search for the First Americans “produces symbols, knowledge, and heritage, which give rise to awareness and consciousness of group identity and are invoked to inspire and justify collective agency. Groups wage powerful struggles over what is remembered and what is forgotten about the past.”³⁷⁰ Those who have the power to define the past are well positioned to influence the future.

The inability of either First American scientists or modern American Indians to clearly define the physical and cultural identity of the First Americans has continuing political repercussions today. What does it mean if a culture changes, but the people

³⁶⁹ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology’s Greatest Mystery* (New York: The Modern Library, 2003), xviii.

³⁷⁰ Randall H. McGuire, *Archaeology as Political Action* (Berkeley: University of California Press, 2008), 235.

remain biologically indistinguishable, or vice versa? The ancient remains of the Kennewick Man provided a basis for some to conclude that the First American was physically different from modern American Indians and, therefore, there can be no cultural continuity. In turn, American Indians can and do counter this by saying that there is a cultural continuity for indigenous Americans that renders moot any biological variations through time. For them, all ancient human remains have sufficient anatomical similarity to modern American Indians to impute a common cultural heritage. Biology and culture are inherently incommensurable concepts, the metrics for which are qualitatively different, and it is difficult to make meaningful comparisons. Nevertheless, efforts to protect or reject a specific identity or heritage have resulted in both scientists and American Indians using observations drawn from one domain to justify convenient theories in the other.

The enduring challenge for First American scientists as well as for American Indians is: who owns the past? As Larry L. Zimmerman, an anthropologist at Indiana University-Purdue University Indianapolis, characterized it, “archaeologists cling to the idea...that the past is a public heritage...Indigenous people usually disagree. Their pasts are their own, not the rest of humanity’s.”³⁷¹ Where do the global and the local merge? Do modern Tanzanians have some right to demand that 2-million-year-old proto-human remains discovered in Olduvai Gorge be immediately reburied in secret without any study by scientists? This is not an issue in Africa; yet in the United States, existing law now provides such a power to American Indians.

³⁷¹ Larry L. Zimmerman, “Multivocality, Descendant Communities, and Some Epistemological Shifts Forced by Repatriation,” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, ed. Thomas W. Killion (Santa Fe: School for Advanced Research Press, 2008), 97.

Conflicts in the search for the First Americans ultimately concern power and the ability to control interpretations of the past—ownership of one’s heritage—which provides political leverage for influencing modern society. According to Tamara L. Bray at Wayne State University, “an implicit consequence of repatriation legislation is the negation of Americanist archaeology’s claims to exclusive control over the interpretation of the past. The alternative epistemologies and systems of knowledge authorized by the [Native American Graves Protection and Repatriation Act] legislation challenge the privileged position of traditional academic knowledge.”³⁷² History supports Bray’s implication that First American science has been employed to support a non-universal set of cultural values—a particular cultural heritage. An obvious and well-documented example is the racism of nineteenth century American anthropology. This difficulty of early First American scientists in disinterestedly approaching the study of human origins was evident in the romanticization in the 1874 writings of John Wells Foster when comparing human capabilities to other animals. “Man is endowed with reason, by the exercise of which he makes up for all these deficiencies, repels or subdues all other animals, and places himself at the head of creation. He soars in the air above the eagle’s flight; he sounds the depths of the sea beyond the fishes’ range; he outstrips the pigeon in his flight over the land; his vision, aided by art, pierces the realm of space infinitely deeper than that of the condor’s; and by the pressure of his fore-finger, exerting less strength than would be required to lift a pound weight, he sketches the lordly lion in the

³⁷² Tamara L. Bray, “Repatriation and Archaeology’s Second Loss of Innocence: On Knowledge, Power, and the Past,” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, ed. Thomas W. Killion (Santa Fe: School for Advanced Research Press, 2008), 79.

dust.”³⁷³ With such a view, it is appropriate to ask if it is possible to perform value-neutral research within the bounds of what might be considered objective science. In retrospect, Foster’s cultural heritage was clearly embedded in his work which reinforced the then-scientific wisdom of a hierarchy of races.

Even when executed in good faith and according to contemporaneous principles, science nevertheless is capable of producing fantastical myths—such as Atlantis as the source of the First Americans. Once launched into and accepted by a culture, an attractive myth dies hard. It is difficult to conclude that myths, such as those of the modern American Indian, generated through extra-scientific traditions and oral histories are not subject to a revisionist process such as that generated within science. Control over what constitutes the past is not a new issue nor unique to American society. In *Requiem for a Nun*, William Faulkner wrote that “the past is not dead, in fact, it’s not even past.”³⁷⁴

Many American Indian organizations have something equivalent to the Zuni’s “Heritage and Historic Preservation Office.” The existence of such an office is at once an interesting statement not only that both heritage and history are entities that can (and ought) to be preserved, but also that the simultaneous preservation of both is a sufficiently compatible exercise that it can be accomplished within the same organization. *Preservation* would also necessarily imply that there is a fixed and knowable entity—whether physical or conceptual—that can be conserved. In contrast, the prevalent academic view is that any particular history is, at least partially and

³⁷³ John Wells Foster, *Pre-Historic Races of the United States of America* (Chicago: S. C. Griggs and Company, 1873), 95.

³⁷⁴ William Faulkner, *Requiem for a Nun*, cited in Tamara L. Bray, “Repatriation and Archaeology’s Second Loss of Innocence,” 79.

perhaps even substantially, a function of the values of the culture of the historians writing the history. Consequently, any evolution of a particular history depends upon changes in the dominant culture as well as the discovery of new information, new *facts*, that can successfully challenge the dominant history.

It is difficult to envision that heritage preservation can occur in any context other than one in which counterfactuals and new interpretations are not encouraged. Inasmuch as the Zuni Preservation Office, as do counterpart organizations in other American Indian tribes, employs professionally-trained archaeologists and anthropologists who presumably view and conduct their crafts as a science, this would suggest that some significant number of First American scientists are comfortable in practicing their discipline in an environment which may not subscribe to the often-debated role of science as a value-neutral interpreter of the physical world; rather, some First American scientists appear now to be overtly dedicated to preservation of one particular cultural interpretation. Heritage, which is a mixture of tradition, identity, belief systems, and physical representations, is an endeavor that they apparently believe is susceptible to preservation, and in this case, one in which scientists participate. Such socially-engineered preservation offices are institutions specifically chartered to promote a particular set of cultural values.

If a particular heritage is to be preserved, the implication is that meaningful observations counter to the reigning paradigm should not be permitted. There is cultural continuity in the stabilized bits of knowledge associated with identity and heritage. It is what is known for sure, what is a given fact. What are considered socially stabilized as facts “are experienced as being independent of opinion, belief, and cultural

background.”³⁷⁵ The difficulty for both First American science and American Indians is that if it is perceived that facts are being preserved in the face of considerable countering information—such as was the case of Clovis-first for scientists or Kennewick Man for American Indians—then in popular American culture it loses its legitimacy and, therefore, loses its privileged position vis-à-vis dominant American cultural beliefs. The net effect of this erosion in the epistemological status of science resulted in actions such as congressional passage of the Native American Graves Protection and Repatriation Act (NAGPRA) which legally equates the conclusions of science and American Indian oral history for the control of human remains. In these instances, science is no longer privileged to determine its own set of facts. The political process, increasingly the courts, makes the ultimate determination.

In circumstances where scientific theories have the appearance of being value-laden, there is a “prospect of a science whose results are continually in contestation.”³⁷⁶ When a theory such as Clovis-first is granted a status that allows preemptive dismissal of factual challenges—indeed, when the *theory* is revered as a fact rather than only an hypothesis with explanatory power for a particular set of observations—it “creates a bond between evidence and hypothesis impossible to break and even destroys ultimately, the concept of evidence as something to which one can appeal in defending a hypothesis.”³⁷⁷ While granting a theory the status normally accorded a fact might in the short run strengthen the prestige of the theory, it ultimately weakens the entire basis of scientific methodology; once a theory is successfully challenged, the previously

³⁷⁵ Paul Feyerabend, *Against Method*. 4th ed. (London: Verso, 2010), 3.

³⁷⁶ Helen E. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 15.

³⁷⁷ *Ibid.*, 57.

sacrosanct facts can now also be challenged as being no better than a theory. What was a fact has become a conjecture.

There is an interesting heritage-related phenomenon that occurs in scholarship dealing with First Americans that generally does not occur elsewhere. On occasion, the tribal affiliation of the author is prominently mentioned as if it is an authoritative credential in a text that is produced for the academic community. For example, in *Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice*, edited by Thomas W. Killion, there is a list of contributors which included the organizational affiliation of each chapter author. Examples are “Department of Anthropology, Wayne State University,” “School of Human Evolution and Social Change, Arizona State University,” “Repatriation Office, National Museum of Natural History,” and “Hanford Cultural Resources Laboratory, Pacific Northwest National Laboratory,” all of which are certainly of sufficient stature to lend some aura of authority to a contributor’s offering.³⁷⁸ While there was no other biographical information—such as academic degree or publication history—provided in support of a contributor’s credentials, two of the authors were further identified with the parenthetical “(Choctaw)” after their names. In other times and places, e.g. the “Jewish science” of Hitler and Stalin, such an ethnic designation would have been considered not only irrelevant, but also fundamentally racist. Is it pertinent as to whether a particular scientific conclusion is generated by a self-identified *modern* American Indian? If it is not, then the tribal affiliation of an author is not only irrelevant, but also may lead the reader to question whether there is some other epistemological basis for the scholarship that is outside of,

³⁷⁸ Killion, ed. *Opening Archaeology*, iii-iv.

and inappropriately being expressed in the terms of, science. If, however, the tribal affiliation is considered appropriate, then the challenge is to determine the basis for such a conclusion. If a First American scientist is to be acknowledged as an American Indian, there must also be an understanding as to why there is no identification prominently emphasized for a current German political scientist writing on the politics of the Weimar Republic, for a Bantu mineralogist analyzing the Witwatersrand Gold Rush in South Africa, or for a modern Ethiopian paleontologist investigating human origins in the Great Rift Valley.

To the extent that it might be considered acceptable for authors in scholarly texts to publicly identify themselves as members of the very group that is being investigated, recognition is due, perhaps, to the work of feminist scholars. Tamara Bray, in addressing the role of power in First American science, drew on the theories of situated knowledge and standpoint epistemology of Donna Haraway and Sandra Harding, respectively, to situate First American theories. Many First American scientists, however, may not agree with the feminist conclusion that a complicity exists between cultural priorities and scientific methodologies. This alleged complicity is the source of the tension created by standpoint epistemology and situated knowledge, and the seeming oddity of academic authors listing their tribal affiliation in journal articles. Francis P. McManamon, then the Chief Archeologist of the National Park Service, concluded in 1999 that, "public disagreements among scientists concerning methods, techniques, the appropriateness of some kinds of research, access to data, and other topics suggest to some nonscientists that the scientific enterprise has serious flaws and

is untrustworthy."³⁷⁹ While an author-associated tribal affiliation may prove to be of no consequence for conclusions reached in any particular scholarly effort, such an affiliation can be perceived as an open challenge to the mainstream academic system as a whole.

Given the dominant American *episteme* of scientific rationality, it is perhaps easier to isolate instances of active heritage preservation efforts by American Indians than it is to locate readily examples of unwarranted protection of theories, i.e., heritage preservation, by scientists. Theory selection is influenced or even determined by cognitive values, and every person will not come to the same decision in theory selection. Moreover, any selected set of cognitive values may well be inherently contradictory. It is not difficult to imagine instances when different approaches might be taken depending upon the relative conceptual weight given to theoretical simplicity rather than accuracy. Yet there are instances in First American science—the case of the Clovis-first model is a good example—where defense of a particular paradigm reflected an almost religious devotion. According to Jonathan Haidt, a University of Virginia social psychologist, “if a group circles around sacred values, they will evolve into a tribal-moral community...They’ll embrace science whenever it supports their sacred values, but they’ll ditch it or distort it as soon as it threatens a sacred value.”³⁸⁰ As Mark Twain captured it, “you can’t depend on your eyes when your imagination is out of focus.”³⁸¹ If

³⁷⁹ Francis P. McManamon, “The Native American Graves Protection and Repatriation Act and First Americans Research,” in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, ed. R. Bonnicksen (Corvallis: Center for the Study of the First Americans, Oregon State University, 1999), 145.

³⁸⁰ John Tierney, “Social Scientist Sees Bias Within,” *New York Times*, February 8, 2011, <http://www.nytimes.com/2011/02/08/science/08tier.html?ref=science>.

³⁸¹ Mark Twain (Samuel Clemens), *A Connecticut Yankee in King Arthur’s Court*, 468.

<http://books.google.com/books?id=2CDoNxruJ9wC&pg=PA468&dq=connecticut+yankee+%E2%80%99you+can%E2%80%99t+depend+on+your+eyes+when+your+imagination+is+out+of+focus&source=bl&ots=>

a theory is dependent upon conservation of a particular set of values, then the theory may well be out of focus and impact the observations themselves. A particular view of the world is premised upon a preserved set of values, a heritage. When a theory changes, the world changes too.³⁸² If a person, or even an entire culture, is comfortable with the world as it is perceived to exist, then there is a presumptive preservation of that world—preservation of its cultural theories, its heritage—whether by scientists or by an indigenous people.

For American Indians, the dominant Western cultural framework provides a pervasive challenge to their self-defined heritage. Within a hegemonic value structure, there is a “a community of assumptions,” according to Robert Merton, “upon which the entire system is built by the utilization of reason and experience. Within each context there is rationality, though the bases are non-rational.”³⁸³ If the initial conditions upon which a heritage is constructed remain unchallenged, the resulting system appears to be rational. Michel Foucault addressed the potential absurdity of blindly accepting a seemingly rational system where the assumptions—Merton’s “appropriate cultural conditions”—remain unexamined. In *Madness and Civilization*, Foucault described a man who believed that he was made entirely of glass; his behavior reflected this belief. Given this man’s initial assumption that he was made from glass, Foucault concluded that his subsequent concern with his fragility was fully rational.³⁸⁴ From this, one

X66pderuFR&sig=jUwQoUjEZ1KgRyoCFyUo4DtmMRo&hl=en&ei=f2ucTtCoN4HqogGJxfDjBA&sa=X&oi=book_result&ct=result&resnum=4&sqi=2&ved=0CCoQ6AEwAw#v=onepage&q&f=false

³⁸² Andrew Pickering, *The Mangle of Practice: Time, Agency, and Science* (Chicago: The University of Chicago Press, 1995), 187.

³⁸³ Robert Merton, *The Sociology of Science: Theoretical and Empirical Investigations* (Chicago: University of Chicago Press, 1973), 252

³⁸⁴ Michel Foucault, *Madness and Civilization: A History of Insanity in the Age of Reason* (New York: Vintage, 1988), 94.

should not conclude that either American Indian or scientific values are insane, but rather that any examination that is conducted from *within* a value-framework is likely to be self-supportive in its conclusions.

Examined as a heritage preservation process, late nineteenth-century anthropologists were concerned with, among other things, providing what they believed to be an acceptable scientific explanation which would morally ratify the existing racially stratified society of the time. The monogenists, in consonance with the biblical account, believed that there had been a single human origination, but that some parts of humanity had degenerated into races that were clearly distinguishable. Others believed in polygenism, meaning that the several races had originated separately with the even clearer implication of a ranking of not only races, but what might be termed species. Despite the racist overtones of some monogenists who believed in the deterioration of certain parts of humanity, it was even easier for polygenists to support slavery.³⁸⁵ Popular western heritage preservation required a hierarchical differentiation between the races, and the science of both monogenists and polygenists was able to support such a conclusion.

In the mid-1860s, the Anthropological Society of London sponsored a series of papers by some of the leading intellects of the day that were read before the Society, and subsequently published. Volume I, covering fourteen papers read during 1863 and 1864, addressed what were considered the more primitive societies and races. Titles included: “On the Negro’s Place in Nature;” “On the Weight of the Brain in the Negro;” “Some Account of the Astronomy of the Red Man of the New World;” and “The Neanderthal

³⁸⁵ Adovasio, *The First Americans*, 23.

Skull: its Peculiar Conformation Explained Anatomically.”³⁸⁶ In a paper read on May 12, 1863, entitled “Observations on the Past and Present Populations of the New World,” William Bollaert (1807–1876) presented his analysis of the pre-1492 New World population and the subsequent adverse impact—through disease, war, and integration—that the European arrival had had on the total population.³⁸⁷ Yet, in what was, even by modern standards, a cogent demographic analysis, Bollaert embedded polygenism. Although he first acknowledged “the red or copper-coloured men of the New World to be of one species of the genus *Homo*,” he caveated it with the conviction that they were “of a different physiological condition when compared with the other species of mankind.” He believed that “if we lean to the polygenistic view, or that of separate creations, it will, I think, render our study of Anthropology and Ethnology less complex.”³⁸⁸ As evidenced by what Bollaert believed to be legitimized science, cultures have a heritage that is embraced by scientists and embedded, unconsciously or otherwise, in the very science that they are conducting. However, when a heritage is historicized—that is placed in a retrospective context according to a different set of social values that are external to the regime itself—it may well be redesignated as myth rather than science, as has been the case with polygenism and other race-related aspects of the social sciences.

Vine Deloria, Jr. related a personal experience associated with court cases subsequent to the 1973 confrontation between US government law enforcement agencies and American Indian political activists at the Pine Ridge Reservation in South

³⁸⁶ Anthropological Society of London. *Memoirs Read Before the Anthropological Society of London, 1863-1864. Vol. 1.* London: Trübner and Co, 1865.

³⁸⁷ *Ibid.*, 72-119.

³⁸⁸ *Ibid.*, 72.

Dakota. According to Deloria an observer of the court proceedings which had discussed the Bering Strait theory commented to him "well, dearie, we are all immigrants from somewhere." Deloria recalled thinking that "yes, indeed, but it makes one helluva difference whether we came 100,000 years ago or just out of boat steerage a generation back."³⁸⁹ There may be an intuitive empathy with Deloria's point, but it is clear that he and his "observer" are talking past each other's value systems; they are situated in different heritages. The heritage embedded in First American science can easily conclude that: (1) no one, including any possible ancestors to modern American Indians, was here 100,000 years ago, and it is not even clear that anyone was here only 15,000 years ago; (2) modern American Indians may well not be descended from the First Americans, so no one here today is a true First American immigrant of some sort; and (3) no "helluva difference" actually exists in the New World when compared with the massive volume of Old World human migrations and conquests over tens of thousands of years. Counterpoised against this is Deloria's American Indian heritage that posits a continuous occupation for the New World since the beginning of time.

Science studies has provided an extensive set of literature describing the confrontations between science and what has been termed lay expertise.³⁹⁰ Although the terms employed are different, echoes of the same issues resound throughout the search for the First Americans. In a 1967 article entitled "Scientific Colonialism," Johan Galtung characterized the anthropological equivalent of lay expertise as that of

³⁸⁹ Vine Deloria, Jr. *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*. (NY: Scribner, 1995), 83-84.

³⁹⁰ For example, see: Steven Epstein, "The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials," *Science, Technology, & Human Values*, October 1995 vol. 20 no. 4, 408-437; Harry Collins and Trevor Pinch, "The Science of the lamb: Chernobyl and the Cumbrian sheepfarmers," in *The Golem at Large: What you Should Know about Technology* (Cambridge: Cambridge University Press, 1998) 113-125.

practicing a science as if the gravitational center of knowledge about a culture is situated someplace outside of that culture itself.³⁹¹ In the U.S., legislation such as NAGPRA has provided a political intervention that has forced a shift in that epistemological center of gravity.³⁹²

Contentious issues of First American heritage and identity are not confined to the nexus between scientists and American Indians. Conflicts have also arisen between countries amidst accusations of nationalism, colonialism, and imperialism. As archaeologist Randall McGuire has commented, “One problem that nationalist movements encounter in creating national histories and heritages is that the past is already taken...One group’s defeat is another’s victory.”³⁹³ As a science, American archaeology has been accused of being naïve in not acknowledging its historic relationship with the politics of colonialism and imperialism,³⁹⁴ and of using the “past to legitimate the present...including depictions of the past in museums.”³⁹⁵ Nations tend to accept archaeological interpretations that support “how the people of the nation acquired their rightful territory or how they defended it from usurpers.”³⁹⁶ The extreme example of the use of archaeology to further nationalist goals was the “German archaeologists [who] spread across Eastern Europe looking for Germanic sites that would demonstrate Aryan racial superiority and justify the expansion of the Third Reich

³⁹¹ Johan Galtung, “Scientific Colonialism,” *Transition* no. 30 (1967): 10-15.

³⁹² Larry J. Zimmerman, “Multivocality, Descendant Communities, and Some Epistemological Shifts Force by Repatriation,” in *Opening Archaeology*, ed. Killion, 91.

³⁹³ McGuire, *Archaeology as Political Action*, 24.

³⁹⁴ Bray, “Repatriation and Archaeology’s Second Loss of Innocence,” in *Opening Archaeology*, ed. Killion, 81.

³⁹⁵ Praveena Gullapalli, “Who Owns Antiquity,” review of *Who Owns Antiquity? Museums and the Battle over Our Ancient Heritage*, by James Cuno, *Expedition* 51, no. 2 (2009): 48.

³⁹⁶ McGuire, *Archaeology as Political Action*, 23.

to include all of ‘ancient Germany.’”³⁹⁷ In the United States, First American science, particularly archaeology, has been “seen as a critical part of America’s national identity, as it documented the country’s progression from ‘savagery’ to the most ‘civilized’ place on earth. In 1906 this heritage was formally entrusted to science” when Congress passed the Antiquities Act.³⁹⁸

The once-longstanding Clovis model held that Clovis Man—employing the then-advanced technology of a fluted stone spear tip—entered the New World through Beringia and in a matter of only 1,000 years swept all the way to the tip of South America. In support of this theory, articles have been published in American academic journals that have concluded that based upon “the culmination of morphological changes...a strong historical connection between North American Clovis points and South American ‘Fishtail’ points can be supported.”³⁹⁹ The authors, however, reached this conclusion even though the same article found that “South American forms would seem to have little in common with North American fluted points,” that “all of these chronological data is far from clear-cut,” and that the data “do not refute the idea that fluted point technology developed in the interior of western North America and...spread...eventually to the south into Central and South America.” The reader is left with the clear impression that the Clovis model was so powerful in the authors’ minds that the absence of data refuting it was tantamount to a confirmation of the theory, and that the absence of similarity in the spear points resulted from

³⁹⁷ Ibid., 18.

³⁹⁸ David Hurst Thomas “American Archaeology in the Twenty-First Century” in *Opening Archaeology*, ed. Killion, 58.

³⁹⁹ Juliet E. Morrow and Toby A. Morrow, “Geographic Variation in Fluted Projectile Points: A Hemispheric Perspective,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, edited by Bruce B Huckell and J David Kilby, 147.

morphological changes that would surely have confirmed the Clovis-Fishtail connection if only there had been any data. Others, such as David Meltzer, have concluded that Clovis artifacts have “never been found” in South America.⁴⁰⁰

For the five-hundred-year history of what is today the United States, David Hurst Thomas concluded that three distinct national narratives have developed. First is the prominent glorification of America as a melting pot assimilating diverse cultures. Second is the American view that as a part of scholarly examination all subjects, including both American Indians and any artifacts potentially associated with First Americans, should be available for scientific inquiry. Finally, Americans believe that there is a perspective maintained in the oral traditions of the indigenous American population that is worth preserving. The proponents of each narrative are, of course, convinced that the American heritage that they espouse is the legitimate version “that should be published in textbooks, protected by law, and defended in the courtroom.”⁴⁰¹

The practical application of American Indian heritage preservation has translated into what is now called Cultural Resource Management, or CRM. According to Randall McGuire, heritage has been translated into a nostalgia for the past (which may or may not have actually existed) which is packaged and sold as a commodity.⁴⁰² Heritage is to be preserved, culture is to be managed, and both are to be marketed for financial and political advantage. With the rapid increase in funding available for CRM, much of First American science has been transformed from a “relatively limited, primarily research-oriented activity done by universities and museums to a multimillion-dollar,

⁴⁰⁰ David J. Meltzer, “Why Don’t We Know When the First People Came to North America,” in *Readings in Late Pleistocene North America and Early Paleoindians: Selections from American Antiquity*, ed. Bruce B. Huckell and J. David Kilby, (Society for American Archaeology, 2004), 26.

⁴⁰¹ Thomas, “American Archaeology in the Twenty-First Century” in *Opening Archaeology*, ed. Killion, 74.

⁴⁰² McGuire, *Archaeology as Political Action*, 29.

preservation-oriented business.”⁴⁰³ Replacing universities and museums are for-profit companies that are awarded contracts in which “the results of archaeological research are commodified as a ‘deliverable’ produced” at a competitive price.⁴⁰⁴ Darby C. Stapp—an anthropologist who has not only written extensively on CRM, but has also been professionally employed on CRM contracts through the Battelle Memorial Institute—believed that “the result is that cultural resource professionals are now less responsive to the discipline of American archaeology and more responsive to the protection and management requirements of CRM and the interests of their employers, whether tribes or agencies.”⁴⁰⁵ According to David Killick, an anthropologist at the University of Arizona, and Paul Goldberg, an archaeologist at Boston University, there are “many more” archaeologists employed through CRM contracts than by universities and museums; moreover, “Most CRM reports do not undergo rigorous peer review.”⁴⁰⁶ Compliance archaeology, which provides the major portion of the funding which flows through CRM, results from requirements dictated by federal legislation such as NAGPRA. Joe Watkins—a self-identified Choctaw who is Director of the Native American Studies Program at the University of Oklahoma—has concluded that academic archaeology “is in nearly direct conflict” with the business and government based archaeology of CRM.⁴⁰⁷

⁴⁰³ Larry J. Zimmerman “Multivocality, Descendant Communities, and Some Epistemological Shifts Force by Repatriation” in *Opening Archaeology*, ed. Killion, 94.

⁴⁰⁴ McGuire, *Archaeology as Political Action*, 123.

⁴⁰⁵ Darby C. Stapp, “The Impact of NAGPRA on Anthropology: A View from Cultural Resource Management in the Pacific Northwest,” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, ed. Thomas W. Killion (Santa Fe: School for Advanced Research Press, 2008), 212.

⁴⁰⁶ David Killick and Paul Goldberg, “A Quiet Crisis in American Archaeology,” *SAA Archaeological Record* 9, no. 1, (January 2009): 8.

⁴⁰⁷ Joe Watkins. “The Repatriation Arena: Control, Conflict, and Compromise” in *Opening Archaeology*, ed. Killion, 162.

The internecine struggle in the United States to control an important element of its existential myth—the cultural heritage associated with the First Americans—is largely absent in the rest of the world. Academic archaeology is better financed in the rest of the developed world than it is in the United States. Elsewhere, it is "perceived—rightly or wrongly—to be archaeology of the indigenous inhabitants, rather than the archaeology of the ‘other,’ as is the case in North America.”⁴⁰⁸

⁴⁰⁸ Geoffrey A. Clark, "Should One Size Fit All? Some Observations on Killich and the Goldberg," *SAA Archaeological Record* 10, no. 1 (January 2010): 39.

Chapter 12: Native American Graves Protection and Repatriation Act

Beginning in Enlightenment Europe and continuing even into the challenges of post-modernism, Western governments have perceived science as providing a superior guide to the physical world. Moreover, it has frequently been a metric against which other domains, including religion, have been measured. As Jace Weaver, a professor of religion as well as law and also Director of the Institute of Native American Studies at the University of Georgia, observed, “one can sympathize with Vine Deloria Jr.’s plea: ‘science should drop the pretense of absolute authority with regard to human origins and begin looking for some other kind of explanation that would include the traditions and memories of non-Western peoples.’”⁴⁰⁹ Larry Zimmerman, anthropologist at the University of Iowa, echoed Deloria when he stated the need for “a different kind of science between the boundaries of Western ways of knowing and Indian ways of knowing.”⁴¹⁰ As early as 1898, Jeremiah Curtin captured what has become the essential tension between the beliefs inherent in American Indian myths versus the scientific search for material solutions: “Of course there is no true information in the American ethnic religion as to the real changes which affected the world around us; but there is in it, as in all systems like it, true information regarding the history of the human mind. Every ethnic religion gives us documentary evidence.”⁴¹¹ For Curtin as well as for many later First American scientists, American Indian myths have only a little to say about the physical world around us.

⁴⁰⁹ Vine Deloria Jr., *Red Earth, White Lies*, 68-69; cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 24.

⁴¹⁰ George Johnson, “Indian Tribes’ Creationists Thwart Archeologists,” *New York Times*, Oct. 22, 1996, C13; cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 19.

⁴¹¹ Jeremiah Curtin. *Creation Myths*, xxxi.

As Figure 41 from an exhibit at the Smithsonian Institution National Museum of the American Indian (NMAI) pointed out, possibly as much as ninety percent of the indigenous North American population was eradicated beginning with the fifteenth century arrival of Europeans. What is not clear, however, is the extent to which any ancestors of the surviving ten percent were among those who were the First Americans. Moreover, as Figure 41 indicates, Paul Chaat Smith, an Associate Curator at the NMAI and a self-identified Comanche, believed that the surviving ten percent were “responsible for remembering everything, especially those things we never knew.”⁴¹² This gets to the heart of the contest between science and American Indians in the search for the First Americans. For First American scientists, it is conceivable that modern American Indians are descended from later migrations to the New World and may not be descended from the First Americans; early Americans yes, *earliest* Americans, possibly no. Conversely, for American Indians, some believe that they are not only responsible for remembering everything, but also for ensuring that those memories remain intact; because their traditions, their myths, provide them an existential memory of continuity, they are confident they are descended from the First Americans.

⁴¹² Taken by Robert V. Davis on July 29, 2010 at the Museum of the American Indian, Smithsonian Institution.

ALL MY RELATIONS

Entire nations perished in the wave of death that swept the Americas. Even their names are lost to us. We cannot tell you where they lived, what they believed, or what they dreamed. Their experiences are buried and unknowable. Like much of Indian history, only fragments are left to us.

This wall names many of the languages spoken by our relatives who are still here, as well as those ancestors who vanished without a trace. The list can never be whole. It will always be incomplete.

Nine of ten Native people perished in the first century of contact between the hemispheres. One in ten survived. They didn't fear change; they embraced it.

Their past lives on in our present. As descendants of the one in ten who survived, we in the 21st century share an inheritance of grief, loss, hope, and immense riches. The achievements of our ancestors make us accountable for how we move in the world today. Their lessons instruct us and make us responsible for remembering everything, especially those things we never knew.

PAUL CHAAT SMITH, NMAL, 2003

*Figure 41. Paul Chaat Smith exhibit plaque-Smithsonian Institution. Museum of the American Indian, Smithsonian Institution, July 29, 2010.*⁴¹³

Given the culturally sensitive nature of the potential answers associated with the search for the First Americans, both the questions asked and the methods used have become inextricably painted with some measure of sensitivity as well. Consequently, the American political process has been used as a lever to challenge the primacy of science.

⁴¹³ Taken by Robert V. Davis on July 29, 2010 at the Museum of the American Indian, Smithsonian Institution.

With regard to the evidentiary status of certain artifactual remains, the Congress, demonstrating that knowledge and power are co-productions, has declared that American Indian folklore and oral traditions are to be accorded equal status with science for the disposition of ancient human remains. In *Leviathan and the Air Pump*, as a part of the philosophical struggle between Robert Boyle and Thomas Hobbes, Steven Shapin and Simon Schaffer characterized the correlation between approaches to nature and approaches to social order. As Jan Golinski concluded, *Leviathan* “began with disputes over ‘technical’ facts and argued outward to the broader issues that were revealed to be at stake, rather than arguing from the social context inward to technical content.”⁴¹⁴ However, in the contest in the search for the First Americans, the flow is inward, from the social to the technical, from the right to define the existential down to the ability to perform genetic analysis.

In a reversal of the traditional perception of science defining truth for political leaders, Congress has used power to referee who gets to assert truth. On November 16, 1990, the Native American Graves Protection and Repatriation Act (Public Law 101-601; 25 U.S.C. 3001 et seq.), commonly referred to by its acronym of NAGPRA, was signed into law and mandated a kind of epistemological leveling with regard to certain ancient human remains located in the United States. The stated purpose of NAGPRA as explained in the House of Representatives report which accompanied the legislation is to:

protect Native American burial sites and the removal of human remains, funerary objects, sacred objects of cultural patrimony on Federal, Indian and Native Hawaiian lands. The Act also sets up a process by which Federal agencies and

⁴¹⁴ Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Chicago: The University of Chicago Press, 2005), 21.

museums receiving federal funds will inventory holdings of such remains and objects and work with appropriate Indian Tribes and Native Hawaiian organizations to reach agreement on repatriation or other disposition of these remains and objects.⁴¹⁵

Science is no longer to be accorded a position superior to that of folklore and oral tradition in determining the disposition of certain artifacts. “An implicit consequence of repatriation legislation is the negation of Americanist archaeology’s claims to exclusive control over the interpretation of the past. The alternative epistemologies and systems of knowledge authorized by the legislation challenge the privileged position of traditional academic knowledge.”⁴¹⁶ In a statement that would surely be endorsed by American Indian organizations, Paul Feyerabend contended that “knowledge is obtained from a multiplicity of views...[and] that proliferation may have to be enforced by non-scientific agencies whose power is sufficient to overcome the most powerful scientific institutions.”⁴¹⁷ Congress, certainly at once a powerful and non-scientific agency, has dictated just such a multiplicity of views in this instance.

In determining the cultural affiliation of human remains and funerary objects found on federal property or located in an institution supported with federal funding, U.S. federal law now holds that a determination of culture affiliation shall rest upon “a preponderance of the evidence based upon geographical, kinship, biological, archaeological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion.”⁴¹⁸ Frequently, identification of the latter category,

⁴¹⁵ “Providing for the Protection of Native American Graves, and for other purposes,” *House Report 101-877*, to accompany H.R. 5237, U. S. House of Representatives, October 15, 1990, 8.

⁴¹⁶ Tamara L. Bray. (2008) “Repatriation and Archaeology’s Second Loss of Innocence: On Knowledge, Power, and the Past,” Chapter 4 in Thomas W. Killion (ed.), *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice* (Santa Fe: School for Advanced Research Press, 2008), 79.

⁴¹⁷ Paul Feyerabend. *Against Method* (London: Verso, 2010), 32.

⁴¹⁸ U.S.C. 3005 a (4), the Native American Graves Protection and Repatriation Act, as amended

expert opinion, is more difficult than might be imagined. Richard P. Feynman once commented that “science is the belief in the ignorance of experts.”⁴¹⁹ Although Congress has not declared scientists to be ignorant, it has declared in law that expertise can, and does, exist outside of science.

This legal edict of epistemological equality in the search for the First Americans may have succeeded only in shifting the venue of the theoretical arguments from archaeological sites and genetic laboratories to litigious America’s courtrooms— as was evident with the remains of the Kennewick Man which is discussed in Chapter 13. The American political process has legislatively mandated an equality between folklore and oral tradition, on the one hand, and biology, archaeology and linguistics, on the other, with regard to certain Native American human remains and funerary objects. Science must be able to take on all opponents in its search to characterize nature. However, the political leveling is not even-handed in endorsing non-scientifically based ontologies. The treatment NAGPRA grants American Indian traditions contradicts the position taken by U.S. courts in consistently according science a privileged position vis-à-vis Christianity—which could easily be equated with folkloric and traditional beliefs—with regard to evolution and other matters. Clearly, American Indian traditions have been endowed with a privileged legal status vis-à-vis science when compared with other religions and cultural traditions.

When NAGPRA was signed into law in 1990, *Archaeology* noted that 623 U.S. federally-funded museums and research institutions had 157,000 bodies and millions of funerary objects that were believed to be associated with indigenous American Indian

⁴¹⁹ Richard Feynman interview in 1981, in Jeffery Robbins, ed. *The Pleasure of Finding Things Out : The Best Short Works of Richard Feynman* (NY: Basic Books, 1999), 186-197.

and Native Hawaiian cultures.⁴²⁰ Jace Weaver in *Wicazo Sa Review*, citing the work of Walter and Roger Echo-Hawk, estimated that “museums, federal agencies, other institutions, and private collectors retain[ed] between 300,000 and 2.5 million dead bodies taken from Indian graves, battlefields, and POW camps by soldiers, museum collectors, scientists, and pothunters.”⁴²¹ Determining the precise numbers is less important than recognizing that they are large, and that after 20 years, “only a quarter of all the human remains have been culturally affiliated or repatriated.”⁴²²

The symbolic value of Congressional action was extremely important both to scientists and to American Indians. According to Wayne State University anthropologist Thomas W. Killion, NAGPRA is an important social and political milestone for American Indians. It involves “issues of cultural survival, community revitalization, knowledge and language preservation, protection of sacred sites, and political sovereignty.”⁴²³ It plays “a powerful and pervasive role in the development of the discipline”⁴²⁴ of American archaeology. Advances in First American science are “unrelated to the ‘science as usual’ routine thought to prevail in archaeology... Rather, this potential for an intellectual change of perspectives is externally driven.”⁴²⁵

⁴²⁰ “Who Owns the Dead? A controversial amendment to the federal repatriation law complicates the relationship between Naïve Americans and archaeologists,” in *Archaeology*, Archaeological Institute of America, January/February 2011, Vol. 64, No. 1, Long Island City, NY, 16

⁴²¹ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 14.

⁴²² “Who Owns the Dead? A controversial amendment to the federal repatriation law complicates the relationship between Naïve Americans and archaeologists,” in *Archaeology*, Archaeological Institute of America, January/February 2011, Vol. 64, No. 1, Long Island City, NY, 58.

⁴²³ Thomas Killion “Opening Archaeology,” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, Thomas W. Killion, ed. (Santa Fe: School for Advanced Research Press, 2008), 4.

⁴²⁴ *Ibid.*, 5.

⁴²⁵ *Ibid.*, 10.

Although NAGPRA is the current legal centerpiece for regulating the relationships across First American scientists, Indian organizations, federal agencies, and museums, it has not been the only such effort by Congress to legislate the procedures of First American science. The Antiquities Act (AA) of 1906 (Public Law. 59-209; 16 United States Code 431-433) in four short sections makes no mention of American Indians. Moreover, it grants power to federal executive agencies to ensure that the "examinations, excavations, and gatherings [of antiquities] are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums."⁴²⁶ In 1906, First American science was officially assured of epistemological primacy by Congress.

Another significant congressional action was the Archaeological Resources Protection Act (ARPA) of 1979 (Public Law 96-95; 16 United States code 470aa-mm), which even today mandates a requirement to obtain a permit prior to archaeological excavation on federally controlled lands. While still providing science a privileged position, it is clear that by 1979 the evolution to what became NAGPRA was already underway. The emphasis in ARPA by Congress was less about the role of science than it was a reflection of the dominant American culture's interest in the search for the First Americans. For example, Section 2(a)(1) of the law stated that "archaeological resources on public lands and Indian lands are an accessible and irreplaceable part of the Nation's heritage." Later in Section 2(b), the act stated its purpose as being "to secure, for the

⁴²⁶ Text of the antiquities act of 1906. [Http://www.nps.gov/history/local-law/anti1906.htm](http://www.nps.gov/history/local-law/anti1906.htm), accessed April 26, 2011.

present and future benefit of the American people." However, the role of First American science was protected in Section 4(b)3 through a legal mandate that "the archaeological resources which are excavated or removed from public lands will remain the property of the United States, and such resources and copies of associated archaeological records and data will be preserved by a suitable university, museum, or other scientific or educational institution."⁴²⁷ There is no mention of repatriation of the human remains to American Indian tribes, nor even an acknowledged responsibility incumbent upon First American scientists to consider the traditions of modern American Indians.

Despite the clarity of Congress's intent in enacting NAGPRA, the power relationships between First American scientists and American Indian tribes is far from stabilized. Twice amended by the Congress and further interpreted by regulations issued by the Secretary of the Interior, there are continuing efforts from all sides to modify NAGPRA. In support of American Indians, S. 2843 was introduced in 2004 by U.S. Senator Ben Nighthorse Campbell of Colorado; it would have altered the definition of Native American cultural affiliation by modifying "is indigenous to the United States" to make it "is *or was* indigenous to the United States" in the existing NAGPRA law to permit modern American Indians to associate themselves more easily with the remains of ancient indigenous people.⁴²⁸ Campbell's effort to modify NAGPRA was a direct result of the decision in the Kennewick court case which favored the scientists position over that of the American Indian tribes. In a 2007 example in support of scientists, Washington Congressman Doc Hastings introduced H.R. 4027 which would require that

⁴²⁷ The text of the Archaeological Resources Protection Act of 1979. http://www.nps.gov/history/local-law/fhpl_archsresprot.pdf, accessed April 26, 2011.

⁴²⁸ The text of S. 2843. <http://www.gpo.gov/fdsys/pkg/BILLS-108s2843is/pdf/BILLS-108s2843is.pdf>, accessed April 26, 2011.

human remains found on federal lands must be demonstrated to have a *significant* relationship with existing tribes before they can be repatriated.⁴²⁹ Similar efforts to amend the scope of NAGPRA continue through the legislative and regulatory processes.

Under the authority granted to the Secretary of the Interior in the NAGPRA legislation, in 2010 the Department of the Interior modified the extant rules to address the status of the remaining 115,000 culturally unidentifiable human remains. Before requiring repatriation, the original law required that a *cultural* affiliation be established between a modern American Indian tribe and the human remains. Now, the new regulation requires the establishment of only a *geographical* connection—a tribal claim to an historic territorial habitation—as sufficient to establish a claim to repatriation without requiring the demonstration of cultural affiliation as indicated in the original NAGPRA law.⁴³⁰ Citing critical letters to the Secretary of the Interior from the National Academy of Sciences, the Society for American Archaeology, and the American Association of Museums, *Archaeology* casts the change as another step in the erosion of scientific authority.⁴³¹

Given the history of desecration of American Indian graves, it is difficult to challenge the moral basis of NAGPRA. In 1979, the Department of the Interior concluded that “the prevalent view in the society of applicable disciplines is that Native American human remains are public property and artifacts for study, display, and cultural investment. It is understandable that this view is in conflict with and repugnant to those Native people whose ancestors and near relatives are considered the property at

⁴²⁹ The text of H. R. 4027. http://rla.unc.edu/saa/repatriation/Legislative/hr4027_text.pdf, accessed April 26, 2011.

⁴³⁰ *Archaeology*, “Who Owns the Dead,” 58.

⁴³¹ *Ibid.*, 58.

issue.”⁴³² The legislative history documents unsavory instances such as when the Surgeon General in 1868 ordered all Army field officers to send to him American Indian skeletons for study so that he could determine whether the American Indian was inferior to the white man based upon the size of the cranium.⁴³³

In a July 17, 1990 hearing before the House Committee on Interior and Insular Affairs, those representing American Indian interests testified that the scientific community quickly analyzed and reburied non-Indian remains while Indian remains were frequently sent to museums. Scientists countered with the importance of using human remains for scientific study and that wholesale reburial of Indian remains would preclude further scientific investigation as scientific techniques are improved. Finally, “witnesses representing private art dealers testified that Native Americans should not be the sole conservators of their cultural items because all Americans have a right to their history.”⁴³⁴ In the case of the art dealers, “ownership” of the past is evidently to be taken literally.

The degree to which science is embedded in the modern American *episteme* becomes clear in these debates over human remains. American Indian activists have concluded that “First Amendment religious freedoms are clearly controlled from the pulpit of science when museums elevate scientific curiosity over Indian religious belief in the treatment of the dead.”⁴³⁵ Interestingly, those who are resisting the reach of

⁴³² U.S. Department of the Interior, Federal Agencies Task Force Report, American Indian Religious Freedom Act Report (Washington, D. C., U.S. Government Printing Office, 1979), 64; cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 15.

⁴³³ “Providing for the Protection of Native American Graves, and for other purposes,” *House Report* 101-877, to accompany H.R. 5237, U. S. House of Representatives, October 15, 1990, 9.

⁴³⁴ *Ibid.*, 13.

⁴³⁵ Walter and Roger Echo-Hawk cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 17.

scientists appear also to espouse the notion that there is a single science that has a rationally coordinated agenda.

The conflict between First American scientists and American Indian organizations over human remains reached a contentious zenith with the Kennewick Man, which is addressed in Chapter 13. However, there have been many other disputes. One conflict centered on a lock of human hair, involving on one side the Confederated Salish-Kootenai and the Shoshone-Bannock tribes, and on the other side archaeologist Robson Bonnicksen, a key participant in the Kennewick affair and the founder of the Center for First Americans located initially at Oregon State University and currently at Texas A & M University. Bonnicksen discovered human hair at a 10,000 year-old archaeological site in Montana and planned to subject it to DNA analysis. The two Indian organizations petitioned the federal Bureau of Land Management, which controlled the location, to bar Bonnicksen from the site, to prohibit the tests, and to require the repatriation of the hair to the tribes. According to the Smithsonian Institution's Douglas Owsley, "the application of NAGPRA legislation has gone beyond its original purpose, which was primarily concerned with affiliated remains of more recent context."⁴³⁶ After two years, Bonnicksen prevailed and NAGPRA regulations were amended to exclude naturally shed human hairs from the repatriation provisions of NAGPRA.⁴³⁷

There appears to be little consensus over the degree to which NAGPRA actually impedes scientific study. For example, Francis P. McManamon, once the Chief

⁴³⁶Douglas W. Owsley. "From Jamestown to Kennewick: An Analogy Based o Early Americans," in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, Oregon State University, Robson Bonnicksen, ed. (Corvallis, Oregon: Center for the Study of the First Americans, 1999), 138.

⁴³⁷Jace Weaver, "Indian Presence with No Indians Present: NAGPRA and Its Discontents," *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 17.

Archeologist of the National Park Service, believed that there is no adverse impact. “Although it does constrain some kinds of scientific research, NAGPRA does not prohibit research on Native American human remains, funerary objects, or other cultural items covered by the law. In fact, effective implementation of the law requires some kinds of research. For example, in order to determine the appropriate cultural affiliation of certain Native American human remains, scientific investigation, analysis, and interpretation of certain kinds of data are required.”⁴³⁸ However, Keith W. Kintigh, Professor of Anthropology at Arizona State University, countered that governmental agencies frequently succumb to political pressure from American Indian organizations. It is Kintigh’s contention that despite the requirement in NAGPRA for science to be given equal consideration with American Indian oral traditions, that government agencies “often accede to tribal demands that no drawings or photographs of burials be made, and they fail to require even the most basic identifications and assessments relevant to cultural affiliation.” The result, according to Kintigh, is that the human remains and artifacts are quickly reburied without documented cultural affiliation and without scientific examination, especially in cases where the most vocal and most “stridently antiscientific” American Indian tribes are involved.⁴³⁹ This contention would seem to be borne out based upon Judge John Jelderks finding in the Kennewick Man case (*Bonnichsen et al. v. United States et al.*) where he concluded that the U. S. Army Corps of Engineers repeatedly and secretly gave American Indian tribal officials access

⁴³⁸ Francis P. McManamon [at the time the Chief Archeologist of the National Park Service]. “The Native American Graves Protection and Repatriation Act and First Americans Research,” in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, Oregon State University, Robson Bonnichsen, Editor. (Corvallis, Oregon: Center for the Study of the First Americans, 1999), 144.

⁴³⁹ Keith W. Kintigh. “Repatriation as a Force of Change in Southwestern Archaeology” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, Thomas W. Killion, ed. (Santa Fe: School for Advanced Research Press, 2008), 203.

to preliminary information that was denied to the interested First American scientists,⁴⁴⁰ and that the government's behavior was consistently "marked by an appearance of bias."⁴⁴¹ Thomas W. Killion, professor of archaeology at Wayne State University, however, countered that those who believe that there is an "assault-on-science" that threatens scientific practice by favoring political considerations over the "disinterested evaluation of knowledge claims" are not recognizing "all knowledge claims, to a lesser or greater extent, are intimately bound up in considerations that are inherently 'political' and otherwise 'interested.'"⁴⁴² The debate is far from resolved even within the First American science community.

Neither First American scientists nor American Indian traditionalists have developed a monolithic position. Archaeologists frequently insist they have a privileged position in representing First American science in the search for the First Americans. Similarly, some American Indian tribes are concerned that NAGPRA must not adversely affect their preferential power relationships with the federal government vis-à-vis other tribes. According to Joe Watkins, Director of the Native American Studies Program at the University of Oklahoma and a Choctaw Indian, as a result of NAGPRA federally-recognized tribes "were afraid that a federal agency could grant an implied status of 'Indian tribe' to a non-federally recognized Indian tribe by 'recognizing' the tribe as eligible to participate in the repatriation process; they were afraid that the recognition of the tribe as *eligible for the special programs and services* of a federal agency might

⁴⁴⁰ *Bonnichsen v. United States of America*, United States District Court for the District of Oregon, Opinion and Order Civil No. 96-1481-JE, 23.

⁴⁴¹ *Ibid.*, 24.

⁴⁴² Thomas W. Killion, "Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice," Chapter 1 in *Opening Archaeology: Repatriation's Impact on Contemporary Research and Practice*, Thomas W. Killion, ed. (Santa Fe: School for Advanced Research Press, 2008),12.

allow the tribal group to apply its eligibility to other programs and become ‘federally recognized’ without undergoing the rigorous BIA⁴⁴³ recognition process.”⁴⁴⁴ In other words, federally *recognized* tribes wanted to exclude *non-recognized* tribes from enjoying the same position that they occupy—that is, being self-determinant in their tribalness. Oddly, these tribes were relying on an external—i.e., a science-centric approach by the federal government—rather than the internal myth-centric self-determination privilege that these same tribes demanded from scientists and the federal government in claiming their human remains.

That American Indian tribes are aware of the importance of the distinction made by the federal government is shown in Figure 42, taken from a Smithsonian National Museum of the American Indian exhibit by the Pamunkey Tribe of Virginia. As indicated, “unlike many other tribes, the Pamunkey have yet to be recognized as a sovereign nation by the United States.” Importantly, “tribal members differ on the value of this recognition.”⁴⁴⁵

⁴⁴³ Bureau of Indian Affairs, an agency within the Department of the Interior

⁴⁴⁴ Joe Watkins. (2008) “The Repatriation Arena: Control, Conflict, and Compromise,” in *Opening Archaeology: Repatriation’s Impact on Contemporary Research and Practice*, Thomas W. Killion, ed. (Santa Fe: School for Advanced Research Press, 2008), 164-165.

⁴⁴⁵ Taken by the author on July 29, 2010 at the Museum of the American Indian, Smithsonian Institution.

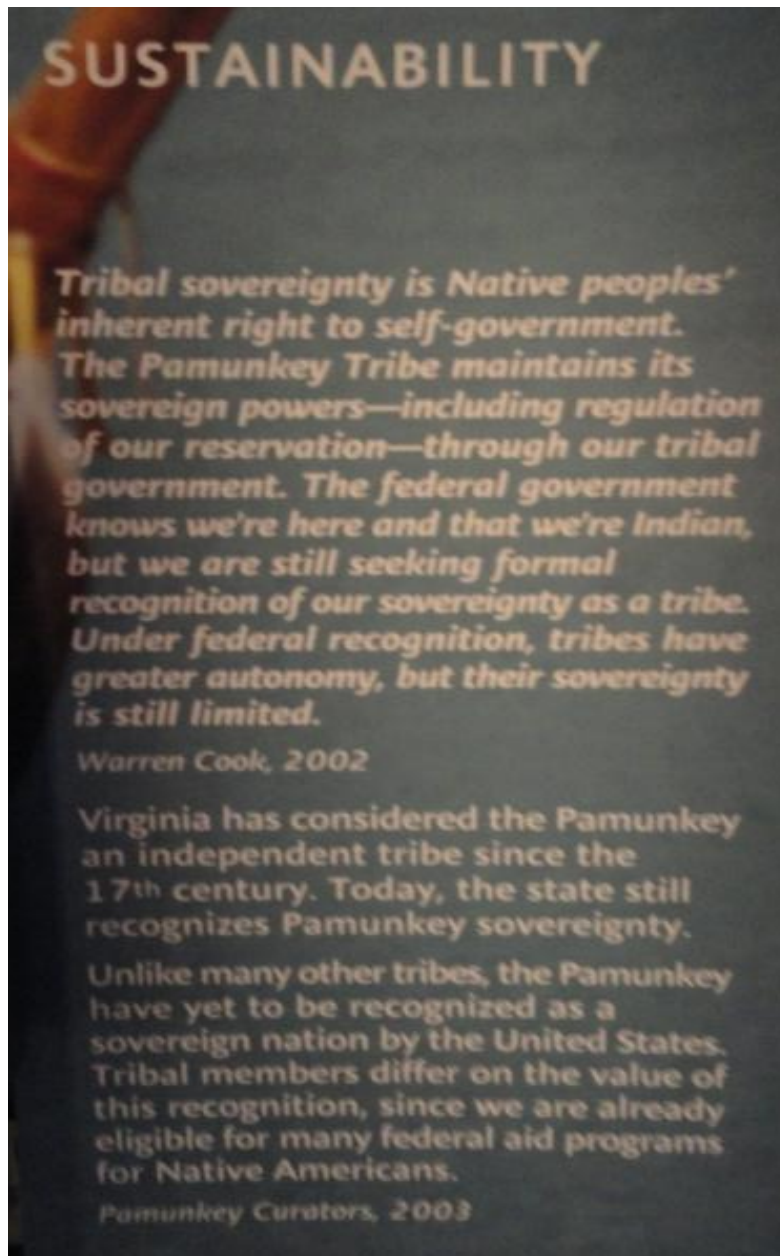


Figure 42. Pamunkey Tribe exhibit plaque-Smithsonian Institution. Exhibit by Pamunkey tribe curators at the Museum of the American Indian, Smithsonian Institution, July 29, 2010.⁴⁴⁶

Is NAGPRA a blatant political intervention in science? If the *New York Times* can be considered a reflection of the dominant ethos, a prism into Foucault's *episteme* of modern American culture, then the popular perception is indeed that NAGPRA has

⁴⁴⁶ Taken by the author on July 29, 2010 at the Museum of the American Indian, Smithsonian Institution.

permitted a political and detrimental intervention in the scientific process. On October 22, 1996 the *Times* titled an article on the Kennewick Man “Indian Tribes’ Creationists Thwart Archeologists.”⁴⁴⁷ Jace Weaver described the article as “heavily slanted in favor of the scientists, [and] likened Native Americans seeking return of ancestral remains pursuant to the provisions of NAGPRA to Christian fundamentalists.”⁴⁴⁸ According to a *Times* excerpt cited by Weaver:

Since the repatriation act was passed in 1990, American Indian creationism, which rejects the theory of evolution and other scientific explanations of human origins in favor of the Indians’ own religious beliefs, has been steadily gaining in political momentum. Adhering to their own creation accounts as adamantly as biblical creationists adhere to the book of Genesis, Indian tribes have stopped important archeological research on hundreds of prehistoric remains.⁴⁴⁹

Both science and religion command cultural allegiance from their adherents. In *Leonardo’s Mountain of Clams and the Diet of Worms*, Stephan Jay Gould (1941-2002), a Harvard biologist and historian of science, introduced the concept of Non-Overlapping Magisteria, NOMA for short, after a visit to the Vatican’s Academy of Science in Rome.⁴⁵⁰ As a part of NOMA, Gould contended that the jurisdictions of the religious and scientific domains do not overlap and that the frequent war-like metaphors used to describe the relationship between science and religion are not appropriate. As appealing as Gould’s supposition might be, it is not borne out by the intensity of the

⁴⁴⁷ George Johnson, “Indian Tribes’ Creationists Thwart Archeologists,” *New York Times*, October 22, 1996.

<http://query.nytimes.com/gst/fullpage.html?res=9C06EFD71730F931A15753C1A960958260&scp=1&sq=Indian+Tribes%E2%80%99+Creationists+Thwart+Archaeologists&st=cse&pagewanted=all>, accessed February 17, 2011.

⁴⁴⁸ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 19.

⁴⁴⁹ George Johnson, “Indian Tribes’ Creationists Thwart Archeologists,” *New York Times*, Oct. 22, 1996, A1; also cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 20.

⁴⁵⁰ Stephan Jay Gould. *Leonardo’s Mountain of Clams and the Diet of Worms*. (New York: Harmony House, 1998), 269-284.

charges and counter-charges in the First American debate. According to archaeologist Robson Bonnichsen, “this is a battle over who controls America’s past.”⁴⁵¹ In *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*, Vine Deloria, Jr. contended that the theory that the Americas were populated during the last ice age by migrations from Asia was “scientific folklore.”⁴⁵² The existential myths of many American Indian tribes asserts that they have been in their modern homeland since their creation. The fear—as Jace Weaver characterized it in the context of the 10,000-year-old Kennewick Man’s reported European cranial characteristics—is that “the Bering Strait theory, having been used to make Indians immigrants no different fundamentally from those who disembarked at Ellis Island, is now used to make them European as well, to make the populating of the hemisphere no different than Columbus’s (or the Vikings’) ‘discovery’ centuries later.”⁴⁵³

That politics is involved in the search for the First Americans, whether from the scientists or from the American Indians, is obvious. This intervention may be generated by a plainly evident political agenda, or may originate from values more subtly embedded in a group’s particular cultural ethos. Randall H. McGuire—Chair, Anthropology Department at Binghamton University, the State University of New York, and self-described Marxist—stated that First American scientists *can* “use their craft to evaluate interpretations of the real world,” but also *should* “construct meaningful histories for communities, to strive for real collaboration with communities and to

⁴⁵¹ Timothy Egan, “Tribe Stops Study of Bones that Challenge History,” *New York Times*, Sept., 30, 1996, A12; cited in Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 19.

⁴⁵² Vine Deloria, Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact*, (New York: Scribner, 1995).

⁴⁵³ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 19.

challenge both the legacies of colonialism and the omnipresent class struggles of the modern world." He alleges, however, that this can only happen if First American scientists "surrender significant control over our research agenda."⁴⁵⁴ If NAGPRA has not required that First American scientists cede control of the research agenda, it has surely mandated that this agenda is now subject to negotiation with communities external to their own. For American Indian tribes, NAGPRA is a mechanism for them to receive "culturally appropriate" consideration in their effort to ensure that their culture survives.⁴⁵⁵ For some First American scientists, NAGPRA would appear to have redefined their role to providing a life-support system for Indian cultures rather than conducting an indifferent science.

⁴⁵⁴ Randall H. McGuire, *Archaeology as Political Action* (Berkeley: University of California Press, 2008), xii.

⁴⁵⁵ Killion, "Opening Archaeology," 4.

Chapter 13. Case Studies: Kennewick Man and Tarim Basin

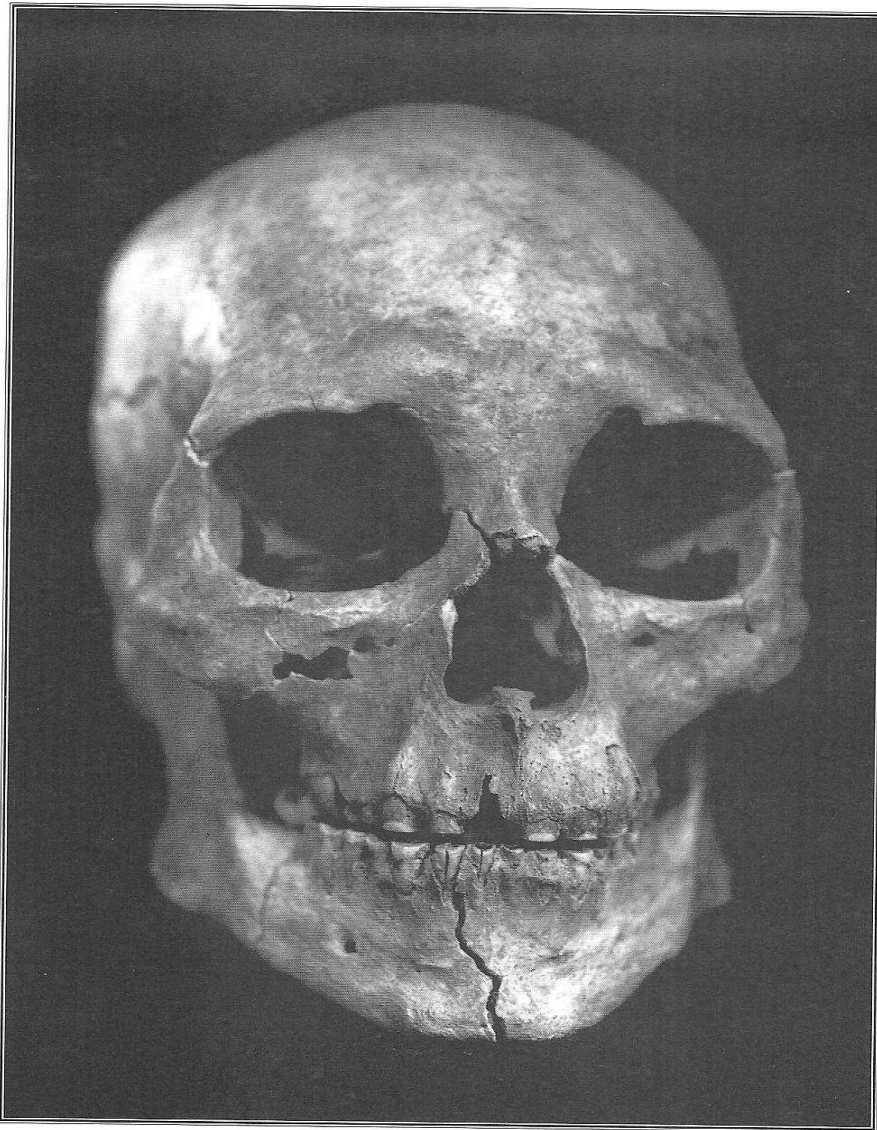
The expression of heritage, identity, race, nationalism and political power are all evident not only in the search for the First Americans, but also in the search for (or suppression of) evidence of earlier cultures in other countries. Chapter 13 first examines the controversial discovery in the United States of the remains of what has become known as the Kennewick Man, and then examines efforts by the Chinese government to suppress evidence of earlier non-Asian cultures in what is now modern China.

Kennewick Man

In July 1996, two college students attending hydroplane races on the Columbia River near Kennewick, Washington found a human skull. They called the police who contacted Floyd Johnson, the local coroner for Benton County. Johnson in turn called James Chatters, a Ph.D. archaeologist and paleo-ecologist, who served as a consulting deputy coroner when his expertise was required. Upon examining the skull, Chatters “was immediately struck by its long, narrow shape and the marked constriction of the forehead behind a well-developed brow ridge. The bridge of the nose was very high and prominent. My first thought was that this skull belonged to someone of European descent.” In addition to the shape of the skull, Chatters observed that “the nose had been huge,” and that the jaw displayed “deep depressions behind the ridges formed by prominent canine teeth. Called a canine fossa, this is an archaic characteristic common to many European skulls.” Based on these preliminary findings, Chatters believed that “this was a white person, a Caucasian.”⁴⁵⁶ The skull is shown in Figure 43. What prevented this from being a routine police investigation was that, based on the dietary

⁴⁵⁶ James C. Chatters. *Ancient Encounters: Kennewick Man and the First Americans*. (New York: Touchstone, 2001), 20.

wear patterns on the teeth, Chatters also concluded that the skull could potentially be five thousand years old.⁴⁵⁷ However, artifacts also recovered from the same site opened the much less interesting possibility that the remains were simply those of a several-hundred-year-old European pioneer.⁴⁵⁸



*Figure 43. Kennewick man skull.*⁴⁵⁹

⁴⁵⁷ *Ibid.*, 21.

⁴⁵⁸ *Ibid.*, 27.

⁴⁵⁹ *Ibid.*, 160, plate 3. (Fair Use determination attached.)

Over the next few weeks, the sequential headlines of the local *Tri-City Herald* captured not only the quickly evolving story, but also the American imagination: “Skull found on shore of Columbia,” July 29, 1996; “Skull likely early white settler,” July 30, 1996; and “Tri-City skeleton dated at 9,000 years old,” August 28, 1996.⁴⁶⁰ After examination, Chatters concluded that the remains were approximately 9,500 years old and “bore no resemblance to the aboriginal peoples of the Columbia River basin.”⁴⁶¹ Anatomically, Chatters described the Kennewick Man as being a male, approximately five feet, nine inches tall and having “a long, narrow skull with a narrow face and receding cheekbones” that was quite different from “the short, round skulls with broad, flat faces” that are characteristic of the modern America Indians of that geographic area.⁴⁶² The acrimony surrounding the human remains was evident in a 1997 article in the *Santa Fe New Mexican* by reporter Keith Easthouse, who asked “when Columbus came to the New World in 1492 and set in motion the chain of events that led to the decimation of Native Americans, was he unknowingly getting revenge for what was done to his ancestors thousands of years before?”⁴⁶³ The incendiary combination of the skull being characterized as white and ancient was to ignite a rancorous and continuous debate across First American scientists, American Indian tribes, government officials, and popular American culture.

Because the Columbia River bank, see Figure 44, where the skeletal remains had been found was under the control of the U. S. Army Corps of Engineers, the provisions

⁴⁶⁰“Kennewick Man Bibliography,” *Citizendium: The Citizens Compendium*.

http://en.citizendium.org/wiki/Kennewick_Man/Bibliography (accessed March 28, 2011)

⁴⁶¹ Chatters, *Ancient Encounters*, 53.

⁴⁶² *Ibid.*, 63.

⁴⁶³ David Hurst Thomas, *Skull Wars: Kennewick, Archaeology, and the Battle for Native American Identity* (New York: Basic Books, 2000), Prologue, xxi.

of the *Archaeological Resources Protection Act* of 1979 (ARPA) were triggered. According to ARPA, a permit was required for further searches for human and artifactual remains as well as for control of the existing remains for examination purposes. Chatters applied for—and on July 30, 1996 received—the necessary permit.⁴⁶⁴

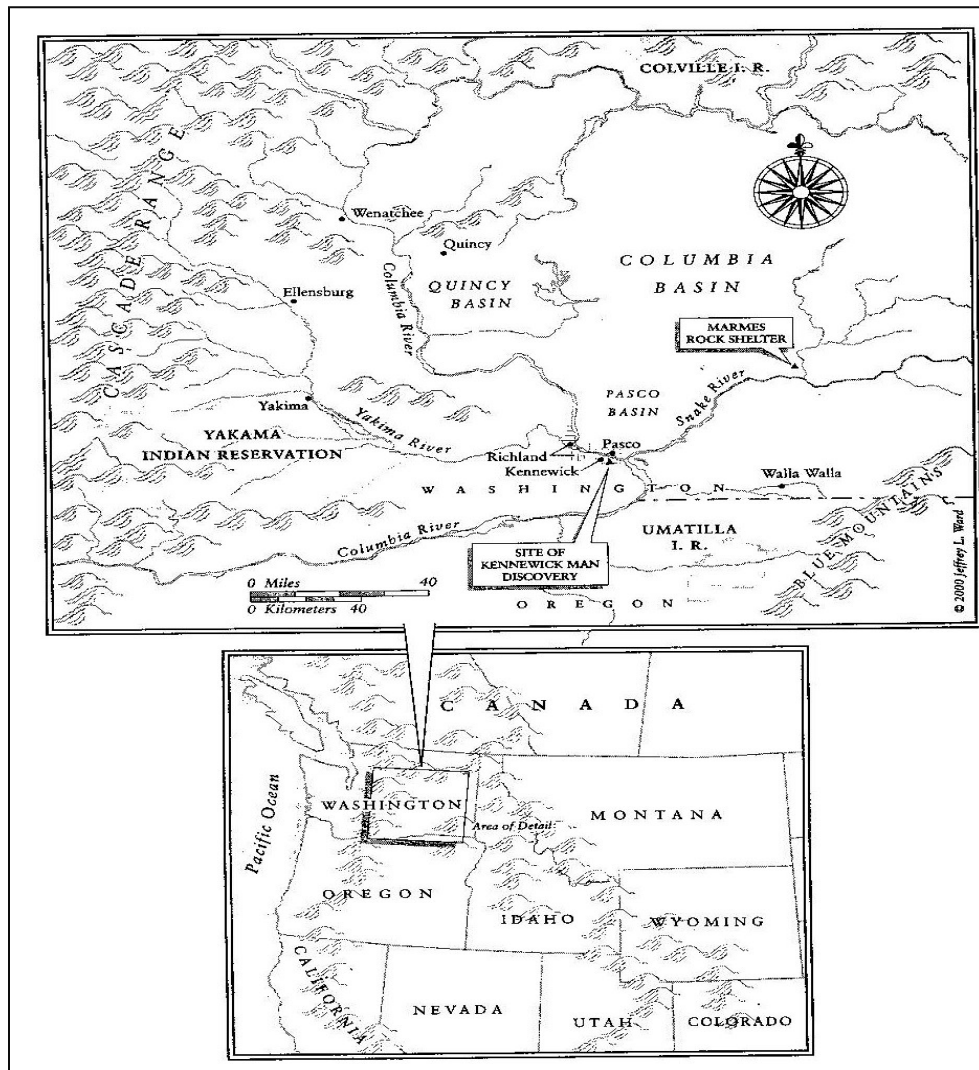


Figure 44. Map of location of Kennewick man skull discovery. Location of the Kennewick Man remains found on the banks of the Columbia River in Washington state.⁴⁶⁵

⁴⁶⁴ *Bonnichsen v. United States of America*, United States District Court for the District Of Oregon, Opinion And Order Civil No. 96-1481-JE, page 3, footnote 3.

<http://rla.unc.edu/saa/repat/Judicial/Jelderks.2002-08-30.pdf>, accessed April 28, 2011.

⁴⁶⁵ Chatters, *Ancient Encounters*, 22. (Fair Use determination attached.)

The physical evidence surrounding the discovery was unusually plentiful and the full suite of the capabilities of First American science could be applied. Only a few ancient human remains have been found in the Americas.⁴⁶⁶ As a result, most evidence addressing the First Americans is not from actual humans themselves, but rather is based on the environmental context within which ancient humans were active—that is, animal remains as well as the stone and bone tools believed associated with Paleoamericans. From the reasonably complete Kennewick Man skeleton, especially the skull and jawbone, it was possible not only to examine the cranial shape, the patterns of wear on the teeth, and the genetic composition, but also perform carbon-dating on the human tissue. Based upon the arrowhead embedded in the Kennewick Man’s hip, it was also possible to evaluate the cultural toolkit and look for associations with documented ancient as well as modern artifactual evidence. As an academically-trained and experienced First American scientist, Chatters pursued his examination by also recruiting recognized and independent experts for these areas.

To perform the radiocarbon dating, Chatters sent a metacarpal fragment from the left hand to Donna Kirner at the University of California, Riverside who dated the remains at 8,400 years, B.P. Supported by these results, Chatters estimated the age of the Kennewick Man to be approximately 9,500 chronological years old.⁴⁶⁷ Later studies conducted under the auspices of the National Park Service generally supported Chatters’ conclusions.⁴⁶⁸

⁴⁶⁶ When the Kennewick Man discovery was made, there had been only two substantive finds in the northwest of the Western Hemisphere, an 11,700 year old in Washington and a 12,800 year old from Idaho. Chatters, *Ancient Encounters*, 55.

⁴⁶⁷ Chatters, *Ancient Encounters*, 53.

⁴⁶⁸ A National Park Service website that provides a detailed listing and links to the many studies is located at <http://www.nps.gov/archeology/kennewick/index.htm>, accessed April 30, 2011.

With the antiquity of the Kennewick Man confirmed, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA), enacted in 1990 by the Congress, came to the fore. NAGPRA requires that geographical location, American Indian oral tradition, and science are to be considered equal factors in determining the cultural affiliation of any ancient human remains. The Confederated Tribes of the Umatilla Indian Reservation⁴⁶⁹ declared the Kennewick Man, whom they called the Ancient One, to be a tribal ancestor and demanded the repatriation of the remains so that he could be immediately reburied in an undisclosed location in accordance with their traditions.

Under the terms of NAGPRA, there are provisions which permit human remains in a museum's collection to be retained for a limited time for scientific examination. However, the Kennewick Man's remains were not part of a museum collection. In this case, there was little pertinent artifactual evidence or biological evidence that suggested any relationship to modern, local American Indians. That left consideration of oral history and geographical proximity as determining factors. The logic of many American Indian tribes is straightforward. Since their historical beliefs hold that all human inhabitants of the pre-Columbian New World were non-European, then any remains that are found that are not clearly post-1492 must, of necessity, be their ancestors. Armand Minthorn, the Umatilla tribe spokesman declared that "Our oral history goes back 10,000 years...We know how time began and how Indian people were created. They can say whatever they want, the scientists. They are being disrespectful."⁴⁷⁰

⁴⁶⁹ The Confederated Tribes of the Umatilla Indian Reservation are an association representing approximately 2800 members of the Umatilla, Walla Walla, and Cayuse tribes <http://www.umatilla.nsn.us>, accessed April 30, 2011.

⁴⁷⁰ Quoted in *New York Times*, September, 30, 1996. <http://www.nytimes.com/1996/09/30/us/tribe-stops-study-of-bones-that-challenge-history.html>. Accessed April 29, 2011.

On September 17, 1996, Lieutenant Colonel Donald S. Curtis, Jr., the United States Army Corps of Engineers Commander of the Walla Walla District Office on whose land the Kennewick Man had been discovered, announced in the local *Tri-City Herald* that he intended to repatriate the remains to the five different tribes—the Umatilla, Yakama, Nez Percé, Wanapum and Colville—that had demanded repatriation.⁴⁷¹ According to Francis P. McManamon, then the Chief Archeologist of the National Park Service and later to be named a defendant in the Kennewick Man court case, scientists need the support of the officials of federal agencies and museums if they are to conduct their research, but the same government officials must be familiar with the “scientific potential of the collections and sites they control. They must recognize the social benefits of research results that may be realized through scientific investigations.”⁴⁷² Chatters, however, described McManamon as being “a career government employee with little practical archaeological experience.”⁴⁷³ According to First American scientist David Meltzer, “the Corps works on hundreds of projects across the country, many on tribal lands, and it was not unnoticed that it was in their best interest to get along with the tribes.”⁴⁷⁴ Chatters also concluded that “if an archaeologist these days wants to continue working, he has to stay in the tribes’ good graces.”⁴⁷⁵

Based upon previous instances of federal agency interpretation of the provisions of NAGPRA, there were real consequences for the practice of First American science as a

⁴⁷¹ Chatters, *Ancient Encounters*, 87.

⁴⁷² Francis P. McManamon [at the time the Chief Archeologist of the National Park Service]. “The Native American Graves Protection and Repatriation Act and First Americans Research,” in *Who Were the First Americans: Proceedings of the 58th Annual Biology Colloquium*, Oregon State University, Robson Bonnichsen, ed. (Corvallis, Oregon: Center for the Study of the First Americans, 1999), 147.

⁴⁷³ Chatters, *Ancient Encounters*, 110.

⁴⁷⁴ David J. Meltzer, *First Peoples in a New World: Colonizing Ice Age America*. (Berkeley: University of California Press, 2009), 178.

⁴⁷⁵ Chatters, *Ancient Encounters*, 90.

result of NAGPRA. In 1991 human remains believed to be 12,800 years old had been repatriated to the Shoshone-Bannocks with time permitted for only an incomplete study by a graduate student. In 1993 a 9,000-year-old partial skeleton found in Hourglass Cave, Colorado, had been quickly repatriated.⁴⁷⁶ There were not only ramifications for First American science if some of the American Indian tribes became irritated, but there could be personal consequences as well. According to Chatters, the Colville tribe wrote to the employer of each scientist involved in the Kennewick Man lawsuit asking if that institution wanted a reputation of having its employees trying to hurt American Indians. As a consequence of this campaign, Bonnicksen, was charged by his department chairman at Oregon State University with ethics violations due to his being a plaintiff in the lawsuit.⁴⁷⁷

The government position, however, was not unified. On October 15, 1996, less than a month after the Army Corps of Engineers statement of intended repatriation, the Smithsonian Institution officially requested the remains on the basis that the 1846 act creating the Smithsonian Institution gave them jurisdiction over remains and artifacts recovered from federal lands.⁴⁷⁸ Two of the eight plaintiffs suing for access by First American scientists to the Kennewick Man's remains were Douglas W. Owsley, Division Head for Physical Anthropology, and Dennis J. Stanford, Director of the Paleo-Indian Program—both at the Smithsonian Institutional National Museum of Natural History.

After the discovery of the Kennewick Man's remains, it required only two months before these churning confrontations were captured in the national press. On

⁴⁷⁶ Ibid., 96.

⁴⁷⁷ Ibid., 103.

⁴⁷⁸ Ibid., 101.

September, 30, 1996, the *New York Times* titled an article by Timothy Egan: “Tribe Stops Study of Bones that Challenges Its History.”⁴⁷⁹ During the governmental 30-day public comment period leading up to October 23, 1996, additional reports appeared in *Time*, *Newsweek*, *The Economist*, *Archaeology*, *Science*, *ABC*, *PBS*, and the *Discovery Channel*.⁴⁸⁰ The tone in the media was that the contest not only was between science and American Indian religion, but also between Europe and Asia as the source for the First Americans.⁴⁸¹ Yet David Hurst Thomas, a First American scientist at the American Museum of Natural History in New York, believed that the “dispute is not a matter of religion v. science, or even Indians v. Scientists. At its heart, the matter of the Kennewick skeleton involves political power and property rights.”⁴⁸²

The legal battle was officially joined in the U.S. District Court when a group of First American scientists filed one lawsuit to allow a more thorough scientific examination, and the Asatru Folk Assembly filed another demanding reburial of the remains according to their religious doctrine. The basis of both lawsuits was Chatters’ preliminary conclusion that the remains were Caucasian and, therefore, the provisions of the Archaeological Resources Protection Act of 1979 were controlling, rather than the provisions of Native American Graves Protections and Repatriation Act of 1990. In the lawsuit by the First American scientists—*Bonnichsen, et al. v. United States. et al.*—Judge John Jelderks of the U.S. District Court in Oregon included in the court opinion that “The Plaintiff scientists are highly regarded experts in their fields,” and then listed the professional employment of each of the eight scientists involved as plaintiffs. The

⁴⁷⁹ *New York Times*, September,30, 1996. <http://www.nytimes.com/1996/09/30/us/tribe-stops-study-of-bones-that-challenge-history.html>. Accessed April 29, 2011.

⁴⁸⁰ Chatters, 91.

⁴⁸¹ *Ibid.*, 91.

⁴⁸² Thomas, *Skull Wars*, 243.

issue of scientific expertise versus American Indian traditions has not only been central to the debate in the Kennewick Man case, but has also pervaded the entire search for the First Americans.

While the American Indian tribes were not directly a party to the lawsuits, as active *amici curiae* participants, the court did consider the expertise of the American Indian tribes as mandated by NAGPRA. According to the court decision, the Confederated Tribes of the Umatilla had contended that "We already know our history. It is passed on to us through our elders and through our religious practices...From our oral histories, we know that our people have been part of this land since the beginning of time. We do not believe that our people migrated here from another continent, as the scientists do."⁴⁸³ However, this indigenous expertise was evidently less persuasive to the court than that provided by the First American scientists. According to Judge Jelderks's decision, "the issue is not whether Indian tribes are entitled to recover the remains and cultural objects of their own ancestors, but whether they also are entitled to claim remains and cultural objects having no demonstrated link to any present-day tribe or to modern American Indians in general."⁴⁸⁴ Yet, according to the terms of NAGPRA, it would appear that the courts must weigh equally such evidence as might be provided variously by expertise situated in First American science, geography, and American Indian oral traditions.

Other groups had also come forward. The Asatru Folk Assembly, a religious movement of approximately 500 people who claim to follow pre-Christian European

⁴⁸³ *Bonnichsen v. US*, 5.

⁴⁸⁴ *Ibid.*, 31.

Norse traditions that honor their ancestors,⁴⁸⁵ filed a lawsuit that demanded repatriation of the Kennewick Man remains based on the Caucasian anatomical relationship.⁴⁸⁶ According to Stephen McNallen, then the Asatru president, “We claim these bones of our ancient kinsman on the grounds that we are more closely related to him than are the Native American tribes in the area.”⁴⁸⁷ McNallen also commented that “We don’t want to offend Native Americans,” because “we have a lot in common with them.”⁴⁸⁸ Asatru, however, ultimately decided not to pursue the matter beyond filing of the initial lawsuit. The court directly considered the “Caucasian-ness” of the Kennewick Man skull. According to information considered by the Court, an analysis of the characteristics of the skull indicated a significant probability of a relationship to the Polynesians and the Ainu of Japan rather than modern American Indians.⁴⁸⁹ However, the Court also noted that the analysis did *not* conclude that the Kennewick Man was Caucasian.⁴⁹⁰ The Kennewick Man is not the only early human remains that has suggested a skeletal structure different from that of modern American Indians. Two specimens from Spirit Cave dating to 10,000 years old also have faces that are longer and more narrow than that of American Indians.⁴⁹¹

One issue which greatly concerned the First American scientists was proper preservation of the human remains, which had been seized by the Corps pending resolution of the lawsuit. As it turned out, the femurs from the Kennewick Man

⁴⁸⁵ The Asatru Folk Assembly is a membership organization headquartered in California. <http://www.runestone.org>, accessed April 30, 2011

⁴⁸⁶ *Bonnichsen v. US*, 6, footnote 10.

⁴⁸⁷ Chatters, *Ancient Encounters*, 93.

⁴⁸⁸ Jace Weaver, “Indian Presence with No Indians Present: NAGPRA and Its Discontents,” *Wocazo Sa Review*, Vol. 12, No. 2 (Autumn, 1997), 18-19.

⁴⁸⁹ *Bonnichsen v. US*, 14.

⁴⁹⁰ *Ibid.*, 14, footnote 24.

⁴⁹¹ Chatters, *Ancient Encounters*, 62.

disappeared and it was a year and a half before the Corps realized that the bones were missing, and nearly five years before they were located.⁴⁹²

Federally *recognized* tribes are given preferential treatment under NAGPRA and other United States laws. American Indians from *non-recognized* tribes have considerably fewer culturally-situated legal rights. The Ethnic Minority Council of America, one of the organizations interested in the Kennewick court proceedings, demanded that the remains be studied scientifically, and that reburial of unstudied remains was tantamount to “passive genocide” of the non-recognized tribes.⁴⁹³ Interestingly, Chatters casts the Ethnic Minority Council as if it formally represented the interests of these non-federally recognized tribes, but its web site makes no such claim. Although the Council indeed claimed to help protect the rights of American Indian tribes, the organization described its membership to be only “individuals;” there was little basis for Chatters concluding that it represented these particular tribes. There was, perhaps, a coincidence of interests, but a representational relationship is questionable. In a July 15, 2005 letter to Senator John McCain, the Council claimed that “Many of our members are of American Indian descent and these members live both on U. S. Indian reservations and independently outside reservations.”⁴⁹⁴ However, it also acknowledged that the membership was much broader and included not only agnostics, but also Buddhists, Native Americans, Christians, Jews, Moslems, and Hindus. The politics of the search for the First Americans is fertile territory for the creation of surprising groupings of fellow-travelers.

⁴⁹² *Bonnichsen v. US*, 8.

⁴⁹³ Chatters, *Ancient Encounters*, 94.

⁴⁹⁴ July 15, 2005 letter to Senator John McCain, Chairman, Senate Committee on Indian Affairs, from E. J. Neiburger, Director, Ethnic Minority Council of America <http://www.friendsofpast.org/nagpra/news/EMCLetter.pdf>, accessed April 12, 2011.

The already considerable difficulties associated with use of the term Caucasian to describe the Kennewick Man's skull were compounded when Chatters opined that a facial reconstruction of the skull produced a striking likeness to Patrick Stewart who had starred as Captain Jean-Luc Picard on the television series *Star Trek: The Next Generation*. The media began publishing side-by-side pictures of Stewart and the Kennewick Man reconstruction which, unfortunately, did indeed bear some resemblance as can be seen in Figure 45 below.

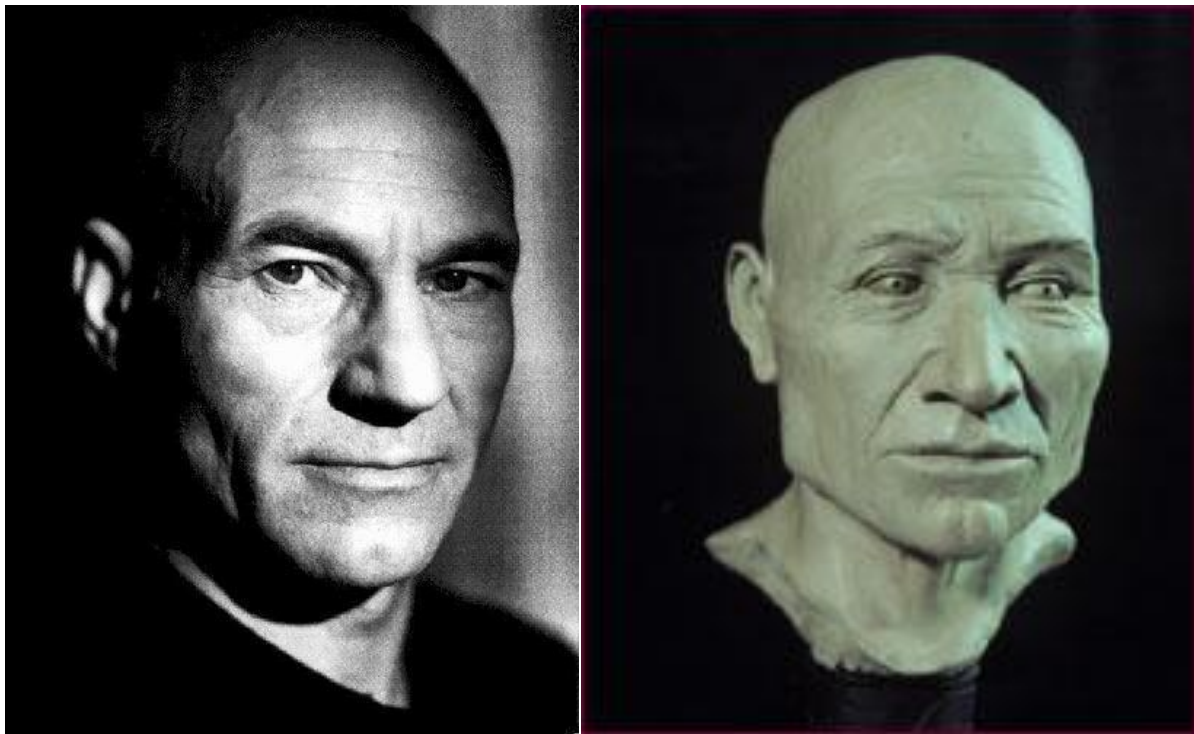


Figure 45. *Patrick Stewart and reconstructed Kennewick man.* On the left is an image of actor Patrick Stewart.⁴⁹⁵ On the right is the picture of the facial reconstruction of the Kennewick Man.⁴⁹⁶

⁴⁹⁵ <http://www.goremasternews.com/wp-content/uploads/2009/12/Patrick-Stewart.jpg>, accessed April 29, 2011. (Fair Use determination attached.)

⁴⁹⁶ <http://www.pbs.org/wgbh/nova/first/kennewick2.html>, accessed April 29, 2011. (Fair Use determination attached.)

Others, such as American Indian Vine Deloria, Jr., countered that the facially reconstructed Kennewick Man bore a strong resemblance to American Indian chief Black Hawk and his son as shown in Figure 46 below.



*Figure 46. Chief Black Hawk and son-John Jarvis painting.*⁴⁹⁷

⁴⁹⁷ Iowa County Historical Society, [Http://iowacountyhistoricalsociety.org/photos/thumbnails.php?album=1](http://iowacountyhistoricalsociety.org/photos/thumbnails.php?album=1), accessed April 29, 2011. (Fair Use determination attached.)

As for Chatters, he believed that his comparison of the similarities between Stewart and Kennewick Man resulted in accusations that he was practicing racist science based upon his use of what he called the "C- word."⁴⁹⁸

On June 27, 1997 Judge John Jelderks required the government to provide answers to seventeen detailed questions, including: are the remains subject to NAGPRA? What does NAGPRA mean by the terms Native American and indigenous? Was there more than one wave of ancient migration to the Americas? If there were subpopulations of early Americans, does NAGPRA apply to skeletons from a people who died out and were not directly relate to modern Indians? What happens to the remains if no existing tribe is culturally affiliated with them? Are scientific study and reburial mutually exclusive? Do the scientists have a First Amendment right to study the remains?⁴⁹⁹ James Adovasio, an archaeologist involved in the search for the first Americans, much less eloquently than Judge Jelderks but, perhaps, more clearly stated the problem as being "Who the hell are these people, where did they come from, and when did they get here?"⁵⁰⁰

The rancor surrounding the disposition of the Kennewick Man's remains cannot be considered simply an arcane, but publicly stimulating, academic debate. As First American scientist David Hurst Thomas concluded, the "matter raises formidable questions about tribal rights with regard to human remains and archaeological sites, treaty rights and Indian land claims, and especially the contemporary religious use of tribal and federal land."⁵⁰¹ A cottage industry has developed that follows the Kennewick

⁴⁹⁸ Chatters, *Ancient Encounters*, 171.

⁴⁹⁹ Chatters, *Ancient Encounters*, 105.

⁵⁰⁰ Adovasio, *First Americans*, 4.

⁵⁰¹ Thomas, *Skull Wars*, 235.

Man controversy. The National Park Service even maintains a web site that tracks the several academic studies and the legal confrontations that have occurred.⁵⁰²

On August 30, 2002 the U. S. District Court in Oregon released its decision by Judge Jelderks, holding that the Kennewick Man's remains could not be considered to be American Indian, and that First American scientists were to be allowed access in order to conduct a detailed scientific analysis. On April 19, 2004, the 9th Circuit Court of Appeals upheld the District Court decision. Under the terms of NAGPRA, ownership of the remains continued to reside with the Army Corps of Engineers. However, the court ordered that the remains were to be kept physically under the "neutral" control of the Burke Museum of Natural History and Culture at the University of Washington.⁵⁰³ The Kennewick Man remains are still at the Burke Museum and the results of the scientific analysis have yet to be published. As First American scientist David J Meltzer concluded, "the claim the Americas were colonized by Caucasians has not gone away. Instead, it has seeped into the only place such foolishness passes as fact: the poisonous corners of the Internet where white supremacists continue to claim Kennewick as one of their own, to promote the idea that members of the Aryan race – whatever *that* is – were the real discoverers of America."⁵⁰⁴ Whenever the scientists' report is published, and regardless of whatever the results might be, there is little doubt that more controversy will be generated and it will be covered prominently in both academic journals, American Indian publications, and the general media.

⁵⁰² National Park Service Archaeology Program. <http://www.nps.gov/archeology/kennewick/index.htm>. Accessed April 30, 2011.

⁵⁰³ Burke Museum of Natural History and Culture. [Http://www.washington.edu/burkemuseum/kman](http://www.washington.edu/burkemuseum/kman), accessed April 30, 2011.

⁵⁰⁴ Meltzer, *First Peoples in a New World*, 180.

Tarim Basin

The contentious intersection of power, science and cultural identity is not restricted to the democratic politics of the United States. Although popularly characterized as a Communist dictatorship dominated by Han culture, China provides an excellent example of the same political forces experienced in the United States in the search for its First Americans.

The Xinjiang Uyghur Autonomous Region in western China is home to 8.3 million Uyghur who speak a language related to Turkish not Mandarin; generally practice Islam in the midst of an officially atheistic society; and have facial features typically resembling the people of Eastern Europe and central, not eastern, Asia. Moreover, the Uyghur themselves contend that they are not Han Chinese. While the cultural conflict between the ethnic Uyghur and the Han-dominated Chinese government is expressed at many levels, the use of science as a tool to leverage cultural identity arose in the context of ancient mummies found in the Xiaohe cemetery, see Figure 47, first investigated by Swedish archaeologist Folke Gergman in 1934, in Xinjiang's Tarim Basin.⁵⁰⁵

⁵⁰⁵ Chunxiang Li *et al.* "Evidence that a West-East admixed population lived in the Tarim basin as early as the early Bronze Age." *BMC Biology* 2010, 8:15, 1.

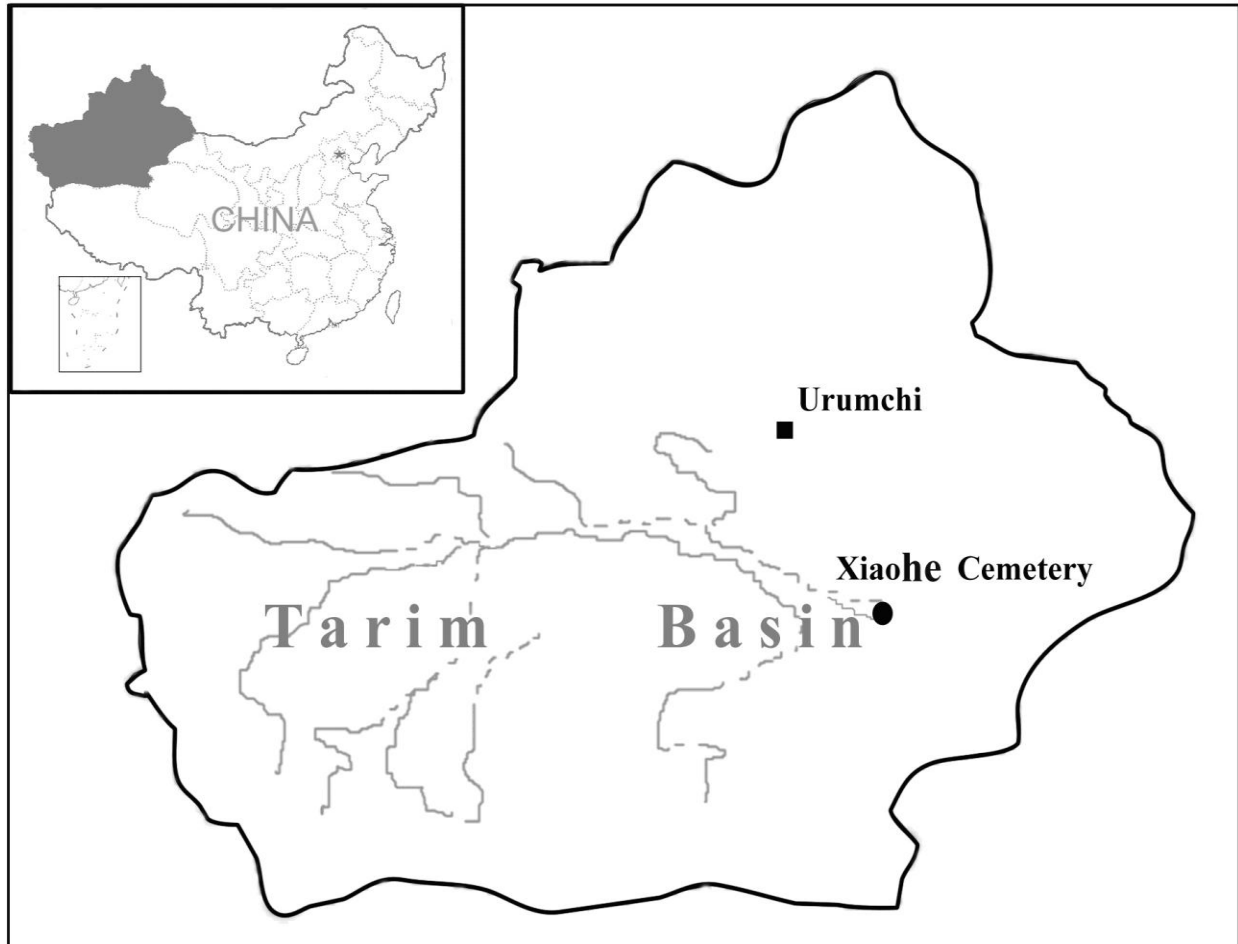


Figure 47. Map of Tarim Basin mummies excavation site. The geographical position of Xiaohe cemetery. The larger map shows Xinjiang as the shaded section of the map of China.⁵⁰⁶

Thousands of artifacts were discovered, including a 2,000 year old fabric resembling that found in an Austrian salt mine and a string-skirt undergarment typically associated with European textiles.⁵⁰⁷ Although the occasional mummy discovery had originally been attributed to travelers along the ancient Silk Road, hundreds of similar ancient bodies, some mummified and others not, began being uncovered in the 1970s by construction workers. The Uyghur, especially those advocating an independent Uyghur nation, cited these remains and their associated

⁵⁰⁶ Li et al. *BMC Biology* 2010, 8:15, 2. (Fair Use determination attached.)

⁵⁰⁷ Heather Pringle, "Battle for the Xinjiang Mummies," *Archaeology* 63, no. 4 (July/August 2010): 34.

artifacts as evidence of ancestral claims to the lands of the Xinjiang region. For many years, the bodies disappeared, reportedly at the direction of the Chinese government.⁵⁰⁸ There the matter rested, awaiting the development of modern genetics and China's more active engagement with the outside world.

While the popular press has focused on “the Beauty of Xiaohe”—an auburn-haired, European-featured, 3,800 year old mummy, shown in Figure 48 below—archeologists working in the Tarim Basin have uncovered hundreds of graves, some dating to 4,000 years ago, with similar physical characteristics.⁵⁰⁹

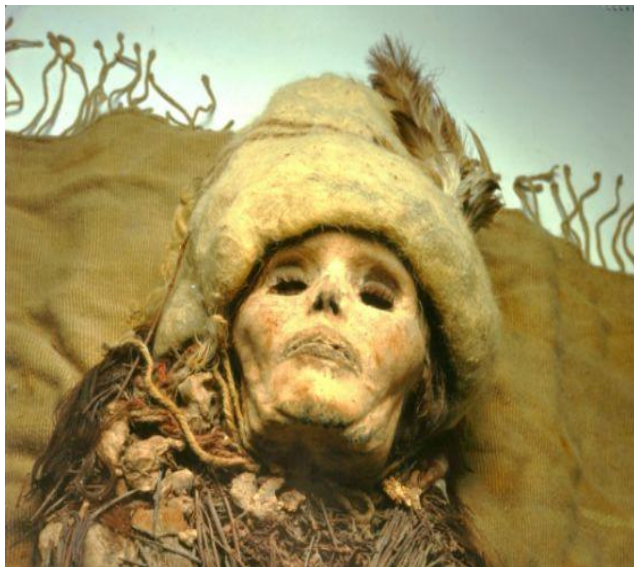


Figure 48. *Beauty of Xiaohe*. On the left is the Beauty of Xiaohe, a female mummy from Western China dating to 1800 B.C.E.⁵¹⁰ On the right is a reconstruction of the face of the Beauty of Xiaohe.⁵¹¹

⁵⁰⁸ Pringle, “Battle,” 30.

⁵⁰⁹ *Ibid.*, 30.

⁵¹⁰ Bowers Museum “Secrets of the Silk Road” exhibit. http://www.ocreger.com/articles/bowers-243281-silk-road.html%3Fpic%3D7&usg=__Hf32QdkLswoL72vZybGffFqXGMw=&h=420&w=560&sz=43&hl=en&start=8&um=1&itbs=1&tbnid=vU5za8ReqMijM:&tbnh=100&tbnw=133&prev=/images%3Fq%3Dbeauty%2Bof%2Bxiaohe%26um%3D1%26hl%3Den%26client%3Dfirefox-a%26sa%3DN%26rls%3Dorg.mozilla:en-US:official%26tbs%3Disch:1, accessed 7/18/2010. (Fair Use determination attached.)

⁵¹¹ J. P. Mallory and Victor H. Mair, *The Tarim Mummies: Ancient China and the Mystery of the Earliest Peoples from the West* (London: Thames and Hudson, 2000), 182. (Fair Use determination attached.)

In the early 1990s, Victor Mair, Professor of Chinese Language and Literature at the University of Pennsylvania, and a team of primarily western scholars⁵¹² were granted permission by the Chinese government to begin archaeological, linguistic, and genetic research on the mummies and artifacts of the Tarim Basin. In addition to the European-associated fabric and the physical characteristics of the mummies, texts dating to 500-700 A.D. indicated the language of the time to be not of East Asian origin, but rather Tocharian, an ancient Indo-European language which probably separated from its European roots around 5,600 years ago.⁵¹³ It was genetic testing, however, that proved to be at the heart of the conflict across Chinese power, identity and science. Because of the possible political ramifications, Chinese authorities were concerned that a positive DNA linkage between the modern Uyghur people and the ancient mummies would lend the authority of science to the Uyghur contention that they were the direct descendants of the initial colonizers of the Tarim Basin and, therefore, the legitimate heirs to that region.

In 1993, the Chinese government allowed Mair and Paolo Francalacci to take DNA specimens from these ancient mummies. Although the government apparently changed its mind and subsequently seized the specimens before they could be analyzed, enough material was surreptitiously slipped out of the country to permit the extraction of mitochondrial DNA from one individual. Francalacci was able to genetically tie that mummy to a lineage typically encountered in Western Europe.⁵¹⁴ The Chinese government successfully blocked additional testing until it recently funded laboratories

⁵¹² Over the past 20 years, Mair's teams have included Paolo Francalacci, a geneticist at the University of Sassari in Italy; Idelisi Abuduresule, formerly Director of the Institute of Archaeology and Cultural Relics in Ürümqi, Xinjiang, China; Elizabeth W. Barber of Occidental College

⁵¹³ Pringle, "Battle," 34.

⁵¹⁴ *Ibid.*, 35.

at Jilin University in Changchun and at Fudan University in Shanghai to conduct genetic tests on 20 additional Xiaohe mummies. The results, published in 2010 in *BMC Biology*, concluded that genetic evidence showed that the paternal Y-chromosome DNA came predominantly from Eastern Europe, South Asia and Siberia,⁵¹⁵ and that the maternal mitochondrial DNA could be tied to East and West Eurasian lineages, but rarely East Asia.⁵¹⁶ Radiocarbon dating indicated that the lowest layer of mummies dated to approximately 4000 B.P. (radiocarbon years).⁵¹⁷ In other words, science has documented that a culturally and genetically independent civilization thrived in the Tarim Basin at a time when ethnic Han oral history contends was the beginning of Chinese civilization.

This political discontinuity between science and Chinese cultural history has now spread to the United States. As described in the *New York Times*, the Beauty of Xiaohe and other Tarim Basin artifacts have, with the agreement of the Chinese government, been on tour in the U.S. for over a year. With stops at Santa Anna, California's Bowers Museum and Houston's Museum of Natural Science, the exhibition's last location was scheduled to be from February 5 through June 5, 2011 at the University of Pennsylvania Museum of Archaeology and Anthropology. However, prior to its opening at the Penn Museum, the Chinese government prohibited the mummies from being shown without providing an explanation. Mair finally received permission from the Chinese government for the mummies to be shown for the first month of the four month

⁵¹⁵ Li *et al.* "Evidence," 9.

⁵¹⁶ *Ibid.*, 5-6.

⁵¹⁷ *Ibid.*, 2.

exhibition.⁵¹⁸ “The unexpected appearance of non-Chinese-seeming cultures and bodies in this region is being treated a bit like the way some American Indian tribes treated the 1996 discovery of Kennewick Man in Washington State,” commented Lothar von Falkenhausen, art historian at the University of California at Los Angeles.⁵¹⁹ The Caucasian-featured Beauty of Xiaohe potentially demonstrated that the ethnic Han Chinese are not historically indigenous to what is now China’s Xinjiang province, the home of ethnic Uyghur Muslims who have occasionally rioted, with the dead ranging in the hundreds, against Chinese government and ethnic Han control.

⁵¹⁸ Philip Kennicott, “Following Controversy, Mummies at Penn Museum Remain Objects of Mystery,” *Washington Post*, March 3, 2011. www.washingtonpost.com/wp-dyn/content/article/2011/03/02/AR2011030206371.html.

⁵¹⁹ Edward Rothstein, “Another Stop on a Long, Improbable Journey,” *New York Times*, Feb 20, 2011.

Section V. Conclusions

In *Gulliver's Travels*, Jonathon Swift suggested that the only allowable way to crack an egg in Lilliput was from the small end. Those who surreptitiously cracked eggs from the big end against the prevailing cultural and political standard were known as “big-enders.” This human effort to provide a structure—even a seemingly arbitrary one—for relating to the natural world transcends any particular culture. Social philosophers have tried to capture the underlying frames of reference which govern these human interactions.⁵²⁰ Despite their many differences, both myth and science share the common attribute of being cultural frames of reference that address human relationships with the material world.

For American Indian, feminist, anti-colonialist, Marxist and other historically non-mainstream western theorists—those who might be considered modern big-enders—the practice of science has been a hegemonic reflection of the values of a culturally dominant bourgeois/masculine/imperialist class. In this view, scientific statements reveal as much about political reality as they do the physical universe. The difficulty, however, faced by these modern big-enders is that their logic for denying an epistemological advantage to a culturally dominant science also supports not awarding a privileged position to their own epistemology. To argue that First American science provides only one of many epistemological vantage points is to argue that there are *no* privileged vantage points. This is the challenge faced by both American Indians and First American science in an intellectually pluralistic America culture. This does not mean that the modern big-enders are all situated external to the practice of science.

⁵²⁰ including Martin Heidegger and enframing; Michel Foucault and *episteme*; Sandra Harding and situated knowledge; and Vine DeLoria, Jr. and American Indian creationism.

Within mainstream First American science there are epistemological confrontations that are just as fierce as those between science and American Indians traditions. As was discussed in Chapters 6-10, archaeology and anthropology—and to a lesser extent linguistics, physics and genetics—jockey for the pole position in being the cultural authority for First American science. In the post-modern world everyone is a big-ender; there is no stable ground upon which to place an epistemological fulcrum.

Much of the conflict between the practice of First American science and the oral traditions of American Indians is conducted in the material world; it is seemingly a confrontation over control of humans remains and artifacts. However, at its core, it is an epistemological conflict over how a heritage is to be valued, whether the applied epistemological metric is to be the material quantifications of the Enlightenment or the myths of an ancient culture.

The social and scientific politics surrounding the First Americans has made it difficult to separate the issues associated with the original “those people,” whoever they were, from the modern American Indian “these people.” Consequently, addressing the original First American migration to the new world necessarily means that a First American scientist is, presumptively, also addressing the origins of the modern American Indian. Before concluding that a First American arrival is also a modern American Indian arrival, a scientist would typically require a material basis for such a conclusion. However, because of the unique cultural authority granted by American society, American Indian traditions and oral histories, that is, their cultural myths, have legally been accorded equal epistemological status with the findings of science in the disposition of ancient human remains and funereal artifacts.

The distinction between myth and science that the western world has commonly believed to exist is not always apparent in the search for the First Americans. Until the mid-twentieth century, First American science was able to produce material evidence and supporting theories that explained the inherent intellectual superiority of the genetic stock of white Europeans. In this instance, there was a convergence between the findings of modern science and the dominant cultural myth of white superiority. Now that racial science has been discredited, the modern world is left only with the myth of racial inequality. Similarly, Plato's myth of Atlantis endured and was legitimized as the source of the First Americans by prominent nineteenth century scientists. Now Atlantis has also lost its aura of scientific acceptability.

For those who discount the social utility of myths, this occasional blurring between science and myth weakens the credibility of science as a reliable mechanism for relating to the natural world. This should not, however, be interpreted as endorsing an equivalence between science and myth. As difficult as it may be to dislodge scientific theories such as Clovis-first that no longer are supportable, science does espouse a methodological mechanism for change. Creation myths—the conservation of a particular heritage—has no such accepted process for change. As resistant to change as First American science appears to be, there does reach a tipping point when a theory such as Clovis-first is acknowledged to be wrong. Although existential myths can certainly evolve over time, they typically have no agreed upon set of procedures through which they might be disconfirmed.

There is a comforting totality in American Indian myths that is absent in First American science. As laid out by archaeologist James Adovasio, the puzzle to be

addressed is: “who the hell are these people, where did they come from, and when did they get here.”⁵²¹ American Indian myths provide complete answers for all these questions. One tribe’s myth may differ from that of another, but that is acceptable since the myths are typically particular to that specific tribe. Each culture’s answers may be different. Science has a larger challenge. It cannot tolerate different answers. Where American Indian myths can be particular, First American science must be universal. Moreover, First American science is preserved via the written report; its methods are preserved in-situ at the excavation site. Myth at its heart is preserved orally; there is little of material substance to be preserved. When myths are committed to writing, all literate people can share and interpret them. For cultural authorities who are empowered to make and interpret oral truth-statements, a source of power is being challenged.

American Indian myths and First American science have such substantive differences that it is difficult to imagine a circumstance under which there could be an epistemological reconciliation. For American Indians, their existential myths are statements of truth. Each tribe can have its own myth which provides it an ontologically stable answer to the Adovasio questions. For First American science, however, the answers may (and do) change, but there is only one truth permitted at a time; scientists are serial ontologists. It is the scientific methodology that is enshrined as the stable element. For American Indians, it is the *answer* that is to be culturally protected; for First American scientist, it is the *path* that is critical. This seeming clarity in differences is, unfortunately, frequently blurred when one domain attempts to co-opt the authority

⁵²¹ James M. Adovasio with Jake Page, *The First Americans: In Pursuit of Archaeology’s Greatest Mystery* (New York: The Modern Library, 2003) 4.

of the other. When nineteenth- and early twentieth-century scientific methodologies were used to support the racist doctrines of the dominant culture, the hierarchy of races was a cultural truth; the then-methods of science were used to validate what was already believed known. The history of science would indicate that it may only be in distant retrospect that it is possible to distinguish between myth and science.

A second area of apparently irreconcilable difference between American Indian myths and First American science is that they are not actually addressing the same questions. Adovasio's first question—"who the hell are these people"—appears straightforward. The answer requires situating "these people" between their ancestral home and their modern descendents, if any. Yet for American Indians, the answer is typically couched in terms of cultural relationships; for First American scientists, the answer is principally one of biology. Proving a cultural continuity does not address a biological relationship, and vice versa. That the two domains are talking past each other was readily apparent in the confrontations over control of the remains of the Kennewick Man. For First American scientists, there was sufficient anatomical variation between the Kennewick Man and modern American Indians to show that there was no relationship. For American Indians, their myths confirmed that they, and only they, had inhabited the area where the remains were found, so that there was an established cultural continuity; there could have been no European ancestral interloper.

There is an inherent culturally-based distinction between American Indians and modern, scientifically based society. American Indians myths are a part of their social fabric and are not discoverable. They have a status that is believed to be independent of any human process for acquiring knowledge. There is a social value to their myths that

structure and stabilize their society. Something accorded the status of myth is not irrational, but is considered a fundamental part of reality. For such cultures, myth creation is an ontologically definitive event. Myths are non-argumentative. What was initially figurative is imbued with literality. American Indian myths and First American science each represent a particular approach to existence. It is doubtful that the cognitive values important to either could be shown to be commensurate with the other.

In the search for the First Americans, American Indian tribes are concerned with protection of their existential myths; they wish to conserve a particular heritage. Although scientists portray their discipline as one that is open to change, the actual practice of First American science has been one that is significantly resistant to change. There is a great body of science studies literature that describes scientific change as occurring in paradigm shifts, epistemological ruptures, punctuated equilibria, and discontinuities.⁵²² It is difficult to envision revolutionary myth changes except, perhaps, when externally imposed by an alien cultural authority. For American Indians, First American science is just such an unwelcome external mechanism which attempts to destabilize their existential myths.

It has been suggested that science is a form of metaphysical and methodological commitment.⁵²³ There is also a metaphysical and methodological commitment associated with any particular myth. Michel Foucault coined “epistemological grid” to

⁵²² Respectively, these are descriptions of revolutionary scientific change by Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1996); Gaston Bachelard, *The Formation of the Scientific Mind* (Manchester, UK: Clinamen Press, 2002); Niles Eldredge and Stephen Gould, “Punctuated Equilibria: An Alternative to Phyletic Gradualism” in *Models in Paleobiology*, T. J. M. Schopf, (ed.), (San Francisco: Freeman, Cooper and Co., 1972), 82-115; Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994).

⁵²³ Larry Laudan, *Progress and Its Problems: Towards a Theory of Scientific Growth* (Berkeley: University of California, 1977), 79.

define the underlying, and often unacknowledged, value-structure against which these cultural commitments are made. Neither First American science nor American Indian myths can be considered to be situated independent of this pervasive grid; the challenge in the search for the First Americans is that these epistemological grids are not identical, and are most likely incommensurable. Furthermore, both science and myth are frequently uncooperative in that they do not stay ontologically stable. As the social context changes, the values embedded in the epistemological grid change as well—whether for science or myth.

Methods constrain truth and are culturally and historically contingent. Verisimilitude—Foucault’s regimes of truth—is a human endeavor and is subject to human foibles. That does not, however, translate “wrong” into a constructivist’s belief that all social solutions are equally acceptable. First American science, more so than American Indian myth, is still bound by the modern perception of the physicality of nature. In American society, numbers are the ultimate scientific method, the universal solvent for dissolving the mysteries of nature. It is difficult to imagine a method for mathematizing a myth.

Scientists organize themselves separately from the engineering disciplines, and further divide themselves into separate domains such as physics, biology, and chemistry. This structure is evident in the departmental divisions in academia. These socially-constructed groupings of concepts and human skills, however, do not reflect how science is actually practiced. Science studies has not only documented that the practice of modern science cannot be conducted without crucial contributions from the engineering disciplines, but also shows that the scientific approaches to understanding

the natural world consist not just of physics or archaeology, but rather suites of sciences addressing specific puzzles and research programs. Despite the declarations by archaeologists noted in this dissertation that the search for the First Americans is inherently an archaeological issue, solving the conundrum of the First Americans requires not only the application of subsets of archaeology, anthropology, linguistics, bioanthropology, and physics, but also requires an epistemological grid—the context of a specific set of dominant cultural values—that will accept the results of science. American Indians would certainly not agree that the search for the First Americans is solely an archaeological issue, nor even solely a science issue. In the Native American Graves Protection and Repatriation Act (NAGPRA), the congress has, in fact, dictated in law that the search for the First Americans is not to be solely a matter for First American science.

In spite of the intellectual force brought to bear from the application of an entire ensemble of sciences to the First American puzzle, for 70 years the now-discredited Clovis-first theory was repeatedly validated. In retrospect, First American scientists appear to have been more focused on continuously confirming the Clovis-first model than searching for material artifacts and constructing testable alternative theories. Clovis-first became so dominate (or more likely, the fear of challenging the elite First American scientists that supported the theory was so great) that it became a part of the *episteme* of the First American search. Helen Longino concluded that the results of a scientific investigation “can be taken as evidence for hypotheses only in the context of

some set of background beliefs,”⁵²⁴ a part of the epistemological grid. So objectified did the Clovis-first model become, so blurred was the distinction between theory and material evidence, that it assumed the authority of an artifact itself.

The questionable nature of scientific conclusions has become an increasingly popular research topic. In a 2005 analysis of 13 years of studies of medical research "Why Most Published Research Findings Are False," John Ioannidis concluded that “for most study designs and settings, it is more likely for a research claim to be false than true. Moreover, for many current scientific fields, claimed research findings may often be simply accurate measures of the prevailing bias.”⁵²⁵ In *Wrong*, David Freeman explained that researchers at Harvard and the National Bureau of Economic Research “examined papers from a range of economics journals and determined that approximately *none* of them had conclusively proved anything one way or the other.”⁵²⁶ Moreover, the proof of many scientific findings is inextricably intertwined with the acceptance of the methods through which the findings are produced. In some First American sciences such as archaeology, the *only* basis for validating the findings may well be legitimization of the methods employed, not validation of the findings. Echoing Polanyi’s theory of tacit knowledge, Richard Feynman concluded that “we have a habit in writing articles published in scientific journals to make the work as finished as possible, to cover up all the tracks, to not worry about the blind alleys or describe how

⁵²⁴ Helen E. Longino. *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry*. Princeton: Princeton University Press, 1990, 48.

⁵²⁵ John P. A. Ioannidis (2005). "Why Most Published Research Findings Are False". *PLoS Medicine* 2 (8): e124, 696

⁵²⁶ David H. Freeman quoted in July/August 2010 *Discover*, 56; an excerpt from *Wrong: Why Experts Keep Failing Us—and How to Know When Not to Trust Them*, (New York: Little Brown, 2010).

you had the wrong idea first, and so on.”⁵²⁷ The economic theory of sub-optimization describes how a person strives to maximize an individual gain which may ultimately be to the detriment of a larger and more important interest. How First American scientists practice their discipline demonstrates a form of sub-optimization. An overzealous protection of one particular theory may well be to an individual’s benefit; however, First American science may well be the ultimate loser through an erosion of confidence in science as a whole.

There is a continuity in how observations occur in science that ranges across the material spectrum of static display, controlled demonstration, and theoretical experimentation. A commonly held belief is that the practice of science must involve some form of experimentation. In First American science there is certainly a form of observation, but it is difficult to identify a practice that might be considered experimentation. In the domains of bioanthropology, physics, genetics, and linguistics that support First American science, there would appear to be no experimentation. Craniometry, carbon-dating, DNA-typing, and language analysis are sufficiently routine to be considered measurement demonstrations rather than scientific experiments. For archaeology and anthropology, as discussed in Chapters 9 and 10, there is little distinction that can be made between what constitutes a First American science laboratory and what is a museum. An excavation site has the characteristics of both display and demonstration, but it is doubtful that it can be considered experimentation.

Further compounding what constitutes an observation in First American science is that exactly where an observation may be made is critically dependent upon who owns

⁵²⁷ “The Development of Space-time View of Quantum Electrodynamics”, Nobel Lecture, 11 Dec 1965. In *Nobel Lectures: Physics 1963-1970* (1972), 155.

the land. Many of the potentially best excavation sites are located on land controlled by American Indian tribes or federal agencies that frequently accommodate American Indian interests. As a result, the location of a First American laboratory is not a value-neutral process. The context through which the First American search occurs is the result of a social negotiation between First American scientists and the very groups that frequently oppose them.

The application of molecular analysis in physics has greatly strengthened the capability of First American science to provide dates for its material artifacts. With physics widely regarded as the archetype of the hard sciences, this physics-associated dating capability is also associated with an increase in public credibility. Yet, there are substantive limitations to the contribution that physics has made. Typically, the popular press reports the results of First American science carbon-dating as a relatively precise number. It is doubtful, however, that this same public understands that the carbon-dating of an ancient human bone, for example, is dependent, initially, upon what is most likely a very accurate calculation of carbon-14 decay in the bone but which, unfortunately, can only be converted to a chronological age by estimating that ancient human's dietary consumption of plants, which in turn is dependent upon an estimate of the food-plant's air-temperature-dependent rate of consumption of carbon-14 from the atmosphere, which in turn is dependent upon an estimate of the rate of creation of carbon-14 through ionization of the earth's upper atmosphere by the variable electromagnetic radiation from the sun, which in turn is calibrated using estimates from the growth cycles of tree rings and from the chemical composition of core samples from the ice caps in Greenland and the Antarctic. This does not mean that carbon-dating is not of

value; it has provided an invaluable mechanism for improving the chronological estimates associated with search for the First Americans. It does, however, mean that there are caveats, frequently unarticulated, that should be remembered when considering First American chronologies.

First American science and American Indian myths are each, in its own way, an example of cultural hegemony. However, in the context of modern American culture, a belief in the preeminent value of science has the luxury of being firmly embedded in the general American epistemological grid, while an American Indian myth has social value only in the context of a particular tribe. If a truth statement of either First American science or an American Indian myth was always confirmed, then there would be little controversy; an ontological winner could be declared. Obviously, however, this is not the case. It is difficult to provide scientifically acceptable legitimization for a myth, but science has also demonstrated its own set of challenges. It is these interstitial ontological voids between First American science and American Indian myths that provide an opening for the exercise of political power.

One need not favor American Indian traditions over the findings of First American science to recognize that there is a subtle, but pervasive, cultural grid in the U.S. against which all values are calibrated. For example, at the Mountain Creek Lodge at Pipestem State Park in West Virginia, there is currently a display of American Indian jewelry from prior to the arrival of Europeans that described the makers of the jewelry as “early visitors” to the area.⁵²⁸ If the dominant American culture can be successful in

⁵²⁸ Observation by the author, Mountain Creek Lodge, Pipestem State Park, West Virginia, September 17, 2011.

denying ownership by the American Indian of the material world that they inhabited, whether land or jewelry, then they can also be denied ownership of the ontological.

Politics is a process for resolving unstabilized power relationships, and the United States is not alone in its expression of political power through its search for first inhabitants. For decades, the Chinese government, dominated by the Han ethnic majority, has deliberately blocked an open examination of the origins of the 4,000-year-old European-appearing mummies in the Tarim Basin in China's Xinjiang Uyghur Province because such an investigation has the potential to prove that at least a portion of what is now modern China was initially populated by a people who were both genetically and culturally not east Asian. There is more at stake for the Chinese government than simply losing the epistemological high ground. Frequently the Uyghurs—who are predominately Muslim and claim to be the descendents of the Tarim culture—riot for independence from China. Denial of an open examination of the mummies is a reflection of power relationships. The politics of power in China intercede in the scientific examination of ancestral roots. In China, the power to control the epistemological debate has been stabilized in the hands of an authoritarian government.

In the democratic U.S., power has been directed through the political process in the search for the First Americans more ambiguously than in the Chinese instance. Science has historically played a significant advisory role to the U.S. government; it not only helps to define the problems, but also provides answers. However, unlike in China, the pluralistic manner in which power is expressed in the U.S. has resulted in enactment of the Native American Graves Protection and Repatriation Act (NAGPRA) which, in law, grants epistemological equality between American Indian traditions and science in

determining the disposition of ancient human remains and funerary objects. As shown in both the U.S. and Chinese examples, governmental involvement is one of the most blatant external interventions which can be imposed on the scientific process in the search for the First Americans (and Chinese). Governmental power can, and does, dictate the cultural rules which define acceptable epistemological approaches. In enacting NAGPRA, the Congress has decided who gets to assert truth. Political power not only speaks to truth, but truth can be forced to obey.

The politics of power has resulted in First American science being accused of having historically supported an agenda of racism, nationalism, imperialism, and colonialism. With at least some of the historical charges having been substantiated, it is difficult to determine what a proper role might be for First American science in defining and maintaining American existential myths and self-identity. If some subjects are to be off-limits for examination, then it is not clear what First American science has become. The American Anthropological Association is in the process of deleting science from its mission statement in order to permit non-science-based epistemological approaches and to preclude the continuing accusations of being a tool of an imperialist American culture. This would appear to be an admission by the AAA that at least the anthropological element of science, as an independent entity, can no longer be trusted to freely examine First American myths and identities with the methodologies of science.

Who owns the past is a function of who owns the power for defining the process for determining the past. Creation of a past is of value as a mechanism for controlling the future. With the legislative provisions included in NAGPRA and with the creation of, and substantial funding provided by, the American Indian heritage preservation offices,

there has been a significant shift in the balance of political power between First American science and American Indian traditions. Academic First American scientists now appear at odds with their business counterparts who are responsive to the heritage offices which form their customer base and who are less enamored with the traditional peer review process revered by the academic community. The erosion of the power of First American science is also reflected in the occasional appearance of tribal affiliations of authors as a credential worthy of note in academic publications. At stake is nothing less than control over interpretation of the American past.

The substantial distrust between many First American scientists and American Indians has manifested itself in a very public manner. The confrontation over the remains of the Kennewick Man was worthy of a Greek passion play. The ancient human remains were discovered by two inebriated men during an attempt to avoid paying an admission fee, and subsequently included elements of racism, federal-agency bias both in favor of and against American Indians, misplaced artifacts, a contest between biology and culture, and an ultimate determination by a federal court.

Archaeology is the discipline most central to the success of First American science, but simultaneously also its weakest link. First, it is widely acknowledged, even among archaeologists, that there is no independent archaeological theory; the discipline must borrow from anthropology for its doctrine. Second, the premier professional association of anthropology, which supplies the intellectual basis for archaeological investigations, is in the process of declaring that the profession is no longer a science. Third, prominent archaeologists have charged that graduates of archaeological programs are sufficiently deficient in their science training that they cannot

communicate adequately with the physicists and geneticists that are critical to supporting their discipline. Fourth, science has aspirations to more than merely describe the physical world; it endeavors to explain. A central part of that effort is experimentation and repeatability of results. What in archaeology constitutes an experiment? Fifth, many of the most suitable sites for archaeological excavation cannot be accessed without permission either of American Indian tribes themselves or of federal agencies that have historically shown a propensity to support the political agendas of American Indian tribes. Sixth, funding available for archaeological searches related to the First Americans now predominantly comes from the Cultural Resource Management offices of American Indian tribes and these same federal agencies. Seventh, even acknowledging that scientists do not always welcome challenges to their ideas, the archaeology associated with the First American search of the past 150 years appears to have been particularly susceptible to a theoretical rigidity enforced by a small group of prominent scholars variously referred to as “police,” or the “bête noir” of new theories. Finally, the archaeology profession associated with the search for the First Americans has fractured. On the one side are the university-based scholars who continue to espouse the traditional science-mantras of peer review, objectivity, and a tenure system designed to separate remuneration from scholarly results. On the other side is the ever-increasing number of business-oriented archaeologists that operate in a financially competitive environment, must accommodate a customer base composed in substantial part by American Indian organizations, and whose intellectual products are not peer reviewed.

The practice of science in the search for the First Americans is a complex and flawed process. It must survive in an environment of shifting centers of political power, some of which are inherently hostile to the scientific enterprise. A case can be made that some of the critical elements of First American science, especially archaeology, may no longer even be a science. What is clear, however, after 500 years of interest by the dominant Euro-American culture—the last 150 years of which have employed the tools of modern science—is that America has made very little progress identifying its first inhabitants. The speculations of an Asian source for the First Americans by José de Acosta in 1590 or by Thomas Jefferson in 1784 may be couched in different terms than those used today, but First American science is not yet able to either confirm or refute their centuries-old opinions. Whether one believes American Indians myths or not, it is obvious that there was a First American. What remains unsettled is not only who these people were and when they came, but also the very science associated with the search for the First Americans.

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