Battle of the Bones
Robson Bonnichsen; Alan L. Schneider

Recent archaeological findings have led to revolutionary new theories about the first Americans—and to a tug-of-war between scientists and contemporary Native Americans

BY ROBSON BONNICHSEN AND ALAN L. SCHNEIDER

Some Crow traditionalists believe that the world, the animals and all humans were created by a wise and powerful being named Old Man Coyote. The Brule Sioux have a different tradition: after a great flood, the only survivor was a beautiful girl, who was rescued by an eagle. She married the eagle, and their children became the Sioux people.

Where did the native people of the Americas really come from? When did they first appear in those lands, and how? Just as the Judeo-Christian tradition teaches that human beings originated when God created Adam and Eve in the Garden of Eden, so every Native American tribe has at least one creation story.

Archaeologists, meanwhile, take a different view of how people first appeared in the Americas. Although they are sharply divided about the details, they are convinced by the archaeological record that the original peoples of the Americas migrated there from elsewhere. Where they came from and when they arrived are questions that remain to be resolved. Some answers, however, are beginning to emerge, and they indicate a process that was far more complicated than was ever imagined.

In one sense, both scientific theories about human origins and non-scientific traditions about the genesis of a particular tribe have something in common. All people and all cultures strive to understand the world and their place in it. Origin stories—whether traditional accounts or scientific theories—help satisfy those yearnings. They describe how and when people came to be on the earth, and they explain how people survived and prospered in their surroundings. But there are key differences as well. Scientific origin theories are subject to reevaluation as new evidence emerges: indeed, in the past several years the prevailing scientific view about the origins of the first Americans has shifted dramatically. Non-scientific origin theories, by contrast, derive from supernatural or mystical revelation; they tolerate neither doubt nor revision, and must be accepted on faith.

Until recently, archaeologists were able to pin only a few firm dates on the ancient human remains that had been discovered in the Americas. Part of the reason was that the existing dating technology required that large samples—sometimes an entire bone—be destroyed, and so the process was infrequently applied. But in the past decade several new analytical methods have emerged: DNA typing of ancient biological material, comparative skull measurements and accelerator mass spectrometry, a radiocarbon-dating technique that requires only minuscule amounts of bone. Those new techniques have made it possible to accurately determine the ages of skeletal remains, as well as to classify the various human ethnic groups far more precisely than ever before. Moreover, in recent years a very ancient and well-preserved new skeletons have been unearthed. Those discoveries, combined with the new analyses, have led archaeologists to some startling conclusions—including the possibility that modern-day Native Americans are not descended from the earliest people who colonized the Americas.

Thus the past few years have been an exciting time in the field of Paleo-American prehistory (also known as First Americans studies). And yet, ironically, the period has also
been one of disappointment and uncertainty, as government and museum officials are being asked to curtail and even prohibit archaeological research. The reason for the political ferment is that Native American origin theories, which had long been relegated to the realm of personal religious beliefs, are suddenly being thrust into the domain of public policy. That clash between science and religion has commanded the attention of the media, and a surge of new books and articles about the first Americans has been released in recent months. The subject is of more than topical interest: the outcome of the debate could determine the course of American archaeology for decades to come.

The shifts in public policy stem largely from a ten-year-old federal law, the Native American Graves Protection and Repatriation Act (NAGPRA). Bolstered by that law, some Native American activists are demanding possession of all prehistoric human remains found on federal or tribal lands in the United States and a halt to all study of those remains. In most cases, their intent is to rebury the ancient bones. Native American activists maintain that they already know where they come from, and see no need for further inquiry. They say their oral traditions report that their ancestors have lived in the Americas since the beginning of time. To them, the bones and skulls of ancient people are family members to be put to rest with dignity. Not all Native Americans share those views; many want to learn more about American prehistory and support the scientific study of all relevant remains, artifacts and associated information. Unfortunately, though, many government decision makers seem disposed to side with the anti-science advocates, assigning more legitimacy to Native American religious traditions than to scientific investigation and discourse.

Kennewick Man, a 9,200-year-old skeleton that was discovered on federal land in eastern Washington State on July 28, 1996, has become an important test case. Four weeks after it was found, preliminary radiocarbon-dating results were released, indicating that the skeleton was among the oldest ever unearthed in North America. Within a few days, however, federal officials decided to give the remains to a coalition of five local tribes—despite the fact that the bones had received only a preliminary examination. To forestall what would have been a tragic loss for science, one of us (Bonnichsen) and seven other experts in Paleo-American studies filed a federal lawsuit in Portland, Oregon, to
prevent transfer of the skeleton. (The other author, Schneider, is an attorney in the case.) We requested, successfully, that the skeleton be kept in federal custody until our lawsuit was resolved. Today the bones remain in limbo as the dispute drags on.

Native American beliefs about the past and the dead certainly deserve respect, but they should not be allowed to dictate government policy on the investigation and interpretation of early American prehistory. If a choice must be made among competing theories of human origins, priority should be given to theories based on the scientific method. Only scientific theories are built on empirical evidence; only scientific theories can be adjusted or overturned. True, influential scientists have sometimes been able to temporarily smother scholarly debate on views they opposed. But as recent developments in First Americans studies demonstrate, science is an inherently flexible, self-correcting endeavor. Even long-accepted scientific views can be challenged, and truth eventually wins out.

Ever since Thomas Jefferson began collecting Native American artifacts and displaying them in his foyer, many theories have been proposed to explain how people first came to North and South America. The most widely accepted was the Clovis-first theory, named for the elegant, fluted spear points found in association with the remains of mammoths, bison and other animals near Clovis, New Mexico, in 1932. In subsequent years many similar stone spearheads were found throughout the Great Plains, and eventually in much of the United States and Central and South America. By the late 1960s radiocarbon dating had confirmed that the Clovis artifacts were between 10,800 and 11,500 years old.

In the 1960s and early 1970s the ecologist Paul S. Martin and the geoarchaeologist C. Vance Haynes Jr., both of the University of Arizona in Tucson, together with James E. Mossman of the National Institutes of Health in Bethesda, Maryland, began to develop a dramatic theory about how the Americas were settled. They hypothesized that about 11,500 years ago, at the end of the most recent Ice Age, a single band of mammoth hunters from Siberia crossed the Bering land bridge into Alaska, and from there began spreading across North America. According to the theory of Martin and his colleagues, there were no people in the New World, as the Americas are sometimes called, until that time. The new arrivals and their descendants prospered and, in just a few centuries, purportedly settled two continents.

The Clovis-first model gained enormous scientific prominence—in fact, to question it was to risk virtual professional suicide. Implicit in the theory is the premise that a single biological population, with a single culture and language, spawned the enormously diverse array of peoples—with their widely divergent cultures and languages—who were living in the New World at the time of European contact. Now,
however, thanks to the new archaeological finds and analytical advances, the Clovis-first model has been refuted.

In 1977 Thomas D. Dillehay—an anthropologist at the University of Kentucky in Lexington and the author of one of the books under review, *The Settlement of the Americas*—began excavations at the Monte Verde site in southern Chile. Dillehay’s work showed Monte Verde to be at least 12,500 years old, and he was widely criticized for challenging the validity of the Clovis-first theory [see “The Battle of Monte Verde,” by Thomas D. Dillehay, January/February 1997]. Dillehay, however, did not back down, and three years ago a special team of archaeologists, including avowed skeptics, inspected Monte Verde. The result was vindication: the experts confirmed that Monte Verde was a legitimate pre-Clovis site. Acceptance of Dillehay’s site broke a logjam in First Americans studies. Other sites—and there were many—that had been in limbo because they seemed to predate Clovis could now be acknowledged, too.

Some of those potential pre-Clovis sites include several in southeastern Wisconsin, where the archaeologist David F. Overstreet of Marquette University in Milwaukee has found 12,250-year-old stone tools and mammoth bones with cut marks. And at the Meadowcroft Rockshelter near Pittsburgh, Pennsylvania, the archaeologist James M. Adovasio of Mercyhurst College in Erie, Pennsylvania, has discovered tapered points and bivalve-like flakes dated to between 12,000 and 16,000 years ago. Similar artifacts have been excavated at the Cactus Hill site near Richmond, Virginia; investigators have dated that site to between 12,000 and 17,000 years old. And in the oldest archaeological deposits at Monte Verde, Dillehay himself uncovered flaked stone tools that are apparently about 33,000 years old.

In *The Settlement of the Americas*, Dillehay provides a well-organized synthesis of early Paleo-American archaeological findings. But the book falters in an important way. Dillehay is reluctant to recognize human presence in the Americas prior to 15,000 to 20,000 years ago, despite the older artifacts found at his own site. Although Dillehay assures the reader that his research at Monte Verde is sound, he will not accept the 33,000-year-old radiocarbon dates associated with the stone tools, he writes, until additional artifacts of such antiquity are confirmed at other sites. We find it disappointing that Dillehay, who has done so much to push back the date for the peopling of the Americas, is hesitant to confront the implications of his own data for early human presence in the New World.

In *Bones, Boats, and Bison*, E. James Dixon does for North America what Dillehay did for South America, providing a useful, up-to-date overview of the complex and scattered archaeological literature. Dixon is even more conservative than Dillehay; he favors the idea that the first Americans arrived only about 13,500 years ago. Around that time, he theorizes, people from the Pacific Rim of Asia traveled in small boats to North and South America and settled on the western shores of both continents. But like Dillehay, Dixon is resolute that the Americas were inhabited long before the Clovis artifacts were deposited.

Not only has the idea that the Americas were devoid of people until 11,500 years ago been disproved, but a second important tenet of the Clovis-first theory has also crumbled: the assertion that the Americas were colonized only once. The latest research shows that the New World probably underwent multiple colonizations: instead of originating in a small area of northeast Siberia, as predicted by the Clovis-first model, the first Americans probably came from many parts of Eurasia.

Perhaps the nail in the coffin of the Clovis-first theory is that no Clovis-style artifacts have ever been retrieved from archaeological sites in Siberia. Furthermore, the variety of the artifacts discovered in the rain forests, deserts and coastal areas of South America indicate that early New World people were not members of one homogeneous clan of big-game hunters, as the Clovis-first theory proposed. Depending on their environments, some survived by hunting small game, some by fishing and some by general foraging. As a result, investigators have concluded that, rather than signaling a distinct migration, the Clovis spear points that appear in the archaeological record beginning around 11,500 years ago may simply be the evidence of a technological innovation that took place at that time within groups of people who already lived in the Americas.

The idea that the Americas were settled more than once and by different groups of people is supported by evidence from ancient skeletons that have been examined with new techniques, such as the study of the DNA in the mitochondria of cells. Mitochondrial DNA is a more stable source of information about genetic lineages than is the DNA in the nucleus of a cell because, rather than representing a melding of maternal and paternal genes, mitochondrial DNA is almost always passed on by the mother alone.

The molecular anthropologist Theodore Schurr of the Southwest Foundation for Biomedical Research in San Antonio, Texas, and other investigators have identified five distinct mitochondrial lineages, or haplogroups, as they are called, in modern Native Americans. Four of the haplogroups—A, B, C and D—are also found in varying frequencies in different Asian populations, which suggests that early immigrants to the Americas may have come from more than one region of Asia. The fifth haplogroup, known as X, is much rarer than the other four haplogroups, and its origin is not clear. It occurs among certain European populations but is absent in contemporary Asian populations, which suggests that it may record another discrete migration to the Americas, possibly from western Eurasia.

In fact, there is growing speculation that Europeans may have traveled to the Americas thousands of years before...
Columbus and the Vikings made their westward forays. The archaeologists Dennis J. Stanford of the Smithsonian Institution in Washington, D.C., and Bruce A. Bradley of Primitive Tech Enterprises, Inc., in Cortez, Colorado, have noted distinct similarities between the stone tools of the Clovis people and the ones made in France and Spain by members of the Solutrean culture, which flourished between 16,500 and 21,000 years ago. (The theory, only recently proposed, is highly controversial and has yet to be explored in depth.)

The advent of the personal computer has enabled Paleo-American investigators to apply powerful statistical techniques to multiple sets of data. As a result, teams of physical anthropologists have been able to perform comparative analyses of skeletal remains from Asia, North America and South America, based on extensive measurements of skulls, limb bones and teeth, and on dates derived from accelerator mass spectrometry.

The work has yielded some tantalizing results that corroborate much of the DNA evidence. For example, the physical anthropologist C. Loring Brace and his research team from the University of Michigan in Ann Arbor have concluded that the modern native peoples of North America are the descendants of at least four different colonizing populations from two different parts of Asia. Furthermore, Brace argues, those populations probably arrived in the New World at different times and by various routes.

Likewise, the physical anthropologists D. Gentry Steele of Texas A&M University in College Station, Douglas Owsley of the Smithsonian Institution, Richard L. Jantz of the University of Tennessee in Knoxville and Walter Neves of the University of São Paulo in Brazil have compiled and analyzed measurements from the earliest known North and South American skeletons. Their research has demonstrated that early New World skulls are quite distinct from the skulls of modern Native Americans. Many of the early skulls display relatively narrow faces, long crania, and oval-shaped eye sockets—characteristics that are more typical of skulls from the Pacific Islands and southern Asia than they are of skulls from modern Native Americans.

The reasons for the difference between early and later New World skulls have yet to be fully explained. The discrepancies may be the result of gradual evolutionary changes that took place over time. On the other hand, the differences may indicate that the early skeletons are unrelated to those of modern Native Americans.

Thus a radical new idea has emerged: the people who inhabited the Americas when Columbus arrived—the tribes referred to today as Native Americans—may not be descended from the earliest Americans. There is no reason to assume that the first immigrants to the Americas took hold and prospered. Perhaps some of the early colonizing groups died out before later groups arrived. Or it may be that later colonizing groups replaced earlier groups as a result of warfare, the introduction of new diseases, or higher birth or survival rates. If so, the question then becomes not which tribe does Kennewick Man belong to, but whether the skeleton belongs to any existing tribe at all.

Two new books—*Riddle of the Bones*, by the freelance writer Roger Downey, and *Skull Wars*, by David Hurst Thomas, an anthropologist at the American Museum of Natural History in New York City—present the Native American perspective on the argument. We must concede up front that we are far from impartial reviewers. Both of those books discuss the lawsuit that we initiated, and both seem to support the position of our adversaries: that tribal permission is needed before the Kennewick skeleton can be studied.

Downey attempts to relate the Kennewick Man controversy to the more fundamental question of the peopling of the Americas, but his analysis lacks depth and understanding. He presents a misleading view of the scientists involved in the lawsuit, often resorting to simplistic characterizations and innuendos to attack their motives and research goals. Moreover, he implies that science is not a credible method for explaining the past. From Downey’s perspective, Native American origin theories are as legitimate as the scientific ones; in his view, both are only theories, and it is impossible to choose between them.

In *Skull Wars* Thomas attempts to provide the historical context that led to the passage of NAGPRA. He describes, for instance, the so-called skull science of the nineteenth century, which was pioneered by the American physician Samuel George Morton. Morton asserted that the variation in skull size among various ethnic groups proved the intellectual superiority of people of white European stock. Thomas writes that Morton’s ideas led to a disregard for the rights of Native Americans, and provided a justification for the looting and robbing of Native American graves.

Thomas’s treatment of the past, however, is selective and largely one-sided. He seems to delight in pointing out the failings and racial biases of early investigators, as if to convince the reader that modern science is fatally tainted by past wrongdoing. Meanwhile, he pays little attention to investigators who championed the cause of Native Americans, dedicating their lives to the preservation of knowledge about those vanishing cultures.

Thomas argues that traditional Native American views about the past should be accommodated in decisions con-
cerning the investigation and interpretation of American prehistory. He makes no attempt, however, to explain how belief systems that reject the need for research and critical analysis can provide a workable basis for scientific programs or for setting public policy. Given Thomas’s scholarly stature and professional credentials, his failure to address the fundamental differences that separate supernatural origin theories from scientific explanations may confuse both the public and scientists who are not familiar with the subject.

OWNEY’S OUTLOOK—THAT SCIENTIFIC ideas about the settling of the Americas are only theories, and thus no more reliable than any other account—evokes a familiar precedent. Fundamentalist Christians, who maintain that people were created by the God of the Bible, often assert that evolution deserves little respect because it is only a theory. Indeed, the controversy about the first Americans is similar to the dispute about whether children should be taught evolution or creationism in public schools. In both cases, what is at stake is the role of religion in public institutions. One debate threatens educational standards; the other, the future of American archaeology.

Until a decade ago, government intervention in archaeology was limited to the protection and preservation of archaeological sites and resources. Knowledge of American prehistory was considered the common heritage of all Americans, and investigators were free to explore new theories, regardless of their perspectives or research objectives. But now, even though biological knowledge of the earliest humans in the Americas is amazingly thin—fewer than ten relatively complete, securely dated skeletons more than 8,000 years old have been unearthed in North America—government decision makers are bowing to tribal demands for the control of ancient human skeletal remains and artifacts.

For example, the 10,600-year-old Buhl Woman, discovered in Idaho in 1989, was turned over by Idaho state officials to the Shoshone-Bannock tribes, even though scientific evidence indicates that the Shoshone-Bannock have resided in the area for less than 2,000 years. Before its reburial the Buhl skeleton was examined by only one physical anthropologist. Likewise, just a few years later, the 7,800-
year-old Hourglass Cave skeleton from Colorado was reburied after limited study. Recently a 7,800-year-old human skull known as Pelican Rapids Woman, along with the 8,700-year-old so-called Browns Valley Man, both from Minnesota, were repatriated to a coalition of Sioux tribes and subsequently reburied in South Dakota.

In addition, the study of key archaeological materials and sites is becoming increasingly difficult. In deference to tribal religious beliefs, the government prohibited independent scientists from studying the Kennewick Man discovery site, then buried the site under 600 tons of rock and fill. Genetic analysis of a 9,400-year-old skeleton that was discovered in Nevada, known as the Spirit Cave Mummy, has yet to be allowed because of objections from the Paiute. And several years ago, a team led by one of us (Bonnichsen) was prevented from conducting DNA tests on ancient human hair from the Mammoth Meadow site in Montana, because several tribes claimed possession of the hair [see "Roots," by Robson Bonnichsen and Alan L. Schneider, May/June 1995].

Those decisions by the government to hand over key archaeological evidence and to restrict scientific work are dictated by misguided public policy. Congress did not anticipate that NAGPRA would be applied to very early human remains that might have no direct relation to modern Native Americans. The purpose of NAGPRA was to reunitie Native American skeletal remains, funerary items and ceremonial objects with living members of the culture that had produced them. Yet in many cases the tribes invoking NAGPRA to block scientific study have no known cultural or biological connection with the remains or artifacts in question.

Traditional stories about supernatural origins may provide a workable structure for ordering human affairs when all the people affected share the same belief system. They do not, however, provide a satisfactory mechanism for setting government policy in a pluralistic, multicultural society such as the United States. If Native American origin theories are accepted as a basis for determining the ownership and study of archaeological resources uncovered on public land, a dangerous precedent will have been set. What will stop the government from incorporating other religious beliefs into its policies?

Scientific theories often offend one or more segments of society because the conclusions of science may differ from those expected by people seeking spiritual answers. Such conflicts are to be expected. But when the government attempts to mediate disputes of that kind, it inevitably ends up censoring the open dissemination of information and ideas. In the quest to understand the history of our species, we need more information, not less. Respect for Native Americans should not cause us to abandon science in favor of politically expedient compromises.

Robson Bonnichsen, an archaeologist at Oregon State University in Corvallis, is the director of the university's Center for the Study of the First Americans. Alan L. Schneider is an expert in cultural resources law and an attorney for the scientists in Bonnichsen et al. v. United States of America, a lawsuit regarding access to the ancient skeletal remains known as Kennewick Man. Bonnichsen is participating in the lawsuit as a private citizen.

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