

# Scientists reveal the history and analysis of Kennewick Man

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Last fall, the Smithsonian Institution published *Kennewick Man: The Scientific Investigation of an Ancient American Skeleton*, the first comprehensive study of the most important human skeleton ever found in North America. This milestone is particularly significant due to tremendous political controversy and tribulations that scientists have faced in trying to study the remains and publish their findings since the skeleton was first unearthed in 1996.

The book contains 33 essays written by 52 authors on a plethora of subjects including the historical movement of humans into the Americas, curation of the skeleton, skeletal morphology and pathology, orthodontics, biomechanical analysis, injury patterns, burial context, 3D modeling, molding and casting methods, Early Holocene humans, identity through art, and human coastal migration from Southeast Alaska.

The journey that led to the publishing of this volume began nearly twenty years ago, when two college students in Kennewick, Washington, discovered a skull while walking along a shore of the Columbia River. The police were contacted followed by the county coroner, Floyd Johnson, and a local archaeologist, James Chatters, who returned to the site and uncovered a nearly entire skeleton from the mud and sand on the banks.

Chatters laid the set of more than 300 bones and fragments of skeleton out in his lab and began examining the extraordinary find. He initially thought that the skeleton might belong to an early European pioneer or trapper in the area, due to the fact that the skeleton did not look Native American. However, two factors confounded this hypothesis.

First, the skeleton's teeth were cavity free and worn down to the roots, two characteristics of prehistoric teeth and indicators of a diet low in sugar and starch. Second and perhaps more dramatically, a stone point, perhaps belonging to a prehistoric spear or dart, appeared embedded in the hipbone. When Chatters received a carbon date for a metacarpal he sent to University of California, Riverside for analysis, he found that the skeleton was at least 9,000 years old.

The scientists whose essays appear in the new volume were able to reconstruct the individual's height, weight, body build, and even his facial appearance. They were also able to state with confidence what his preferred foods were, what his main occupation was, and who his ancestors probably were. This information is invaluable because discoveries of skeletal evidence in North America that are more than 8,000 radiocarbon years old are not only rare but usually incomplete.

However, the full significance of the present volume cannot be comprehended without an understanding of the legal and political hurdles that its researchers were required to surmount along the way. The essay that lays out these events begins by stating that Chatters and Douglas Owsley, two of this volume's more prominent authors, "had no inkling of what they were getting into when they made plans in August 1996 to investigate [the] skeleton."

The riverbank where the skeleton had been found was actually federal land managed by the US Army Corps of Engineers, which had its own plans for the skeleton that did not include study by scientists. On August 30, 1996, the Corps took the skeleton from Chatters, had it placed in an evidence locker at a local sheriff's office and ordered Chatters to cease further testing of the metacarpal bone.

In the meantime, local American Indian tribes, upon learning of the radiocarbon date, demanded that the skeleton be given to them for burial. In 1990, the federal government had enacted the Native American Graves Protection and Repatriation Act (NAGPRA), which requires that federal agencies and institutions return Native American cultural items to lineal descendants who are members of federally-recognized tribes.

Without making any effort to investigate the facts or the tribes' claims, the Corps therefore agreed to prevent further scientific study of the remains and announced that the skeleton would be handed over to a coalition of four tribes on October 24, 1996. Many in the scientific community protested, yet the Corps refused even to allow Owsley to examine the skeleton before it was given to the tribal claimants for reburial. On October 23, 1996, eight scientists were able to obtain a hearing in a federal court of law, where the Corps was forced to postpone the transfer indefinitely.

Thus started a lawsuit that dragged on for more than eight years, placed the safety of the skeleton in jeopardy, and saw the discovery site subsequently ruined, costing millions of dollars before the federal government was forced to give scientists access to the skeleton. The case set new limitations on what federal agencies must do, or not do, when dealing with archaeological materials and sites. These have had a strong impact on how cultural resource laws are and will be interpreted in years to come.

A major issue during the trial was whether skeletal remains can still be considered "Native American" when they are so many thousands of years old. Prior to this case, the federal government applied this classification to any item that predated European

colonization, even if it lacked any verifiable relationship to present-day American Indians.

The defendants, who included the United States, the Department of Defense, the Corps, and later the Department of the Interior and the National Park Service, were unable to provide the court with adequate evidence connecting Kennewick Man to modern American Indians. There was an attempt to use the oral traditions of the tribal claimants, which were said to show that the tribes and their ancestors have always lived in the area, but the court found this to be problematic since no one knows when the tribes first arose or if they are as old as they claim to be.

This is significant because, since 1990, NAGPRA has been used to dispose of some of the oldest human remains ever discovered in North America, based on the assumption that there is a descendant-ancestor relationship between any modern tribe and every prehistoric skeleton found in any area that they once occupied. This has hindered scientific investigation of human ancestry in most cases without any serious review of whether the cultural items in question are even affiliated with American Indian groups.

The questions now become: what have we been able to learn by obtaining the ability to study the Kennewick Man skeleton and was all of the legal wrangling worth the effort? Here is a selected list of conclusions that come out of the present volume:

- Kennewick Man stood 5 feet 7 inches tall and is considered tall for his time.

- He was wide-bodied and massive, weighing about 160 pounds

- He favored his right arm and hand in most activities; he habitually used his fingers and thumb in a “pinch” grip that suggests he participated in flint knapping.

- Muscle attachment sites in his right shoulder, combined with his strong right arm, suggest that Kennewick Man often held an object in front of him vertically while forcibly raising and lowering it, a motion that has been related to poling a boat or dipping a fishing net.

- He routinely raised his arm with his elbow bent to hold something above his head—probably an atlatl for propelling projectiles.

- He sustained a glenoid rim fracture that was probably painful and inhibited his throwing ability.

- Years before his death, he broke six ribs; these healed improperly and remained disconnected, suggesting that his vigorous lifestyle did not allow enough time for recuperation.

- The stone point found in his pelvis was so deeply embedded that it was probably launched at him using an atlatl; it did not cut major blood vessels or enter his abdomen but probably limited his mobility and caused him to limp for a short period of time.

- An unusually rounded first molar suggests that he habitually held cordage between his teeth on the right side.

- Kennewick Man was approximately 40 years old when he died, but he was not frail; his bones were strong and robust.

- The completeness of the skeleton and lack of animal scavenging indicate that he was buried in an intentional, primary interment; he was buried on his back with his hands palm down at his sides with his face up and his chin tucked to his neck; his legs were straight and parallel; taphonomy and sediment analysis suggest that he was buried between 70 and 90 centimeters below

the contemporary ground level.

- Carbon, nitrogen, and oxygen isotope levels show that Kennewick Man probably subsisted on a diet based heavily on marine mammals, which were not available in abundance in the Columbia River Basin; this suggests he was a migrant from the Pacific coast.

- His skull shows metric similarity with partially mummified remains in Nevada as well as historic Ainu in East Asia; this implies a greater range of genetic diversity among the initial immigrants into the New World.

While we do not have an adequate sample from which to draw reliable generalizations and conclusions, we can still speculate that humans living in the Pacific Northwest 9,000 years ago were able to reach well beyond 40 years of age, practiced ceremonial burial practices, were capable of migrating throughout the course of their lifetimes among different groups of people, utilized advanced marine animal hunting techniques, used projectile weapons, and consumed plenty of food to support strong bones and muscles. All of this is based on the study of the skeleton alone; no associated artifacts were found.

Owsley writes in the concluding chapter of the volume that this work is not complete. The researchers have plans to obtain a more precise age of death for Kennewick Man, use ancient DNA to track migrations and infer lineages, discover childhood dietary and geographic information through dental analysis, and utilize more types of analyses that have yet to be developed or implemented in archaeological analysis. All of this will help inform future research and analyses, both on Kennewick Man and new skeletons that may be discovered in the future.

These facts and indications serve as an example of just how much we can learn from the human skeleton and how important it is to have the ability to study such remains when they are unearthed. While it is understandable that American Indian groups wish to protect the remains of their ancestors, remains as old as Kennewick Man’s are invaluable to the entire human population, not just those living in the Pacific Northwest. These remains are part of general human history. Deciding whether to respect the wishes of possible descendants who do not want remains studied or to fill in a tremendous gap in our knowledge of human history is not an easy determination to make.

The controversy over the treatment of Native American human remains expresses a more fundamental problem of the fate of indigenous peoples under capitalism, not only in the United States, but around the world. It cannot be successfully addressed outside of the struggle to overthrow that system.



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