

SCIENCE

New DNA Results Show Kennewick Man Was Native American

JUNE 18, 2015

Carl Zimmer

MATTER

In July 1996, two college students were wading in the shallows of the Columbia River near the town of Kennewick, Wash., when they stumbled across a human skull.

At first the police treated the case as a possible murder. But once a nearly complete skeleton emerged from the riverbed and was examined, it became clear that the bones were extremely old — 8,500 years old, it would later turn out.

The skeleton, which came to be known as Kennewick Man or the Ancient One, is one of the oldest and perhaps the most important — and controversial — ever found in North America. Native American tribes said that the bones were the remains of an ancestor and moved to reclaim them in order to provide a ritual burial.

But a group of scientists filed a lawsuit to stop them, arguing that Kennewick Man could not be linked to living Native Americans. Adding to the controversy was the claim from some scientists that Kennewick Man's skull had unusual "Caucasoid" features. Speculation flew that Kennewick Man was European.

A California pagan group went so far as to file a lawsuit seeking to bury the skeleton in a pre-Christian Norse ceremony.

On Thursday, Danish scientists published an analysis of DNA obtained from the skeleton. Kennewick Man's genome clearly does not belong to a European, the scientists said.

“It’s very clear that Kennewick Man is most closely related to contemporary Native Americans,” said Eske Willerslev, a geneticist at the University of Copenhagen and lead author of the study, which was published in the journal *Nature*. “In my view, it’s bone-solid.”

Kennewick Man’s genome also sheds new light on how people first spread throughout the New World, experts said. There was no mysterious intrusion of Europeans thousands of years ago. Instead, several waves spread across the New World, with distinct branches reaching South America, Northern North America, and the Arctic.

“It’s probably a lot more complicated than we had initially envisioned,” said Jennifer A. Raff, a research fellow at the University of Texas, who was not involved in the study.

But the new study has not extinguished the debate over what to do with Kennewick Man.

Dr. Willerslev and his colleagues found that the Colville, one of the tribes that claims Kennewick Man as their own, is closely related to him. But the researchers acknowledge that they can’t say whether he is in fact an ancestor of the tribe.

Nonetheless, James Boyd, the chairman of the governing board of the Confederated Tribes of the Colville Reservation, said that his tribe and four others still hope to rebury Kennewick Man and that the new study should help in their efforts.

“We’re enjoying this moment,” said Mr. Boyd. “The findings were what we thought all along.”

The scientific study of Kennewick Man began in 2005, after eight years of litigation seeking to prevent repatriation of Kennewick Man to the Native American tribes. A group of scientists led by Douglas W. Owsley, division head of physical anthropology at the Smithsonian Institution, gained permission to study the bones.

Last year, they published a 670-page book laying out their findings.

Kennewick Man stood about 5 foot 7 inches, they reported, and died at about the age of 40. He was probably a right-handed spear-thrower, judging from the oversized bones in his right arm and leg.

Based on the chemical composition of his skeleton, the scientists concluded that he originally lived on a distant coast. However he got to Kennewick, the Ancient One had been embraced by the community there: his body was buried

carefully after his death, the scientists noted.

The archaeologist James Chatters initially described the skull as Caucasian, and produced a reconstruction of his face famously suggesting that Kennewick Man looked a bit like the actor Patrick Stewart. But eventually Dr. Chatters decided against the European hypothesis, swayed by the discovery of other old Native American skulls with unusual shapes.

Other scientists, including Dr. Owsley and his colleagues, suggested the skull resembled those of the Moriori people, who live on the Chatham Islands 420 miles southeast of New Zealand, or the Ainu, a group of people who live in northern Japan. They speculated that the ancestors of the Ainu might have paddled canoes to the New World.

In 2013, one of the scientists examining the skeleton, Thomas W. Stafford of the University of Aarhus in Denmark, provided Dr. Willerslev and his colleagues with part of a hand bone. Dr. Willerslev and other researchers have developed powerful methods for gathering ancient DNA.

Once they had assembled the DNA into its original sequence, the scientists compared it with genomes from a number of individuals selected from around the world. They also examined genomes from living New World people, as well as the genome Dr. Willerslev and his colleagues found in a 12,600-year-old skeleton in Montana known as the Anzick child.

This analysis clearly established that Kennewick Man's DNA is Native American. But the result is at odds with the shape of his skull, which seemed to be very different from living Native Americans.

To explore that paradox, Dr. Willerslev collaborated with Christoph P. E. Zollikofer and Marcia S. Ponce de Leon, experts on skull shapes at the University of Zurich.

In the new research, Dr. Zollikofer and Dr. Ponce de Leon demonstrated that living Native Americans include a wide range of head shapes, and Kennewick Man doesn't lie outside that range.

Still, it would take many skulls of Kennewick Man's contemporaries to figure out if they were distinct from living Native Americans. A single skull isn't enough.

"If I take my own skull and print it out with a 3-D printer, many people would see a Neanderthal," said Dr. Zollikofer.

After determining that Kennewick Man was a Native American, Dr. Willerslev approached the five tribes that had fought in court to repatriate the skeleton. He

asked if they would be interested in joining the study.

“We were hesitant,” said Mr. Boyd, of the Colville Tribes. “Science hasn’t been good to us.” Eventually, the Colville agreed to join the study; the other four tribes did not.

The Colville Tribes and the scientists worked out an arrangement that suited them all. Dr. Willerslev and his colleagues sent equipment for collecting saliva to the reservation. Colville tribe members gathered samples and sent them back.

In exchange for permission to sequence the DNA, Dr. Willerslev and his colleagues agreed that they would share the data with other scientists only for confirmation of the findings in the Nature study.

Dr. Willerslev also invited representatives of the five tribes to Copenhagen, where they observed the research in his lab. They donned body suits to enter a clean room in the lab in order to perform a ceremony in honor of the Ancient One.

Kim M. TallBear, a cultural anthropologist at the University of Texas, praised the way the scientists worked with the Native Americans. “There’s progress there, and I’m happy about that,” she said.

When Dr. Willerslev and his colleagues looked at the Colville DNA, they found that it was the closest match to Kennewick Man among all the samples from Native Americans in the study.

But other scientists stressed that the new study didn’t have enough data to establish a tight link between Kennewick Man and any of the tribes in the region where he was found.

Unlike in Canada or Latin America, scientists in the United States do not have many genomes of Native Americans. Dr. TallBear saw this gap as a legacy of the distrust between Native Americans and scientists.

In addition to the conflict over Kennewick Man, the Havasupai Indians of Arizona won a court case in 2010 to take back blood samples that they argued were being used for genetic tests to which they didn’t consent. Some scientists may be reluctant to get into a similar conflict.

“People are scared post-Havasupai,” Dr. TallBear said.

As a result, said Dr. Raff, scientists can’t rule out the possibility that Kennewick Man is an ancestor of another tribe, or that he is the ancestor of many Native Americans. “It’s impossible to say without additional data from other tribes,” she said.

To Dr. Raff and other researchers, the most significant result of the new study

is how Kennewick Man is related to other people of the New World.

The new study points to two major branches of Native Americans. One branch, to which Kennewick Man and the Colville belong, spread out across the northern stretch of the New World, giving rise to tribes such as the Ojibwe and Athabaskan.

The Anzick child, on the other hand, appears to belong to a separate branch of Native Americans who spread down into Central and South America. Given the ages of the Kennewick Man and the Anzick Child, the split between these branches must have been early in the peopling of the New World — perhaps even before their ancestors spread east from Asia.

About 4,000 years ago, two more waves of people spread across the Arctic. One lineage, known as the Paleo-Eskimos disappeared several centuries ago, while the other gave rise to today's Inuit peoples.

The DNA of the Colville tribe contains Asian-like pieces of DNA not found in Kennewick Man. They may have gained that genetic material by having children with the Arctic peoples.

Testing these possibilities will require more Native American DNA, and a better understanding of Native American culture, said Dr. Raff. New programs, such as the Summer Internship for Native Americans in Genomics at the University of Illinois, are giving Native Americans training that they can use to study their own history.

“They’ll have valuable insights to bring into this work themselves,” said Dr. Raff. “It really only strengthens the science to learn from Native Americans about their own history.”

“It doesn’t have to go the way Kennewick Man went at all,” said Dr. TallBear.

Correction: June 18, 2015

An earlier version of this article misspelled the name of a 12,600-year-old skeleton discovered in Montana. It is known as the Anzick child, not the Anzik child.

A version of this article appears in print on June 19, 2015, on page A14 of the New York edition with the headline: New Study Links Kennewick Man to Native Americans.