Settling of the Americas: Searching for pieces of the puzzle

Beneath the Bering Sea lies potential. There archeologists and paleoanthropologists suspect there is evidence that could explain genetic diversity in modern populations and solve the mysteries of ancient human migration patterns — piecing the two pieces of the puzzle together.

But for now, we must find the clues that lie along the edges. University of Alaska researchers have published genetic analysis of two such clues: an infant and pre-term fetus discovered in the Upward Sun River region of Alaska. Although they were buried in the same grave, the neonates were not maternally related. They had differing mitochondrial DNA haplotypes. Those haplotypes are used to identify maternally related humans because the DNA in the mitochondria of our cells are only passed down from our mothers from the mitochondria of her egg cell. Maternal haplotypes help geneticists identify a lineage of people.

Despite the age of the remains, over 11,000 years, geneticists were able to recover DNA, then copy it enough times to read the signature. Mitochondrial DNA is easier to tease out of the bone because there are hundreds of copies in each cell, rather than just one copy of nuclear genetic material.

While the find unearthed a new mystery: why these infants were buried together, it also begs the question of how two such un-related infants ended up in the same group of people at the same time. Carl Zimmer at the [New York Times explained](#):

> The researchers can only speculate how an infant and a fetus from different mothers ended up in the same grave. They might have had the same father, or they might have belonged to different families who suffered terrible losses at the same time. But the significance of the DNA found at Upward Sun River extends far beyond the story of two children. It sheds light on how people first moved into the Americas.

The nature of the Bering crossing is at heart: was the land form a highway, or an RV park? The archaeologists and geneticists who studied the babies think the fact that they are genetically unrelated is evidence to bolster the [Beringian Standstill Hypothesis](#). Instead of a constant movement of people from Siberia into North America, the standstill hypothesis suggests that ancient humans moved into the area about 25,000 years ago and then stayed there for about 10,000 years. That would be enough time to build up significant genetic diversity in the populations living on the tundra as people moved, bred and moved again. That diversity was carried Eastward when the glaciers blocking the path into North America receded when the last ice age ended.

The standstill hypothesis is one way to explain genetic diversity patterns. Other scientists have suggested humans came over in one or [three waves](#) with possible additional migrations from [Aleutian islands](#) and parts of Europe (although that theory, the [Soultrean Hypothesis](#), is falling out of favor based on evidence). Those theories could also explain genetic diversity. But, scientists think the mitochondrial DNA of the Upward Sun River children best supports the Standstill hypothesis. And, with most of Beringia covered in

sea water, its likely to be a long time before we find better evidence.

The finding is also rich because of its clues into the culture of the people at that time and place, writes Yereth Rosen at [Arctic Newswire](#):

> The Upward Sun River site was a natural place for human habitation, he said. It was perched on the edge of ecosystems that provided different resources — a floodplain where salmon could be caught and uplands where game animals roamed. It is possible that the Paleoindians had a "more nuanced, more sophisticated use of the landscape," and a varied diet similar to a more modern traditional subsistence diet for people of the region, Ben Potter of University of Alaska Fairbanks said.

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