

By Glenn Hodges

# The first face of the first Americans belongs to an unlucky teenage girl who fell

to her death in a Yucatán cave some 12,000 to 13,000 years ago. Her bad luck is science's good fortune. The story of her discovery begins in 2007, when a team of Mexican divers led by Alberto Nava made a startling find: an immense submerged cavern they named Hoyo Negro, the "black hole." At the bottom of the abyss their lights revealed a bed of prehistoric bones, including at least one nearly complete human skeleton.

Nava reported the discovery to Mexico's National Institute of Anthropology and History, which brought together an international team of archaeologists and other researchers to investigate the cave and its contents. The skeleton—affectionately dubbed Naia, after the water nymphs of Greek mythology—turned out to be one of the oldest ever found in the Americas, and the earliest one intact enough to provide a foundation for a facial reconstruction. Geneticists were even able to extract a sample of DNA.

Together these remnants may help explain an enduring mystery about the peopling of

the Americas: If Native Americans are descendants of Asian trailblazers who migrated into the Americas toward the end of the last ice age, why don't they look like their ancient ancestors?

By all appearances, the earliest Americans were a rough bunch. If you look at the skeletal remains of Paleo-Americans, more than half the men have injuries caused by violence, and four out of ten have skull fractures. The wounds don't appear to have been the result of hunting mishaps, and they don't bear telltale signs of warfare, like blows suffered while fleeing an attacker. Instead it appears that these men fought among themselves—often and violently.

The women don't have these kinds of injuries, but they're much smaller than the men, with signs of malnourishment and domestic abuse.

To archaeologist Jim Chatters, co-leader of the Hoyo Negro research team, these are all indications that the earliest Americans were what he calls "Northern Hemisphere wild-type" populations: bold and aggressive, with hypermasculine males and diminutive, subordinate females. And this, he thinks, is why the earliest Americans' facial features look so different from those of

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*Former Geographic staff writer Glenn Hodges explores life's big questions at [soundingline.org](http://soundingline.org).*



The bones of at least 26 Ice Age animals—including those of an elephant-like gomphothere (above)—litter the floor of Hoyo Negro, the flooded cave where divers found Naia's remains. The cavern was mostly dry during Naia's short life. She may have fallen to her death while exploring the cave's dark passages (right).

later Native Americans. These were risk-taking pioneers, and the toughest men were taking the spoils and winning fights over women. As a result, their robust traits and features were being selected over the softer and more domestic ones evident in later, more settled populations.

Chatters's wild-type hypothesis is speculative, but his team's findings at Hoyo Negro are not. Naia has the facial features typical of the earliest Americans as well as the genetic signatures common to modern Native Americans. This signals that the two groups don't look different because the earliest populations were replaced by later groups migrating from Asia, as some anthropologists have asserted. Instead they look different because the first Americans changed after they got here.

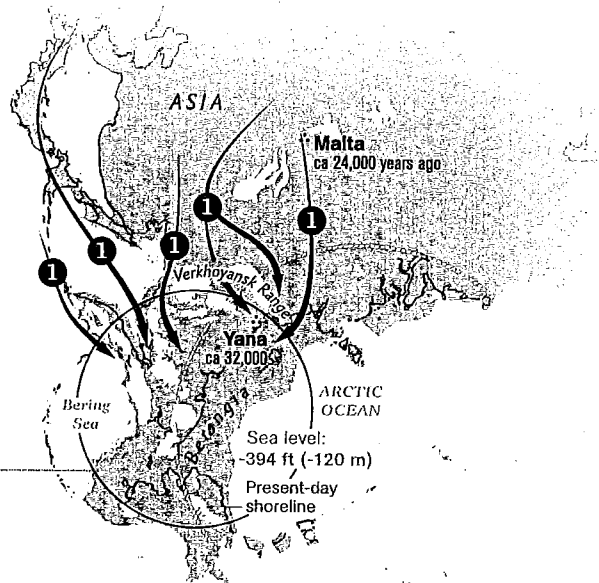
Chatters's research is just one interesting development in a field of study that has been

exploding in fresh directions over the past two decades. New archaeological finds, novel hypotheses, and a trove of genetic data have shed fresh light on who the first Americans were and on how they might have come to the Western Hemisphere. But for all the forward motion, what's clearest is that the story of the first Americans is still very much a mystery.

FOR MOST OF THE 20TH CENTURY it was assumed that the mystery had been more or less solved. In 1908 a cowboy in Folsom, New Mexico, found the remains of an extinct subspecies of giant bison that had roamed the area more than 10,000 years ago. Later, museum researchers discovered spearpoints among the bones—clear evidence that people had been present in North America much earlier than previously believed. Not long after, spearpoints dating to 13,000 years ago were found near Clovis, New Mexico, and what became known as Clovis points were subsequently found at dozens of sites across North America where ancient hunters had killed game.

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**1** 32,000 YEARS AGO  
**Asian ancestors**  
 Humans from Eurasia and East Asia first populate western Beringia by 32,000 years ago.



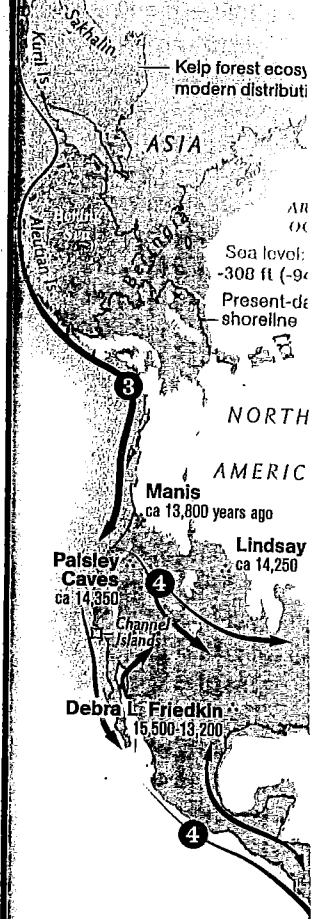
**2** 25,000-15,000 YEARS AGO  
**Beringian standstill**  
 A population with two-thirds East Asian and one-third Eurasian DNA becomes isolated in Beringia. Genetic mutations result in new, unique DNA markers that are found in modern Native Americans but not Asians.

Cordilleran Ice Sheet  
 Maximum ice extent 21,000 years ago  
 Laurentide Ice Sheet

NORTH AMERICA

0 mi 1,000  
 0 km 1,000

**3** 16,000 YEARS AGO  
**Coastal route**  
 Deglaciation along the northwest Pacific coast opens a migration route into the Americas. Genetic evidence suggests that fewer than 5,000 individuals disperse south.



**4** 15,000 YEARS AGO  
**Rapid expansion**  
 Remains at sites like Monte Verde, Chile, suggest that humans migrated along the coast and reached the southern tip of South America in just a few hundred years.

**LINES OF EVIDENCE**

**Paths to a new world**

Fresh discoveries are redefining our understanding of when and how humans first migrated into the Americas. Archaeological evidence now firmly suggests human occupation began some 15,500 years ago, not 13,000 years ago, as previously thought. In 2014 advances in DNA analysis enabled the first sequencing of a full Paleo-American genome, at the Anzick site in western Montana—confirmation that the ancestors of modern Native Americans did indeed originate from a population in Asia.

MARTIN GAMACHE, NGM STAFF; AMANDA HOBBS  
 SOURCES: DAVID G. ANDERSON, UNIVERSITY OF TENNESSEE; JAMES CHATTERS, APPLIED PALEOSCIENCE;  
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 MICHAEL H. GRAHAM, MOSS LANDING MARINE LABORATORIES; JOHN W. IVES AND KISHA SUPERNANT,  
 UNIVERSITY OF ALBERTA; WILLIAM F. MANLEY, UNIVERSITY OF COLORADO; MICHAEL WATERS, TEXAS A&M  
 UNIVERSITY; PALEOINDIAN DATABASE OF THE AMERICAS; WESTERN CANADIAN FLUTED POINT DATABASE

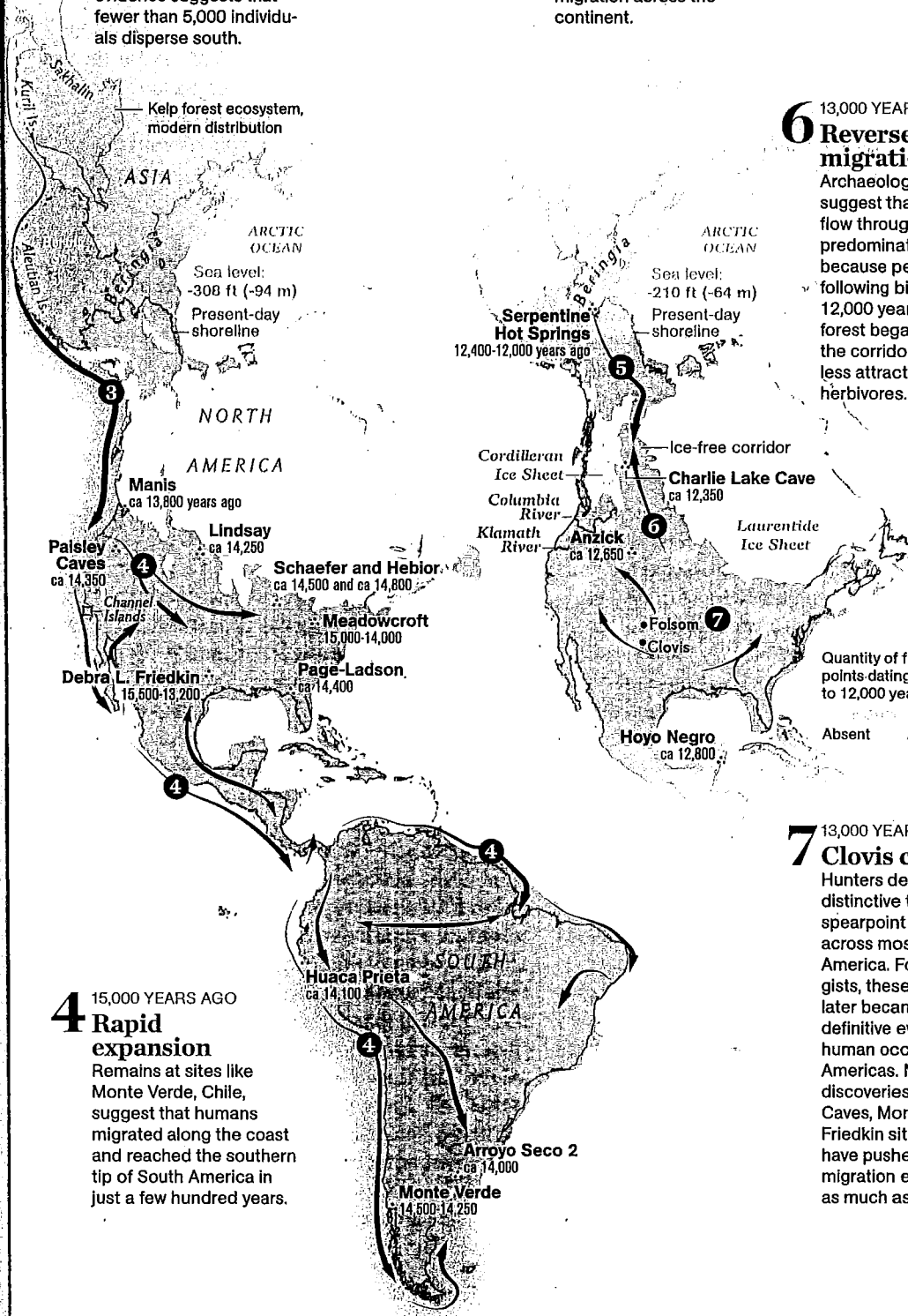
**3** 16,000 YEARS AGO  
**Coastal route**  
 Deglaciation along the northwest Pacific coast opens a migration route into the Americas. Genetic evidence suggests that fewer than 5,000 individuals disperse south.

**5** 14,000-13,000 YEARS AGO  
**Land route**  
 An interior ice-free corridor opens some 2,000 years after the coastal route, enabling further migration across the continent.


**6** 13,000 YEARS AGO  
**Reverse migration**  
 Archaeological finds suggest that a northward flow through the corridor predominated, possibly because people were following big game. By 12,000 years ago boreal forest began to colonize the corridor, making it less attractive to large herbivores.

**7** 13,000 YEARS AGO  
**Clovis culture**  
 Hunters develop a distinctive type of fluted spearpoint and expand across most of North America. For archaeologists, these Clovis points later became the first definitive evidence of early human occupation in the Americas. More recently, discoveries at Paisley Caves, Monte Verde, the Friedkin site, and others have pushed back initial migration estimates by as much as 2,500 years.

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**Rapid expansion**  
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Given that Asia and North America were connected by a broad landmass called Beringia during the last ice age and that the first Americans appeared to be mobile big-game hunters, it was easy to conclude that they'd followed mammoths and other prey out of Asia, across Beringia, and then south through an open corridor between two massive Canadian ice sheets. And given that there was no convincing evidence for human occupation predating the Clovis hunters, a new orthodoxy developed: They had been the first Americans. Case closed.

That all changed in 1997 when a team of high-profile archaeologists visited a site in southern Chile called Monte Verde. There Tom Dillehay of Vanderbilt University claimed to have discovered evidence of human occupation dating to more than 14,000 years ago—a thousand years before the Clovis hunters appeared in North America. Like all pre-Clovis claims, this one was controversial, and Dillehay was even accused of planting artifacts and fabricating data. But after reviewing the evidence, the expert team concluded it was solid, and the story of the peopling of the Americas was thrown wide open.

How did people get all the way to Chile before the ice sheets in Canada retreated enough to allow an overland passage? Did they come during an earlier period of the Ice Age, when this inland corridor was ice free? Or did they come down the Pacific coast by boat, the same way humans got to Australia some 50,000 years ago? Suddenly the field was awash in new questions and invigorated by a fresh quest for answers.

In the 18 years since the Monte Verde bombshell dropped, none of these questions have been resolved. But the original question—Was Clovis first?—has been answered repeatedly, with several sites in North America making their own claims to pre-Clovis occupation. Some of these places have been known and studied for years and have gained fresh credibility in the wake of Monte Verde's acceptance, but there have been new finds as well. One location in particular, the Debra L. Friedkin site in central Texas, might even be the earliest place of demonstrable human habitation in the Western Hemisphere.

IN 2011 ARCHAEOLOGIST Michael Waters of Texas A&M University announced that he and his team had unearthed evidence of extensive human occupation dating to as early as 15,500 years ago—some 2,500 years before the first Clovis hunters arrived. The Friedkin site lies in a small valley in the hill country about an hour north of Austin, where a tiny perennial stream now called Buttermilk Creek, along with some shade trees and a seam of chert, a type of rock useful for toolmaking, made the area an attractive place for people to live for thousands of years.

"There was something unique about this

### **A SITE IN CENTRAL TEXAS MIGHT BE THE EARLIEST PLACE OF HUMAN HABITATION IN THE WESTERN HEMISPHERE.**

valley," Waters says. It was long thought that the earliest Americans were primarily big-game hunters, following mammoths and mastodons across the continent, but this valley was an ideal place for hunter-gatherers. People here would have eaten nuts and roots, crawdads and turtles, and they would have hunted animals such as deer and turkeys and squirrels. In other words, people probably weren't here on their way to somewhere else; they were here to live.

But if Waters is right that people were settled here, in the middle of the continent, as early as 15,500 years ago, when did the first arrivals cross into the New World from Asia? That's unclear, but it appears that people may have been settled in other parts of the continent at the same time. Waters says the pre-Clovis artifacts he's found at Buttermilk Creek—more than 16,000 of them, including stone blades, spearpoints, and chips—resemble artifacts found at sites in Virginia, Pennsylvania, and Wisconsin.

"There's a pattern here," he says. "I think the data clearly show that people were in North

America 16,000 years ago. This site represents the initial or if there was some

Either way, the new evidence comports with an in evidence in our understanding of the Americas. In 2011, researchers compared the DNA of ancient Americans with that of other ancient humans from around the world and conclude that the first Americans were not other Asian populations but rather a distinct population for about 10,000 years before the Clovis hunters. This is a unique genetic signature currently

These genetic markers are found not only in the DNA remains of ancient Americans but also in the remains of a population that lived 12,600 years ago in what is now called the Channel Islands. Danish geneticist Eske Willerslev's analysis of the Channel Islands for the first time, a find

"Now we've got to look at Hoyo Negro, both in Mexico and in Florida. Hoyo Negro, the Anzick site, and others clearly show that Paleo-Indians related to native people

Though some critics say that these individuals are too small to draw definitive conclusions, their genetic signatures show Asian ancestry of the

So how and where the first Americans came from is an open question, but all the way to southern Mexico 10,000 years ago, it would be difficult to journeyed by boat.

THE CHANNEL ISLANDS along the California coast are rugged and remote. In Anzick park, a national marine preserve, a national marine post for U.S. Navy SEALs harbors thousands of ancient artifacts, many of them still undisturbed

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America 16,000 years ago. Time will tell if that represents the initial occupation of the Americas or if there was something earlier."

Either way, the newest archaeological evidence comports with an increasingly important line of evidence in our understanding of the peopling of the Americas. In recent years geneticists have compared the DNA of modern Native Americans with that of other populations around the world and concluded that the ancestors of Native Americans were Asians who separated from other Asian populations and remained isolated for about 10,000 years, based on mutation rates in human DNA. During that time they developed unique genetic signatures that only Native Americans currently possess.

These genetic markers have been found not only in the DNA recovered from Naiia's skeleton but also in the remains of a child buried some 12,600 years ago in western Montana, on a piece of land now called the Anzick site. Last year Danish geneticist Eske Willerslev reported that an analysis of the child's remains had yielded, for the first time, a full Paleo-American genome.

"Now we've got two specimens, Anzick and Hoyo Negro, both from a common ancestor who came from Asia," Waters says. "And like Hoyo Negro, the Anzick genome unquestionably shows that Paleo-Americans are genetically related to native peoples."

Though some critics point out that two individuals are too small a sample to draw definitive conclusions, there's strong consensus on the Asian ancestry of the first Americans.

So how and when did the earliest inhabitants of the New World get here? That remains an open question, but given that people made it all the way to southern Chile more than 14,000 years ago, it would be surprising if they hadn't journeyed by boat.

**THE CHANNEL ISLANDS** off the southern California coast are rugged and wild, home to a national park, a national marine sanctuary, and a training post for U.S. Navy SEALs. The archipelago also harbors thousands of archaeological sites, most of them still undisturbed.

In 1959, while exploring Santa Rosa Island, museum curator Phil Orr discovered a few bones of a human he named Arlington Springs man. At the time, the bones were judged to be 10,000 years old, but 40 years later researchers using improved dating techniques fixed the age at 13,000 years—among the oldest human remains ever discovered in the Americas.

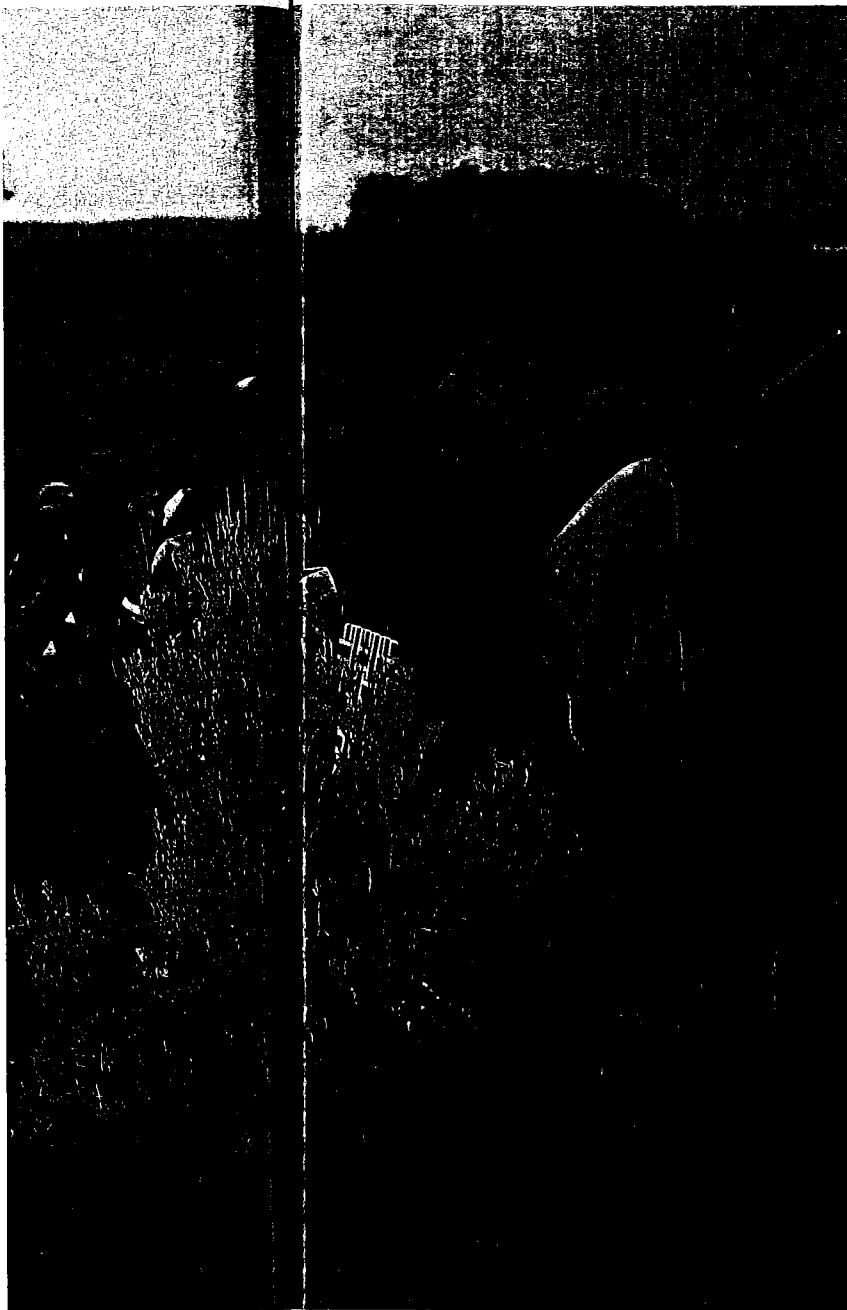
Thirteen thousand years ago the northern Channel Islands—then fused into a single island—were separated from the mainland by five miles of open water. Clearly Arlington Springs man and his fellow islanders had boats capable of offshore travel.

Jon Erlandson of the University of Oregon has been excavating sites on these islands for three decades. He hasn't found anything as old as Arlington Springs man, but he has found strong evidence that people who lived here slightly later, some 12,000 years ago, had a well-developed maritime culture, with points and blades that resemble older tools found on the Japanese islands and elsewhere on the Asian Pacific coast.

Erlandson says that the Channel Island inhabitants might have descended from people who traveled what he calls a kelp highway—a relatively continuous kelp-bed ecosystem flush with fish and marine mammals—from Asia to the Americas, perhaps with a long stopover in Beringia. "We know there were maritime peoples using boats in Japan 25,000 to 30,000 years ago. So I think you can make a logical argument that they may have continued northward, following the Pacific Rim to the Americas."

Beaches along the Pacific coast still teem with elephant seals and sea lions, and it's easy to imagine hunters in small boats moving swiftly down the coastline, feasting on the abundant meat. But imagination is no substitute for hard evidence, and as yet there is none. Sea levels are 300 to 400 feet higher than at the end of the last glacial maximum, which means that ancient coastal sites could lie under hundreds of feet of water and miles from the current shoreline.

Perhaps ironically, the best evidence for a coastal migration might be found inland, as people traveling along the coast would likely have



ERIKA LARSEN

explored rivers and inlets along the way. There is already suggestive evidence of this in central Oregon, where projectiles resembling points found in Japan and on the Korean Peninsula and Russia's Sakhalin Island have been discovered in a series of caves, along with what is surely the most indelicate evidence of pre-Clovis occupation in North America: fossilized human feces.

In 2008 Dennis Jenkins of the University of Oregon reported that he'd found human coprolites, the precise term for ancient excrement, dating to 14,000 to 15,000 years old in a series of shallow caves overlooking an ancient lake bed near the town of Paisley. DNA tests have identified the Paisley Caves coprolites as human, and Jenkins speculates that the people who left them might have made their way inland from the Pacific by way of the Columbia or Klamath Rivers.

What's more, Jenkins points to a clue in the coprolites: seeds of desert parsley, a tiny plant with an edible root hidden a foot underground. "You have to know that root is down there, and you have to have a digging stick to get it," Jenkins says. "That implies to me that these people didn't just arrive here." In other words, whoever lived here wasn't just passing through; they knew this land and its resources intimately.

That seems to be an emerging theme. It appears to be the story not just at Paisley Caves but at Monte Verde and the Friedkin site in Texas as well. In each of these cases people seemed to have been settled in, comfortable with their environment and adept at exploiting it. And this suggests that long before the Clovis culture began spreading across North America, the Americas hosted diverse communities of people—people who may have arrived in any number of migrations by any number of routes. Some may have come by sea, others by land. Some may have come in such small numbers that traces of their existence will never be found.

"There's a whole lot of stuff that we don't know and may never know," says David Meltzer, an archaeologist at Southern Methodist University. "But we're finding new ways to find things and new ways to find things out." □

