We Alaskans
THE ANCHORAGE DAILY NEWS MAGAZINE
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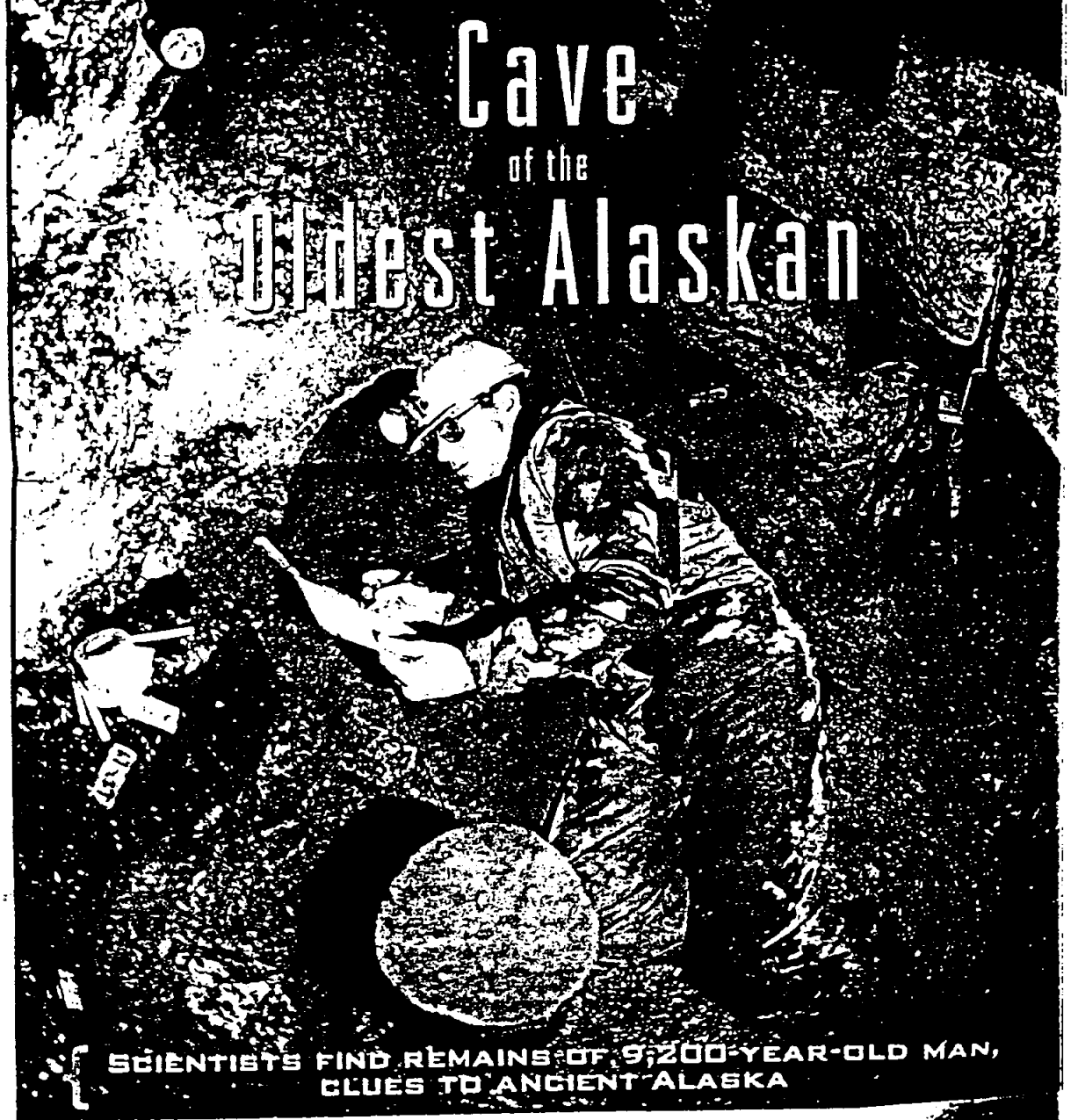
Cave of the Oldest Alaskan



SCIENTISTS FIND REMAINS OF 9,200-YEAR-OLD MAN, CLUES TO ANCIENT ALASKA

Paleontologist unearths 42,000-year-old animal bones in lair of 'oldest Alaskan'

Cave of the Sea Traveler

Paleontologist Tim Heaton examines a piece of animal bone while excavating a cave chamber in late July on Prince of Wales Island.

BY DOUG O'HARRA • PHOTOS BY ERIK HILL

Editor's Notes

By GEORGE BRYSON

Our cover story today discloses details of the 1996 discovery of the oldest human remains ever found in Alaska — a 9,200-year-old man who appears to have died in a cave on Prince of Wales Island — as well as subsequent discoveries there of animal bones more than 40,000 years old. It's probably the most significant story we'll publish all year.

Though the discovery is already 2 years old, scientists have only lately made greater sense of their findings, learning what else was waiting to be found in the same cave. We Alaskans staff writer Doug O'Harra and Daily News photographer Erik Hill visited Prince of Wales Island this summer and returned with today's report.

Discovering a man who actually walked these same shores 9,200 years ago is fascinating enough. Imagine: Someone who was here 90 centuries before European seamen ever "discovered" Alaska. Or 70 centuries before Christ was born. Or 40 centuries before the first known civilization appeared (in the Fertile Crescent, remember? — around 5000 B.C.).

But the discovery adds to what we're learning what we know about how and when the Americas first came to be populated by humans. Until recently, most scientists believed that land-based hunters peopled the Americas by walking across the Bering Land Bridge during a cold period when glaciers expanded and the sea level fell — then eventually migrated south through Canada when the ice retreated and opened up a corridor down the middle. The Prince of Wales Island discovery shows that marine hunters were already plying the waters of Southeast Alaska more than 9,000 years ago — before any ice-free corridor to the Americas could have existed — and may have settled the Americas by sea.

Unfortunately, the rising sea level has destroyed much of the human record along Alaska's coastline, while acidic soils have done the same on land. "But caves, with constant temperature and stable conditions for preserving bones, may provide virtual time capsules," O'Harra writes. This week's issue allows us to enter those caves, and see what the scientists see.

This Week

BIG DIG: We Alaskans staff writer Doug O'Harra and Daily News photographer Erik Hill travel to an excavation on Prince of Wales Island that has unearthed human remains 9,200 years old. **Page 4**

ERIK HILL / Anchorage Daily News

COVER: University of South Dakota paleontologist Tim Heaton sketches exposed layers of material before continuing his excavations at a cave on Prince of Wales Island. Photo by Erik Hill.

Among the finds this season are part of a lower jaw of a black bear estimated in camp to be 20,000 to 40,000 years old. Later testing can determine a more precise age for the piece.

Departments

We Alaskans

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Letters

tallation cost in error?

I would like to make several comments in regard to the "Yup'ik Warm to the Digital Age" article (August 23 We Alaskans). Doug Fine claims that Alaska Wireless provided wireless Internet connections to everyone in Toksook Bay for $10,000, but his article fails to cite the government-subsidized costs of the project. United Utilities, Inc. (UUI) estimates that an installed broadcast wireless unit would cost between $5,000 to $6,000 and that the incremental installed cost of adding a single subscriber would range between $3,000 to $4,500. There are approximately 90 households in Toksook Bay. The actual costs of providing wireless connections to every household in Toksook Bay would be in the hundreds of thousands of dollars, not the $10,000 amount reported by the author.

Another factual error is the actual cost of obtaining Internet service using the existing local exchange facilities. The article claims that it costs $4,300 to have an Internet pipe installed in one house. Local telephone customers now receive digital services and can dial into the Internet and obtain speeds of up to 14.4 kbps. They pay for a toll call and $19.23 for residential service. Customers can now, for another $94 per month, obtain speeds over local facilities of up to 8 mbps. UUI has not received any requests for this service.

Steve Hamlen, president
United Utilities, Inc.

Doug Fine responds:

I should just let Alaska Wireless, the company providing the technology in Toksook Bay, defend itself. But company CEO Red Boucher and other sources confirm that the figures I reported for its services are accurate. As I mentioned in the story, there are indeed government subsidies paying the cost of supplying Toksook Bay with wireless technology. Painful as this may be for the telephone monopoly, it makes the cost per villager almost nothing.

The $4,300 quoted in my article as the cost of having an internet pipe installed in one house in Toksook Bay — to provide a high-speed Internet connection comparable to that provided by Alaska Wireless (not the 14.4 kbps cited by Mr. Hamlen) — was also accurate. Mr. Hamlen compares apples and oranges in order to defend a monopoly. None of the elements of digital life in Toksook Bay reported in the article would be possible with the slower service available for $19 a month from UUI.

Even without long-distance charges (which Mr. Hamlen seems to dismiss as inconsequential), the cost of connecting a home with high-speed copper wire would surpass $4,300 in less than three years. Mr. Hamlen notes that no one has yet ordered UUI's most expensive service. At the prices he cited — nearly $100 a month, plus long-distance charges — that's no surprise, when villagers can get faster Internet service virtually for free.

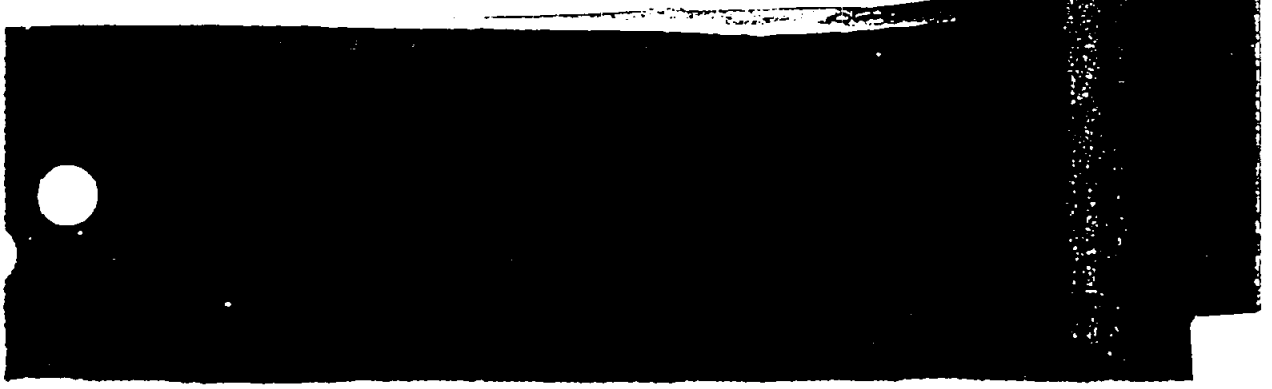
It's more than a post office

Ann Dixon's article "Postal Progress" reached out and touched folks as far away as Sutton. We too received a new post office a couple of years ago and we are slowly breaking it in — making it human.

Our old post office had quaint old boxes with combination locks. Our new post office has boxes that require keys, but even after two years, many of us conveniently "forget" our keys just so we can chat and keep up with the local news. The local Girl Scouts planted flowers out front this summer, adding color to the regulation post gray the building is painted. The postmaster planted a May Day tree. The sterile bulletin board now regularly announces local happenings, searches for lost animals and gives public thanks for small kindnesses. Perhaps someday rocking chairs, braided rugs and a pot-bellied stove will appear providing a homey comfort to those who gather at the counter each morning to share the news.

The "dreams and emotions" are beginning to "lubricate the hinges" of our new building. I suspect the town of Willow will begin to transform its new post office just as Sutton has. Thanks, Ann, for reminding us of the other important roles a post office plays in small towns like ours.

Nancy Barnes



For eons, the cave beckoned. The great sheets of continental ice expanded and contracted, at times covering Alaska's coastal range with mile-deep glaciers. The ocean level fell and rose in response, the climate shifted from arid tundra to woodland to rain forest. Thousands of seasons passed, and still the cave remained — a narrow fissure at the base of a cliff, a half mile from the sea.

Animals found it irresistible. Many times, bears denned there. Marmots and others nestled in its cavities, crunching on food, suckling young. As generations lived and died, the remains piled up — femurs, pelvises, teeth and fragments of marine mammals, strange deer, voles, foxes, beavers, bats. Layers of scat coated the floor with the bones of ancient fish.

The man came about 92 centuries ago, a young hunter who hiked up the mountain with a kit of weapons and tools. He was, perhaps, 23 years old, teeth still good. He had grown up eating fish, seals and seaweed.

Imagine him crouching in the cave entrance, torch in one hand, a heavy spear in the other. He crawled deeper into the narrowing chamber, scenting closer to the whisper of shallow breathing, the dark form of a slumbering bear.

Did he thrust the spear, the point shattering before it could kill? Was the tremendous roar of a wounded grizzly the last sound in his ears?

Just beyond the reach of daylight inside the damp cave on a mountainside on Prince of Wales Island in Southeast Alaska, Yarrow Vaara squatted in a notch between slabs of limestone and carefully measured a compacted square of ancient muck.

With string and nails, she lined out its 50-centimeter boundaries and recorded its precise position in three dimensions. By the weak light bulb dangling overhead, powered by a generator outside the cave, she studied the sediment and noted details in an all-weather notebook — the shades of dirt, the bulge of unknown rocks. Using a trowel, the 23-year-old archaeology student from the University of Alaska in Juneau began to peel off clumps and place them in a bucket, all to be screened later.

Suddenly Vaara caught her breath at something protruding from the surface — a rock with a triangular shape that suggested a spear point or knife. Working it free of the silt, she held it up to light, picked at the surface with her dirty fingernails.

"I don't see an edge," she said finally. "Just natural breaking."

She tossed it on a rock pile.

"They fool us a lot," she said, smiling wryly. "But I'm getting pretty good at identifying limestone. ... You try to be as careful as you can. You never know what you're going to find."

Indeed. Over the past several summers, a team of scientists and volunteers have recovered an extraordinary range of prehistoric fossils from this cave, including the oldest human remains ever found in Alaska or Canada as well as eight species of mammals no longer present on the island. Accompanying the remains have been several stone and bone tools, including distinctive microblades and spear points used by some of the earliest cultures in North America. One bone tool was found to be 10,300 years old, possibly the oldest artifact ever found in Alaska.

This cave could help rewrite what's known about how people came to the New World. It's

Tim Heaton's "bear box" contains the large ursine bones uncovered this summer.

"one of the most important archaeological discoveries made in North America in recent years," said lead archaeologist E. James Dixon, former curator of archaeology at the University of Alaska Museum and present curator for archaeology at the Denver Museum of Natural History.

Because the discoveries suggest that sophisticated marine hunters were firmly established in Southeast Alaska between 10,000 and 9,000 years ago, it lends support to the theory that the New World was first settled by coastal paddlers, people who traveled from Asia down the West Coast.

"It's the concept that best explains the available data," Dixon said. "If you did it in linear fashion, it would be very rapid. As they say in Southeast Alaska, the table's set twice a day — at low tide and again at low tide."

Until the last decade, most archaeologists believed that people colonized the Americas through several migrations across the 1,000-mile wide Bering land bridge. In the scenario memorized by schoolchildren, such spear-carrying big-game hunters trudged over the tundra, then immigrated south when the continental ice retreated for a dry corridor through western Canada.

But recent discoveries have steadily eroded that theory's foundations. Archaeologists have found evidence of multiple cultural groups in unexpected locations, some already established before any ice-free corridor could have existed. For instance, some scientists say people were living inland in a village at Monte Verde, Chile, by 12,500 to 13,000 years ago — a time when glaciers still covered the heart of North America. Other sites reach back further in time, to 30,000 years and beyond, but haven't been as widely accepted by scientists.

Since sea levels fluctuate by hundreds of feet, and Alaska's acidic forests consume bones and artifacts, no one has yet uncovered the remains of the region's first people. But caves — with constant temperature and stable conditions for preserving bones — may provide virtual time capsules. As a result, Dixon believes that unexplored caverns in southeast Alaska's rain forests could contain the remains and tools of the first people to enter the Americas.

"My particular interest and research is ... the possibility that the Northwest Coast was used for the migration, the peopling of America," Dixon said. "The caves here represent the locale where the evidence could be produced."

Led by Dixon and University of South Dakota paleontologist Tim Heaton, who found the human remains two years ago, the project has so far secured more than $400,000 in support from the National Science Foundation, National Geographic Society and the U.S. Forest Service. Federal archaeologist Terry Fifield, based in Craig, has coordinated support

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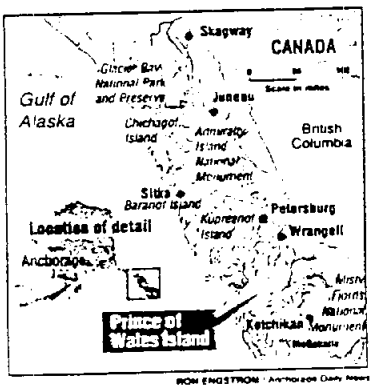


RON ENGSTROM / Anchorage Daily News

CAVE

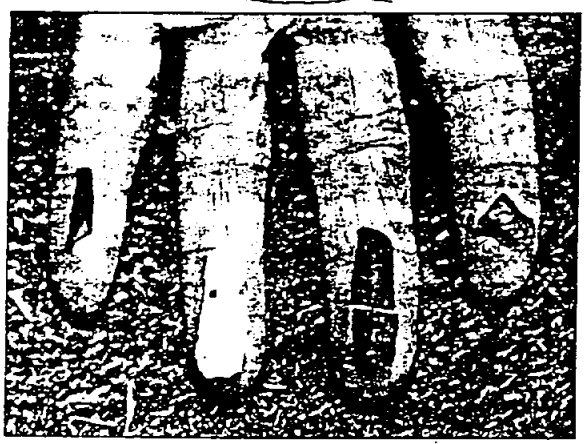
Continued from Page 5

from Southeast Native groups and local communities. Supplied by Forest Service helicopter, a base camp was built at the site, located in dense rain forest on a nearly inaccessible mountainside. Up to 20 scientists, students and volunteers have lived at the site this summer — often traversing a trail so rugged and muddy that it can take some people several hours to cross a half mile.

A water shortage has forced the crews to screen sediment in bags of mosquito netting inside buckets, or carry the muck down to the ocean in 10-pound sacks. So far, about 3 tons of compacted silt has been scooped out of the cave's passages and dissolved to recover buried bones and tools.

Despite such difficulties, scientists have unearthed clues to understanding the region's prehistory. The cave has yielded the bones of at least 40 species of mammals, birds and fish with dates that range over the past 40,000 years. The discoveries included the femur from a brown bear that died about 35,000 years ago — more than 20,000 years before the species appeared in the Lower 48 states — as well as ringed seals and other marine mammals that lived on the island during the height of the ice age. With a fossil record that extends back more than 400 centuries, Dixon and Heaton believe the cave demonstrates that portions of Southeast Alaska and the Northwest Coast offered animals and plants an ice-free refuge during the peak of glaciation.

"This project is more than just archaeology — although that's the flashy part that interests people, especially the media," Dixon said. "But the project is interested in the whole natural history of this part of Alaska."



The discovery of distinctive microblades indicates humans using the cave site were technologically advanced, Dixon says. The use of smaller blades mounted in bone or wood shafts rather than single, larger blades reduced the amount of valuable obsidian or chert needed to create tools or points.

Away from the cave, biologists have collected ancient pollen, discovering evidence of pine species during the ice age. Geologists have mapped the sea level and the glaciation and interpreted the sediments. While the archaeology team focuses on the cave's entrance and the ground outside, the paleontologists excavate inside, moving deeper into two narrow passages.

(Generally, paleontologists study the fossils of ancient plants and animals; archaeologists study the life and culture of past peoples.)

Heaton's work, especially, has been a "tremendous help" in understanding the world inhabited by the human discovered in the cave, according to Dixon.

"He's able to document what animals have been in this area and in what time periods," Dixon said. "By knowing what kind of animals were here, it tells you what kind of plants. It's one of the keys to figuring all this out."

The passage containing Alaska's oldest human remains might have gone undiscovered except for the era of cave exploration that began in the mid-1980s. Spelunkers and Forest Service expeditions have been cataloguing and mapping hundreds of caverns and fissures that riddle the limestone bedrock of Prince of Wales and nearby islands, providing the subterranean drainage for the region's 100 inches of annual precipitation.

Among them was a passage in El Capitan Cave, where in 1991 and 1992 Heaton and Fred Grady, head of the paleontology lab at the Smithsonian Institution, documented the remains of a half dozen small mammal species, four black bears and three large brown bears — proving for the first time that brown bears once lived on the island. (Brown bears do not live on Prince of Wales Island now — and many biologists believed they never did.) Over the next few years, more ancient species were uncovered in several other caves, but none dated earlier than the end of the ice age, about 12,000 years ago.

Meanwhile, in 1992, a survey crew noted a small, wet cave in a proposed timber sale on a northern lobe of the island. It wasn't until the following summer that Haines caver Kevin Allred — a founder of the Tongass Cave Project — mapped the cavern and spotted bones lying on the surface inside. The next summer, in 1994, he brought Heaton to the cave.

Heaton and Allred had been friends since caving together as teens in the Utah mountains. While Allred homesteaded property on the beach outside Haines, Heaton studied paleontology at Harvard and became a professor at the University of South Dakota. Over the years, Allred and other cavers had been scouts for Heaton's paleontological research in Southeast Alaska. "He's been my primary source," Heaton said.

During that first trip to the new cave, Heaton recovered the femur from a brown bear and the tibia and toe bones from a black bear in a separate passage. Expecting them to date to the same post-glacial period as his other finds, Heaton submitted a tiny portion of the femur for Carbon 14 testing with items from another cave. He was stunned when the animal dated to more than 35,000 years ago.

"People disputed that date," Heaton said. "They said there must have been a mistake or something. So we dated a second bone, from a black bear tibia. It came back at 42,000 years old."

Lead archaeologist E. James Dixon is curator for archaeology at the Denver Museum of Natural History. He held the same post at the University of Alaska Museum.

As a result of the dates, the National Geographic Society awarded Heaton an $18,000 grant to excavate the den and look for more bones. He came back with Grady, Allred and several others and worked for three weeks in the summer of 1996.

It was a grueling task. They camped on the beach and hiked the up-and-down trail over deadfall, boulders and ravines, spent the day worming through the cave's mucky passages filling sediment bags, then hauled them all down to the beach at night. But they were richly rewarded for the trouble — more bear bones, a whole marmot skeleton, as well as fragments of many other mammals. Like brown bears, marmots don't live on the island any more.

"It was really opening a whole window into an older period," Heaton said.

Along the way, they uncovered the broken tip of a stone spear point and two bone tools. The importance of those artifacts became clear on the last day of the dig, on July 4.

"I was in there alone, just kind of finishing the last few bags to haul down the mountain," Heaton said. "I reached down into this mud and pulled out more bones."

Lying on his side in the muck, his head lamp flickering in the dark, Heaton said he kept scraping mud off the pieces. One of the country's experts in ancient mammal skeletons, Heaton says he wasn't certain, precisely, what he'd found. The bones had been less than a meter from where he had found the 35,000-year-old grizzly femur. But they didn't appear to be bear bones.

"I was kind of confused by it," he said.

Hours later, down on the shore, he showed it to Grady, Allred and Juneau biologist Dave Love, who had all been helping Heaton dig. Grady, who prepares bones for exhibits at the Smithsonian, immediately recognized the remains as human.

"It was like, 'Oh my god!' " Grady said later. "We weren't expecting it because we had bear bones that were 30,000 or 40,000 years old. We were expecting a lot of animal bones."

What if the bones were as old as the bears? It would have been one of the most extraordinary archaeological finds of the century.

That night, Heaton and Grady radioed a "cryptic" message to Terry Fifield, the Forest Service's local archaeologist: "Important artifact found. Terry must come on the morning flight."

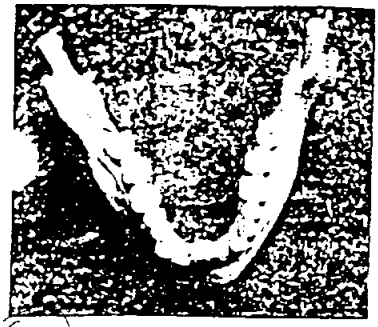
The discovery of human remains triggered the federal Native American Graves Protection and Repatriation Act, which requires that local Native groups be consulted immediately. Fifield, who transferred to Craig two years earlier, had already made it his policy to promptly share information about archaeological discoveries with Native leaders. He outlined the discovery to the two local tribal governments, the Klawock Cooperative Association and the Craig Community Association on July 6, the day he returned to the office.

'Right away, we went to them," he said. "We

6 We Alaskans / September 13, 1998

Whose ancestor is it?

While scientists, natives and government fight over Kennewick Man, "Alaska Man" avoids racial origin controversy



A cast of a human mandible found in the cave two years ago is kept in camp. Human remains found there have been dated at about 9,200 years old.

Just three weeks after scientists uncovered Alaska's oldest human remains in a cave on Prince of Wales Island, another set of human bones almost as old were recovered from the Columbia River near Kennewick, Wash.

Those remains — nearly an entire skeleton — were initially identified by a forensic archaeologist as a white male settler from the last century. But then radio-carbon testing showed that the bones were actually about 8,400 years old — launching a bitter legal dispute that has locked the remains in a vault and raised questions about how the search for the first Americans will be conducted in the United States.

Once the age of the skeleton was known, the U.S. Army Corps of Engineers confiscated the bones and prepared to turn them over to the Confederated Tribes of the Umatilla Indian Reservation (of northeastern Oregon) for reburial, under the authority of the Native American Graves Protection and Repatriation Act.

In response, eight prominent anthropologists sued for the right to study the skeleton, arguing that it was not clear the remains were related to the Umatilla or any other modern tribe in the area.

Since that time, the skeleton has been held at the Pacific Northwest National Laboratory in Richland, Wash, pending the outcome of the suit. In recent developments, the skeleton will be transferred to the Burke Museum at the University of Washington, where it will undergo court-ordered analysis.

At the core of the issue is a single question: Who were the first Americans?

The study of some of the oldest human bones found on the continent has suggested startling answers.

Like a dozen or so other skeletal discoveries, all about 8,000 to 10,000 years old, the Kennewick Man appears to have some physical features unlike most modern Native Americans. The shapes and measurements of certain bones, especially the skull, may resemble certain Eurasian populations such as the Ainu, the original inhabitants of Japan. Some scientists have described these remains as having "caucasoid" features — a term that does not necessarily mean that these people were Caucasian or European.

The remains from Prince of Wales island are about the same age as many of these discoveries and predate the "Kennewick Man." But whether they share the same traits can't be said with certainty because not enough of the skeleton was found, according to E. James Dixon, the lead anthropologist.

"Perhaps (meaningful comparisons) will be possible as the excavations continue and more of the individual is discovered," Dixon said.

In any case, the use of the term "caucasoid" has been soundly criticized in several academic journals. Some scientists believe these remains might fall within the range of natural variation among early Native groups in the first place, making the label "caucasoid" racially charged and misleading. Who these early people were, where they came from and whether they were the direct ancestors of modern Native Americans are all questions yet to be resolved.

"The physical traits appear to be more in line with an early population that probably spread across Northeastern Europe into Asia and even in the Japanese Islands," said the Smithsonian Institution's Dennis Stanford, one of the plaintiffs in the suit, in an interview published by Smithsonian on the Internet.

"It's very clear to me ... that we are looking at multiple migrations through a very long time period -- of many different peoples of many different ethnic origins, if you will, that came in at different times. Some of these people probably survived, some of them may have gone back home and some ... probably did not survive."

The Umatilla Tribe, on the other hand, views further scientific study of the Kennewick bones as culturally offensive.

"If this individual is truly over 9,000 years old, that only substantiates our belief that he is Native American," wrote tribal leader Armand Minthorn in a position paper. "From our oral histories, we know that our people have been part of this land since the beginning of time. We do not believe that our people migrated here from another continent, as the scientists do."

Subsequent plot twists have only inflamed the situation. There are charges that some of the Kennewick bones are now missing from the vault. A Northern California group whose members practice a revival of the old Norse religion claimed the Kennewick Man as an ancestor and performed religious ceremonies at the site where the bones were found. Then the forensic anthropologist who first examined the bones produced a plaster cast of the Kennewick Man. It resembled Patrick Stewart, the British actor who played a starship captain in "Star Trek: The Next Generation." The image ran in the New York Times.

Meanwhile The New Yorker magazine published an article that played up a controversial theory that interprets similarities between certain prehistoric spear points as evidence of a European origin for the first Americans. And last spring, the U.S. Army Corps of Engineers dumped 600 tons of gravel on the site of the original find, claiming it was needed to halt bank erosion.

Science magazine quoted a lawyer in the case as saying the whole thing has become like "a script for a Monty Python movie. All that's missing is someone clapping two coconuts together."

Dixon blames a lot of the uproar on the original misuse of the term "caucasoid," which he says has never been an accepted scientific term and should never have been used.

"'Caucasoid' is an adjective — it describes certain physical traits that are shared by all kinds of people around the world," he said. "It's a very poor term to use — it does imply 'Caucasian.' And the press took 'caucasoid' to mean 'Caucasian,' so people have gotten this bizarre idea of blond-haired, blue-eyed people coming down the coast of North America."

Even the project on Prince of Wales Island — dominated so far by a calm atmosphere of cooperation and respect among the scientists, Natives and government agencies — hasn't been immune to rumors. Some project volunteers say they were once asked by a local if they hadn't really dug up a "Viking" with blue eyes and yellow hair.

Such notions are absurd, said Dixon.

"The physical anthropological data are overwhelming in indicating that the earliest Americans have their genetic origins in Asia," he said. ■

— *By Doug O'Harra*

■ For more information on the Kennewick Man, see the coverage by the Tri-City Herald at http://www.tri-cityherald.com/bones/

said, 'We want your ideas. We'll put Native interns in the field. We'll put your questions into the research design. What do you want to know?'"

At the same time, Fifield contacted Dixon, who had already spent time investigating caves in the region, searching for evidence of the first Americans.

"Obviously, the jackpot had been found," Heaton said. "Everybody wanted to get in on it. But we contacted Jim."

Dixon offered the facilities at the Denver Museum of Natural History to help analyze and preserve the findings. "I was excited, but I was reserved," he said later. "With things like this, you have to be very cautious."

It was a critical moment. Elsewhere around the country, the discovery of human remains has generated bitter disputes between scientists and Native groups. When a whole skeleton was uncovered near Kennewick, Wash., only a few weeks later — and found to have an adjusted radio-carbon age of 8,400 years old — local tribes demanded that it be turned over to them for immediate reburial and banned further study. The U.S. Army Corps of Engineers confiscated the remains, prompting a lawsuit by a group of prominent anthropologists. The suit caused the remains to be locked up in a vault ing the outcome of the case. This week a ordered the "Kennewick Man" to be erred to the Burke Museum at the University of Washington, where further scientific analysis may now occur.

In Southeast Alaska, however, the Native groups reacted differently. At first, some tribal elders felt the best course was to rebury the bones and discontinue the project, Fifield said. But others wondered about the identity and age of the remains, whether the ancient human was an ancestor to modern Tlingit and Haida people, or from some other group. "In the end, the weight of curiosity and ... a desire to learn more about this person's culture and environment carried the day," Fifield later wrote.

Both tribal groups gave their blessing to the project, stipulating that Fifield notify them of discoveries first. They also asked that Fifield and other scientists not release the name and precise location of the cave.

"Their concern is that by publicizing this place, we could draw more people to the area that will desecrate other sacred sites," Fifield said. "They want to avoid attracting a lot of people to the area."

At the same time, the Native groups and

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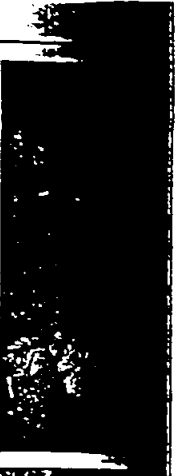
After dinner in the kitchen tent, Tim Heaton uses a laptop computer to catalog animal bones that have been unearthed in the last few days. The yurt also serves as a useful place to dry wet clothes above a propane stove.



Intern Yarrow Vaara of Klawock excavates material just inside the mouth of the cave. The bucket of material is tagged by location and hauled to the sediment screening station.

CAVE

Continued from Page 7

the National Science Foundation sponsored two Native interns selected by the Klawock and Craig councils to work at the site with the scientists each summer. This year, they included Yarrow Vaara, a University of Alaska anthropology student with Tlingit heritage, and Patrick Olsen, a graduate student at the University of Idaho with Haida heritage. Vaara was one of two Native interns who presented academic papers at the Alaska Anthropological Association last spring.

During 1997, the Forest Service built the field camp, and the scientists surveyed and mapped the cave passages and grounds. A line within the cave marked the boundary between the paleontologists and archaeologists — nicknamed "the Heaton-Dixon line." More artifacts and ancient mammals were uncovered, but there was no more

Continued on Page 10

CAVE

Continued from Page 8

sign of the human. This summer, the team excavated a trench from the entrance and dug deeper into the accumulated sediment inside the cave.

"It's kind of a boring little cave," Dixon said. "It's not very pretty. But it is just a treasure chest of science."

Many of the bones uncovered have not yet been dated through Carbon-14 techniques. DNA testing of the human remains is under way. So far, only a fraction of the cave has been excavated. The scientists anticipate years of work ahead.

"Jim Dixon really thinks this is a corridor between the New World and the Old World, and it would have had to happen between 12,000 and 13,000 years ago," Heaton said. "If there were humans around, then this cave has a good record. If you're going to find a place to look, then this is a good spot. That's why we're working so hard."

"I think we're really not even halfway finished," Dixon added. "There's a lot more to be done. But this is very slow, very meticulous work."

The remains — temporarily stored at the Denver museum — didn't amount to a complete skeleton: An angular lower jaw with all of the teeth except four incisors, a few vertebrae, rib fragments and part of the right side of a male's pelvis. The age, wear and staining of the bones appear to match, suggesting they all came from the same man. Tiny pieces from the jaw and pelvis produced preliminary Carbon-14 dates of about 9,730 years old and 9,880 years old. After adjusting the dates for the presence of certain carbon isotopes, the archaeologists believe the man died about 9,200 years ago.

Even with such a small portion of the remains, some conclusions can be drawn. Analysis of the kind of carbon isotopes in the bones showed the man gathered his food from the sea. "He had as much of a marine diet as a harbor seal," Dixon said. His excellent teeth and bone growth suggest that he might have been about 23 years old.

"We're dealing with a fully modern man, just as capable as you or I," Dixon said.

These people learned how to flake small blades sharper than stainless str razors and mount them in bone or wood shafts. With this technology, a hunter could repair and refit his weapons kit from a small amount of sto – a tremendous technological innovation for people living in country wit long winters, Dixon said.

The artifacts discovered offer a few more clues. Over three seasons, the scientists have found more than 200 separate pieces, including three stone spear points or knives, three bone tools, several microblades, many chunks of charcoal and a lot of flakes left from making new weapons. Several of the tools were made from obsidian, chert or quartz not found on the island, suggesting that the man and his people traveled to other islands, perhaps trading for tools. Charcoal was found mixed into the sediment throughout the cave, possibly left by torches or campfires.

So far, Dixon said, the discoveries hint at three separate human events. One occurred when someone dropped a bone tool in the cave about 10,300 years ago. Another bone tool that dates to about 5,700 years ago was also found.

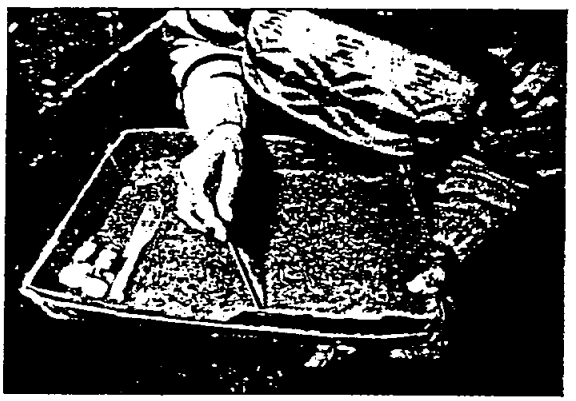
Continued on Page

Tim Heaton shows Kevin Allred, left, samples of bear bones found this summer in the cave. Allred, of Haines, is the caver who mapped the cavern and found bones there in 1993, alerting Heaton, his longtime friend.

'Let me dig'

Cave of Alaska's 9,000-year-old man attracts volunteers nationwide. But life in camp is far from easy.

Volunteer Linda Blankenship, who teaches Alaska studies and biological science at Ketchikan High School, washes silt from a sack of excavated material at the sediment screening station. Working with Blankenship to screen a backlog of material are Madeline Harrell of the Denver Museum of Natural History, cook and volunteer Peggy Whitehead of Denver and intern Patrick Olsen, originally from Ketchikan and a graduate student at the University of Idaho.



Above: After silt has been washed away from the excavated cave muck, the remaining material is dried, then sorted.
Left: University of South Dakota student Andy Klock hands a bag of material to Yarrow Vaara at the narrow entrance of the cave.

In a grove of cedar and hemlock on top of a ridge, Patrick Olsen looked glumly into the 1,000-gallon tank that stood nearly empty. A few pools of scummy, brown water had gathered in the folds of tank's rubbery floor. Connected by fire hose to the archaeological dig a few hundred feet downslope, the portable tank was supposed to supply scientists with a constant supply of pressurized water to wash mud off ancient bones and artifacts.

Not today.

"There's probably enough to do a bucket or two, but it doesn't want to come out," Olsen said. "When you get a good rain, it fills pretty good."

Tilted reefs of large tarps ruffled between the trees and the tank's corner, ready to intercept any stray drop of water. But a virtual drought had hit one of the drippiest, soggiest rain forests on the Northwest Coast, complicating the excavation of a Prince of Wales Island cave for its scientific treasure. The lack of water was forcing scientists like Olsen to collect water in any way possible — or haul heavy bags of cave muck down a rugged, muddy trail to the sea.

Olsen, a graduate student in anthropology from the University of Idaho, reached over the

Continued on Page 11

DIG

ontinued from Page 9

ink and pulled on the heavy, pliable flour. Straining with his arms and back, he wrenched ackward, forcing water to slosh toward the ose. F ly dollops started slurping into the rain nally charging the hose with enough ugnc ucket of dirt or two.

"It's . very romantic archaeology," Olsen id. "This is the kind of stuff Indiana Jones ould have sent (his sidekick) Sallah off to do."

Down the mountain, a fitful drizzle brought Peggy Whitehead onto the wooden platform outside the kitchen yurt. She pulled up a ed dangling between the tarp erhead and a six-gallon bucket, ored by a plastic fork at the tarp rner, held taut by a bolt, the rope ourefully channeled water into e bucket.

"It usually rains a lot more up re — it's a rain forest'" she said. but this has been a bad year for in."

Even with the prospect of hauling ater uphill or hauling dirt down, no e even discusses using the kitchen ater, which comes from a separate 5-gallon tank, to screen sediment. "The kitchen water is off limits. d I protect it with my body," hitehead said. "I say, 'If that tank empty, I'm gone.' It's amazing at power the cook has."

Whitehead heard about the open- for camp cook while volunteer- at the Denver Museum of tural History, where E. James son — lead archaeologist for the nce of Wales project — is a cura-. She wanted to join the Alaska ject — for free — even though in real life 's an electronics engineer who specializes in igning teleconferencing networks.

Dixon asked her, "Have you ever cooked for ntity before?"

I have seven children," Whitehead replied.

Dixon hired her on the spot.

That was the whole job interview," she said r. "He figured that I knew what I was doing." ow Whitehead prepares three meals a day 10 to 2 gry camp members.

The s rrounding the kitchen platform was so primeval that a movie producer n't have improved it. Perched beneath the n a rugged bench of land, the work areas tents sites nestled in a forest of towering lock and cedar, ferns and brush. Thick moss ed the ground in a lumpy carpet that ured boulders, old logs and pits. It was gy underfoot, like stepping on a trampoline. view faded into a dim thatch of cockeyed fall and branches, dropping off on three into a misty ravine. Far overhead, patches ute sky interrupted a greenish canopy, cast- vague light that made everything seem ers.

espite insufficient rainfall for scientific , mud dominated all travel. On the trail a ravine bridged by a slippery tree trunk few muddy headwalls had actually been ped with fixed ropes. The route was so herous and difficult that Dixon hired ck resident Tarz Snook, a former Native with the project, to cut a new trail with a saw. Footpaths in camp oozed with muck nsistency and color of chocolate cake bat- he sediment screening area — a few logs erfurmed buckets under a tarp ceiling — wash in sheets of brown goo, the result of soaking and straining hundreds of bags of cave sediment to isolate artifacts and bones.

The sediment screening station provided one place where camp members could visit outside of meal times. As they kneaded and squished the bags in the water, dissolving away the silt, they cracked jokes and discussed the identify of the man in the cave, the weather, the menu, the forest and life in general.

Among them was volunteer Linda Blankenship, who teaches Alaska studies and science at Ketchikan High during the school year. For weeks, Blankenship had spent hours each day soaking sediment bags or sorting dried bones into vials for later study. Partly because of her Tlingit heritage, she was particularly fascinated with the tools that had emerged from dirt, especially the microblades, sophisticated stone tools with edges honed sharper than stainless steel.

"It's just awesome to think they had this kind of technology and were moving around in watercraft to get materials 5,000 years before the Egyptians built the pyramids," she said. "People have occupied (the region) for a lot longer than a lot of people think. ... That's what makes me misty-eyed when I find these things."

As an Alaska Native, Blankenship said she was initially nervous at the prospect of digging in a site that may hold other human remains. At first, she wouldn't dig but would only screen the sediment.

"I was very apprehensive about the possibility of finding remains and having to touch them," she said.

During a summer gathering in Klawock, she spoke with several elders from the community. "They all said, 'Go for it. It just proves more and more of our traditional stories, that people have been here for a long time. Now we're finding proof.'

"So I came back and said, 'Let me dig.'"

It takes about 15 or 20 minutes of soaking for the silt to dissolve, leaving behind a spoon full of hard debris that might turn out to be bones or tool fragments. That material gets dried in one of two tents, then sorted into vials and painstakingly recorded. The sorting process continues all winter in various Lower 48 laboratories by Heaton, Dixon and their volunteers.

In the meantime, this summer the paleontologists and archaeologists often spent several hours each day up to their elbows in five-gallon buckets of muddy water.

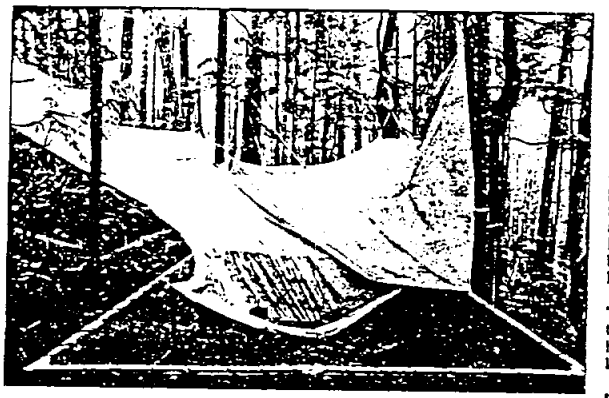
"You can't ever be really dry," explained Nathan Carter, one of Heaton's students, as he and several others sloshed in the water and squeezed their bags. "You can't ever be really clean."

"The rule is — when you can't see that your glove is orange any more, change the water," added Heaton's wife, Julie.

The mother of three teenage girls had come to the site during her summer vacation. A cheerfully admitted "workaholic," she'd recently completed a doctorate degree in inorganic chemistry (she studied how certain rocks weathered on a molecular scale.) This fall, she plans to enter her second year of medical school at the University of South Dakota.

Spending her time off, wet and muddy, hauling her husband's sediment bags down a challenging trail through a damp rain forest, was just the antidote for her busy life, she said.

"It just depends on what you normally do and what you're sick of," she said. "Normally I sit on my butt and study all the time in a little town that's flat as one of Peg's pancakes. So when I'm here, it's exciting."



Tarps fail to collect enough water to process the excavated material. Bags of muck have to be hauled downhill to the ocean for screening.

In a 5-foot-deep trench extending from the mouth of the cave, Olsen dug out a square of dirt. Based on previous squares already excavated, it appeared to be barren of bones or artifacts. Still, he'd spent about six hours troweling brown muck into a bucket. Later he would spend hours liquefying the same muck in a bucket.

"It has to be done," Olsen said. "The lack of cultural things is sometimes just as important as when you have it. But you don't know until you look. So that's why we're looking."

Nearby Eric Parrish, Dixon's assistant from the museum, squatted in the trench and studied the wall. He pointed out the lines showing different layers — each corresponding to a geological event or a period of time. One was a thin grayish line. "The cultural layer," where most of the artifacts had been found.

A graduate of Rocky Mountain College of Art, Parrish specialized in drawing bones and stone tools, and he sketches the exposed "profiles" and artifacts. He also keeps track of who's been digging and where, puts the locations of artifacts and other findings in the computer at their precise coordinates.

Ultimately, Parrish said, a computer program will be able to reproduce the cave and its artifacts or bones, level by level. The images might some day be studied by archaeology students.

"We're older than the Kennewick Man, older than anything in Canada or Alaska," Parrish said. "We're making history right here, within this great little trench here."

Tim Heaton emerged from the cave and shed his muddy suit. He brought out several bags packed with saturated muck — the "matrix" that has yielded the bones of ice-age mammals that inhabited the cave over the past 40,000 years.

Without enough water, Heaton planned to carry several of the bags down the mountain on his back. But for a while, he sat on a bucket, his boots in the ooze, and worked the bag of saturated dirt with his fingers. The prospect of the hike didn't bother him.

He'd found a piece of a bone from a juvenile bear's toe — "the first good bone we've found in six weeks."

The paleontologist held it up to the light and admired it.

"The thing that's amazing to me is that no human being has ever seen this before," he said. "Everything I find is amazing." ✱

— By Doug O'Harra

CAVE

Continued from Page 10

But the most significant moment came about 13,000 years ago when the young marine hunter died in the cave and apparently died there. Most of the tools appear to date from the same time.

"It's a leap, but I think it's uncanny that the age of the individual and the age of the artifacts appear to be very close," Dixon said. "I think it's reasonable to assume if they aren't his tools, he was a member of a society that used those tools."

What makes that possibility so fascinating, Dixon said, is the presence of microblades and other tools of the Paleoarctic culture that spread from Asia into Alaska and down the Northwest Coast beginning about 10,500 years ago and lasting until about 6,500 years ago. These people learned how to flake small blades sharper than stainless steel razors and mount them in bone or wood shafts. With this technology, a hunter could repair and refit his weapons kit from a small amount of stone — a tremendous technological innovation for people living in country with long winters, Dixon said.

"This is the first time we've had a glimpse of the physical remains of the humans who had these microblades," he said. "So this is a real breakthrough."

Though it amounts to pure speculation, the evidence at the cave seems to paint the story of an ancient adventure. A marine hunter — possibly with companions, possibly alone — hikes a

A toe bone of a juvenile bear that may be 13,000 years old emerges from a sack of muck being worked on at the sediment screening station.

Art school graduate Eric Parrish records profiles of walls to map sediment in preparation for archaeologist E. James Dixon.

arrow Vaara hauls another bucket of material past the tarp-covered cave entrance toward the screening station.

lf mile up a rugged mountainside to the mouth the cave. He sets up camp and builds a fire. He pairs and hones his weapons, leaving behind aste flakes and specialized bone tools. Then, at ome r he enters a cavern that had been ome s for thousands of years.

Wl t behind suggests the rest of the tale a larg spear point gets broken, with pieces de and outside the cave, as though scattered force. And the man's remains, with signs that he bones had been chewed on by a large animal, et preserved in muck for the next 92 centuries.

"Whether this young man was killed bear unting or not, no one knows," Dixon said. s

Wearing full-body caving coveralls caked with black silt, Tim Heaton sauntered into the maw of the cave, an irregular gash in the limestone cliff. He stepped down the plank and entered a small chamber framed by fallen slabs of rock and lit by dangling light bulbs. From there, the two passages forked ahead into darkness.

The right passage narrowed fast, rapidly twisting into a wet, mucky squeeze that Fred Grady had been digging out for weeks. Eventually that passage burrowed through the rock and emerged further down the cliff.

The left fork was more open. Yarrow Vaara was working on her knees in the entrance, digging out a pit at the cave's narrowest point. Behind her, lying on his side in a hole, was Andy Klock, one of Heaton's college students, excavating a cavity under a limestone ledge.

Heaton launched himself past Vaara and Klock, stretching out full length on a sloping rock face. He squirmed deeper into the darkness, reaching the mouth of a narrow chute down.

"It's kind of nasty," he said over his shoulder. Then he slithered down out of sight.

Ground zero of what may become Alaska's most important archaeological discovery was a square chamber of angled rock walls pocked with cracks, nodules and scallops. Root hairs bristled from the ceiling, evidence of the stubborn reach of the rain forest through 20 to 30 feet of rock. "Moon milk" — a creamy sediment formed in caves by leeched limestone and bacteria — clung to a few ledges.

With his head lamp casting a narrow beam of yellowish light, Heaton knelt on a stiff foam pad and adjusted a hose that pumps water out of the cavity. Immediately to one side jutted the rock shelf that had once hidden the human remains. Two years earlier, that shelf defined a hole, full of ice-cold muck.

Since that time, Heaton and others have removed, scoop by scoop, about 700 bags of sediment. The effort had lowered the floor of this chamber about 1 meter. But much more debris remained, packed up against a far wall.

Heaton lay on his side, pulling out a notebook, and began sketching the contours of sediment in the 2-foot high wall.

"I like doing my own profiles," he said. "It's very subtle. The deeper layers tend to have the older bones, and they get younger as you go up."

The layers formed irregular contours, like levels in a deformed cake. One was a brown streak — fish bone deposited in otter scat. Other layers might signify a wet season when floods washed debris into the chamber. When he finished, Heaton thrust in a trowel and pulled out a triangular wad of black mud. He carefully eased it into the bag.

As he worked, the only sound cutting the cold damp air was the scrape of his trowel, the rustle of his clothing. Pitch black shadows danced whenever he moved his head and shifted his lamp. Suddenly, he stopped.

"There's something," he said.

Heaton poked at the object imbedded in the mud, clearing it off, picking at it slightly. He shook his head.

"It's just a root," he said.

Just as he and the rest of the crew had done for weeks, Heaton would continue working for hours, slowly troweling out the sediment accumulated over the past 40,000 years. Hours would pass uneventfully. But at any time Heaton might unearth the next important fossil.

"If there are more human remains in this room," Heaton said, "this is the most likely place to find them."

And he pushed his trowel into the wall for another slice. ■

■ Doug O'Harra is a staff writer for We Alaskans. Erik Hill is an Anchorage Daily News photographer.