

*Stored untouched for decades,
clay fragments reveal an ancient star chart
created by the Indigenous people of Oklahoma.*

Guided by Stars

By Anne Barajas Harp
Photos by Travis Caperton

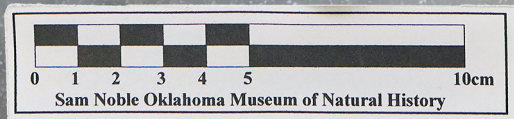


When University of Oklahoma archaeologist Susan Vehik inherited boxes of clay fragments bearing dozens of finger imprints, she thought all she had was evidence that Native American children 700 years ago were no different from kids today. Vehik now believes she has one of the few existing Native American star charts, the foundation for a pre-Columbian calendar based on the night sky.

The story of the star chart spans centuries of Oklahoma history. During the late 1970s and early 1980s, a crew of OU archaeologists led by professor Jerry Galm excavated a site near the ghost town of Uncas, where encroaching Kaw Lake waters revealed the footprint of a small hamlet containing four ancestral Wichita houses dating between 1350 and 1480. Inside the houses were shattered pots, arrow points, tools fashioned from bison bones, remnants of sand plums and dried corn, and piles of hardened chunks of clay known as daub. The daub from one house bore a crazy quilt of fingerprints.

Vehik, an OU professor emeritus and expert on prehistoric Plains Indians, says that early Wichita homes were small and constructed of poles lashed together into walls, with an interior lining of grass bundles woven together. Layers of daub were plastered over the matting. Vehik's first impression was that a child had "decorated" a drying wall while their parents' backs were turned.

continued



"I thought, 'Well, some little kid just went berserk,'" quips Vehik, who later reworked the Uncas site and kept the daub in her OU laboratory from the mid-1980s until prepping to retire from her 37-year teaching career in 2015.

"I was packing up things to go to the Sam Noble Oklahoma Museum of Natural History and I thought, 'What the hell *is* this? I'll take a few days and try to piece it back together.'" A few days turned into nine months of perseverance fueled by countless cups of coffee as Vehik mulled connections between more than 50 fragments of daub. She realized that roughly half of the fragments were missing.

"It's kind of like assembling a picture puzzle where somebody has taken big handfuls of the pieces," says Vehik, who admits that her family's annual Christmas puzzle tradition came in handy. "Once I saw everything together, I eliminated the 'crazy little kid' because it was too patterned.

"At the time, I was reading a lot of Pawnee and Wichita ethnography," she says, adding oral tradition holds that Pawnee and Wichita peoples descend from the same ancestors. "The Pawnee had a fantastic star knowledge, and I got to thinking, 'Maybe that's what it is. Maybe it's a map of the stars.'"

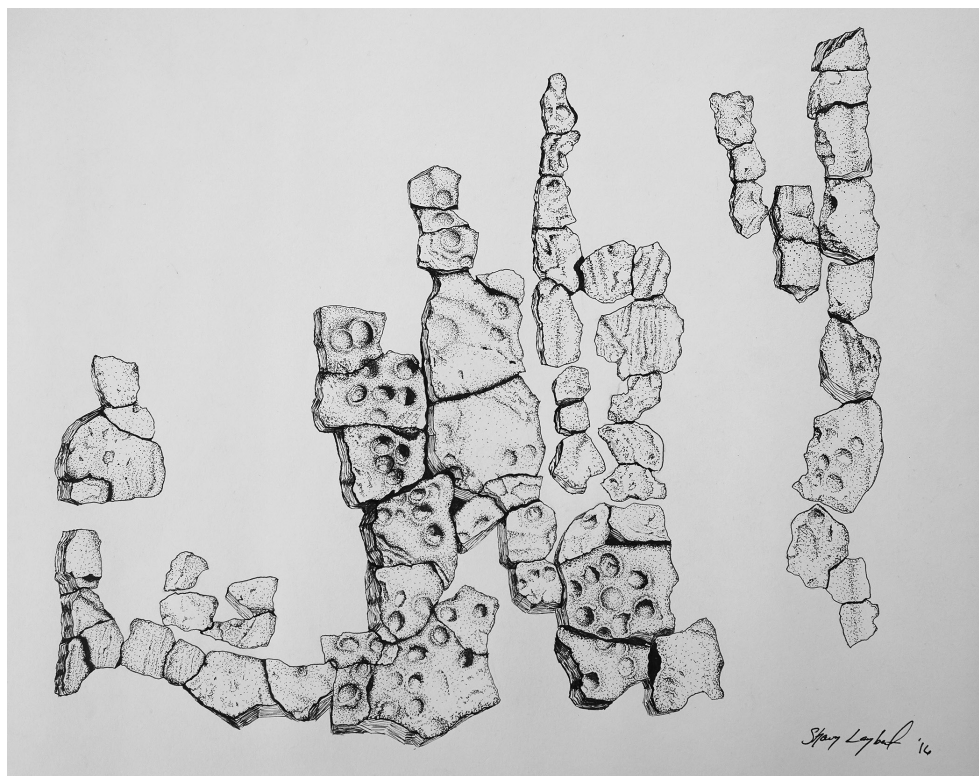
Vehik explains that a Pawnee sub-group known as the Skiri was especially skilled in astronomy and produced a famed "star map" of the constellations on elk hide between the 1600s and 1800s. It is the only known map of its kind.

"No one has ever really discussed what that might mean in terms of, 'Did star charts develop within that period, or do they have a long ancestry?'" she says. "I had always just assumed they had a long ancestry, but we didn't have evidence to support that."

Vehik asked an avocational astronomer to examine the assembled daub, and at first glance he brushed off her theory. "Then he took a second look and said, 'I think you have the Pleiades.'"

"I Googled it, and up on the screen popped a modern-day photo of the Pleiades in the precise configuration that's displayed on the Uncas star chart. It was pure luck," she says.

Vehik – who concedes she has trouble picking out the constellations without help from a smart phone app – dove into a yearlong study. She learned that the Pleiades, often called "The Seven Sisters," are the most visible cluster of stars and



This illustration by Shawn Lambert shows the fully assembled Uncas Star Chart, which may have been used more than 700 years ago by ancestral Wichitas to schedule their ceremonial life and make such important decisions as when to plant and hunt.

were used as a calendar by ancient peoples around the globe. Paleolithic hunter-gatherers and Greek sailors alike turned their eyes to the sky as the Pleiades rose and set, with the stars Atlas, Alcyone and Electra lining up briefly at their highest point – or culmination – during different times as the seasons progressed. Life-and-death decisions hung in the balance of those stars.

"It's a way to tell you where you are during the passage of a year. You can't rely on temperature to tell you, 'Now it's time to plant,' because you could have a warm stretch, you could have late freezes," she says. "But if you look at the stars, they're regular. The ancestral Wichita were looking for things such



The Uncas Star Chart may owe its existence to the fact that it survived a house fire, evident from the charred edges of the assembled daub. Vehik believes that the ancestral Wichita hamlet was purposely burned due to a territorial dispute.

as, ‘When might the sand plums be ripening? When should we expect the bison to be delivering calves? When will winter come?’ Vehik theorizes that the early Wichitas also arranged their ceremonial life around these signs.

After four years of research, Vehik is writing a professional journal article introducing the scientific world to what may be the earliest-known evidence of Native Americans using the stars as a calendar. It was created two full centuries before the birth of the world’s most recognized astronomer, Galileo Galilei.

She says the chart represents “anything but” a casual observation of the heavens. Other constellations, including Hyades and Aldebaran, appear to be outlined in the Uncas chart, and Vehik points to a circle in the lower right she thinks represents something like the Pawnee’s “Four Gods in the West,” star deities who lived in a circular sky lodge.

“I think the star chart tells us that the ancestral Wichita had a much deeper, more detailed understanding of the sky than most people think. They were engaged in real astrono-

my,” she says. “They didn’t have telescopes, but they had very dark nights and good eyes and were interested in how the stars changed their positions as the seasons went by.”

Resting in the human hand, the daub pieces that make up the star chart have the cool weight of sandstone, and miniscule particles of Arkansas River clay compacted 700 years ago cling to the palm. Though fragile, Vehik says the pieces still reveal the imprint of fingernails and perhaps even finger whorls, and she thinks some fingertip impressions are purposely deeper than others, perhaps to indicate the brightness of certain stars.

She surmises that the missing part of the star chart melted away in the waters of Kaw Lake, which flooded the Uncas site several times during the 1970s and 1980s and now covers it entirely. Many of the remaining daub pieces and other artifacts from the site clearly are charred, which may explain why the Uncas star chart survived throughout centuries.

“Somebody burned the house down,” Vehik says bluntly. “In fact, all four houses were burned.” The distance between houses likely rules out an accidental fire, she notes, and tools and pots left inside the houses make it hard to reason that the residents lit the fire themselves.

“My guess is the houses were deliberately burned down by someone who did not think the ancestral Wichita should be there,” Vehik says, adding that historic records document territorial conflicts over bison between the Wichitas and nomadic hunters from western Oklahoma as early as the 1600s.

“When the house burned down, it charred and hardened some pieces of the daub and it didn’t char others. Those disappeared,” she clarifies. Likewise, time and the elements may have taken their toll on star charts made by other prehistoric communities.

“My guess is that star charts go back thousands of years with the ancestral Wichita,” Vehik says. “It may be that they put them on skin or did it on bark; these guys just happened to do it in clay. And if the Uncas house had decayed as opposed to burning, we wouldn’t know that.”

She says it is possible other daub star charts are waiting to be discovered on dig sites or in museum collections, potentially even at the Sam Noble museum, where daub from another ancestral Wichita excavation by former Oklahoma Archeological Survey Director Don Wyckoff has piqued her interest.

“They’re probably out there,” Vehik says. “It’s just that nobody knew what to do with them. And if I hadn’t lucked into a modern-day example that looked exactly like what I had from Uncas, I’m not sure that I would have recognized it, either.”

Anne Barajas Harp is associate editor of Sooner Magazine.