LAS February 2015 Headlines:

1st Americans used spear-throwers to hunt large animals

By Joseph Castro, FoxNews.com, February 03, 2015

Despite a lack of archaeological evidence, the first North Americans have often been depicted hunting with spear-throwers, which are tools that can launch deadly spear points at high speeds. But now, a new analysis of microscopic fractures on Paleo-Indian spear points provides the first empirical evidence that America's first hunters really did use these weapons to tackle mammoths and other big game.

The new study has implications for scientists' understanding of the way Paleo-Indians lived, researchers say.

To understand the inner workings of extinct hunter-gatherer societies, it's important to first learn how the ancient peoples got the food they ate, because their lives were closely tied to their subsistence activities. Current models of Paleo-Indian society are based on the assumption that hunters sometimes used spear-throwers, or atlatls, said study author Karl Hutchings, an archaeologist at Thompson Rivers University in Canada. [In Photos: The Clovis Culture & Stone Tools]

"We can now be assured that those assumptions were right," Hutchings told Live Science.

Ancient hunting tools

Similar to bows, atlatls can propel flexible, pointed shafts — called darts, rather than arrows — at high speeds across long distances. Essentially, they were sticklike tools that contained a hook or spur at one end to hold a dart. By swinging the spear-thrower overhead and forward, hunters could launch their darts with greater force than if they were to throw them like javelins.

Archaeological evidence indicates that hunter-gathers in the Old World used atlatls beginning at least 18,000 years ago. Researchers have long thought that Paleo-Indians — including the people of the Clovis culture, who lived around 13,000 years ago and are considered one of the first American peoples — also hunted with spear-throwers.

Researchers reasoned that "if the spear-thrower originated in the Old World, then it only made sense that it must have shown up with early [North American] colonists," Hutchings said. Additionally, Paleo-Indians were thought to have hunted big animals, such as mammoths and ground sloths, which would have required powerful, long-distance weapons to take the animals down safely. "People started wondering just how crazy you would have to be to run up to these things with just a sharp, broken rock tied to a stick."

But archeological evidence of Paleo-Indian atlatls and darts is lacking because these tools were often made of wood, which doesn't preserve well — the only part of the weapons left in the archaeological record are the stone points, which could have also been used in other types of weapons, such as spears, Hutchings said. In comparison, ancient spear-throwers from Europe were often made of ivory or bone.

The earliest known evidence of Paleo-Indian spear-throwers comes from 11,000-year-old "bannerstones," which are stone objects that may have functioned as atlatl weights, though the true function of bannerstones is debated, Hutchings said. [Top 10 Mysteries of the 1st Humans]

The earliest solid evidence of atlatls in the New World, then, are 9,000- to 10,000-year-old spear-thrower hooks from Warm Mineral Springs, a sinkhole in Florida. However, these tools date back to the Early Archaic subperiod, which came after the Paleo-Indian period.

Telltale fractures

To see if the earliest North Americans — including people from the Clovis culture, Folsom culture (10,000 to 11,000 years ago) and other Paleo-Indians — used atlatls, Hutchings analyzed the fractures present in hundreds of spear points. He looked for clues that the weapon tips experienced high-velocity, mechanically propelled impacts.

If a spear point hits a target hard enough, the energy of the impact will cause the tip to break. "When it breaks, it sends a shock wave through the stone that produces fractures, which are related to the amount and kind of force involved," Hutchings said.

By measuring topographic features on the fracture surface, you can calculate the "fracture velocity" of the impact, or how quickly the fractures spread through the material, Hutchings explained. Because different weapons — spears, javelins, atlatls or bows — produce specific fracture velocities and related forces, you can work backward from a fracture to determine what caused it.

Using this method, which he developed in the late 1990s, Hutchings determined the fracture velocities for 55 out of 668 Paleo-Indian artifacts that he examined. Of these points, about half of them exhibited fracture velocities that can only be achieved using an atlatl and dart or a bow and arrow.

Because Paleo-Indians aren't thought to have had bows and arrows or other propulsive weapons, the findings suggest that they most likely used atlatls to launch their spear points, Hutchings said.

Importantly, the method may also help scientists better understand ancient projectile technologies, by allowing them to trace the origin of the technologies and how they were used across societies and continents. "We can get a better resolution of when these technologies occurred, how they spread and why they spread," Hutchings said.

Hutchings detailed his findings in the March issue of the Journal of Archaeological Science.

Researchers discover patterns of warfare in prehistoric Eastern North America

Popular Archaeology, February 13, 2015

The native populations that European colonists encountered in North America as they spread across toward the west of the continent were defined at least in part by their patterns of warfare, say a team of researchers.

"Archaeological evidence unambiguously shows that warfare varied widely over time and space among the small-scale societies of late prehistoric eastern North America," said George R. Milner, department head and professor of Anthropology at Penn State University at the annual meeting of the American Association for the Advancement of Science in San Jose on February 13.

Milner and colleague George Chaplin, a senior research associate in anthropology at Penn State, analyzed indicators of conflict, including the archaeological record of fortified settlements and the physical signs of violence and warfare in skeletal remains such as embedded arrowheads, evidence of damage by stone axes and bodily mutilation. They also investigated intergroup interaction among the prehistoric native populations by examining distribution of disk-shaped smoking pipes used in everyday life, including the sealing of important social transactions, such as forging alliances.

"We are looking at Eastern North America," said Milner. "Nowhere else in the world has similar archaeological data been compiled for such a large area."

Across the East Coast and Midwestern United States, the researchers found that conflict occurred from the 11th century onward when population pressure and environmental factors due to climate change converged. Warfare then ebbed and flowed over time, eventually causing movement of nearly everyone out of the midcontinent by the 16th century. The chiefdom societies disappeared and the population decreased dramatically.

"By late prehistory in the 1500s, the whole Midwest is depopulated down to Tennessee and Kentucky," said Milner. "Bordering this area on the east and south a band of conflict-prone societies formed. "

These, say the researchers, were the populations first encountered by the European settlers as they pushed westward, forcing the groups back into the central depopulated areas they abandoned earlier.

But even with the decreased population, the various indigenous societies continued to fight.

The groups had a hard time quelling the conflict, even when there was no population or resource pressure," said Milner. "Episodes of retribution went back and forth with an apparent inability of groups to pull out of the cycles of warfare."

Some of the societies in Eastern North America were, at times, highly organized societies usually referred to as chiefdoms, while other less hierarchically organized groups were tribal in nature. While chiefdoms may have been capable of producing larger or stronger fortifications, the archaeological remains of walls, ditches or embankments around settlements exist in both types of societies.

Milner admits that the data are not seamless or complete, but says it is sufficient in Eastern North America to begin to look at patterning across extremely large areas.

Milner and his colleagues state that there is a need in archaeology and anthropology to study larger areas of land and link those studies to the measurable environmental, societal and demographic changes to understand variations in prehistoric societies. The large areas are necessary to say anything meaningful about human behavioral response to social and environmental events.

One of the big challenges in archaeology today is how to go about identifying types of behavior over larger geographic areas," said Milner. "We are good at individual sites and regional surveys, but one thing that has not been done until now anywhere in the world is to look at larger geographic areas for conflict, movement and interaction."

LAS Find of the Month, February 2015:

Members can bring an artifact to be entered into the competition at the monthly meeting, which will be judged based on the following rules:

1. Must be a member of LAS in good standing.
2. The artifact must be a personal find.
3. It must have been found within the specified time frame, i.e., within the month prior to the meeting.
4. The artifact doesn't have to be a Colorado find—all that matters is that it was found in the last month.

The Find of the Month for February 2015 was made by Ted Meredith.

Type: Concentric Tool
Material: Niobrara Jasper
Location: Weld County, Colorado

LAS News and Upcoming Events:

Speakers Needed!

Really!! We need speakers for our 2015 meetings! If you would like to give a presentation or know of someone who would give a great program please contact Andy Coca, Jean Steinhoff or Kevin Zeeck. No experience is necessary. All that is needed is a passion for our hobby and a willingness to share that passion. Thanks!

March 3, 2015	March meeting. Program: Kenneth Jessen, writer/reporter for the Loveland Reporter-Herald, will give a presentation on "the Best Ghost Towns in Colorado."
April 7, 2015	April meeting. Program: To be announced.