# While the men were out hunting, Stone Age women created a future

*by Scott_LaFee*

For generations, archaeologists believed that Stone Age gender roles split neatly in two, like a well-struck piece of flint:

Paleolithic males were hunters of woolly mammoths and other daunting prey. Females stayed behind. They cared for the kids, or maybe gathered seeds and berries.

MOTHERS OF INVENTION - Female figurines at the San Diego Museum of Man are replicas of carvings unearthed in Europe that are estimated to be 6,000 to 25,000 years old. CNS Photo by Scott Linnett. The image was widely disseminated and quickly popularized in movies, cartoons and museum dioramas. It was also based, contends James M. Adovasio, director of the Mercyhurst Archaeological Institute in Pennsylvania, upon wrongheaded interpretations of scant evidence and some dubious assumptions.

In a new book, "The Invisible Sex," written with anthropologist Olga Soffer and science writer Jake Page, Adovasio says that contemporary scientists paint a different picture of the Paleolithic past: There was no significant division of labor. Stone Age humans pretty much did the same jobs - at least some of the time. And when the women did remain behind, they spent much of their time inventing the tools and foundations of future society.

"Thanks to the work of numerous scholars in several fields," the authors write, "it has come to light that female humans have been the chief engine in the unprecedentedly high level of human sociability. (They) were the inventors of the most useful tools. (They) shared equally in the provision of food for human societies. (They) almost certainly drove the human invention of language. And (they) were the ones who created agriculture."

Plus, they still took care of the kids.

GENDER BIAS

It is impossible to say with any certainty who did exactly what in prehistory - that is, human history before the advent of writing and record keeping. There's simply no direct evidence one way or another upon which to base ironclad conclusions.

Part of the difficulty, said Adovasio, an authority on perishable artifacts such as basketry, is that the majority

of material elements of human life don't last. Soft items such as clothing or fish netting disintegrate, leaving behind an archaeological record heavy with artifacts made of stone, bone, antler and wood. Back in the 18th and 19th centuries, when working archaeologists unearthed what appeared to be Stone Age tools, they invariably assumed the tools had been made and used by men because that was the model of known primitive cultures. It certainly didn't hurt that most scientists of the time were men.

"I think it's perfectly obvious that the whole man-is-the-hunter idea, while not necessarily totally wrong, was formed from a completely male perspective," said Sarah M. Nelson, a professor of archaeology at the University of Denver.

"Just about everything written back then was biased in some way or another," agreed Dan Adler, a professor of anthropology at the University of Connecticut. "Gender and sex bias were almost certainly at work."

Perspectives didn't really start to change until the 1960s, when a few female archaeologists began to argue that existing science was based upon faulty premises.

"Some women archaeologists finally just got up and said, 'Wait a second, you're full of ...'" said Nelson.

Specifically, they asserted that tool use doesn't necessarily reveal the identity of the tool user. Adovasio offered the Clacton tool as a case in point: It is a 300,000-year-old fragment of wood found in 1911 near the town of Clacton-on-the-Sea in England. The standard interpretation is that the tool is a spear point fashioned by a Paleolithic male. Adovasio says this assertion goes too far, given the limited evidence. The Clacton tool, he suggests, might be a fragment of a digging stick once used to unearth edible roots. Or perhaps it was both a spear and a digging tool, used at different times for different purposes by both males and females.

More to the point, Adovasio and colleagues write, "whatever the Clacton tool was (and it probably was a spear point), who is to say that females 300,000 years ago did not make spears and use them to help feed themselves and their offspring?"

Indeed, in a recent paper published in the journal Current Anthropology, University of Arizona anthropologists Steven L. Kuhn and Mary C. Stiner contend that labor division by sex and age is a relatively new human invention.

The archaeological record shows little evidence that Neanderthals (who went extinct roughly 24,000 years ago) divided economic roles by gender, say Kuhn and Stiner.

Instead, everyone - male, female and juvenile - appears to have been involved in the biggest, most important work of the time: the hunting and killing of large terrestrial game.

"We find very little evidence for 'classic' female roles like harvesting vegetable foods or making hide clothing in the archaeological record of the Middle Paleolithic," said Kuhn.

Neanderthals lived to hunt. Meat comprised most of their diet, and everybody worked to acquire it. It was a matter of survival.

STRING REVOLUTION

To be sure, subsequent cultures would develop and define roles by gender, though when, how and why remains unknown. Adovasio's point is that when prehistoric women stopped doing the same jobs as men, they became engaged in activities that were not only just as important, but perhaps fundamental to the transformation of human culture. One tangible example was the creation of new technologies like string and fiber, which emerged roughly 30,000 years ago. In her 1994 book "Women's Work," Elizabeth Barber, a linguist at Occidental College in Los Angeles, compared the invention and use of fibers to the development of the steam engine.

String ties things up, she said. It can be used to catch, to hold, to carry. "From these notions come snares and fish lines, tethers and leashes, carrying nets, handles and packages, not to mention a way of binding objects together to form more complex tools." Lynn Gamble, an associate professor of anthropology at San Diego State University, offered a real-life example: the basket-making abilities of the Chumash, an American Indian group that lived along the Southern California coast.

"The Chumash Indians were one of the most complex groups of hunter-gatherers in the world," said Gamble. "At the time of historic contact (with Spanish explorer Juan Rodriguez Cabrillo in 1542), they lived in permanently occupied settlements, some with more than 800 inhabitants."

The Chumash did not have agriculture. Instead, they gathered and stored foods (most notably oak acorns) to see them through hard times. Their basket-making techniques were key. They created, for example, woven "water bottles" lined with asphaltum, a naturally occurring tarry substance that repels water.

Much of the evidence for this comes from archaeological digs at Misnopsno, an ancient Chumash settlement in Pitas Point, Calif. There, Gamble and others have uncovered extensive asphaltum works.

"I believe this represents one of the only archaeological examples of a basket-making area in California, and maybe anywhere in North America," said Gamble.

Most of the recovered Misnopsno artifacts, according to Gamble, are associated with women's activities, suggesting that Chumash women dominated the production work. "It is likely that the women at Pitas Point were manufacturing baskets for exchange (with other tribes)," she said.

This is not a minor point, Gamble notes. Chumash baskets were a highly prized export commodity, an engine of the Chumash economy and one reason for the culture's success and survival. "Without the efforts of women," said Gamble, "the population densities and level of sociopolitical complexity (of the Chumash) would not have been possible."

WOMEN IN LABOR

Making the argument that prehistoric women worked hard is not a stretch.

"It is clear from my studies of California Indians that the women took on more work than the men," said Gamble. "Men often had time to hang out in the sweat lodges while the women were busy with daily tasks." Similarly, it's quite probable that Paleolithic women invented and used many, if not all, of the tools of their time. Rose Tyson, curator of anthropology at the San Diego Museum of Man, said need would have been a compelling motivator.

"As the primary carriers of infants, for example, women probably invented flat boards and other devices to transport children too young to walk on their own."

Proving that prehistoric women created agriculture is more problematic, though Adovasio and others offer some interesting evidence. In particular, Adovasio cites the work of Marsha Ogilvie, a biological anthropologist at the University of New Mexico who studied two baseline cultures in the ancient American Southwest: a pure hunter-gatherer group and a pure agricultural group.

From bone studies, she discovered that the hunter-gatherers, who walked long distances in search of food, had developed a supportive ridge down the length of their femurs or thigh bones. The ridge appeared in both males and females.

Conversely, the leg bones of the more sedentary agricultural group did not exhibit the telltale ridge.

Ogilvie then turned her attention to the remains of a culture that had lived in Arizona 3,500 years ago. At the time, the Cochise culture was making the transition from foraging to farming. But who was doing the farming, Ogilvie wondered?

By again scanning the femurs of recovered skeletons, Ogilvie came up with an answer: the women. Male Cochise femurs had pronounced ridges, indicating that their owners still spent significant time roaming the countryside, presumably hunting. Female femurs lacked the ridges and were generally less robust, both strong indications of a more sedentary lifestyle.

Such findings, aided and abetted by research elsewhere, have reinforced the argument that Paleolithic women were the drivers of agriculture.

Adovasio's other contention - that women invented language - is more debatable.

"It's meant to be provocative," he said. His reasoning is clear enough, though: Paleolithic females were expected to care for offspring. Communication between mother and child was essential. Communication between different mothers was also important, not just to ease the rigors of child-raising, but to share information about the availability of food, water or shelter. "It's not unnatural to assume," said Adovasio, "that communication for females was more important (than it was for males) and that there was a selective advantage for language among females. They would have developed skills proportionate to their demands and needs."

He points to a bit of biology to buttress his contention: Male and female humans brains are wired differently. Most language function in a male brain occurs in the left hemisphere. In females, it happens in both sides. Females have three distinct pathways connecting the two hemispheres; males have two.

Adovasio argues that given the general rule in biology that form and function are entwined, it makes sense that these biological differences reveal a fundamental reality: Women in prehistory needed to communicate more than men - and so they likely invented the means to do it. Whether Adovasio is right remains to be proved, if it can be proved at all.

"One of the most difficult issues in dealing with gender roles in the Paleolithic is associating activities with specific groups," said Kuhn at the University of Arizona.

"Because it is difficult to establish a direct link between an artifact and the maker of that artifact, it is usually necessary to assume (loosely) that baskets and nets mean women, big-time hunting means men. There is not much anyone can do about that." Perhaps, but Adovasio argues there's a larger point to be made about the relative values of these activities. While knowing how to corner and kill a cave bear was undoubtedly useful to Stone Age cultures, Adovasio and others say the ability pales in comparison to the lasting value of being able to make clothing and fish nets, farm and communicate with one another.

"Women in human history have been as important as men," he said. "Maybe more so."

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