When The Human Spirit Soared

Cultural evolution shifted into high gear with the appearance of anatomically modern humans in the late Ice Age

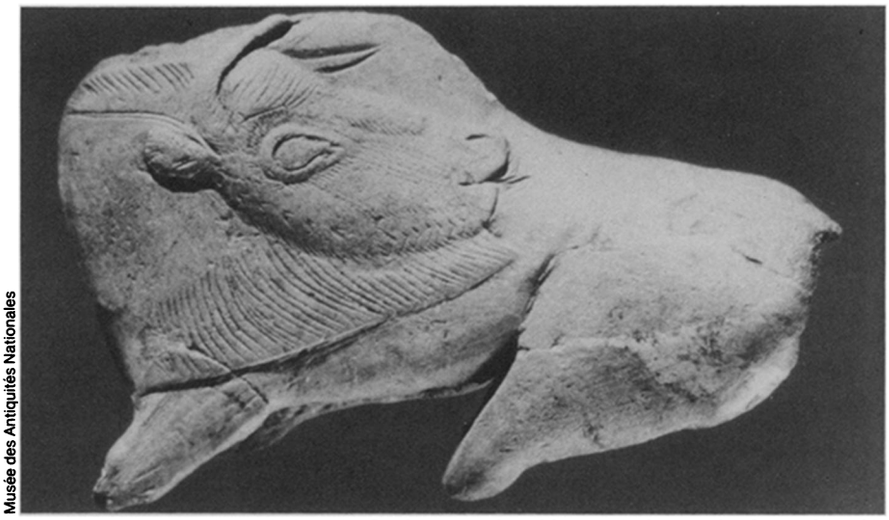
By BRUCE BOWER

There is a cave in the French Pyrenees whose walls contain more than 200 human handprints dating to about 26,000 years ago. But there is something puzzling about the prehistoric prints: All except 10 have fingers missing. Some investigators have suggested that the missing fingers were hacked off in ritual mutilations. Others have argued that disease and infection destroyed the digits. One anthropologist proposed that the fingers only appear to be missing and were tucked into the palm of the hand, indicating that a kind of gestural language or code was involved.

Although the handprints were first described in 1963, the mystery of the missing fingers remains unsolved. Make no mistake; the people who brushed or blew pigment around their hands on the cave wall were just like us in body and brain. They participated in the rapid development of art and technology that began in the Upper Paleolithic, or late Ice Age, which extended from 35,000 to 12,000 years ago.

The perplexing handprints point to a larger archaeological problem: In an attempt to understand complex Upper Paleolithic cultures, scientists have only inanimate remains to work with. "For archaeologists encountering an Ice Age painted cave, there are no informants," says anthropologist Randall White of New York University. "They have all been dead for thousands of years. Therefore, our head-scratching is bound to go on for some time."

But in the past decade, important strides have been made in reconstructing the lives of the earliest *Homo sapiens sapiens*, or modern humans. An up-to-date picture of the human condition in Ice Age Europe was presented at a recent New York University symposium. The gathering of French and U.S. investigators was held in conjunction with the opening of an exhibition, "Dark Caves, Bright Visions: Life in Ice Age Europe," at the American Museum of Natural History in New York City.



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Spear-thrower with bison licking its flank was sculpted from reindeer antler. It was found in France and dates to between 14,000 B.C. and 17,000 B.C.

About 150,000 years ago, Neanderthals were the first members of the human lineage to inhabit the glacial landscapes frequented by reindeer, wooly mammoths and other cold-adapted species. In an overlapping period of a few thousand years at the beginning of the Upper Paleolithic, they were replaced in Europe by anatomically modern Cro-Magnon populations. A popular theory, says anthropologist Fred Smith of the University of Tennessee in Knoxville, suggests that modern humans emerged in Africa about 50,000 years ago and spread into Asia and Europe. They and the Neanderthals kept their distance and competed for limited resources; the Neanderthals lost and were driven to extinction.

Smith argues, however, that the Neanderthals were not brusquely shunted aside by the innovative, up-and-coming Cro-Magnons. There are signs, he says, suggesting that interbreeding took place Some skeletal features, such as a protrusion on the occipital bone of the skull, are found among both species. In addition, several of the earliest Upper Paleolithic sites in central and western Europe contain hunting tools that apparently derive from the crude flakes employed by Neanderthals and also suggest that some type of intermingling occurred.

Regardless of how the Neanderthals were replaced, it is generally accepted that the European transition to Cro-Magnons was established between 34,000 and 30,000 years ago. At that point, says White, rapid-fire advances in hunting technology and culture were set in motion. Flakes gave way to more finely honed blades used for hunting and cutting up carcasses. Music assumed an important role; the first known instrument, a bone flute found in France, dates to around 30,000 years ago.

By about 23,000 years ago, sewing needles made of bone debuted in southwestern France, allowing a more sophisticated tailoring of cold-weather clothes. Delicate-looking but deadly spear-throwers appeared 6,000 years later, often with animals carved or engraved on them.

"One of the most important developments of the Upper Paleolithic," says White, "is the movement of goods, particularly items used for body decoration, across the landscape." These include seashells, probably used on necklaces, that have been found at sites up to 100 miles from the ocean. Jewelry also incorporated stone and ivory beads and the teeth of dangerous animals, such as bears and lions.

The transport of these items was facilitated by European geography at the time,

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which, says White, was largely composed of grasslands rather than the arctic tundra one might expect.

The best-known portable art objects of the late Ice Age are so-called Venus figurines, typically small sculptures of women with the breasts and buttocks accentuated. Some anthropologists have suggested they were fertility images. Because Venus figurines have been found across a 3,000-mile swath from western to central Europe, researchers have also proposed that artistic styles and belief systems were passed on and maintained through interactions between groups of Ice Age people.

Similar "social networks" appear to have been in force in eastern Europe, according to anthropologist Olga Soffer of the University of Illinois in Urbana-Champaign. She and several Soviet scientists have studied 29 Upper Paleolithic "camps" on the central Russian plain covering a 100,000-square-mile area. After the glacial advance peaked 18,000 years ago, says Soffer, classic Venus figurines were replaced at these sites by more abstract female forms and an abundance of painted signs on mammoth bones and skulls.

At about the same time, explains Soffer, groups of 50 to 100 people appear to have spent winter months at camps on the floodplain, where they hunted mammoths and other animals. During warmer weather the groups moved to higher ground. Evidence for more complex structures and social organization has been found at northern cold-weather sites, she notes, which seem to have been distribution centers for shells and other ornamental objects that ended up at sites several hundred miles away. It was, she says, like "an early version of the Hudson Bay Company."

To date, Soffer and her colleagues have located 12 sites with dwellings made of mammoth bone, including the site at Mezhirich in the Ukraine, which has structures containing up to 20 tons of the creatures' skeletal remains. As an example of the careful planning that went into construction, Soffer points to one dwelling that is composed of repeated sections of lower jawbones, long bones, scapulas and other skeletal parts.

"This appears to be an Upper Paleolithic example of monumental architecture that probably had some kind of ritual significance," contends Soffer. She cautions, however, that it is not known whether hunter-gatherer groups occupied these camps one time only or in sequence and if early types of worship took place there.

Explanations are similarly in short supply, says White, for the explosion of creativity and art at the transition to the Upper Paleolithic after several million years of predominantly biological change in the human lineage. But the beautiful images of animals on cave walls in southwest France, northern Spain and several other areas continue to draw scientific examination. The most famous examples of cave art, such as Lascaux in France and Altamira in Spain, date to the time period between 18,000 and 11,000 years ago.

Cave art and other evidence of human occupation in the Americas up to 32,000 years ago also have been uncovered (SN: 6/28/86, p.405).

For about 20 years now, investigators have realized that European cave paintings and engravings were organized according to preconceived plans. "There is an elaborate organization of space in Upper Paleolithic caves," says French archaeologist Denis Vialou of the Musée de l'Homme in Paris. Vialou has documented strong relationships between paint color, type of signs, species of animal, and location within the cave at a site in France. Cultural variations in these relationships are apparent at different caves, he adds.

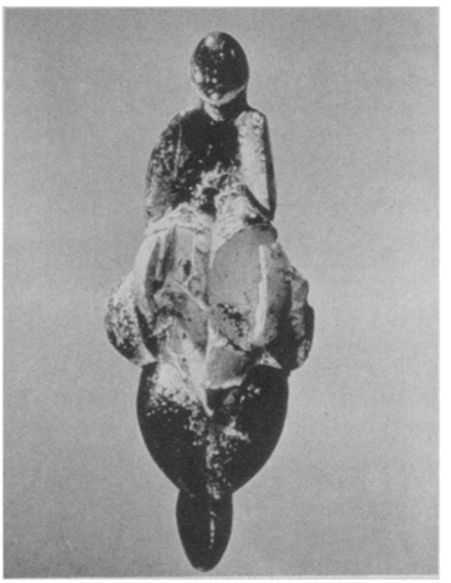


Photo: J. Oster

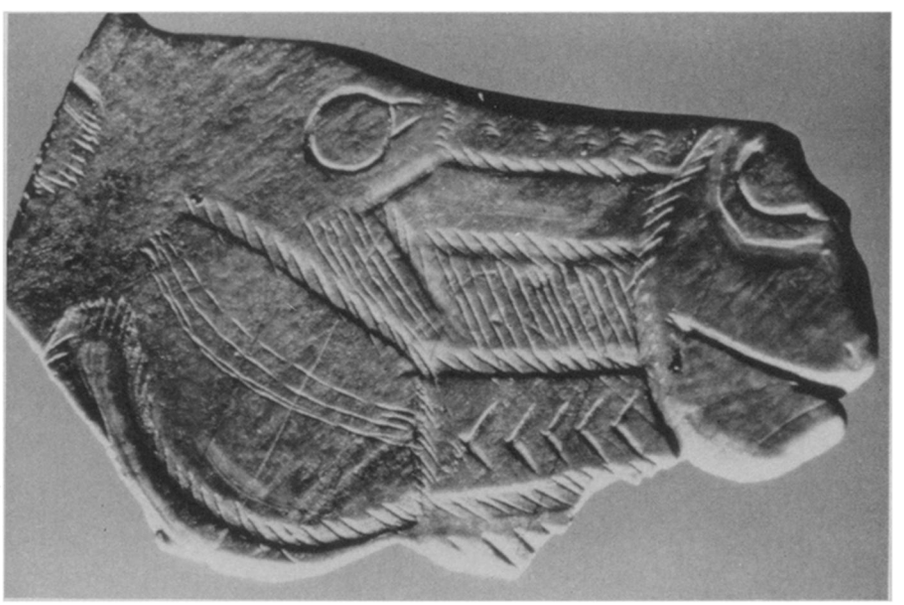
One of the most elaborate Ice Age Venus figurines dates to around 24,000 B.C.

Henri Delporte, inspector general of French museums, notes that late Ice Age people tended to draw animals that they did not eat. At the cave of La Vache, for instance, horses make up one-quarter of the paintings and less than 1 percent of the remains of hunted animals, while ibexes appear sparingly on the walls and are abundant in the remains.

This suggests to Delporte the existence of a complex symbol system passed from parent to child during the Upper Paleolithic. "If these drawings were only made as a record of hunting," he contends, "it wasn't necessary to make them so elaborate and beautiful."

Painting itself underwent marked advances in the late Ice Age, says anthropologist Margaret Conkey of the State University of New York at Binghamton. Early efforts, such as the brushing or blowing of pigment around a hand, were later replaced by more complex methods. At Lascaux, she points out, pigments mixed with clays were applied to the wall and allowed to crystallize. This layer was then painted over to achieve desired color tones and effects. At the same time, different painting techniques were used at other caves.

"The process of making an object or piece of art may be part of its meaning," says Conkey. "Perhaps [late Ice Age] wall and portable art were fundamentally different in purpose. We're only beginning to think about how to correct for our own cultural assumptions about what constituted art in the Upper Paleolithic." □



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Engraving of a horse's head on a flat piece of bone was discovered in France and dates to about 15,000 B.C.