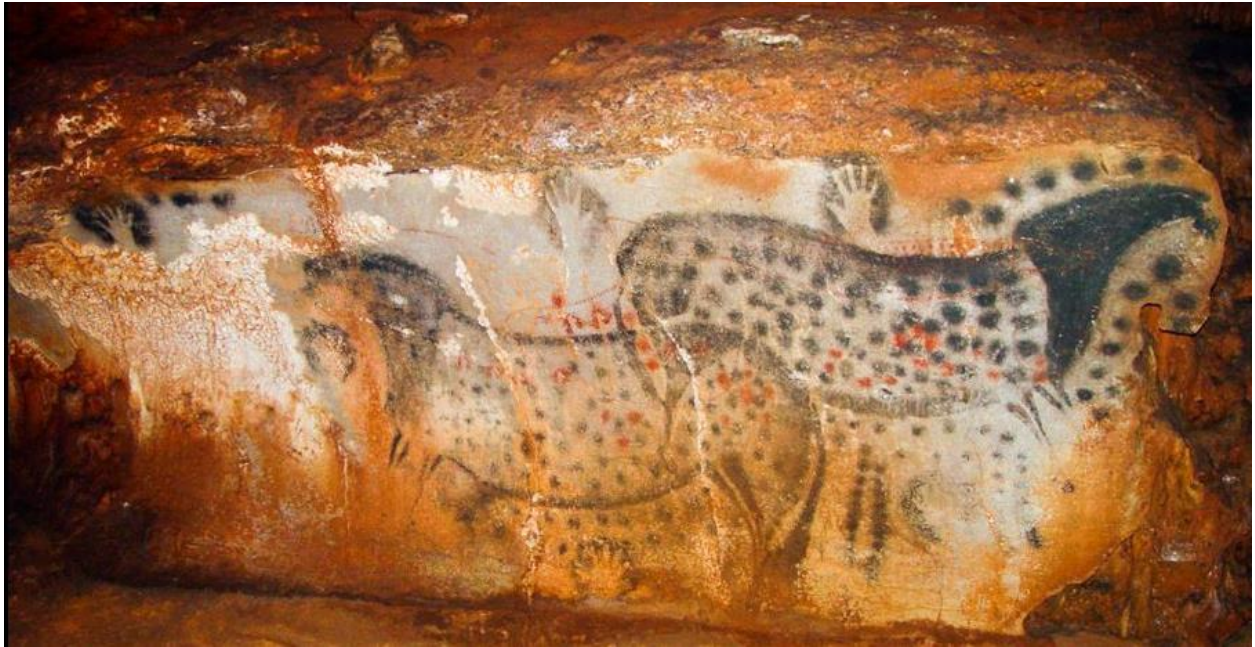


Were the First Artists Mostly Women?



By **Virginia Hughes,**

for National Geographic

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Women made most of the oldest-known cave art paintings, suggests a new analysis of ancient handprints. Most scholars had assumed these ancient artists were predominantly men, so the finding overturns decades of archaeological dogma.

Archaeologist Dean Snow of Pennsylvania State University analyzed hand stencils found in eight cave sites in France and Spain. By comparing the relative lengths of certain fingers, Snow determined that three-quarters of the handprints were female.

"There has been a male bias in the literature for a long time," said Snow, whose research was supported by the National Geographic Society's Committee for Research and Exploration. "People have made a lot of unwarranted assumptions about who made these things, and why."

Archaeologists have found hundreds of hand stencils on cave walls across the world. Because many of these early paintings also showcase game animals—bison, reindeer, horses, woolly mammoths—many researchers have proposed that they were made by male hunters, perhaps to

chronicle their kills or as some kind of "hunting magic" to improve success of an upcoming hunt. The new study suggests otherwise.

"In most hunter-gatherer societies, it's men that do the killing. But it's often the women who haul the meat back to camp, and women are as concerned with the productivity of the hunt as the men are," Snow said. "It wasn't just a bunch of guys out there chasing bison around."

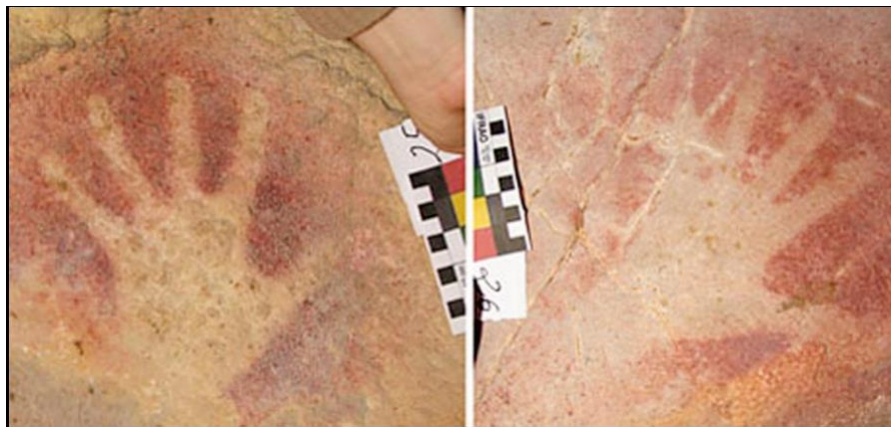
Experts expressed a wide range of opinions about how to interpret Snow's new data, attesting to the many mysteries still surrounding this early art.

"Hand stencils are a truly ironic category of cave art because they appear to be such a clear and obvious connection between us and the people of the Paleolithic," said archaeologist Paul Pettitt of Durham University in England. "We think we understand them, yet the more you dig into them you realize how superficial our understanding is."

Sex Differences

Snow's study began more than a decade ago when he came across the work of John Manning, a British biologist who had found that men and women differ in the relative lengths of their fingers: Women tend to have ring and index fingers of about the same length, whereas men's ring fingers tend to be longer than their index fingers.

These hand stencils found in the El Castillo cave in Cantabria, Spain, were probably made by a man (left) and a woman (right), respectively.



One day after reading about Manning's studies, Snow pulled a 40-year-old book about cave paintings off his bookshelf. The inside front cover of the book showed a colorful hand stencil from the famous Pech Merle Caves in southern France. "I looked at that thing and I thought, man, if Manning knows what he's talking about, then this is almost certainly a female hand," Snow recalled.

Hand stencils and handprints have been found in caves in Argentina, Africa, Borneo, and Australia. But the most famous examples are from the 12,000- to 40,000-year-old cave paintings in southern France and northern Spain.

For the new study, out this week in the journal *American Antiquity*, Snow examined hundreds of stencils in European caves, but most were too faint or smudged to use in the analysis. The study includes measurements from 32 stencils, including 16 from the cave of El Castillo in Spain, 6 from the caves of Gargas in France, and 5 from Pech Merle.

Snow ran the numbers through an algorithm that he had created based on a reference set of hands from people of European descent who lived near his university. Using several measurements—such as the length of the fingers, the length of the hand, the ratio of ring to index finger, and the ratio of index finger to little finger—the algorithm could predict whether a given handprint was male or female. Because there is a lot of overlap between men and women, however, the algorithm wasn't especially precise: It predicted the sex of Snow's modern sample with about 60 percent accuracy.

Luckily for Snow, that wasn't a problem for the analysis of the prehistoric handprints. As it turned out—much to his surprise—the hands in the caves were much more sexually dimorphic than modern hands, meaning that there was little overlap in the various hand measurements.

"They fall at the extreme ends, and even beyond the extreme ends," Snow said. "Twenty thousand years ago, men were men and women were women."

Woman, Boy, Shaman?

Snow's analysis determined that 24 of the 32 hands—75 percent—were female. Some experts are skeptical. Several years ago, evolutionary biologist R. Dale Guthrie performed a similar analysis of Paleolithic handprints. His work—based mostly on differences in the width of the palm and the thumb—found that the vast majority of handprints came from adolescent boys.

For adults, caves would have been dangerous and uninteresting, but young boys would have explored them for adventure, said Guthrie, an emeritus professor at the University of Alaska, Fairbanks. "They drew what was on their mind, which is mainly two things: naked women and large, frightening mammals."

Other researchers are more convinced by the new data.

"I think the article is a landmark contribution," said archaeologist Dave Whitley of ASM Affiliates, an archaeological consulting firm in Tehachapi, California. Despite these handprints being discussed for half a decade, "this is the first time anyone's synthesized a good body of evidence."

Whitley rejects Guthrie's idea that this art was made for purely practical reasons related to hunting. His view is that most of the art was made by shamans who went into trances to try to connect with the spirit world. "If you go into one of these caves alone, you start to suffer from

sensory deprivation very, very quickly, in 5 to 10 minutes," Whitley said. "It can spin you into an altered state of consciousness."

The new study doesn't discount the shaman theory, Whitley added, because in some hunter-gatherer societies shamans are female or even transgendered.

The new work raises many more questions than it answers. Why would women be the primary artists? Were they creating only the handprints, or the rest of the art as well? Would the hand analysis hold up if the artists weren't human, but Neanderthal?

The question Snow gets most often, though, is why these ancient artists, whoever they were, left handprints at all.

"I have no idea, but a pretty good hypothesis is that this is somebody saying, 'This is mine, I did this,'" he said.