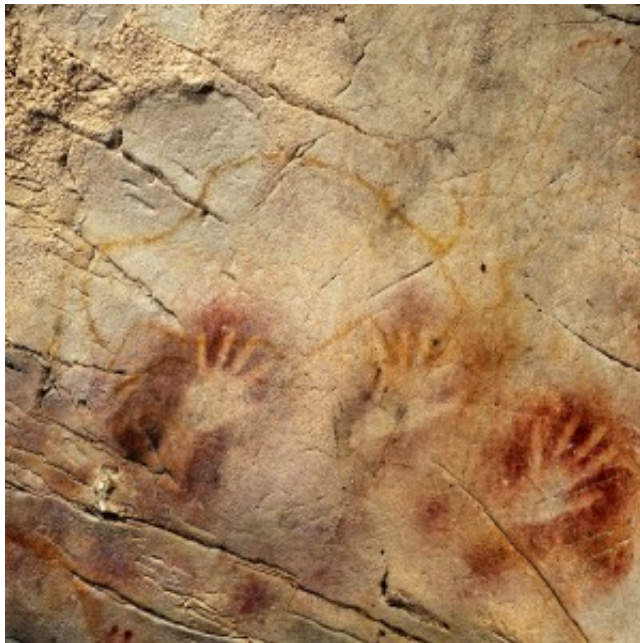


Oldest Cave Paintings May Be Creations of Neandertals, Not Modern Humans

[Kate Wong](#) June 14, 2012



Hand stencils in El Castillo cave are older than previously thought. Image: courtesy of Pedro Saura

In a cave in northwestern Spain called El Castillo, ancient artists decorated a stretch of limestone wall with dozens of depictions of human hands. They seem to have made the images by pressing a hand to the wall and then blowing red pigment on it, creating a sort of stencil. Hand stencils are a common motif in the cave paintings of Spain and France, and like all cave art, they have long been considered to be the work of anatomically modern humans like us. But a new analysis

of the age of the paintings in El Castillo and other Spanish caves shows that some of these paintings are much older than previously thought—old enough, in some cases, to be the handiwork of our cousins the [Neandertals](#).

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Determining the ages of cave paintings—from the hands in the Panel de las Manos in El Castillo to the mammoths and other Ice Age beasts that adorn the walls of [Chauvet](#) in France—has proved a difficult thing to do. Scientists can reliably assess the antiquity of human and animal bones as well as charcoal from hearths using proven techniques such as

radiocarbon dating. But the thin layers of pigment found on cave walls usually do not contain the carbon needed for that approach, leaving archaeologists to estimate the age of the art based on its style or its apparent association with datable remains.

Now researchers writing in the June 15 issue of *Science* report that recent advances in another radiometric technique called uranium-thorium dating have allowed them to circumvent the problems of radiocarbon dating and determine minimum ages for the paintings. This dating method, which is based on the radioactive decay of uranium over time, has been around for decades. But only recently have scientists refined the technique such that they can apply it to samples small enough to get sufficiently precise results.

Archaeologists Alistair Pike of Bristol University in England and João Zilhão of the University of Barcelona in Spain and their colleagues used the uranium-thorium technique to date 50 paintings and engravings from 11 cave sites in Asturias and Cantabria. They did this by collecting samples of the thin crusts of calcium carbonate that formed atop the images through the same process that forms stalactites and stalagmites. The crusts incorporate small amounts of uranium, which decays into thorium over time. By analyzing the amount of thorium in a sample using a mass spectrometer, the researchers could determine how much time had passed since the crusts formed, thereby providing a minimum age for the images underneath.

Intriguingly, some of the paintings were significantly older than suspected. Experts thought that Spanish cave art was younger than French cave art. But the new results reveal one of the images at El Castillo—a large red disk on the Panel de las Manos—is at minimum 40,800 years old, making it some 4,000 years older than the Chauvet paintings, which were previously thought to be the oldest in the world. (Claims for comparably ancient cave art from Australia and India are not

widely accepted on present evidence.) Other surprisingly old Spanish paintings identified in the study included a hand stencil from the Panel de las Manos that dates to at least 37,300 years ago and a club-shaped symbol from the famous Altamira cave that dates to 35,600 years ago at minimum.

Pike, Zilhão and their collaborators observe that the new results are consistent with the idea that the complexity of art increased gradually over time. The earliest dates they obtained were for non-figurative art—disks, hand stencils, and such—rendered in a single color. Only later did people paint animals and use pigments of multiple hues.

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But the team's findings raise important questions about the artists behind the oldest paintings. The researchers note that anatomically modern humans arrived in western Europe around 41,500 years ago and thus may well have made the ancient Spanish paintings. But 42,000 years ago the only humans in Europe were Neandertals. In a press teleconference, Zilhão asserted that any art there that turns out to be older than 42,000 years must necessarily be attributed to Neandertals. He and Pike suspect that the red disk and hand stencil at El Castillo might well be Neandertal paintings, considering that the uranium-thorium dating results are minimum estimates, though Zilhão cautions that they haven't proved it. The researchers are currently looking at additional sites in western Europe to see if they can get dates older than 42,000 years ago. (Some scientists think modern humans arrived in Europe as early as 45,000 years ago—a claim that Zilhão says is unwarranted based on the available evidence.)

Cave painting wouldn't be the first sign of Neandertal sophistication. In recent years scientists have unearthed quite a few signs that our oft-maligned cousins were aesthetes. Archaeological evidence indicates that they made jewelry from teeth and shells, festooned themselves with

feathers, and painted their skin. If they were decorating their bodies with symbols, many experts say, they almost certainly had language. In fact, anatomically modern humans and Neandertals might have inherited their capacity for [symbolic thinking](#) from their common ancestor. If so, the roots of our symbolic culture go back half a million years. As to why Neandertals, who lived in Europe for upwards of 250,000 years, appear not to have made art until the end of their reign, a number of experts argue that it was their [encounters with incoming modern humans](#) that stimulated innovation and self-expression—encounters that also spurred modern humans to greater creative heights.



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