

Spain claims top spot for world's oldest cave art

Archaeologists say red disk that is more than 40,000 years old could have been painted by Neanderthals.

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It's no Mona Lisa, but a smudged red disk in northern Spain has been crowned the world's earliest cave painting. Dated to more than 40,800 years ago, the shape was painted by some of the first modern humans to reach the Iberian Peninsula — or it may have been done by Neanderthals, residents of the Iberian peninsula for more than 200,000 years.

"There is a very good chance that this is Neanderthal," says Alistair Pike, an archaeological scientist at the University of Bristol, UK, whose team dated dozens of paintings in 11 caves in northern Spain. But Lawrence Guy Straus, an expert on the caves who is based at the University of New Mexico in Albuquerque, calls that "a pretty wild speculation," because it is based on a single date that could overlap with human occupation.

Until now, Chauvet Cave in central France, which is plastered with images of bears, lions and horses, held the title of the world's oldest cave paintings. The oldest images there are dated to around 39,000 years old, but this is controversial as the assessment relies on radiocarbon dating of charcoal pigments, which are susceptible to contamination from other sources of carbon.

Cave art is notoriously difficult to date because, unlike bones and tools dug up from the ground that can be carbon-dated directly or by their association with nearby bones, it is "not associated with anything but itself", says Pike.

To solve this problem, Pike's team dated the calcite patinas that slowly form over cave art as mineral-rich water trickles over the paintings. The water contains trace levels of radioactive uranium, but not the water insoluble thorium into which the uranium steadily decays. The relative levels of uranium to thorium thus form a clock that records when the calcite layer was formed. The layers can take anywhere from several hundred to several thousand years to form, providing a minimum date for the art, Pike says.

His team collected 50 calcite scrapings from 11 caves, and came up with dates as old as 40,800 years, a minimum age for the disk in El Castillo cave¹. That image, as well as other slightly younger disks from Castillo and a club-shaped image from Altamira cave, would have been painted at around the time the first modern humans, called the Aurignacian culture, reached the Iberian Peninsula. Younger paintings in the Spanish caves, including handprints and figurative drawings of animals, date to later human occupations.

Artistic expression

Just as impressionism gave way to expressionism in nineteenth- and twentieth-century art, Pike's team sees artistic trends that correlate with different periods. The first European painters favoured simple geometric shapes such as dots, disks and clubs, whereas their successors painted more graphically complicated handprints and figures.

"You clearly see distinct styles arriving and leaving at different periods," Pike says, although he cautions against making any

interpretations about the minds of the artists. “I don’t think one can say these are multicoloured and these are monochrome to make judgements about the art or even the cognitive abilities of Neanderthals or humans.”

Determining just who created the earliest cave paintings will factor into debates over the relative mental capacities of the two species. Cave paintings appear in Palaeolithic Europe before anywhere else in the world. But beginning around 100,000 years ago, humans in Africa began making shell beads and other ornaments that have been interpreted by archaeologists as evidence for the symbolic thinking that underlies language, art and even religion. There is a lot less evidence, such as beads and ivory pendants, for symbolic behaviour among Neanderthals in Europe, and some archaeologists have raised fresh questions over whether Neanderthals created these artefacts.

The only way to determine who created the earliest paintings is to do more dating, Pike says. If his team can find cave art that predates the arrival of modern humans in northern Spain, currently pegged at around 42,000 years ago, there can be little doubt that Neanderthals dabbled in art. “If we can really nail it, you can walk into El Castillo cave and gaze upon the hand of Neanderthals and that’s really exciting,” Pike says. His team plans to return to the caves to sample calcite on more disks and other early-looking art.

However, Tom Higham, an archaeological scientist at the University of Oxford, UK, points out that only the oldest date, 40,800 years old, butts up against that start of modern human occupation in Iberia. “I think it is far more likely that all of the art in European sites was simply being made by modern humans,” he says.

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References

1. Pike, A. W. G. *et al. Science* **336**, 1409–1413 (2012).