

Research suggests another way Neanderthals were like us: They could start their own fires

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Humans may not have been the only hominids who knew how to start a fire long ago. New research suggests that as early as 50,000 years ago, Neanderthals wielded this power as well.

The work, published Thursday in *Scientific Reports*, provides new

evidence that Neanderthals may have created flames-on-demand by striking a small piece of [pyrite](#) against a biface—their favorite multipurpose stone tool.

Scientists already knew that Neanderthals were able to control and use [fire](#), but controlling it and producing it are not the same thing, said Andrew Sorensen, a doctoral student in archaeology at Leiden University in the Netherlands who led the work.

"There is an ongoing debate in the world of early fire research as to whether Neanderthals could make fire for themselves, or if they were reliant on natural sources like wildfires started by lightning strikes from which they could collect fire later," he said.

Early humans created fire by striking steel or pyrite against flint to create a shower of [sparks](#), Sorensen said. The sparks fell on tinder, causing it to smolder. Then they would place a piece of that smoldering material into a bundle of dried grass, for example, and gently blow it into a flame.

Sorensen wondered if Neanderthals might have employed a similar technique.

To answer that question, he experimented with creating fire himself by striking a piece of pyrite against a replica of a biface. Then he compared the marks he made on his biface to marks on 50,000-year-old bifaces collected in several locations in France.

Bifaces are palm-sized, teardrop-shaped, multipurpose [stone tools](#) that functioned like a Neanderthal Swiss army knife.

They carried them around with them as they moved from place to place and used them to butcher and skin animals, as well as to grind minerals

into powder and to create other tools.

Sorensen said that the method of striking a small piece of pyrite against a biface was quite effective at producing sparks, although the results were variable.

"Some strikes produced only one spark, others produced showers of up to 10 sparks or so," he said.

He also found that the microscopic mineral traces made by striking or rubbing flint against his modern-day biface to create sparks were similar to those found on the ancient bifaces he examined.

To make sure that the traces couldn't have been made in other ways, he also experimented with using his stone tool to perform other tasks like grinding ochre to make pigment and using it to carve another flint [tool](#).

Indeed, he found that the same mineral traces that were left on the ancient tools most closely compared with the traces produced when he struck or forcefully rubbed pyrite against his own biface.

It's tricky business trying to reconstruct the lifestyle of hominids who lived 50,000 years ago, and Sorensen is clear that his experiments do not provide definitive evidence that Neanderthals used fire. It is always possible that there is another explanation.

"The traces made by pyrite were the 'best fit,'" he said. "But there could be some other mineral material that we just didn't think of that could create similar traces."

But until someone is able to demonstrate this, he said, fire-making appears to be the best interpretation.

And if that's the case, it's just one more piece of evidence that the capabilities of Neanderthals and early modern humans were not so different after all.

More information: A. C. Sorensen et al. Neandertal fire-making technology inferred from microwear analysis, *Scientific Reports* (2018). DOI: [10.1038/s41598-018-28342-9](https://doi.org/10.1038/s41598-018-28342-9)

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