

Flint flake tool partially covered by birch tar adds to evidence of Neanderthal complex thinking

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Comparison of Modern Human and Neanderthal skulls from the Cleveland Museum of Natural History. Credit: DrMikeBaxter/Wikipedia

A team of researchers affiliated with several institutions in The Netherlands has found evidence in small a cutting tool of Neanderthals using birch tar. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes the tool and what it revealed

about Neanderthal technology.

Prior work has turned up evidence of Neanderthals using [birch](#) tar to fashion various kinds of tools, most of which involved hafting sharpened stones to wooden handles. In this new effort, the researchers found a tool with no handle—a piece of flint that was fashioned to be sharp on one side and covered with birch tar on the other. Adding the birch tar would allow the user to hold the tool comfortably and to put a lot of pressure on it without cutting their hand. Creating and using birch tar, the researchers note, requires some degree of complex thinking. The multi-step operation starts with collecting wood and burning it in a way that extracts the tar. The gum-like tar can be used to bind objects together because it becomes hard when cooling down to ambient temperatures.

The tool was found on Zandmotor beach near The Hague prior to the arrival of modern humans—[carbon dating](#) showed it to be approximately 50,000 years old. The researchers note that at the time the tool was created and used, the area where it was found was at the edges of the Neanderthal range, and still under the North Sea. Known as Doggerland, the area was icy tundra with very few trees. This suggests the Neanderthal were quite dedicated to making such tools. The researchers believe that the one they found could have been used for cutting plants or scraping animal skins as a means to stave off the cold. They note that spending so much time and effort to make such a tool, which was not used for hunting, suggests that birch tar was more widely used by the Neanderthal than has been thought. Most such examples would have decayed long ago—the [tool](#) found by the researchers survived only because it was at the bottom of the North Sea for most of its existence.

More information: Marcel J. L. Th. Niekus et al. Middle Paleolithic complex technology and a Neandertal tar-backed tool from the Dutch North Sea, *Proceedings of the National Academy of Sciences* (2019). [DOI: 10.1073/pnas.1907828116](https://doi.org/10.1073/pnas.1907828116)

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