

# Dig site in Tuscany reveals Neanderthals used fire to make tools

February 6 2018, by Bob Yirka

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Poggetti Vecchi, Grosseto (Italy). This is a general view of the excavation.  
Credit: *PNAS*

A team of researchers from several institutions in Italy has found

evidence of Neanderthals using fire to craft tools approximately 171,000 years ago. In their paper published in *Proceedings of the National Academy of Sciences*, the group outlines where the naturally preserved wood artifacts were found and how they discovered their purpose.

Wood, as the researchers note, has always been a popular material for crafting tools and weapons. It is readily at hand and can be relatively easily crafted to allow for specific uses. In this new effort, the researchers describe meter-long sticks that had been rounded at one end and sharpened at the other, suggesting a digging stick. Digging sticks are still used today—they are useful for digging up roots and tubers and can be used to hunt animals that burrow underground. In a pinch, they can also be used as a weapon. The sticks were found at a site in Tuscany, Italy, called Poggetti Vecchi—an area that has previously given up Neanderthal artifacts.

In studying the sticks, the researchers found them to be made from boxwood, a particularly hard wood. They also discovered that the tips had been charred, likely as a means of removing stubborn bark. The team noted that the sticks had been charred in a consistent pattern in the same part of multiple sticks, which suggests it was intentional. Charring would have softened the bark, making it easier to remove. They also noted cut marks and striations on the shafts of the sticks, evidence of stone [tool](#) use to fashion an ordinary stick into a useful tool. The team notes that modern hunter-gatherers use roughly the same technique in making their digging sticks. The team dated the sticks back to approximately 171,000 years ago, putting them in the Middle Paleocene, a period when Neanderthal were dominant in the area.



Detail of the handle of digging stick no. 2 on the paleosurface U2 of the Poggetti Vecchi site. Credit: *PNAS*

The find marks the earliest evidence of fire use by Neanderthals and of tool use by female members of a group—it is the women in modern hunter-gatherer groups that use digging sticks.



Poggetti Vecchi, Grosseto (Italy). This is the excavation of the tusk of a straight-tusked elephant. Credit: *PNAS*

**More information:** Biancamaria Aranguren et al. Wooden tools and fire technology in the early Neanderthal site of Poggetti Vecchi (Italy), *Proceedings of the National Academy of Sciences* (2018). [DOI: 10.1073/pnas.1716068115](https://doi.org/10.1073/pnas.1716068115)

### **Abstract**

Excavations for the construction of thermal pools at Poggetti Vecchi (Grosseto, Tuscany, central Italy) exposed a series of wooden tools in an open-air stratified site referable to late Middle Pleistocene. The wooden artifacts were uncovered, together with stone tools and fossil bones, largely belonging to the straight-tusked elephant *Paleoloxodon antiquus*. The site is radiometrically dated to around 171,000 y B.P., and hence correlated with the early marine isotope stage 6 [Benvenuti M, et al. (2017) *Quat Res* 88:327–344]. The sticks, all fragmentary, are made from boxwood (*Buxus sempervirens*) and were over 1 m long, rounded at one end and pointed at the other. They have been partially charred, possibly to lessen the labor of scraping boxwood, using a technique so far not documented at the time. The wooden artifacts have the size and features of multipurpose tools known as "digging sticks," which are quite commonly used by foragers. This discovery from Poggetti Vecchi provides evidence of the processing and use of wood by early Neanderthals, showing their ability to use fire in tool making from very tough wood.

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