

Earliest known example of a human-built wood structure, dating to nearly a half-million years ago, discovered in Africa

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Two interlocking logs, with intentionally shaped ends and a notch in the upper log allowing their attachment at right angles (reminiscent of children’s “Lincoln Log” toys) have been discovered by archaeologists at a site along the Kalambo River near Kalambo Falls in Zambia.

According to the article in the scientific journal *Nature* (“Evidence for the earliest structural use of wood at least 476,000 years ago,” Barham *et al*, 20 September 2023), the logs bear distinctive traces indicating that they were worked using stone tools, conclusive evidence that the feature was of human manufacture. The truly significant aspect of this discovery is that it has been dated to nearly a half-million years ago.

The discovery, at a site designated BLB, was originally made during field work in 2019. The recovered objects were then subjected to intensive scientific examination, including detailed imaging using an electron microscope. Experimental replication with stone tools to produce reproductions of the recovered objects was used to provide modern examples with which to compare manufacturing traces on the archaeological specimens. The notch showed signs of both scraping and adzing. V-shaped striations, evidence of incisions with a sharp cutting edge, were also identified in the archaeological specimens. Traces of burning were also identified, suggesting that the area to be worked may have been intentionally charred to make it easier to cut.

While it is highly likely that humans have been working with wood and other organic materials, in addition to stone, for a very long time, under most conditions organic materials decompose fairly rapidly,

leaving only stone and to a lesser degree bone artifacts for archaeologists to study. The unusual preservation of the wooden objects at the Kalambo site is due to their being located at a riverbank, buried by sediment deposited by the river, in wet conditions, which retard decay. Therefore, it is highly likely that the discovered feature is not evidence of the earliest architectural construction ever created by humans, but rather that it is the earliest example that has been preserved and identified by archaeologists so far.

Earlier examples of worked wood are known. A piece of polished plank dating to greater than 780,000 years ago was discovered along the Jordan River in Syria, but the Zambia find is the earliest known evidence of what may be termed architecture. The earliest previously known example of wooden architecture are platforms dated to 9,000 years ago, located at the edge of a lake in Britain. Possible early wooden artifacts have previously been reported from the Kalambo Falls vicinity. However, their dating was not secure and evidence of having been worked was ambiguous.

It is also significant that the age of this feature, dated using the thermoluminescence technique, applied to the sandy sedimentary sequence in which it was buried, places it earlier than the known appearance of our species, *Homo sapiens*, at about 330,000 years ago. Thus, it was presumably constructed by an earlier species of the genus *Homo*. This is not entirely surprising since earlier members of our genus, *Homo erectus*, who lived between 2 million and 100,000 years ago, already were manufacturing bifacial stone tools, known as Acheulean handaxes, long before the date of the Kalambo River feature. These required fairly sophisticated mental capabilities, such as an

appreciation of symmetrical form.

The discoverers suggest that these remains were once part of a wooden platform which may have been used to keep things such as food or perhaps a dwelling elevated above the wet ground. Subsequent changes in the river buried the feature. One implication is that, rather than being entirely nomadic, constantly moving across the landscape in search of food, some early humans spent time at specific locations, such as a wetland, where resources were sufficiently abundant as to make it possible to stay for a while and invest in the construction of more permanent facilities.

The researchers also suggested that the concept of articulating multiple elements to form a compound tool or feature may have been a precursor to the technique of hafting, later used to attach a handle or shaft to a stone tip, as in a spear.

Five other worked wood artifacts were also recovered from higher in the depositional sequence at the site, including a wedge, digging stick, cut log and notched branch. These date to somewhat closer in time, between 390,000 and 324,000 years ago.

The Kalambo Falls vicinity has long been known as an area rich in archaeological evidence of human occupation dating back to the Late Lower Paleolithic, and investigations began in the 1950s. The discovery at the Kalambo River site BLB makes a significant contribution to our knowledge of the development of technology by early humans.



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