

Humans produced fire more than one million years ago?

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The ability to control fire is considered an important human trait. So, the first known use of fire as a tool is thought to be a crucial turning point for the evolution of man.

Use of fire pushed back to greater than one million years in Africa

The unequivocal use of fire has been pushed back to allegedly about one million years in Wonderwerk Cave, South Africa.¹ This is the earliest ‘securely’ dated evidence for the use of fire in an archaeological context. This pushes back the habitual use of fire from supposedly 400 ka in Israel and suggests that not only were ‘early’ *Homo* able to use fire, but so also were Neandertals. After all, according to the evolutionary scenario, only Neandertals lived in Israel and Europe at that time.

Some scientists have suggested that man may have used fire even earlier. Their evidence came from speculative and indirect indications of body mass, feeding time, molar size, etc. From these they concluded *Homo erectus* may have used fire 1.9 Ma ago, since he was the type of early man that supposedly lived at that time. There are legitimate indications fire was used in that timeframe, but they could have been caused by wildfires.

The assumed sequence of human evolution indicates the use of fire began in the ‘Acheulean strata’ about 1 Ma, which is characteristic of

H. erectus. This suggests *H. erectus* also used fire.

Use of fire now found in Europe 800,000 years ago

It is now claimed that man in Europe could use fire 800 ka ago, much earlier than previously believed.² This is in the ‘early Paleolithic’ when mankind was assumed to be very primitive. The evidence consists of 165 stones and stone artefacts, and several hundred animal-bone fragments found in a Spanish cave that display signs of heating to 400–600°C, consistent with fire. Since the evidence was

found about 8 m within a cave, the researchers considered it unlikely that the signs of controlled fire were caused by sparks from a wildfire.

Dating problems

Dating archaeological remains is always problematic. The cave sediments in Europe were dated to about 0.8 Ma because they had reversed magnetic polarity, which means that the sediments are older than the Bruhnes/Matuyama polarity reversal, dated at 0.78 Ma (figure 1). However, optically stimulated luminescence (OSL)

dating gave an age of 0.3–0.5 Ma, while the cosmogenic isotope ratio ²⁶Al/¹⁰Be gave a date near the Pliocene/Pleistocene transition about 2.6 Ma.

The OSL method depends on electrons trapped within the crystal structure of particular minerals, mostly quartz and feldspar, because of the background radiation from radioactive elements. Exposure to sunlight constantly resets the surface to zero. However, the ‘electron traps’ start building up upon burial. When the sample is stimulated with light, luminescence is given off; the amount is believed to be proportional to the age of burial.

Cosmogenic isotope dating depends upon the surface production of radioactive minerals by cosmic rays that penetrate a little more than a metre deep. Upon burial, build-up of radioactive elements ceases, and decay begins, which can produce a date for when the surface was buried. These are just two of the many methods for dating the Quaternary.

Some researchers doubt the date of 0.8 Ma for the Spanish cave sediments because the Bruhnes normal chron (<0.78 Ma) has short reversals within it called polarity excursions (figure 1). Excursions are defined as brief periods of <10⁴ years during which the geocentric axial dipole shifts beyond the range of the secular variation. Sometimes this is a complete reversal, which changes back within 10⁴ years. Therefore, it is difficult to use the reversals for dating.³ In fact, it is now claimed that there have been 27 excursions and 10 polarity reversals just during the Quaternary.⁴ It is claimed by other scientists that the tools in the cave indicate a date of no more than 0.6 Ma. But the researchers claim that their date of 0.8 Ma is supported by biostratigraphy (dating by fossils of extinct animals).

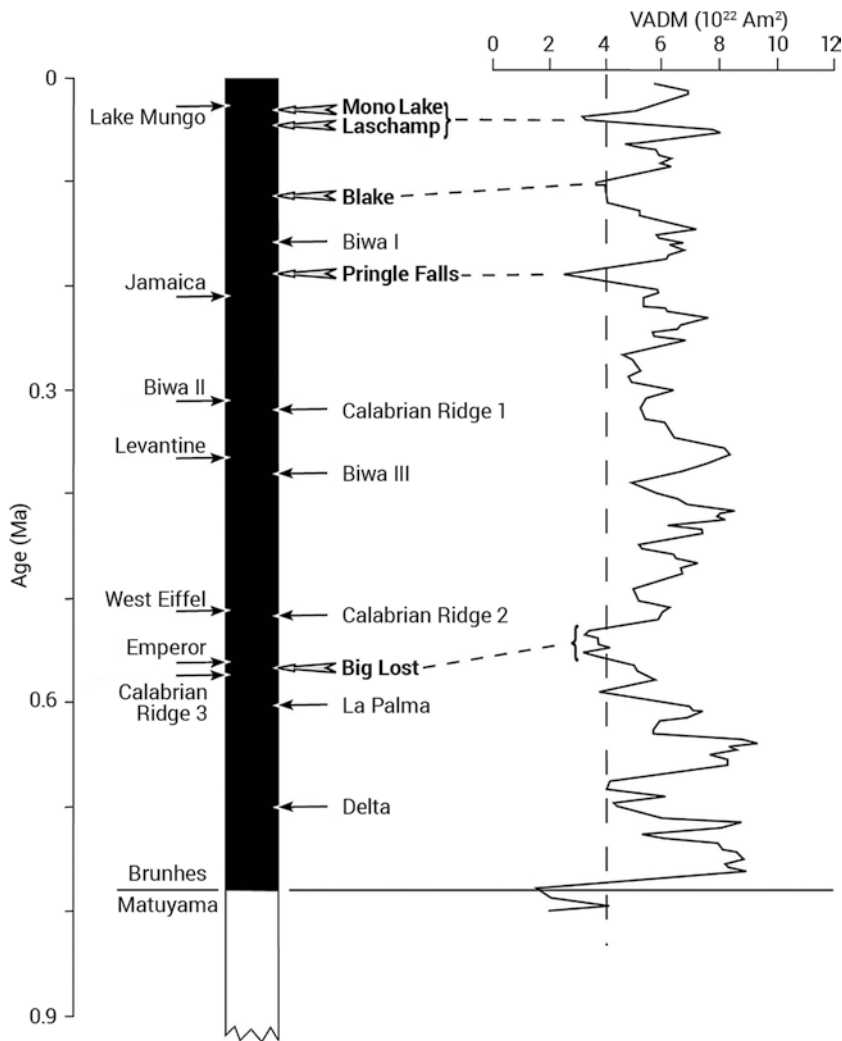


Figure 1. Geomagnetic timescale from the late Matuyama reversed chron through the Bruhnes/Matuyama transition showing the many polarity excursions (short reversals) now claimed for the Bruhnes normal chron

Creationist implications

The discovery that fire was used so ‘early’ in ‘human history’ indicates

that humans could always use their environment to their advantage. They were not primitive. Moreover, the ‘earlier’ dates reinforce previous evidence that *H. erectus* was a type of human, like Neandertals.⁵

The conflicting dates given for the Spanish cave reveal the subjectivity of Quaternary dating methods. For instance, paleomagnetism has so many excursions, major reversals called chrons, and minor reversals called subchrons, that one can easily date a particular polarity to *any* time within the polarity timescale. Moreover, vertical sequences of paleomagnetism are claimed to match certain sections of the standard polarity timescale (figure 1). But, if one adds increasing sedimentation or unconformities, any vertical series of paleomagnetic measurements can be made to match any polarity pattern. That is why paleomagnetism is *not* an independent dating method, although it has sometimes been touted as such. It depends upon other dating methods to ‘anchor’ it to deep time:

“Magnetic polarity zones, however, are not in themselves uniquely diagnostic, and without the aid of additional stratigraphic indicators, correlation of magnetic zones in terrestrial sequences is problematic. For example, differences in depositional rates, and/or diagenetic histories between two areas, or the presence of subtle unconformities, can result in an unrecognizable mismatch of polarity zones.”⁶

The converse is also true in that diagenesis,⁷ changing deposition, and subtle unconformities can be invoked to make a vertical sequence match the desired polarity timescale, an example of circular reasoning. In the examples from the cave, the different dating methods did not line up, such as the OSL and ²⁶Al/¹⁰Be dating technique. And even biostratigraphy conflicted with other evidence when it dated the age of the stone tools.

References

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7. I.e. the physical and chemical changes that occur as sediment is converted to sedimentary rock.