

# Neanderthals did not make jewelry after all

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Tools previously thought to have been fashioned by later Neanderthals

(PhysOrg.com) -- The theory that later Neanderthals might have been sufficiently advanced to fashion jewellery and tools similar to those of incoming modern humans has suffered a setback. A new radiocarbon dating study, led by Oxford University, has found that an archaeological site that uniquely links Neanderthal remains to sophisticated tools and jewellery may be partially mixed.

The study, published in the early online version of the journal *PNAS*, suggests that the position of key finds in the archaeological layers of the Grotte du Renne at Arcy-sur-Cure in France may not be trustworthy.

The research team, from the UK and France, dated material from the site and discovered their radiocarbon ages were extremely variable and did not correspond with the expected sequence indicated by the excavated archaeological layers. The Grotte du Renne has 15 archaeological layers, covering a depth of about four metres spanning periods from the Mousterian to the Gravettian periods.

For decades scholars have debated the extent of cognitive and behavioral development in Neanderthals before they disappeared from Europe about 30,000 years ago. Neanderthals are the most recent, extinct modern human relative. We have a [common ancestor](#) from around 700,000-800,000 years ago and recent work in decoding the Neanderthal [genome](#) shows we share between one to four per cent of their DNA.

One pivotal period is around 35,000-40,000 years ago when the earliest [modern humans](#) dispersed into Western Europe. Finds made in the 1950s and 1960s at the Grotte du Renne site have provided persuasive evidence to suggest either that Neanderthals developed a more modern type of behaviour before modern human dispersal, developing their own complex ornaments and tools, or that they mimicked the behavior of the modern humans that they encountered after their arrival. Over the years the site has yielded 29 Neanderthal teeth and a piece of ear bone from a Neanderthal skull in the same archaeological levels as rings made of ivory, awls, bone points, pierced animal teeth, shell and ivory pendants. The finds were recovered from three archaeological levels (VII, IX, X) associated with the Châtelperronian industry, a tool culture thought to have evolved from the earlier Neanderthal, Mousterian industry.

For this study, researchers from the Oxford Radiocarbon Accelerator Unit analysed 59 remains of cut-marked bones, horse teeth smashed by humans, awls, ornaments fashioned from animal teeth and mammoth ivory tusks from six key archaeological levels of the site. They included the three Châtelperronian levels (VIII, IX and X) and the Aurignacian

level with material derived from modern humans in level VII. Thirty-one new radiocarbon dates were obtained: the oldest material in the Aurignacian level was dated at around 35,000 years ago, but when the researchers dated materials from the lower Châtelperronian levels they discovered many of the ages were hugely variable, with some much younger and several at about the same age as dates from the Aurignacian level. The most serious chronological problems were in the oldest part of the Châtelperronian layer (X) where more than a third of the radiocarbon ages were outside the ranges expected.

Lead author Dr Thomas Higham, Deputy Director of the Oxford Radiocarbon Accelerator Unit, said: ‘Our results confirm that material has moved up and down and is out of sequence in the Châtelperronian levels. We think that there has probably been some physical disturbance which has disrupted the proper sequence of the layers. This means that any chronological interpretation from this site should be viewed with extreme caution.

‘Our study raises questions about the link between Neanderthals and the tools and jewellery found in the Châtelperronian levels. This site is one of only two in the French Palaeolithic that seems to show a link between ornaments and Neanderthal remains. This has previously been interpreted as indicating that [Neanderthals](#) were not intellectually inferior to modern people but possessed advanced cognition and behaviour. Our work says there is a big question mark over whether this link exists.’

Provided by Oxford University

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