

Study questions Neanderthal inferiority to early modern humans

April 30 2014, by Paola Villa



If you think Neanderthals were stupid and primitive, it's time to think again. The widely held notion that Neanderthals were dimwitted and that their inferior intelligence allowed them to be driven to extinction by the much brighter ancestors of modern humans is not supported by scientific evidence, according to a researcher at the University of Colorado Boulder.

Neanderthals thrived in a large swath of Europe and Asia between about 350,000 and 40,000 years ago. They disappeared after our ancestors, a group referred to as "anatomically modern humans," crossed into Europe

from Africa.

In the past, some researchers have tried to explain the demise of the Neanderthals by suggesting that the newcomers were superior to Neanderthals in key ways, including their ability to hunt, communicate, innovate and adapt to different environments.

But in an extensive review of recent Neanderthal research, CU-Boulder researcher Paola Villa and co-author Wil Roebroeks, an archaeologist at Leiden University in the Netherlands, make the case that the available evidence does not support the opinion that Neanderthals were less advanced than anatomically modern humans. Their paper was published today in the journal *PLOS ONE*.

"The evidence for cognitive inferiority is simply not there," said Villa, a curator at the University of Colorado Museum of Natural History. "What we are saying is that the conventional view of Neanderthals is not true."

Villa and Roebroeks scrutinized nearly a dozen common explanations for Neanderthal extinction that rely largely on the notion that the Neanderthals were inferior to anatomically modern humans. These include the hypotheses that Neanderthals did not use complex, symbolic communication; that they were less efficient hunters who had inferior weapons; and that they had a narrow diet that put them at a competitive disadvantage to anatomically modern humans, who ate a broad range of things.

The researchers found that none of the hypotheses were supported by the available research. For example, evidence from multiple archaeological sites in Europe suggests that Neanderthals hunted as a group, using the landscape to aid them.

Researchers have shown that Neanderthals likely herded hundreds of

bison to their death by steering them into a sinkhole in southwestern France. At another site used by Neanderthals, this one in the Channel Islands, fossilized remains of 18 mammoths and five woolly rhinoceroses were discovered at the base of a deep ravine. These findings imply that Neanderthals could plan ahead, communicate as a group and make efficient use of their surroundings, the authors said.

Other archaeological evidence unearthed at Neanderthal sites provides reason to believe that Neanderthals did in fact have a diverse diet. Microfossils found in Neanderthal teeth and food remains left behind at cooking sites indicate that they may have eaten wild peas, acorns, pistachios, grass seeds, wild olives, pine nuts and date palms depending on what was locally available.

Additionally, researchers have found ochre, a kind of earth pigment, at sites inhabited by Neanderthals, which may have been used for body painting. Ornaments have also been collected at Neanderthal sites. Taken together, these findings suggest that Neanderthals had cultural rituals and symbolic communication.

Villa and Roebroeks say that the past misrepresentation of Neanderthals' cognitive ability may be linked to the tendency of researchers to compare Neanderthals, who lived in the Middle Paleolithic, to modern humans living during the more recent Upper Paleolithic period, when leaps in technology were being made.

"Researchers were comparing Neanderthals not to their contemporaries on other continents but to their successors," Villa said. "It would be like comparing the performance of Model T Fords, widely used in America and Europe in the early part of the last century, to the performance of a modern-day Ferrari and conclude that Henry Ford was cognitively inferior to Enzo Ferrari."

Although many still search for a simple explanation and like to attribute the Neanderthal demise to a single factor, such as cognitive or technological inferiority, archaeology shows that there is no support for such interpretations, the authors said.

But if Neanderthals were not technologically and cognitively disadvantaged, why didn't they survive?

The researchers argue that the real reason for Neanderthal extinction is likely complex, but they say some clues may be found in recent analyses of the Neanderthal genome over the last several years. These genomic studies suggest that anatomically modern humans and Neanderthals likely interbred and that the resulting male children may have had reduced fertility. Recent genomic studies also suggest that Neanderthals lived in small groups. All of these factors could have contributed to the decline of the Neanderthals, who were eventually swamped and assimilated by the increasing numbers of modern immigrants.

More information: Villa P, Roebroeks W (2014) Neandertal Demise: An Archaeological Analysis of the Modern Human Superiority Complex. *PLoS ONE* 9(4): e96424. [DOI: 10.1371/journal.pone.0096424](https://doi.org/10.1371/journal.pone.0096424)

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