Neanderthal cannibalism is less surprising than you think

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A new study suggests that a group of Neanderthals in southeast France resorted to cannibalism to survive lean times. If that says anything about Neanderthals, it’s that they weren’t so different from us—for better and for worse.

The bones in the cave

Something awful happened in Moula-Guercy cave in southeastern France around 120,000 years ago. Archaeologists excavating the site in the early 1990s found the bones of six Neanderthals near the eastern wall of the cave, disarticulated and mingled with bones from deer and other wildlife. That mixing of bones, as though the dead Neanderthals had been discarded with the remains of their food, is strange enough; there’s plenty of evidence that Neanderthals typically buried their dead. But at Moula-Guercy, at least six Neanderthals—two adults, two teenagers, and two children—received very different treatment. Their bones and those of the deer show nearly identical marks of cutting, scraping, and cracking, the kind of damage usually associated with butchering.

“When numerous human remains are discovered on an undisturbed

living floor, with similar patterns of damage, mixed with animal remains, stone tools, and fireplaces, they can legitimately be interpreted as evidence of cannibalism," wrote Alban Defleur and Emmanuel Desclaux in a recent paper in the *Journal of Archaeological Science*.

Bones from the ankles, elbows, and feet of the dead show signs of chopping and cutting to sever large tendons for dismemberment, and the shafts of the femurs still bear the marks from stone tools used to remove the muscle, as well as the stone hammers and anvils used to break open the bone to get at the marrow inside. And whoever did the work was thorough about it. On one skull, Defleur pointed out "the successive signatures of the same stone tool edge, indicating filleting of the temporalis muscle." That's the wide, fan-shaped muscle on the side of your head, used in chewing. And at least one of the teenage Neanderthals' lower jaws had cut marks that suggested the tongue had been cut out. Two of the phalanges (finger bones) even have marks that look much more like marks from Neanderthal teeth than any carnivore.

- Fragments of a left femur show evidence of cut marks and percussion scars.
  Defleur et al. 1999
- A Neanderthal lower jaw bone (top) and a deer lower jaw bone (bottom) show the same pattern of cut marks.
  Defleur et al. 1999
- Cut marks on a Neanderthal parietal (skull) bone.
  Defleur et al. 1999

For the last twenty years, archaeologists have debated what it meant. Evidence of possible cannibalism has turned up at a handful of other sites across Europe, though not all of it is as clear as the scene at Moula-Guercy. We understand relatively little about Neanderthal life, so it's easy to wonder if defleshing (with or without eating) the dead was part of a funeral ritual; there's precedent for that in

several human cultures, after all. But we have evidence of deliberate, careful burials from at least 17 sites in Europe, the Middle East, and Asia; suggestions of cannibalism are much rarer, and it doesn't look like the bones at Moula-Guercy were disposed of with any kind of care after the fact.

Instead, a new study of the environment in southeast France at the time suggests that the telltale cut marks on the bones were the work of desperate people struggling to survive. Or, as archaeologist T.D. White put it in a 2003 paper, "People usually eat because they are hungry, and most prehistoric cannibals were therefore probably hungry."

Starving time

For tens of thousands of years, Neanderthals had lived on a cold steppe, where large mammals like reindeer and woolly mammoth roamed in herds. What we know about Neanderthals so far, based on chemical analysis of their bones, suggests that meat was an important part of their diet and that they relied less on plants and fish than many modern human hunter-gatherers.

Although they were a lot like us—enough like us to produce children with *Homo sapiens* and leave traces of their DNA in today's genomes—their bodies were built just a little differently. Some studies estimate that the average Neanderthal needed more calories to keep going: around 3,500 to 5,000 a day. For that, they'd have relied on larger, more abundant game.

But things eventually changed (which is probably the most succinct summary of human history we'll ever get). Around 130,000 years ago, the world started to get warmer; from marine sediment and sea ice cores, we know that global temperatures rose to about 2⁰C higher than today, and sea levels rose about six to nine meters (19.69 to 29.53 feet). The landscape Neanderthals had thrived in for millennia turned

warmer and drier.

Pollen and insects in sediment cores, along with the remains of wood from prehistoric hearths, suggest that the formerly open steppe became a patchwork of forest and grassland. Smaller species of deer grazed in sparser numbers than the great herds of the steppes.

Forests are a challenging place for modern human hunter-gatherers to make a living, and such relatively small prey may not have been enough to sustain the Neanderthals. Several of the teeth at Moula-Guercy have bands of thinner enamel (called linear enamel hypoplasia) that mark times of severe illness or malnutrition. These individuals had had tough lives and probably come close to starving a few times.

In fact, if Defleur and Desclaux are right, things got downright post-apocalyptic for the band that probably used Moula-Guercy as a summer and fall hunting campsite (based on layers of artifacts and bones at the site). Neanderthal sites dating to the last interglacial period are much less common than during the glacial periods before and after, which may suggest that most Neanderthals had abandoned the region for more hospitable climes or simply failed to survive the change—the issue is a long way from settled.

Neanderthal population density had always been pretty sparse compared to later groups of modern humans. In any case, one version of the story means that the band at Moula-Guercy may have been among the only ones left in the area. The rest is all too easy to imagine, as the tooth marks on those finger bones tell their own story.

A very human tragedy

That same story threaded throughout our history: the Great Famine of fourteenth century Europe, the Starving Time at Jamestown, the Donner Party, the survivors of a 1972 plane

crash in the Andes, and the Algonquian tales of the Wendigo.

Based on the distribution of the remains, and how many fragments of broken bones still fit together, Defleur and Desclaux say the bodies at Moula-Guercy probably mark a single, desperate incident of cannibalism, not a long-term strategy. The remains of all six individuals combined would have fed a band of 15 to 25 people (about the size of an average hunter-gatherer group today) for about two days—perhaps four days with careful rationing. Subsequent layers of artifacts suggest that Neanderthals kept returning to use the campsite in later years, although there's no way of telling whether it was the same individuals or whether they knew what had transpired there.

For modern humans, cannibalism, even when it's the only way to survive, takes a psychological toll, and we're left to wonder how the Neanderthals of this site processed their experience. We know that, cognitively, Neanderthals were a lot like us; they created art and jewelry, they used symbols to communicate their ideas, and they buried their dead. So how would they have felt about eating their dead in order to survive? We can only speculate.

"The cannibalism highlighted at Baume Moula-Guercy is not a mark of bestiality or sub-humanity," Defleur and Desclaux wrote. If anything, it's a gut-wrenchingly human story of hard choices in desperate times.

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