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Book Review Essay on Neanderthal Man

The Continuing Story of Neandert(h)al Man:

Book Review Essay


by Johan M.G. van der Dennen

Tattersall’s book is the latest in a recent revival of Neandert(h)al studies, together with Trinkaus & Shipman (1993), Stringer & Gamble (1993), and Shreeve (1995; Shreeve’s book is of a different caliber, however, and will not be covered in this review). The study of the Neandert(h)als is, to a great extent, a study of controversies, of stereotypes and popular prejudices, more or less hilarious and/or ludicrous misunderstandings, and, as will be seen, widely divergent extinction scenarios.

In August of 1856 – three years before the publication of Darwin’s *On the Origin of Species* – German laborers in search of lime blasted out the entrance to a small cave (the Feldhofer grotto) that lay high on the sheer wall of the Neander Valley (in German Neander T(h)al [The 17th-century composer Joachim Neumann gave the classicized version of his surname to the valley]), near Düsseldorf, Germany, through which the Düssel river meanders to join the Rhine(1). Within the cave the workers exhumed a skullcap like none ever seen before: long and low, with a pair of large ridges arching over the now-vanished eye sockets. Nearby they excavated some bones from the body of the same heavily fossilized and very robustly built individual. The workers did not think anything much of these finds, assuming them to be the bones of a cave bear; but by great good fortune they set at least some of them aside for eventual examination by the local schoolteacher and amateur natural historian Johann Fuhlrott. Fuhlrott, to his eternal credit, had the insight to recognize them for what they were: the remains of a previously unknown type of human. Fuhlrott took the finds to Hermann Schaaffhausen, professor of anatomy at the University of Bonn, and after a preliminary announcement by Schaaffhausen, the pair presented the Neanderthalers (‘Neanderthal Man’) to the world at a meeting of the local natural history society in June 1857.

This was the first evidence of a distinct (and now extinct) species or subspecies of human, *Homo (sapiens) neanderthalensis*, that lived during the later part of the Pleistocene epoch, more familiarly known as the Ice Age, some 200,000 to 30,000 years ago. Sites at which (by now abundant) Neandert(h)al fossils have been found are distributed in Europe and western Asia from the Atlantic in the west to Uzbekistan in the east, and from Wales in the north to Gibraltar and the Levant in the south.
Most palaeoanthropologists, according to Stringer & Gamble (1993, p. 65) accept that the Neandert(h)als evolved from European middle Pleistocene ancestors who were either a late form of *Homo erectus* or a descendant of that species. This would be either *Homo heidelbergensis* or ‘archaic’ *Homo sapiens*.

The German orthography of the word valley (*Thal*) changed early in the 20th century to *Tal*, giving rise to two different versions of the spelling ‘Neanderthal’ and ‘Neandertal’. For the sake of convenience, and to avoid unnecessary repetitions, I shall use the ‘modern’ orthography in this review.

A Cossack with rickets

Schaaffhausen came tantalizingly close to an evolutionary perspective on his fossils, but in 1857 the time was not yet ripe for the suggestion that the Neandertaler was anything other than an inferior or ‘savage’ version of our own species. As Tattersall relates the hilarious story (pp. 77-78):

“Unfortunately, the heavy guns were not on Schaaffhausen’s side. In Germany the life sciences were dominated at the time by Rudolf Virchow, the father of the modern study of cell biology and a doughty opponent of evolutionary thought in all its manifestations.

Virchow’s specialty was pathology, and pathology provided the explanation he preferred for the unusual appearance of the Neanderthal. To Virchow, here were the remains of an ordinary human being cursed with a particularly unfortunate affliction, so he heartily endorsed the conclusions reached by Schaaffhausen’s colleague on the Bonn faculty, Professor August Mayer – the very August Mayer who has gone down in history as the author of perhaps the most imaginative scenario ever dreamt up in the long history of human evolutionary studies.

Mayer’s examination of the bones from the Feldhofer cave suggested several things to him. He noted, for example, that the thigh bones and the upper front part of the pelvis were somewhat curved, as in lifelong horsemen. These characteristics, he claimed, might also have been exaggerated by childhood rickets, a vitamin deficiency disease. The left arm had been fractured and had healed badly; and Mayer claimed that this injury was the key to the unusual shape of the skull: it was the constant frown brought on by the pain of the injury that had caused the formation of the bony ridges above the eyes! Putting all the evidence together, Mayer proposed that the remains were those of an unfortunate deserter from the Cossack cavalry that has paused near the Rhine in January of 1814, before proceeding onward to attack France”.

William King (already in 1863), Hermann Klaatsch, Marcellin Boule (1912; see also Hammond, 1982) and Arthur Keith (1912, 1928) argued that Neandertals were too brutally apish to be a part of our own (modern human) ancestry. Boule thus classified them as a separate species – *Homo neanderthalensis* – rather than as a subspecies of *Homo sapiens*: *Homo sapiens neanderthalensis*(2).
Beetle-browed, bent-kneed, sloping-necked, shuffling slouches with grasping feet and inferior brains, brutish and sluggish hominids; this familiar and long-standing stereotype of the Neandertals was started by Julien Fraipont and Max Lohest, who studied the skeletons from the Belgian site of Spy (Archives de Biologie, 7, 1887), but advocated most vociferously by Marcellin Boule (Les hommes fossiles, 1912).

For those who held the view of human linear progress from savagery, through barbarism, to civilization, such as de Mortillet, Lubbock, Morgan, Tylor, among many others, “the Neandertals and other prehistoric humans were simply fitted into preexisting stages, pigeonholed for reference, and used to reinforce the ‘evolutionary’ view of human history and progress. This is most wonderfully illustrated by what is probably the first artistic depiction of a Neandertal, a drawing that appeared on the front page of July 19, 1873, Harper’s Weekly... A more ferocious-looking, gorilla-like human being can hardly be imagined” (Trinkaus & Shipman, 1993, pp. 108-9).

Stringer & Gamble (1993) present various pictorial and statuary reconstructions of Neandertal men and women, illustrating how widely these can differ: from ape-like, hairy, brutish and ferocious creatures to a somewhat stockily-built contemporary human (pp. 19-23 and 28-29). Carleton Coon’s very human-looking 1939 portrait put the Chappelle-aux-Saints individual into modern dress and gave him a shave and a hair cut, suggesting that he could pass unnoticed in the New York City subway.

**Cave bear cults?**

Between 1917 and 1921, the amateur archaeologist Emil Bächler, excavated the Drachenloch (Dragon’s Cave) site in the Churfirsten Mountains of Switzerland. No Neandertal fossils were found there, but the Mousterian tools associated with them were, along with what Bächler considered to be evidence of Neandertal ritual activity. Inside the cave were found the remains of many cave bears, Ursus spelaeus: huge beasts that became extinct some 40,000 to 50,000 years ago. To Bächler there was something special about the way in which these bones were disposed, and he started the notion of Neandertal ‘bear cults’ (recently – once again – popularized by Jane Auel’s novel The Clan of the Cave Bear), with bears the subject of worship or other ritual activities that maybe included deliberate sacrifice, and that must surely have involved some kind of feeling for the spiritual. Perhaps not surprisingly, reports of similar presumed behaviors began to trickle in from other sites – and exotic customs of this kind meshed well, of course, with the darker side of Neandertal nature as exemplified by Gorjanovic-Kramberger’s (1906; see below) alleged cannibalism.

“To a scientific milieu that was still trying to come to grips with the Neanderthal phenomenon, there must also have been a certain comfort in the contemplation of a deeply human spiritual awareness in combination with ‘primitive’ rituals such as those envisaged by Bächler. Familiar yet unfamiliar: these behaviors perfectly matched the equivocally human morphology of the Neanderthals. More-recent work, however, has shown that the reality of the bone accumulations of the Drachenloch was almost certainly much more prosaic than the picture Bächler painted” (Tattersall, p. 95). Rowley-Conwy (1993) gives as contemporary verdict: “a chance arrangement [of bones] magnified by wishful thinking”.

Cannibal feasts?

In 1939 Guattari Cave on Monte Circeo, Italy, yielded stone tools and a skull of a rather heavily built Neandertal from the last glacial (about 50 thousand years old). What made this particular specimen a cause célèbre, though, was less the fossil itself than the supposed context. The original discovery had been made accidentally, by a workman, in almost complete darkness, and the skull – one of many bones lying on the cave floor – had been picked up and replaced on the ground by the time the paleontologist Alberto Blanc was called in. A reconstruction by Blanc showed the cranium lying inverted, a gaping hole in its base pointing straight up, within a ‘crown of stones’.

“Ignoring the fact that the cave floor was covered with stones and bones, and that here was no certainty about exactly where the skull had come from, Blanc built on the tradition of Krapina [Gorjanovic-Kramberger, 1906] and the Drachenloch to spring to the conclusion that the Guattari skull represented the remains of a cannibal feast. The individual had been killed by a blow to the right side of the head; the head had been severed from the body and placed upside down in a ring of stones; the skull base had been broken open to extract the brain (exactly as the anatomist Franz Weidenreich had suggested had happened to the Peking Man skulls from Zhoukoudian): the empty braincase had been used as a drinking cup before being replaced on the floor; and the broken animal bones scattered around the cave had accumulated as a result of further sacrifices associated with this bizarre cannibalistic ritual. We know now that Guattari Cave was in fact an ancient hyena den, and that the Neanderthal skull was simply one more of the numerous mammal bones with which it was littered” (p. 101).

Actually, the claim that Neandertals were cannibals is far much older and based on a tragic misunderstanding. Trinkaus & Shipman (1993, pp. 104- 5) tell this story as follows:

“In his writings about La Naulette [a Belgian cave discovered in 1866], Dupont explicitly denied an extraordinary claim about the Neandertal fossils that had never yet been made (in print): that they were the remains of a cannibalistic feast. He argued that the fossils were naturally broken and located within a cave but were not associated with worked stones or hearths – items for which he deliberately searched. For all his care, he uncovered only broken animal bones and the three human bones. Perhaps he was indirectly responding to the charge of cannibalism that has been raised before, by a Monsieur Spring, who was writing of the more modern finds at Chauvaux, Belgium. Spring had found shattered human and animal bones mixed together in hearths and took this as logical evidence that both animals and humans had been treated as food. But Dupont’s finds did not include such evidence.

Bizarrely, the claim that Neandertals were cannibals started here – with a case that particularly did not suggest cannibalism – and has persisted, lingering about Neandertal remains like a poisonous miasma, until the present day. A purported summary of Dupont’s findings, written in English by C. Carter Blake [1867], stated that Dupont believed the La Naulette remains showed evidence of cannibalism. Was it mistranslation, misunderstanding, or carelessness? Then, in 1930, Ales Hrdlicka, a physical anthropologist at the Smithsonian, again attributed to Dupont the claim that the La Naulette remains showed signs of cannibalism”.
The contemporary verdict is that the alleged evidence of Neandertal cannibalism can be interpreted as the result of mortuary practices (as at Krapina) or carnivore activity (as at Monte Circeo) (Bahn, 1992).

**Flower people?**

During the 1950s new Neandertal discoveries continued to come in, helping to fill out the more modern-human-like picture painted by Clark Howell and Loring Brace, among others (as a reaction to the former more ‘bestial’ image).

In 1955, independently, both the Swiss primatologist Adolph Schultz and the French palaeontologist Camille Arambourg stated explicitly that the Neandertals must have walked fully upright. They were vindicated in 1957, when Straus & Cave published a detailed reanalysis of the La Chapelle-aux-Saints skeleton, which appeared to show the symptoms of osteoarthritic degeneration.

Between 1953 and 1957 the Columbia University archaeologist Ralph Solecki excavated the cave of Shanidar, in northern Iraq, recovering the remains of nine adult and juvenile Neandertals. One of the skeletons was that of an adult male who had suffered, perhaps since birth, from a disease that withered his right arm. Solecki pointed out that this disadvantaged individual could not have survived to a relatively advanced age without the active and long-term support of his social group. Suddenly the Neandertals became caring and humane, as well as spiritually aware. This new Neandertal persona was made yet more compelling by the discovery of fossil pollen that suggested the individual had been buried with spring flowers. The subtitle that Solecki later chose for his popular book on Shanidar, *The First Flower People*, eloquently reflects how dramatically the Neandertal image was changing (Tattersall, p. 107). “Coming as it did on the heels of the destruction of Boule’s apish Neandertal and the construction of a new, improved, and more human Neandertal anatomy, Solecki’s view of Neandertals as human, humane, compassionate, and caring was accepted widely and with remarkably little demur” (Trinkaus & Shipman, 1993, p. 341). Lately, however, this ‘new’ Neandertal persona, again, has been drawing heavy flak. Given the complexities of cave deposits, Rowley-Conwy (1993) argued, the pollen in the Shanidar ‘flower burials’ could have got there in various ways – indeed, even during the archaeological excavation. With two possible exceptions, there is hardly any evidence of Neandertal burials, or that they had a religion or believed in an afterlife: “It is not impossible that what we see is the simple disposal of dead bodies, and that nothing more complex was ever involved”.

**Mysterious extinction?**

So, neither the image of *H. neanderthalensis* as a cannibal(3), nor as a worshipper of cave bears, nor as a flower child, nor as a bent-kneed slouch has withstood the test of time and the accumulating evidence. What about the end, Tattersall’s ‘mysterious extinction’, of the Neandertals?

Over the years the two camps, one favoring regional continuity, and the other population replacement, have labelled themselves and each other with a variety of names and sobriquets.
The regional continuity hypothesis is also called the ‘candelabra model’ or ‘multiregional evolution’ or ‘the single species hypothesis’ (with proponents Ales Hrdlicka, Franz Weidenreich, Carleton Coon, Loring Brace, Milford Wolpoff, Erik Trinkaus and Pat Shipman – among others); the population replacement hypothesis is also known as ‘Out of Africa’ or ‘Noah’s Ark’ (with advocates Marcellin Boule, Henri Vallois, William Howells, Peter Andrews, Chris Stringer, Clive Gamble, and Ian Tattersall – though opinions differ whether this replacement was peaceful or violent). See also: Graves (1991), Bräuer & Smith (1992), Burenhult (1993), and Shreeve (1995).

Trinkaus & Shipman (1993) explicitly favor the Continuity-hypothesis: “To us, the fossils indicate that the earliest modern humans evolved out of Neandertals (or out of late archaic peoples very like them) soon after Neandertals had themselves appeared, about 100,000 years ago. This was not an evolutionary event that happened simultaneously across the entire Neandertal range” (p. 414), the authors state in a chapter modestly entitled: The Current View.

“Though the evidence in different regions of the Old World records genuinely different events, nowhere is there evidence for violent confrontations between Neandertals and modern humans (myths notwithstanding). The mosaic of local evolution, migration, admixture, absorption, or local extinction of Neandertals was a complex process that occurred over the last 10,000 years” (p.416).

Anatomically, Trinkaus & Shipman argue, “the Neandertals are quite similar to ourselves, having a skeletal arrangement identical to ours, brains as large as ours, and – to the best of our knowledge – the capability to perform any act normally within the ability of a modern human” (p. 412).

Tattersall’s view is quite different. “Weaving together the archaeological and fossil evidence with the lessons of evolutionary theory, Dr. Tattersall draws on our latest knowledge about how Neanderthals evolved and lived to solve the riddle of how they died. He presents convincing evidence to demonstrate quite conclusively that Neanderthals were killed off by invading Homo sapiens in the first known instance of human genocide”.

This is the claim of the cover text, and Tattersall can probably not be held responsible for this pretentious arrogance. Indeed, the real text (on page 202) reads a lot more carefully-formulated, modest, and ‘maybe-ish’:

“It is vanishingly unlikely, however, that peaceful assimilation was an overall option, with groups of the two kinds of humans [the resident Homo neanderthalensis and the invading Homo sapiens or Cro-Magnons] exchanging members when they met and going their separate ways, or joining forces. More likely, perhaps, if intermixing is to be considered at all, is a scenario of well-equipped and cunning Homo sapiens descending on Neanderthal groups, killing the males – through strategy and guile, certainly not through strength – and abducting the females”.

Remarkable in this context is that Tattersall does not even mention or consider the possibility of a more peaceful displacement scenario (as envisaged by Graham Richards and Stringer & Gamble), or a continuity scenario (as suggested by Trinkaus & Shipman). The more remarkable because (1) Neandertal mass graves or other evidence of massacres and/or large-scale killings has never been found (as Richards correctly observed), and (2) Neandertal
females would hardly have been of much reproductive value to the invading *H. sapiens sapiens*, as Tattersall himself admits, because it is highly improbable that viable offspring could have been produced by the resulting unions of these rather different species(4).

It was during the fluctuating climates of 45,000-30,000 years ago that anatomically modern humans (Cro-Magnons) seemingly arrived in Europe and must have coexisted with the last Neandertals. Would the Cro-Magnons have acted as ‘Killer Africans’ (to use Milford Wolpoff’s choice phrase) and wiped out the Neandertals they encountered? According to Boule, Bigelow, Birdsell, Cioffi-Revilla, Claiborne, Bailey, Diamond, Gat, Klaatsch, Wendt, and Tattersall (as well as fiction writers such as H.G. Wells in *The Grisly Folk*) the Cro-Magnons indeed did exactly that: exterminate the poor Neandertals, as befits evolutionarily ‘dead-ends’ (Quite unlike his subtitle suggests, there is nothing mysterious to Tattersall about the extinction of the Neandertals).

But Stringer & Gamble (1993, pp. 193-4) present a much less bloodthirsty and gloomy replacement scenario:

“In an area as large as Europe, with its varied environments and over a timespan of perhaps 10 millennia, many different kinds of interactions could have occurred (and probably did occur), ranging from avoidance to tolerance to interbreeding, and from conflict and economic competition to friendship and an exchange of ideas... [Very probably] there was minimal gene flow (interbreeding) between the two populations [because of] predominantly behavioral barriers that kept them distinct from one another...

If the Cro-Magnons became more skilled at coping with and exploiting the European environments than the Neanderthals, the Cro-Magnon populations and ranges would have increased. With only finite resources, the Neanderthals would have suffered from economic competition unless they withdrew to more marginal areas (such as, in this context, the southern Iberian and northern British peninsulae). If the Cro-Magnons occupied the more favourable and sheltered lowland valleys, the Neanderthals would have had to occupy higher or less-sheltered ground. In a normal summer this would have posed them few problems, but in more inclement weather their populations would have been put under severe stress. They would have suffered from higher infant mortality rates and shorter lifespans. Repeated across various parts of Europe and over many centuries or even millennia, this attrition would probably have caused Neanderthal populations gradually to decline toward extinction.

In fact, using a computer-simulated model, archaeologist Ezra Zubrow has shown how rapidly the Neanderthals could have become extinct. Assuming interaction between stable populations of Neanderthals and Moderns, a Neanderthal mortality rate only 2 per cent higher than that of the Moderns could have resulted in Neanderthal extinction within about 1,000 years”.

Biological replacement does not, therefore, imply genocide of the Neandertals. The Neandertals probably went with a whimper rather than a bang. The fate of the Neandertals as envisaged by Stringer & Gamble was one of gradual displacement to more marginal and less favorable environments rather than defeat in some sort of territorial battle.

As Richards (1987) makes clear: “At one time dramatic genocidal massacres were envisaged, but no evidence exists for this, no caches of dozens of bones of Neanderthals slain in battle,
and on balance the study of sites like Arcy-sur-Cure goes against it. The demise was likely to have been a more long-drawn out affair, piecemeal, mosaic, in character, with attitudes towards the Neanderthals among Moderns varying across the spectrum as widely as they do on most subjects today, and perhaps vice versa”.

Also Haywood (1995) endorses the replacement scenario: “The Neanderthals lived side by side with the newcomers for around 12,000 years before becoming extinct, so it is unlikely that they were the victims of a campaign of genocide... There must have been at least some peaceful contacts between the two groups, as some Neanderthals adopted new toolmaking techniques from the moderns.

The most likely scenario is that the newcomers progressively outcompeted the Neanderthals”. Gat (1999) presents a refined form of the extermination scenario. He reasoned that Homo sapiens sapiens maintained regional (‘tribal’) group ties, whereas the Neandertals had no such ties or had much weaker ones. This would have been an overwhelming power advantage and a decisive numerical superiority over the much smaller and isolated Neandertal local groups.

“No out-and-out-massacre is suggested, though some massacres probably took place. If the Neanderthals were increasingly pushed out into more marginal and harsher environments, where they progressively went extinct, this was probably done by force. However, the use of violence was in all likelihood much more frequently covert than overt. Again we may learn this from the pattern of hostilities among historical aboriginal humans (and within other species). Hostile demonstration to keep rivals and competitors away or convince them to retreat is by far more common than the deadly encounter itself. Deterrence, which is of course underpinned by the implied and actual use of force, is much more widespread than actual deadly violence. Applying this pattern to the Middle to Upper Palaeolithic transition, the far larger size of Homo sapiens sapiens’ groups may have been in itself sufficient to persuade the Neanderthals to withdraw when showdowns over hunting and foraging territories would occur, as they inevitably did with the newcomers’ arrival. The larger group’s superior force prevailed in a clash when demonstration and deterrence failed, as they occasionally must have... Needless to say, other forms of interaction between the Neanderthals and Cro-Magnons may also have taken place across the highly diverse geographical and time span of the Middle to Upper Palaeolithic transition, including peaceful and even co-operative interactions. This admixture is in the nature of inter-group relations, and is evident in any successful human colonization. The predominance of hostile demonstration and deterrence in the conflictual situation (backed by the actual use of force) may contribute to explaining the scarcity of archaeological evidence for violent confrontations between the Neanderthals and Cro-Magnons” (Gat, 1999: 446-7).

Besides the direct conflict, the direct expropriation of resources, the withdrawal to increasingly peripheral regions, and the interbreeding scenarios, there is one more hypothesis to be mentioned: Deadly diseases introduced by Homo sapiens sapiens to which the Neandertals (long isolated due to the climate) were not immune. This is what happened to various indigenous populations upon the arrival of Europeans: e.g., the Amazonians, the Eskimos, and the American Indians (Angela & Angela, 1993, p. 246; Diamond, 1997).

How did the Neandertals react to the advance and expansion of these anatomically modern humans? Artifacts found in various parts of Europe show that the Neandertals had started to modify their tools. The encounter with the Cro-Magnons, the realization that their tools were...
more efficient, and perhaps the competition drove the Neandertals to borrow more modern technology. In France, the ‘innovative’ results are called Châtelperronian; in Italy, Uluzzian; in Western Europe, Szeletian.

Whichever scenario – absorption, gradual replacement, or annihilation – is true, the Neandertals were in decline by 35,000 years ago. The last group held out in Spain (the Iberian cul de sac) until about 28,000 (or maybe even 27,000) as a recent find at Zafarraya in Spain suggests; Foley, 2001) years ago.

The recently published radiocarbon dating conducted by Fred Smith, Erik Trinkaus and their colleagues (Smith et al., 1999), however, found that the two Neandertal individuals from the Croatian site of Vindija are only 28,000 and 29,000 years old. This revised date of extinction – if valid – stretches the period of coexistence considerably.

Some concluding remarks

The story of the discovery and vicissitudes of Neandertal Man has been told in more detail by Trinkaus & Shipman (1993), and/or more eloquently by Stringer & Gamble (1993). What has Tattersall to add? Mainly the graphic material (high-quality color photographs and sublime art work), although the story of the Neandertals, as told by Tattersall, is captivating by itself. The visual documentation of the Neandertal fossil material, their environment and artifacts, is of sublime quality, excellent and unprecedented.

Tattersall, more than the other authors on hominid evolution, also gives a prominent place in the human family tree to Homo ergaster and Homo heidelbergensis as direct ancestral forms of both H. neandert(h)alensis and H. sapiens.

So the three recent books overlap to a great extent, but their conclusions about the end of the Neandertals are widely divergent: one proposes a continuity theory (Trinkaus & Shipman, 1993), one pictures a gradual and rather peaceful replacement scenario (Stringer & Gamble, 1993), and one paints a genocidal bloody demise of the hapless Neandertals (Tattersall, 1995). This last conclusion is, however, neither novel (Boule already proposed this scenario in 1912) nor very probable in view of the lack of evidence.

Shupp (1998), in a major synthesis of the material, sketches the following scenario:

1. I think we can discard the notion of an anatomically modern human [AMH] Drang nach Westen which eliminated the Neandertals. The rapid spread of the Aurignacian culture seems most easily explained by the assumption that modern humans were widespread in Europe, presumably in small numbers, at some point before the creation of a distinctive modern human culture. Until that happened, as in Spain, AMHs lived like Mousterians, and left archaeological remains identified as Mousterian.

2. Early modern humans in Europe probably lived at close contact with Neandertals and formed alliances with Neandertals. Their relatively small numbers left no alternative to this and we have no reason to believe it was accompanied by any particular repugnance.
3. The question of whether anatomically modern humans or Neandertals “invented” Upper Paleolithic culture is a moot point. The advance was made together and was shared.

4. At some point, in some places, alliances between anatomically modern humans and Neandertals were sundered. It may be that these alliances are innately unstable; it is probably simpler to assume rising population levels made it possible for one side or both to exist without assistance from the other. If Neandertal-AMH pairings were infertile, this would be a strong incentive to create new alliances.

5. By 40,000 BP, anatomically modern humans throughout the world outnumbered Neandertals by a large margin. They may have had a higher birthrate; they probably subsisted on small diets – the causes are immaterial. What matters is that a larger population would have produced more new ideas and techniques, which would be disseminated through their alliances, and which increasingly benefited other AMHs rather than Neandertals.

6. Rising population probably led to depletion of the herds on which both species fed, leading to some degree of tension between alliances. Alliance promoting factors such as private language and private religion would have increased the tension. Note that this does not specify tension between AMHs and Neandertals; it would have existed, but there was probably tension between groups of AMHs and between groups of Neandertals as well.

7. This tension led to occasional violence, increasing the importance of alliances.

8. As the numerically smaller population, food shortages had more of an impact on Neandertals. For the same reason, Neandertals formed smaller alliances, over shorter distances, than AMHs.

9. Smaller alliances were the natural prey of larger alliances, infrequently through overt violence, more often unconsciously via depletion of resources. The result was constant pressure upon the Neandertals (and upon smaller AMH alliances).

10. Eventually the post-Mousterian Neandertal cultures were extinct. Eventually the Neandertals were extinct.

The importance of alliances did not diminish at this point, however, nor did the cultural differentiation that was a product of the alliances. A pattern had been established, which would only be strengthened during the coming glacial period.

The process described lasted as much as ten thousand years, and there was probably never a point where anatomically modern humans felt they were at “war” with the Neandertals or vice versa.

Notes

(1). Bichakjian (1997) relates this story as follows: “The cave where the remains were found was called Feldhofer, but it is the surrounding valley that gave its name to the fossil. Actually it is the valley of the Düssel – a minor tributary river which from the east flows into the Rhine at the height of the city of Düsseldorf – but it had already been renamed the Neander Valley after a seventeenth-century rector of the Düsseldorf Latin School who had celebrated the
picturesque beauty of the gorge. This classics teacher was born Joachim Neumann, but in the
grand humanist tradition had hellenized his last name into Neander, and Fate was to carry this
word into palaeontology, associating with her characteristic sense of irony a Greek word
meaning ‘new man’ with hominids that became extinct 30 000 years ago.
But historical events were to interfere again. When the fossils were found, the word for
‘valley’ was written Thal, but in 1901 the Second German Orthographical Conference
changed it to Tal. Since then the fossil’s name has had two alternative spellings – an
orthographic situation foretelling perhaps the difficult choice between two alternative
classifications”.

(2). A few months after publication of this article (1997) the taxonomical fate of Neandertal
Man seems to be definitively sealed. On the basis of molecular studies conducted on
mitochondrial DNA extracted from the original Neandertal Man, a team of scientists, headed
by Svante Pääbo and including Mark Stoneking (once a co-worker of the late Allan Wilson,
whose team proposed the Out-of-Africa Theory), has provided what seems to be the definitive
answer (Krings et al., 1997; Kahn & Gibbons, 1997; see also Schillaci & Froehlich, 2001).
The Neandertals are not members of our species; they should not be classified as Homo
sapiens neanderthalensis, but as Homo neanderthalensis (as was already suggested by
Tattersall in a 1986 paper; see Tattersall [1995]).
Mitochondrial DNA from a second Neandertal specimen (a baby from Mezmaiskaya Cave in
Russia) has been successfully sequenced. Like the first specimen, it is well outside the range
of variation of modern humans (Ovchinnikov et al. 2000, Höss 2000). Analysis of the mtDNA
of a third Neandertal from Vindija in Croatia also confirms the earlier findings (Krings et al.
Also recent anatomical studies, such as craniofacial (face and skull) variation, do not support
the notion of Neandertals as a subspecies of Homo sapiens (Harvati, 2003).

(3). Recently, however, new evidence of Neandertal anthropophagy seems to have been
discovered. In a press release by The Associated Press on the Internet dated September 30,
1999 (Neanderthal Cannibalism Uncovered), the following story is told:
In a firelit cave in southern France 100,000 years ago, a group of hunters bent over their meal,
expertly slicing flesh from carcasses and sucking marrow from the bones. But a closer
examination uncovers a grisly scene: These were Neandertals, and they butchered six fellow
people just like they did deer – the first real proof, say scientists, that Neanderthals practiced
cannibalism. Whether some Neanderthals ate their own kind has been a controversy since the
turn of the century, when Neanderthal bones bearing suspicious scars were discovered in
Croatia. Critics argued that maybe those bones had been gnawed by animals, cut for some
burial ritual or merely damaged by the primitive techniques of 1890s archaeology. But the
discovery by a team of French and American scientists, who preserved the Moula-Guercy
cave on the Rhone River like a crime scene and used forensics techniques to examine the
bones, should settle the issue, they say. “This one site has all of the evidence right together.
It’s as if somebody put a yellow tape around the cave for 100,000 years and kept the scene
intact,” said co-investigator Tim White, a University of California, Berkeley, paleontologist.
“The hominid and deer carcasses were butchered in a similar way, with the objective being
the removal of soft tissues and marrow,” said lead investigator Alban Defleur of the
Université du Mediterrané at Marseilles. This “is clear evidence,” he wrote in Friday’s edition
of the journal Science. Now the question is why these primitive people – an evolutionary
cousin of modern humans, although most scientists think they are not direct ancestors –
practiced cannibalism. How to determine cannibalism from ancient bone is tricky. White
published a book in 1992 about cannibalism among Anasazi Indians of the U.S. Southwest
that concluded certain markings could definitively differentiate bones cut for consumption from those that were perhaps damaged by a rockslide or broken in a fight. Defleur found 100,000-year-old bone fragments from six Neanderthal skeletons scattered among piles of animal bones in the Moula-Guercy cave, and sought White’s help in investigating. Two marks on a child’s skull show how the chewing muscle in front of the ear was sliced off the bone by a rough stone tool found in the cave. All skulls were cracked open, and limbs defleshed and smashed for their marrow. It is very hard to crack a fresh femur – striations from a hammerstone and the stone anvil are visible on one. The marks, White explains, can be identified just like detectives track the gun used in a crime by matching marks on the bullet. But how does he know bones were not cut for some bizarre burial ritual? Identical marks were found on deer bones, and remains of the animals and primitive people were randomly discarded together about the cave. As White put it: “Humans are mammals. You eat the same parts and leave the same traces.” “The results are unequivocal,” Daniel Lieberman, a George Washington University anthropologist said after reviewing the study. “I can’t imagine any way you could get this kind of damage to skeletons through any process other than intentional defleshing of bones.” While some Neanderthals carefully buried their dead, White said the French cave and scarred bones at other sites suggest cannibalism was more common among Neanderthals than later humans. Why? It’s unclear. Animal bones suggest game was not a problem. They may have eaten enemies. Some cultures practice cannibalism after a natural death. University of Michigan anthropologist Milford Wolpoff has another theory: They needed fat to get through the cold European winter. Neanderthals apparently did not store provisions. Meat cannot be digested without enough fat, either in the meat or stored in the eater’s body, so Neanderthals and their game would be incredibly lean by late winter, Wolpoff said. Brains are very high in fat, as is bone marrow. Previous research suggests that in late winter, Neanderthals broke open deers’ skulls seeking brains – and the Neanderthal skulls and marrow-full limbs all were cracked, too, he said. Neanderthals were the first humans in cold Europe, “and you’re looking at what it took to stick it out,” Wolpoff contended.

4). Recently (April 1999), the interbreeding scenario between the Cro-Magnons and the Neanderthals has been revived by the finding of a 24,500-year-old skeleton in Portugal with characteristics found in both early modern humans and Neanderthals, which shows the two groups interbred and may be ancestors of modern man. The hybrid skeleton of what was likely a 4-year-old boy refutes the widely held theory that early humans emigrated from Africa and displaced the Neanderthal population without interbreeding. The prominent chin was characteristic of early modern humans while the stocky trunk and short limbs reflected its Neanderthal origins, Trinkaus said. Other arm bones pointed to early modern human parentage. The hybrid skeleton was the first evidence ever found that populations of early modern humans and Neanderthals interacted and interbred, Trinkaus said. “This find refutes strict replacement models of modern human origins – that early modern humans all emerged from Africa and wiped out the Neanderthal population,” Trinkaus said. “This skeleton, which has some characteristics of Neanderthals and others of early modern humans, demonstrates that early modern humans and Neanderthals are not all that different. They intermixed, interbred and produced offspring.” (see also Duarte et al., 1999; Foley, 2001).

**Literature**


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