

b39 *Homo neanderthalensis* and archaic *Homo sapiens*

< 160,000 years, burial, care >

Haud ignara mali miseris succurrere disco. [Not unacquainted with distress, I have learned to succor the unfortunate.]
—Virgil proverb.¹

Hybridization may be ‘the grossest blunder in sexual preference which we can conceive of an animal making’ [—Ronald Fisher, 1930], but it is nonetheless a regular event. The fraction of species that hybridize is variable, but on average around 10% of animal and 25% of plant species are known to hybridize with at least one other species.
—James Mallet.²

Peripatetic though they were, Cro-Magnon (moderns) did not intermix with other human groups that existed, but kept to themselves for mating purposes, and then prevailed to the complete demise of competitors wherever they roamed.³ Invading species succeed often by virtue of leaving behind their predators, parasites, and pathogens.⁴ Humanity has decreased in overall robustness (healthy body mass) since 11,000 years ago. With adult heights that average 5' 4" and observed range of 1' 10½" (Gul Mohammed) to 8' 11" (Robert P. Wadlow), we Cro-Magnon descendants are 13% less their body size that Christopher B. Ruff has estimated from their fossilized bones. In Europe, Cro-Magnon developed an ivory, antler, and bone toolkit with apparel-making needles (Magdalenian culture) and had arrived equipped with stone-pointed projectiles (Aurignation technology).⁵ Moderns were in frigid Russia (Kostenki sites) 45,000 years ago and in torrid Borneo 46,000 years ago.⁶

Twelve years before the discovery of Cro-Magnon, a human skeleton, with very different features from living humans, had been chanced upon during limestone-blasting operations in 1856 near Hochdal, Germany, at the base of 2 m of limey washed-in soil in a cave 20 m up in the cliffed side of the *Thal* (German word for *valley* and is pronounced *tal*—see below) of the Neander river (named after lyricist Joachim Neander (eponym in Greek of his German name Neumann meaning “new man”) before the discovery of Neanderthal bones and previously the Düsseldorf river). Indifferently saved were the skull cap (**Figure b39.1**) and some limb bones. Thereafter, the site’s location was almost immediately lost! until 1997 and there in 2002 Jürgen Thissen and Ralf Schmitz found three dozen fragments of Neanderthal bones in two limestone caves.⁷ Most add to the original Neanderthal skeleton (including a piece of bone that had been missing from its skull)⁸ and the remainder are from a second skeleton. Associated are stone tools and chips from tool production dated 44,000 years old.

Cro-Magnon entered Europe and completely replaced the Neanderthals. A 28,000 years old jawbone, found at Croatia’s Vindija Cave, is the last physical sign there of the Neanderthals—who had survived in icy Europe for a hundred millennia before. Neanderthal Man, named by the school teacher Johann Carl Fuhlrott (often cited as the founder of paleoanthropology), has as its type specimen the above mentioned, 1856 collected, almost intact “callotte” (Fr. *cap*) and some blast-shattered bone. An earlier specimen, also a skull cap, had been found in Gibraltar in 1848 but had occasioned little interest. Not so for Neanderthal Man who came to receive much press attention, mostly bad. Of this curiosity, rumors supportive of Chambers’ progressivist ideas in *Vestiges*, 1844, were that “this skull is intermediate between that of the gorilla and that of man!” In 1859, Darwin published *Origin of the Species*. In this, he intentionally did not include that humankind had evolved as had, in his opinion, all life. Lyell who had been unpersuaded by *Vestiges* from his concept of the fixity of the species was swayed by *Origin*. But before so, Lyell undertook to decide for himself on the question of the evolution of humans. This had him touring the known archeological sites which, in England, were Lubbock’s Stone Age shell mounds, and Hugh Falconer’s Brixham cave excavation on the south coast that had turned up flint knives and his famous (but likely bogus) bear’s arm-bone sharpened as a stave. In France, he examined hand-axes excavated by Boucher de Perthes.⁹ In 1862, Lyell arranged for T. H. Huxley to examine the Neanderthal Man (described two years before by anatomist Hermann Schaafhausen as a “primitive and barbaric bear hunter”) then in the possession of its owner, J. K(C)arl Fuhlrott. For his trouble, Lyell received photographs, measurements, a cast of the skull, and Huxley’s emphatic reassurance that it was not a chimp-man for the ape features are “superficial” to the head that housed a brain the size of a modern human. In 1863, Lyell published *Antiquity of Man*. In this, evidence for human change is traced but (to Darwin’s chagrin) no conclusion is drawn that humans have evolved (although by 1866 Lyell did come to agree that species evolve).

In 1863, William King had recognized, from more of their fossils, Neanderthals to be a species of our genus, and in 1864 he formally named them *Homo* (Latin word pronounced with a long *o* meaning *man*, not the Greek word pronounced with a short *o* meaning *same*) *neanderthalensis*. (Germans at the turn of the century dropped the “th” from the language and replaced it with “t.” Following an informal suggestion by Henri Vallois in 1952, Neanderthal in the non-English-speaking world is spelled, “Neandertal.” However, the rules of nomenclature insist that the species will always be, unless formally changed, *Homo neanderthalensis* and so in England and North America the formal “th” spelling persists and, since English has in common usage a genuine ‘th’ sound, its pronunciation in “*Neanderthal*” is almost guaranteed and for the English speaker (ask Ian Tattersall) is correct.¹⁰

Cro-Magnon and Neanderthals had brain sizes equal to living humans. The Neanderthal, stocky and broad of trunk, had relatively short forearms and shin bones noticeably shorter than the thigh bones. Their long heel bones indicate lack of adaption for sustained running (likely they ambush hunted).¹¹ Neanderthals were massively more muscular than are modern humans; bulking generally 30 percent more in weight. Neanderthals were of those proportions since about 75,000 years ago. Before then they were less robust. The boost of human brain size to its existing dimensions occurred sometime before 160,000 years ago. The classic Neanderthal cranium is long and low, bulging at the sides, a chignon (bun) at the rear, slanting forehead and a heavy brow ridge. The face is forward thrusting with a broad nose hole. The jaw is large and chinless. Their vocal tract, according to Philip Lieberman’s analyses, precluded for them the vocalization that would allow for speech, but not an equivalent of a richly nuanced American Indian sign language, or the like of southern African !Xóõ, Nama, Tsonga, Venda. Xhosa, Zulu, ancient click languages/dialects (Khoesanyms).¹²

Cro-Magnon evidently spread west into Europe from Africa via the Levant (Middle East). The way of Gibraltar via the strait was not an option for boatless paleohumans. The late persistence of Neanderthals in Croatia, squares with Erik Trinkaus’ surmise that disappearance of Neanderthals was in part due to interbreeding as well as competition. Before the Vindija find, the last fossils of Neanderthal survivors turned up in “geographical cul-de-sacs” such as the Iberian peninsula. There, Jean-Jacques Hublin (and a team of Spanish archeologists, Cecilio Barroso Ruiz and Paqui Medina Lara, and French dating specialists) at Zafarraya Cave near the Mediterranean coastal city of Malaga, uncovered and dated, at 30,000 years old, a well-preserved jaw with characteristics typical of Neanderthals, stone tools of the Mousterian style associated with Neanderthals, and the teeth of an ibex, perhaps the prey of Neanderthal hunters or scavengers. Cro-Magnon culture, called *Gravettian*, with technology and a social organization for following thinly spread-out steppe animals and migrating herds appeared around 35,000 years ago. Then failure to survive, Tjeerd van Andel proposes in *Neanderthal and modern humans in the European landscape of the last glaciation* was the heedless lot of neanderthals with toolkits indicative of dependence on “sedentary herbivores.”¹³

Fossil skulls that appear hybrid have some Cro-Magnon features (small brow and with chinned jaw bones and some Neanderthal features (a chignon) are from 30,000 years old Romanian bear cave site)¹⁴ and from 80,000-100,000 years old Skhul and Qafzeh, Levant sites. For the latter, Wesley Niewoehner finds their hand bones adapted for modern’s preferred use of tools with hafts and shafts and not for Neanderthal’s “power grip” with the fingers curled around the body of a tool held in the palm of the hand.¹⁵ As presumed subspecies, these are called *Homo sapiens neanderthalensis*.

Neanderthal geographic range was, toward their end, restricted to the then existing gloomy holm oak and cork oak evergreen forests of the Iberian peninsular.¹⁶ Pale skinned and red haired,¹⁷ they last occupied Gorham’s Cave, Gibraltar, 28,000 years ago.¹⁸ Before Cro-Magnon arrivals, their range was from the Mediterranean north shore to throughout Europe. As time progressed they had become more “Neanderthal.” Those that inhabited western Europe became the most different from modern humans in limb and skull shape. This apparent regression may be an isolated race’s unclothed adaptation to the glacial climate. Their stone tools were made from local pebbles that were first flaked to shape cores kept at the work site and from these, blanks were flaked for specialized uses. Steven L. Kuhn has suggested that this technology had been forced when glacial-growth lowering of sealevels distanced cave dwelling sites from coasts. Like traditional Eskimo’s reliance on meat in tundra and frozen winter wastes, Ice Age Europe’s barren landscape could have necessitated for Neanderthals a high meat content diet. This speculation derives from prey-species bones and hunting weapons found at Neanderthal sites. Corroborating evidence is in bone samples (analyzed by Michael P.

Richards in 2000 from a 28,000-year-old Neanderthal jaw and skull fragment found in a Croatian cave) of a preponderance of stable forms of nitrogen over carbon (an indicator of intense meat eating in the last few years of an organism's life—the opposite would record heavy consumption of plants). Similar chemical records of meat eating is known from three other Neanderthal fossils that date 40,000-130,000 years old.¹⁹

A Chatelperronian industry, characterized by blade tools dating 30,000-32,000 years old, have knives with curved backs most comparable to Mousterian knives. This has suggested to some that Chatelperronian artifacts, which includes personal ornaments of animal teeth, ivory beads, and bones showing perforations or grooves for suspension, are evidence of Neanderthal acculturation or imitation brought about by cultural contact with modern humans immigrating into Western Europe. The court on this is out.²⁰ Interestingly, speculation has not been that the Neanderthals, with their entrenched ancient culture, viewed the moderns as *arriviste* and would have nothing to do with them.

At Arcy-sur-Cure, France, sediments dated at 45,000 years old, contain undoubted Aurignacian artifacts. Undisturbed, underlying layers, excavated by André Leroi-Gourhan, 1949-1963, were found to contain numerous Chatelperronian artifacts; an industry already known from other sites. The fineness of these encouraged the opinion that they were manufactured by early Cro-Magnon. However, at Arcy, a temporal bone of a Neanderthal child found among them, showed otherwise. The Arcy layers clearly preserve a work site as waste products of fabrication are present. An objective evaluation has established that the production sequences (the way blades were produced, for example) are not identical to those of the Aurignacian, and could record a refinement of Neanderthal technological behavior. In contact with Cro-Magnon, had new horizons opened for Neanderthals?²¹

Consider this tale by Bruce Headlamis: “In 1979, the University of Texas Medical School selected 150 first-year students from a pool of 800 interviewees. The State Legislature then mandated that the class size be increased by 50 students, who had to be pulled from the bottom of the original pool. The initially rejected students came in with inferior marks, poorer test scores and lower personal evaluations. Yet at every measurable step during their medical education, from term marks to residency, their performance as a group was indistinguishable not just from the rest of their peers but also from the top 50 students in the class.”²² Transcendent over the selection effect (the students' qualifications) was the treatment effect (the classroom).

John J. Shea's suspicion that the razor-edged spear point shaped stones associated with both Neanderthals and ancient *Homo sapiens* living in the Middle East had often been used to kill wild horses and goats has been ratified by the discovery in 1998 of spear-point fragment embedded in the neck bone of a wild ass excavated at the Neanderthal, Umm el Tlel, Syria, site dated at something more than 50,000 years old.

Neanderthal mute (? , see Topic b40) cultural ways included care of the crippled (empathy which lets us feel the emotion, pain and sensation of others) evidenced by the longevity of arthritics (their bones excavated in 1856 from La Chapelle-aux-Saints, France, were in 1908 misinterpreted *and* mis-assembled by Marcellin Boule to give the long held view of the Neanderthal “Cave Man” as a stooped, ape-like, brute) who could have not done for themselves. Arranged skulls and lined up teeth and bones of Cave bears (*Ursus spelaeus*) on rock shelves in caves once occupied by Neanderthals suggest veneration or merely trophies. From Divje Babe, Slovenia, now seen as a bone with holes chewed into it by a carnivore, is what was once exhibited as a flute fragment²³ (as are undisputed 32,000-year-old ones of hollow bird-bone shanks with drilled stops found in Geissenklösterle, Germany, and Isturitzm, France, *H. sapiens* occupied caves,²⁴ and rituals evidenced by the burial of their dead with stone tools—as too the painted with red ochre buried man's bones of the “Red Lady” found in 1823 by William Buckland in a cave in the Gower Peninsular, Wales, that date 29,000 years old).²⁵ In Shanidar Cave, Iraq, a 50,000 year old Neanderthal skeleton found in 1976 along with flowers recorded by clusters of plant stalks and pollens of yarrow, grape hyacinth, and Saint Barnaby's thistle, caused Ralph Solecki to exult “with the finding of flowers in association with Neanderthals, we are brought suddenly to the realization that the universality of mankind and the love of beauty go beyond the boundary of our own species.” Dampening such enthusiasm is zoo-archaeologist Richard Redding's discovery that *Meriones crassus*, a gerbil-like rodent that inhabits barren and rocky Zagros Mountains, stow such flower material in their burrows. From mentions in

the Shanidar excavation reports of preserved rodent bones and burrows “very close to the skeletons,” Jeffrey D. Sommer infers flower placements were by the (larger) Persian jird, *M. persicus*.²⁶ As for human empathy in the care for nonproductive individuals (beyond that natural in the care of the very young and women in the final stages of pregnancy) comparative skeletal signs in wild apes (chimpanzees are indifferent to the welfare of unrelated group members)²⁷ and monkeys that record their having survived major illnesses and injuries, gives David W. Frayer pause: “A lot of researchers, including me, have been guilty of jumping to conclusions from fossil evidence about ancient caring behaviors.” About half of (13 modern humans and 32 Neanderthals) Middle Paleolithic burials were with grave goods of some sort, such as bone fragments, stone tools, and rocks placed over the skeleton.²⁸ However, the haphazard association of remains and artifacts in them could indicate chance cave collapse burial or functional (not symbolic) burial (as corpses, Margherita Mussi suggests “must be disposed of, as remains, human or not, can easily attract large carnivores”).²⁹

The Neanderthals invented bone and stone-tipped projectiles at no time before 55,000 years ago when their tools were large-flaked butchering hand axes that could be resharpened—Mousterian industry arising 130,000 years ago. According to Mary C. Stiner, Neanderthals then subsisted by ambushing ungulates on the hoof, and by scavenging head parts of these from hyena and wolf kills.

Africa In Africa today, the San hunter-gatherers of southern Africa establish reliable ties between groups by exchanging gifts as ostrich eggshell beads (strung into a necklace or sewn onto a bag or hat): “It’s free! It’s yours! And don’t you forget it!”³⁰ The same were being manufactured 40,000 years ago in a rock shelter called *Enkapune Ya Audo*, or Twilight Cave, in Kenya’s Rift Valley.³¹

Excavations beginning in 1992 of Blombos Cave, southern Cape Province, South Africa, overseen by Christopher Stuart Henshilwood, yield well preserved Middle Stone Age artifacts. Included is a shard of silty ochre that, where shale-like, has on that split-flat surface, unevenly spaced straight-scratched lines in two directions, forming triangles, and, through the intersections of these, some additional lines. Luminescence dating of burnt rock fragments associated with the ochre pieces, and an overlying dune, by Geoff Duller, indicate that the “pieces are approximately 77,000 years old, supporting the model of an earlier rise of modern human behaviour in sub-Saharan Africa.” Earlier, one pocket of people (of unknown affinities), in what is now the Katanga district of Zaire, made tools of bone to aid fishing. Their technology, for which an age of 89,000 years has been found by Alison S. Brooks, evidently lasted briefly.³²

The oldest known fossils of modern people were found in 1997 at Herto in eastern Africa. The fossils, which date to between 154,000 and 160,000 years old, include partial skulls of two adults (and the facial bones of one) and of a 6-to-7 year-old child. According to finder Tim D. White, the Herto “near-human” *H. sapiens* subspecies (their braincase volumes slightly smaller than that of current humans and larger than that of archaic *H. sapiens* skulls) are evidence that moderns originated in Africa and subsequently replaced Neanderthals and other closely related groups.³³

Australia Humans, to be in the island continent Australia, had ancestors who had managed to arrive by raft or boat. Some produced the stylish “rubbish” (in the stated view of the local Aborigines)³⁴ figure paintings dating to 17,000+ years old found by Grahame Walsh in 1996. Archaic *Homo sapiens* who did reach Australia, left no descendants, or, as Alan Thorne would have it, modern Aborigines descended from a mingling of “robust” people, who became visible (arrived with edge-ground tools) in Australia about 20,000 years ago, and earlier “delicate” people, who had entered about 40,000 years ago. The shifting sands of Lake Mungo lunette (a crescentic wind-deposit to the lee of a pan),³⁵ Willandra Lakes World Heritage area, NSW, in 1974 revealed skeletal remains (minimum date 56,000-68,000 years old) of a ritually buried human skeleton (Mungo Man) that had been covered in red ochre (earliest known such usage and an evident lack of Alexander Pope’s sensibility that “beauty unadorned adorned the most”), and placed sideways, hands interlocked and drawn over where the penis would have been.³⁶ Found five years earlier was, also, the cremated remains of a female skeleton (Mungo Lady).³⁷

Excavations since 1992 at a northwestern Australian site called the *Jinmium rock shelter*, provide the evidence of archaic *Homo sapiens*. Thousands of small, circular engravings arranged in rows

occur on Jinmium's huge stone wall, and similar circular engravings occur on a fragment of sandstone in 58,000-75,000 year old sediment.³⁸ This rock art reveals artistic expression was a capability of transitional, or archaic, *H. sapiens*. However, the abstract nature of the engravings, according to Paul S.C. Taçon, leaves open to doubt that they are art.³⁹ They could be doodles. The humanity of archaic *H. sapiens*, who had earlier occupied the Jinmium cave is, as described by Richard L. K. Fullagar, recorded by stone tools implements and starch remains, as well as red ochre, that occur in sediments dated 75,000-116,000 years old. More primitive stone tools (only some have sharpened edges), and starch grains occur in underlying paleosoils 116,000-176,000 years old (dated by a thermoluminescence technique in which soil samples are heated to measure the amount of radioactive energy they have accumulated over time).⁴⁰

The Jinmium material provides support for the multiregional hypothesis (which is that *H. sapiens* are an amalgam of subspecies that arose independently in several parts of the world during the past 2 million years). The Australian fossil evidence, and that of Indonesia (where human fossils date to at least 100,000 years ago), is that the region's earliest archaic *H. sapiens* had art, language, and other cognitive achievements (boating) usually attributed, only, to modern humans. Thus humanity could have emerged in geographically dispersed groups, each with distinctive skeletal variations on an *H. sapiens* theme. This view appeals to Milford H. Wolpoff.⁴¹ Nevertheless, the Australian fossils display modern human features rather than those of an archaic form. For Ian Tattersall "the theory that there was a single, African origin of modern *H. sapiens*" remains intact.⁴²

Asia In Asia, archaic *H. sapiens* have been identified that date to 200,000 years old. They could be older and, if so, then our species of humans overlapped in time with an Asian radiation of a human species called *Homo erectus*.

Levant Art, and other symbolic behavior, defines humanity. Microscopic analyses, by April Howell, has revealed the telltale grooves left by a stone tool used to carve what appears to be a woman's head, neck, and arms on a small rock from an Israeli site and dated about 250,000 years old.

Earliest H. in Europe In Europe, excavation in 1993 of a limestone cavern, Atapuerca Mountains, Spain, yielded a 300,000-year-old Neanderthal (?). And human footprints, the "devil's trails" that trample a pyroclastic slope in Southern Italy, date as old.⁴³ Mitochondrial DNA from Neanderthal bone has recently been obtained. The normal variation of modern human mtDNA does not overlap the Neanderthal mtDNA sequence. Genetically the two groups of humans diverged ~706,000 years ago.⁴⁴

Until recently, the oldest archaic European human was the single massive jaw, *Homo heidelbergensis*, a 500,000-year-old species found in 1907 in a sandpit at Mauer near Heidelberg, Germany. Now excavation of a nearby cave called *Gran Dolina* has unearthed along with stone tools archaic *H.* species more than twice as old. The remains of these found so far, are teeth, jaws, and parts of the braincase of four individuals. Reversed polarity of the magnetic field in the sediments record for these archaic humans and their tools, a minimum age of 780,000 years old. Likely, in Europe, a succession of arriving archaic *Homo* species evolved, went extinct, or migrated out. First hominin fossils along with stone tools and bones with cut marks occur at Sima del Elefante site, Atapuerca, Spain, dated 1.1-1.2 million years old (Early Pleistocene).⁴⁵ □

Figure b39.1⁴⁶ **The type Neanderthal skull cap**

Professor (Bonn) Friedrich C. J. Mayer's (1825-1875) foolish (in hindsight) explanation in 1864 of its features and location was that it is the remains of a Mongolian Cossack with advanced rickets who, in pursuit of Napoleon's fleeing army through Prussia in 1814 had furrowed his brow to assuage his pain and in extremis had dismounted and crept into a cave.⁴⁷

By such misidentification, the skull found in 1856 had missed being seized upon by anonymous author Isabella Duncan to be the *Pre-Adamite Man* required by her exegesis (*The Story of Our Old Planet and Its Inhabitants*, 1860) of *Genesis I and II*.⁴⁸

