

b37 Cro-Magnon < *H. sapiens sapiens*; paleohumans, clothes, painting >

Over and over the wheel must be invented.

—Judy Jones & William Wilson: *An Incomplete Education*.¹

Evolution goes on all the time. You don't have to intervene. It is just that it is highly unpredictable. For example, brain size has decreased over the past 10,000 years. A similar reduction has also affected our physiques. We are punier and smaller-brained compared with our ancestors only a few millennia ago. So even though we might be influenced by evolution, that does not automatically mean an improvement in our lot.

—Chris Stringer.²

Humans, living and historical, exhibit neoteny in the retention of small features and rapid learning curves throughout life, which characteristics other apes lose after infancy. “The [lifelong] ability to respond like a child may be the most precious inheritance of human evolution,” celebrates Mary Catherine Bateson in *Culture and Generation in Transition*, 2000.³

Historical times (the Recent) began with inventions of writing and where metal cultures replaced the stone age cultures of older times. Domestication of animals and cultivation of crops (wheat and barley, and earlier, millet)⁴ had spread across Europe by 5,500 years ago beginning with forest clearing (recorded by pollens of non-arboreal herbaceous plants, as grasses and sedges) where 8,500 years ago and for some millennia before had been closed-canopy forest.⁵ Lactose tolerance evolved⁶ where dairying is recorded as in England⁷ by milk fat residues on potshards dating to 6000 years ago. Farming encroachment had fanned out from the Middle East where evidence is of a prior thousand years of tillage.⁸ Two hypotheses are: 1) the farming habit spread by copying from neighbors, and 2) the farmers migrated bringing their genes with them. The second hypothesis is supported by Luigi Luca Cavalli-Sforza's finding, 2000, that the human gene map almost exactly matches the archaeological map of the spread of wheat.⁹ Before the Recent that began about 6000 years ago and since about 11,800 years ago when the Holocene Epoch began, humans have variously made polished stone tools and settled in permanent town sites (recorded mostly only by their middens). That cultural level is called *Neolithic* (New Stone Age). Human biological history, since the beginning of the Neolithic, is of burgeoning, rudely clothed, populations in which rapid genetic adaptations and disease resistances are forced by the spread of new infectious diseases, new food sources, and new cultural environments that allowed for kins be comfortable in the company of strangers and for settled clans to be warily comfortable of others to the point of trade.¹⁰ Older traditions, not associated with pottery making, clothes, or evidence of animal domestication and plant cultivation, are recorded by stone implements and are ranked by decreasing sophistication. This cultural level is called *Paleolithic* (Ancient Stone Age). Stone Age people have no writing. But what of their art?

David Lewis-Williams and Thomas A. Dowson have surmised that preliterate cave, burial site, and rock-shelter art (in smeared on unprocessed pigments, obtained as damp ochres of manganolite wad for black, hematite for red, and limonite for browns and yellows) depict shamans' trance-induced, supernatural journeys.¹¹ To induce trances, people can dance, isolate themselves in dark places, hyperventilate, or ingest hallucinogenic plants (ibogaine derived from a root bark is used today in the West African Bwiti religion to “visit the ancestors”).¹² Michael Pollan in *The Botany of Desire*, 2001, trippingly informs: “By disabling our moment-by-moment memory, which is ever pulling us off the astounding frontier of the present and throwing us back onto the mapped byways of the past, the cannabinoids open a space for something nearer to direct experience. Memory is the enemy of wonder.”¹³ Others agree (**Figure b37.1**). Such discoverable behaviors allow shamans to experience, in waking dreams, realms populated by dead ancestors, deities, and creatures that they learn to manipulate for community needs: success in hunting, healing of the sick, rain. Given our common brain, altered states of consciousness should have common themes that shaman art may well record.

So a neuropsychological explanation for the content of preliterate art has the virtue of being testable.¹⁴ Indeed, Edward Osborne Wilson, has predicted that vertical integration (the reverse of deconstruction), already well-established in the natural sciences, will soon be so in human science and the “borderland” disciplines of cognitive science (the mind modeled as a bundle of information processing devices—also known as cognitive neuroscience or cognitive psychology), human genetics, human sociobiology (behavior evolved, according to Wilson, in ways that a study of the less complicated behavior of baboons and ants can shed light), and biological anthropology (human biological and genetic variation related to discoverables as migrations and changed habitats), will meld, by a process (for which William Whewell’s word “consilience”¹⁵ can be used) to yield an adequate conception of human nature and a unity of natural and human science.¹⁶

After all, mind and culture ... are material entities and processes. They do not exist in an astral plane above the tangible world and are therefore intrinsically open to analysis in the natural scientific mode. To say that mind and culture are too complex to submit to reductionist analysis is to ignore the fact that scientists have broken one complex biological system after another. And to assert, as many social scientists and humanities scholars have, that mind and culture comprise emergent properties, independent of the levels of organization below them ... is simply the assertion of an alternative hypothesis. So let us find out which of the two opposing hypotheses are true. —Henry Moss & Antonio R. Damasio, 2001.¹⁷

Economics, psychology, and neuroscience are converging today into ... the emerging field of neuroeconomics in which consilience, the accordance of two or more inductions drawn from different groups of phenomena, seems to be operating. Economists and psychologists are providing rich conceptual tools for understanding and modeling behavior, while neurobiologists provide tools for the study of mechanism. The goal of this discipline is thus to understand the processes that connect sensation and action by revealing the neurobiological mechanisms by which decisions are made. —Paul W. Glimcher & Aldo Rustichini, 2004.¹⁸

Humans as exist today are recognizable in the fossil remains from a natural rock abri (shelter) uncovered in 1868 by railroad builders of Ley Eyzies (pronounced *lay-zay-zee*), France, in land owned by Cro-Magnon. His name (pronounced phonetically in English) is the common substitute name used for paleohumans different from Neanderthals. In Europe, by convention, Cro-Magnon times (Upper Paleolithic) end 11,800 years ago (the end of the last Pleistocene glacial) and include sophisticated cave-art that adorn several of one hundred and thirty cave sites in western edges of the Massif Central and the northern slopes of the Pyrenees. The people of the Kostienki/Avdeev culture, 21,800 years ago, lived in semi-subterranean dwellings measuring 5.5 x 4.5 meters constructed of mammoth bones and lined with limestone slabs. Their art, discovered by S. N. Zamiatnine in 1925, is exemplified by Gagarino statuettes.¹⁹ Carved from oolitic limestone some time between 24,000-26,000 years ago (Central European Upper Palaeolithic), is the “Venus” of Willendorf fetish discovered by Josef Szombathy in 1908.²⁰ Dated to 30,000 years old, which is when modern skeletoned Cro-Magnon people arrived, are Upper Paleolithic Lascaux paintings, Chauvert cave, France,²¹ and ivory semi-realistic figurines (lion-man, horse, and a bird), Hohle Fels cave, Germany.²²

Paleohumans, our direct ancestors, achieved a worldwide distribution during the last glacial (Late Pleistocene). Then, because of glacially lowered sealevel, the Aleutian landbridge Beringia (*see* Topic *f32*) spanned between the Old World of northeast Asia and the New World of America. Also, North Atlantic coastal pack ice could have allowed “Kennewick man” migrations.

Extinctions of many large Pleistocene animals (but not bison, deer, caribou, moose, bears, wolves, mountain cats) occurred in North America before 10,000 years ago soon after the arrival of humans with projectiles. Known from their decoratively worked stone tools left scattered across the country and at hunter’s kill sites with butchered mammoth and bison, Fulsom paleoindians are implicated in completing the task of driving the big game to extinction. Before them, in North America, Clovis paleoindians with their functional stone spear points, scrapers, hammer stones, and bone tool industry had also widely hunted big game. Charred wood and bones, conspicuously often of mammoth, date 10,800-11,050 ¹⁴C yr BP at 22 Clovis sites in North America.²³ In Central America, a Clovis site is at Tepexpan, near Mexico City. In South America, a paleoindian site of similar antiquity with stone spear points and associated cave paintings is Monte Alegre in the Amazon basin. Reviewing the

evidence in 2000, Anna Curtenius Roosevelt's conclusion is that "no one type of environment seems to have been colonized at the time of the Clovis. Most Clovis-age peoples in the far north lacked fluted points; they used microblade tools (small blades struck off a prepared core) to hunt and gather a variety of resources. Even the Clovis fluted point (with its shallow channel on one or both sides and its parallel edges), which spread widely in the interior continental United States [*sic*], is conclusively associated with big-game hunting only in the high plains."²⁴ The existence of Clovis contemporaries in Amazonia, with a very different way of life, suggests a much prior diaspora of paleohumans throughout the Americas. Clovis was only one descendant culture of people who were not specialized big-game hunters but rather foragers of small game, fish, fruits, and nuts. And who, a bit before 12,000 years ago, made triangular points that were probably used as knives.

When did paleohumans first enter the Americas? During glacials, in mid-latitudes, a dry, cold, continental climate favored a mosaic of vegetation: 'mammoth steppe' (trampling by large herbivores destroys moss and shrub groundcover and allows grass to become established),²⁵ which stretched from the Pyrenees across Europe and Asia, and tundra (mixed cold forest dominated by conifers as spruce and fir).²⁶ Certainly during glacial times people occupied even the harsh, high-latitude arctic mammoth steppe. Siberian paleolithic sites are Berelekh River at 70°N, dating to 13,000 to 14,000 years ago described, beginning in 1970 by N. K. Vereshchagin, and Yana River at 71°N from which V. V. Pitulko in 2004 described a wide variety of tools and flakes, mammoth-tusk foreshafts, and one rhinoceros horn (a rarity), with the certain oldest dates of 27,000 radiocarbon years before present (which is about 30,000 calendar years ago).²⁷ Lowered sea level had made emergent a vast land between Alaska and Siberia, called *Beringia*. Although this was physically an extension of the northern grasslands, it supported only tundra vegetation. Hurrying through this, the first humans could have arrived in pre-Holocene times by walking anytime between 25,000 and 35,000 years ago when Beringia was emergent. In eastern Brazil, is a rock shelter at Boqueirao da Pedra Furada with prehistoric paintings on its walls and ceiling. Its fill-deposit, more than three meters thick, investigated in 1986 by Niéde Guidon and G. Delibrias has evidence of human occupation at several levels back to 11,000 years. Below this are some layers without cultural evidence and then, dramatically, at 17,000 years old, is a hearth with painted rocks that had spalled off the walls and ceiling of the rock-shelter (this records the earliest evidence of rock art in the New World) and below are older hearth layers evidencing sporadic occupation between 21,000 and 32,000 years ago!²⁸ In Texas, a radiocarbon-date of 37,000 years has been found for a hearth with an imbedded Clovis point. The date is suspect for it would establish that the Clovis point industry remain unchanged for at least 25,000 years (not an impossibility, however).

Paleohumans also managed, presumably by rafting, to cross Wallace's Line (*see* Topic *f30*) to enter Australia. The ancestors of the present Aborigines migrated there arriving about 10,000 years ago. Earlier waves of humanity had entered Australia but of their progenies there are none. Stone tools show paleohumans were as far east in the Indonesian archipelago as the Solomon Islands 27,000 years ago. Still sticking on some of these tools, Dolores Piperno and Irene Holst in 1998 found taro (*Colocasia esculenta*) corm (the plant's swollen, underground, stem base) starch grains (providing circumstantial evidence for its use as food and possibly domestication in the late Pleistocene).²⁹

In 1968, a dig near Lake Mungo in New South Wales, Australia, yielded a 25,000 year old skeleton of a paleohuman woman. At some remove, the Cuddie Springs site "amid a sea of coolabah and blackbox trees," writes Stephanie Pain in 1997, is presently a claypan (a shallow lake after rain).³⁰ This covers an older desert deflation pavement beneath which are layers with bloodstained stone tools, and charcoal. The oldest times of human occupation, dating 30,000 years ago, are along with bones of long-dead megafauna (fossils of which stop there but occur in older layers without the evidence of humans in the environment). From this layer, Judith Field, who has overseen excavations beginning in 1990, describes 33 fragments of grinding stones with polish and embedded phytoliths that record wet grinding of grass seeds (not tubers)—an activity associated with agriculture and settled societies. "Before this [find] ... the earliest known seed-grinding stones came from the Middle East and date from around 12,000 years ago" comments Richard Fullagar.³¹

Paleohumans in their worldwide distribution varied considerably in physical type from one location to another in ways that can be related to demography. Well represented by their stone tools and art work, the various geographic groups advanced unevenly through a diversity of cultural levels demarcated by refinement of projectile points, knives, chisels, and drills. Such blade traditions represent the highest cultural levels of the Paleolithic. These Old Stone Age techniques survive in some groups today and there is no evident way to relate cultural advance to human settlement or migrations. In France, dating between 30,000 and 32,000 years ago, prior to the onset of the last severe chill, Paleolithic cave art in Vallon-Pont-d'Arc in the Ardèche region flourished.³² The cave decorations there include 400 paintings and engravings of rhinoceroses, felines, bears, owls, and mammoths. Discovered in December of 1994 by speleologists Mr. Jean-Marie Chauvet, Mrs. Eliette Brunel-Deschamps, and Mr. Christian Hillaire, the cave was untrammelled since the prior humans left hearths (a floor brazier), flintstones, and footprints (left by a wandering adolescent).

Traditions appear to be more shared than genes. This has been witnessed of stone-age (when first met) Iñupiat hunters in Alaska's northernmost country. David W. Norton confides: "You have to understand that they are technological pickpockets."³³ Around 1870, once they gained access to metal from whalers they swapped it for stone and ivory in their tools. Division of labor between groups of a single species is unique to humans. Trade predates governing. Catching stingrays and attaching their barbs to wooden spears was easy for the Yir Yoront who lived at the mouth of the Coleman River on the York Peninsula, northern Australia. Quarrying stone and attaching polished pieces to wooden hafts was easy for unrelated tribes four hundred miles inland to the south. Stone Age barter, via a succession of intermediary tribes, allowed for the exchange of these manufactured goods.³⁴



Tools devised to exploit local conditions need not be passed on. In Europe, found bone tools date to only 14,000 years ago.

A tradition of weaving of plant fibers existed 26,000 years ago. An archeological site in Eastern Europe, with that age, has yielded two pottery fragments with impressions of the crisscross pattern of tightly spaced rows typical of a finely woven bag or mat. Olga Soffer noticed these in 1991. The pottery was possibly made by plastering wet clay on woven, flexible containers that served as molds. This technique is certainly in the repertoire of our inventiveness. Some early North American Indian groups are known to have made pottery in this way.

Figure b37.1³⁵ Engraved images of fantastic creatures as these are in a hard to reach innermost room in the cave of Pergouset, France. Why did the artist break with a tradition of portraying animals realistically as is so for the art found in the other rooms? Michael Lorblanchet and Ann Sieveking argue for a hallucinogen induced "altered state of consciousness" for the engraver of these images. All the art in this cave is regarded as being Magdalenian Period (latest of the Upper Paleolithic Era) and so is 12,000 to 15,000 years old.

Footnote b38.1 Good evidence for pre-Clovis people is found at Monte Verde, southern Chile. There, a small paleoindian encampment had been hastily abandoned when water suddenly pooled across the site and stayed. In the cool climate of the region, peat bog conditions preserved a treasure trove of what would have been perishables. These include 45 harvested edible plants and 22 medicinal plants, including a chewing wad of analgesic and hallucinogenic Bolodo leaves (a forest plant) mixed with two seaweeds. Familiarity with indigenous plants is indicative of long settlement. From the site, charcoal, a wood lance, tent stakes, grooved timber, fire drill board, burned wood, a digging stick, a Mastodon tusk, Mastodon bone, and charred wood, date on average 12,500 radiocarbon years old.¹