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Recovering the Lost World, A Saturnian Cosmology -- Jno Cook Chapter 7: Ice Ages and Humans.



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Recent Glaciations

As I have noted, repeated extinctions mark all biological life on Earth at least since the Cambrian, 560 million years ago (mya). The interval between major extinctions has been estimated to be on the order of 26 to 27 million years. The only two glaciations the Earth has experienced since the Permian (200 mya) also seem to fit the pattern of 26 or 27 million year intervals. These are the Antarctic glacier of 30 mya (some have this as 40 million) and the most recent northern glaciation which started at 3 mya (dated to 2.7 mya).

Based on the likelihood that plasma contacts with Saturn were responsible for the glaciation, it looks as if Saturn arrived again in the vicinity of the inner planets of the Solar System about 3 mya, when the cycles of northern glaciation start. But this time the evidence indicates that Saturn not only returned, but stayed. After some 20 previous entries into the Solar System since the Cambrian, Saturn probably met up with Jupiter, and was forced into a much shorter orbital period -- certainly much shorter than the previous 27 million year period. The electric force between Jupiter and Saturn would have been attractive rather than repulsive -- enough so that Saturn was yanked into a much smaller orbit. [note 1]

The indication that Saturn may have repeatedly returned to travel among the inner planets is the record of a series of intermittent glaciations, followed with sporadic speciation. Included with the new species is the first set of six hominids (after 3 million years ago), followed at a later date with three more. All of these except the very last one, which is us, have become extinct.

The intermittent glaciations of the last three million years would suggest that these plasma contacts were made in passing -- as Saturn passed by -- rather than in a configuration where Saturn would be close to Earth and deliver a stream of plasma over an extended period of time. With 80 percent of Earth covered by oceans, it is also likely that many strikes were never recorded, although there are

land strikes (always identified as "meteor impacts") of uncertain ages.

One much earlier plasma strike to land, which has been dated with some certainty, is the absolutely gigantic circular Chicxulub "cometary" depression in the Yucatan, made about 65 mya and is 110 miles (177 km) in diameter, resulting in the (eventual) demise of the dinosaurs. But even land strikes of plasma in arc mode, if made at various intervals in the past in multiples of 27 million years, are unlikely to leave much of a dateable record today. [note 2]

It is thus unusual that there were plasma strikes which were close enough to land areas and of an extended duration to leave a record as land glaciers. The start of the last two strikes (of 30 mya and 3 mya) were perhaps qualitatively different from contacts in the more remote past. What was (may have been) different is that the last two series of plasma contacts (30 mya and 3 mya) extended over a long period of time and contacted the Earth from above or below or both (rather than laterally), concentrating at the magnetic poles. The past strikes, like the one that formed the Chicxulub crater (plus 5 additional "craters"), instead may have been gigantic single bolts of interplanetary lightning -- a plasmoid lightning bolt -- not a constant streaming of plasma. [note 3]

Again, however, glaciations, although they may indicate Saturn's visits, are not a reliable index. Glaciers, which end up marking up the landscape with their movements, require a continuous fall of snow over an extended period of time. Thus, a brief plasma contact, or a plasma contact in dark mode which might disperse upon reaching the Earth's ionosphere, would leave no visible record on the Earth's surface.

The plasma stream has to be at least in glow mode, and has to last a long time in order to boil off large quantities of ocean waters. In glow mode the plasma stream would attempt to follow the curvature of the Earth's magnetic field and contact the Earth's surface at the magnetic poles (both the north and the south). At a magnetic pole the plasma stream would increase in density to become visible in arc mode. The arc would vaporize ocean water, raise stupendous clouds, and drop snow in an area maybe a thousand miles (1600 km) in diameter. In northern Europe there are medieval recollections (dating to AD 800) of the hole bored in the North Atlantic ocean by an arc, which had disappeared 3500 years earlier.

But, still, we would have no glaciation record if the magnetic poles were located in oceans far away from land. That may have happened repeatedly in the past. Anytime in the past when the magnetic pole of Earth was located in the middle latitudes of the Pacific ocean or Atlantic ocean there would have been no glaciation at all.

The location of the magnetic pole at any specific time in the past can be triangulated from the direction in which low level magnetism of rocks point at the time the rocks cooled from a molten state (as for example, lava flows). If the rocks can be dated, then a record of the dates and locations of the magnetic pole can be derived. [note 4]

... the geological record

There are three sets of data which bear on glaciation and thus provide secondary data for plasma contacts. The first is the geological record. This consists of the scars and sediment left behind at each advance and retreat of the edges of land glaciers. This is the most reliable record of glaciation. The geological records include those of Northern Europe, Canada and the Northern USA. From these data four recent major land glaciations have been identified, starting at 2.7 mya in Europe, and followed at intervals by the Illinois and Wisconsin glaciations of Canada and the USA. The glaciers have different names in

Europe and America. [note 5]

However, the usefulness of the geological record is limited. The glaciations repeatedly built up and retreated and there are long periods during which nothing seems to have happened. Also, a study of where the edges of the glaciers appeared (and retreated) tells nothing of the central areas, and in fact it is still not even agreed if there were three or four glaciers (or five) or how they overlapped. [note 6]

... the Greenland ice cores

Another set of data which bears on glaciation is provided by the Greenland ice cores, from holes bored 9000 feet into Greenland's nearly two-mile-thick (3-km-thick) glacier. These provide a record of temperatures of the fallen snow in the past (gauged from the chemical makeup of the ice), but not over nearly as long a period as, for example, the data from Oceanic Oxygen Isotope cores (see below). The ice cores reach bedrock after 120,000 layers -- assumed to represent 120,000 years.

In fact, the date of 120,000 years ago, when the bottom of the glacier is reached, corresponds to an interglacial warming period, the Eemian, dated from 130,000 to 120,000 years ago, and corresponding to stage 5e in the Oceanic Oxygen Isotope Series (see below). Greenland was apparently clear of glaciers at that time. Antarctic ice cores also reach bedrock in as many layers.

However, there is something wrong here. The interpretation of the data of the ice cores is based on two questionable assumptions. The first assumption is that the glaciation was continuous over long spans of time. But if we accept the idea that intersections with the orbit of Saturn were the cause of the temperature swings and the less frequent land glaciation, we must conclude that the actual periods of glaciation were intermittent and possibly very short. It is only the snowfall in the mountains of Greenland that is continuous. [note 7]

The second assumption is that glaciation is associated with the North Pole. Yet the region of Northern Asia, which, like Greenland, lies within the Arctic Circle, was never glaciated. The glacier layers of Greenland were assumed to represent a year-by-year record of deposition which would vary little from one location to another. Since the center of glaciation moved over time, even over short periods of time (as the north magnetic pole moves today), we could expect the deposition layers of snow and ice in different locations of Greenland to be different. This has proven to be so; the discrepancy between ice cores bored at different locations has been noted and a concept of discontinuity is being woven into the current analysis by the researchers.

The last boring brought up organic material -- in defiance of the fact that a 120,000-year-old glacier would have obliterated all organic forms and would have scoured the surface clean (as also noted by the researchers). Stuck to the bottom of the drill bit was what looked like a pine needle.

It should also be noted that despite much bragging to the contrary, little data has actually been obtained from the ice cores which correlates to other worldwide events, like volcanic eruptions. Only a single late worldwide event has been correlated, and not with any certainty. [note 8]

The "fine detail" of the Greenland cores record shows swings in temperature as short as 70 years. Some geological records for the same period show even shorter intervals between glacial build-up and retreats -- as short as 20 years. [note 9]

... Oceanic Oxygen Isotopes

A third set of data bearing on glaciation are the Oceanic Oxygen Isotope cores (from the sludge of sunken skeletons of surface foraminifera) which is understood as an index of ocean temperatures near the surface and thus should indicate the existence of glaciation, or at least glacial melting. The data is used as an index of ocean volume compared to the amount of water locked up as land glaciers.

Oceanic oxygen isotope analysis gives results which extend back 65 million years, and is thought to represent a measure of worldwide climatic conditions under assumed stable conditions. The record during the last few million years is extremely variable. The cooler periods during the last three million years have an interval of about 100,000 years (and intermediate intervals at 50,000 years). The standard explanation is that the cold periods correspond to periods of glacial buildup. I will suggest other causes in the second half of this chapter, below.

During the last 200,000 years there are even shorter intervals (20,000 years) between cooler periods. Then at about 60,000 years ago, the variation becomes almost impossibly chaotic, so that in the most recent period we encounter temperature swings at intervals as short as 3,000 years.

The data from oceanic Oxygen isotopes are problematic in that there is likely to be a time lag between glacial buildup and changes in the mix of Oxygen isotopes. Melt waters after a glaciation ends may give the indication of "cold," even though there is no current glaciation. The melts may have lasted thousands of years. The oceans may not have responded as we would expect them to react under current conditions. For example, based on lake-bottom pollen studies, paleontologists have noted the continuity of plant species indicating warm climatic conditions which carry through periods marked as cold by the oceanic Oxygen isotope studies.

What can be said of all three of these records (geology, ice cores, and oceanic oxygen) is that they represent a lengthy period of glaciations of indeterminate lengths and a wildly chaotic climate -- which may represent the existence of glaciers, or which may have yet other or additional causes. [note 10]

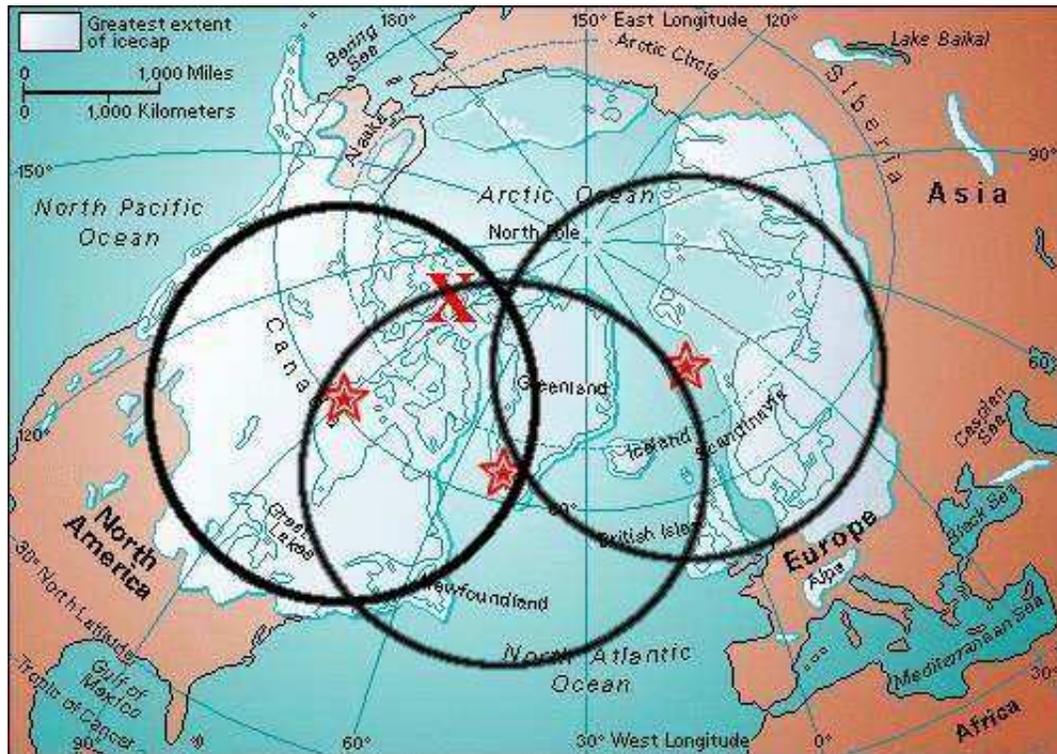
A solution should be sought in the possibility of intermittent plasma contacts with Saturn at the magnetic poles, which would build glaciers on adjacent land areas, which will in turn melt, or at least partially melt (glaciers melt from the bottom), before another contact is made at a different location, because the magnetic pole has had a thousand years to drift to a new location.

Although elaborate theories have been brought forward to account for the temperature swings, it would be difficult to estimate global conditions if they were due to an unimaginable billion ampere arc boiling away an ocean at its contact point, resulting in a continuous snowfall over a region a thousand miles in diameter. And, as I stated elsewhere, I seriously think "warm" climatic periods should be associated with glaciation, and "cold" with the intermediate periods -- rather the reverse of what is held today.

To this should be added the possibility that the plasma contacts could have lasted for years or even hundreds of years and that the contacts could radically change the climate of Earth (for the better or worse) in ways which are totally beyond our comprehension today because we have never experienced anything like it in our stable modern world.

In fact, Book 11 of the Maya *Chilam Balam* recounts the appearances of sacred stones in the skies, at enormous intervals of time -- stones which are trying to bring God into existence as the Christian God the Father. See for this the chapter "The Olmec Record of the Past." As an Indo-European speaker I at first understood the readings of Book 11 of the *Chilam Balam* to speak of arrivals of these stones (it obviously is Saturn and its allied planets), but in the grammar of Mesoamerica (and all the American languages) the text concerns the completion of a period of time, and thus speaks of the leave-taking of Saturn rather than its arrival. This suggests that there might have been long periods when Earth was in plasma contact with Saturn. I have no idea how these periods were terminated.

It is possible to suggest that the proximity of the huge planet Jupiter to Saturn might frequently displace Earth in its orbit so that the climatic effect of the Sun would vary for long periods. Based on scant information from some creation myths, and currently on physical evidence just now developing (after 2009), there exists a clear indication that in 10,900 BC the Earth's plasmasphere made contact with Saturn's plasmasphere. This resulted in an intense electric field shock, causing the "darkness before creation" which seems to have lifted only by about 9,000 BC, when the climate of Earth suddenly improved.



[Image: Extent of all glaciation over the last three million years superimposed on each other. On the map above, not all of the indicated area was glaciated at the same time. The stars are three estimated centerpoints of glaciation over the last 60,000 years. "X" is the current location of the north magnetic pole. Illustration by J. Cook.]

After 12,000 BC all of Northern Europe and Canada was cleared of ice in a matter of a few hundred years. The cessation of glaciation in Greenland was not an index of this, for the Greenland ice cores continue to count layers of snowfall to the present day. Greenland is, after all, a land of high mountains.

... the last glaciation

The map above would suggest that the magnetic pole moved clockwise across Greenland and Canada. Yet it was the center point off the coast of Norway which was remembered as late as AD 800 as the "maalstrom" (Maelstrom in Norse), a whirlpool.

The accepted last **interglacial** period in Europe, but not elsewhere (or worldwide), stretched from 60,000 to 25,000 years ago. It is a period which saw both the Neanderthals and Cro-Magnon populations in Europe. The Cro-Magnon people are us. The last glaciation followed between 25,000 to 12,000 years ago. The Neanderthals had disappeared by this time, although "pockets" of Neanderthals persist late in Spain and the Levant, perhaps as late as 8000 BC.

Glaciation and Interglacials for England for the Last Half Million Years		
glaciation or (interglacials)	period Years Before Present	Notes on hominids
Anglian	480,000 -	
-- (Cromerian)	(480,000 - 426,000)	H.heidelbergensis
-- (Hoxmian)	(425,000 - 375,000)	H.erectus (?)
Wolstonian	330,000 - 135,000	tools
-- (Ipswichian)	(135,000 - 35,000)	tools
Devensian	70,000 - 10,000	H.neanderthalensis
-- maximum at...	25,000 and 10,000	English channel dry
-- (Chelford)	(65,000 - 59,000)	H.n tools
-- (Upton Warren)	(42,000 - 38,000)	H.sapiens in Europe
-- cold	27,650	large mammals disappear
-- ice retreat	14,500	last H.n in Europe
-- (Windermere)	(13,800 - 12,000)	in England
-- glacier gone	14,000	tools
-- cold snap	12,900 - 11,000	Younger Dryas
-- warming	11,000 and after	channel flooded
-- cooling	8,500 - 6,500	
	8,500 - after	farming established

From diverse sources; subtract 2000 for BC dates

As an example, the above is the record of glaciation and interglacials for Central England for the last half million years. Some of the periods correspond in name from one country to the next. The "Windermere" interglacial, for example, does, but many of the names and date estimates are local. For example, the "Anglian" glaciation in England, shown above, will not match glaciation names (or dates) for Switzerland. Interglacials -- periods of warmer climate -- are shown in parenthesis above.

I have shown both the **Australopithecus** and **Homo** hominid species above. **Australopithecus** (a hominid species originating 6 mya or more) has no issue after 1.2 mya. I have added the "glaciation record" as an utter simplification. The "persistent glaciation" is based on temperature records, and may not correctly represent glaciation.

Most interesting is how we are represented by only two species for a span of over 3 million years. However, as the northern glaciation of Earth starts up about 2.7 mya, **Australopithecus africanus** disappears, to be replaced in a short time (geological short time) by six new species of **Australopithecus** and **Homo** hominids. [note 13]

For nearly 30 to 60 million years primates had existed throughout the world. They were very common in the northern hemisphere, including North America, 35 mya. But the species disappear from the northern regions everywhere by 30 mya and are reduced to the tropics. It looked like the primates outside of the tropics of Africa and Asia did not survive the changes at the end of the Eocene, 30 mya. At that time we see glaciation in Antarctica, extinctions, and a drop in global temperatures.

"Following the terminal Eocene extinction which took out the Dinocerata, Archeoceti, and most of the Titanotheres and Creodonts, new kinds of mammals evolved and expanded in an evolutionary radiation of many new types. These included the prehistoric ancestors of dogs, cats, rhinoceroses, and horses."

-- [www.palaeos.com]

Nothing much happens with the primates anywhere following the extinctions of 30 mya, except for the bipedalism of **Australopithecus** in Africa. That appears to have happened 6 or 5 mya. Bipedalism is important, yet paleontologists cannot figure out why this change occurred. It is a major change in the bone structure of the legs, hips, knees, and neck. The thinking initially was that bipedalism evolved to release the arms to make tools and carry food. But no tools have been found from this remote time. It would be more likely that the arms were used to carry babies, which could no longer travel on mom's hairy back. (But as usual, this confuses causes and effects.) Bipedal walking, however, is amazingly efficient compared to the knuckle walking of our predecessors. And, as the Central African jungles shrank, walking needed to be done to gather food. A better suggestion has been that the bipedalism is part of a well-developed running ability. We don't sprint any better than other carnivores, but we can run forever.

Australopithecus thus appears adapted to a changing environment -- he is no longer confined to the jungles of the Congo, as his (and our) nearest relatives, the Chimpanzees, continue to be. He could expand his territory as environmental changes continue to occur in Africa after 5 or 4 mya.

About 2.7 mya the northern glaciation starts. Shortly thereafter (in geological time spans) we see a proliferation of **Australopithecus** and the first **Homo** species. **H.rudolfensis** and **A.aethiopicus** appear at about 2.5 mya, while **A.africanus** disappears. This is followed at 2.25 mya by the appearance of **A.boisei** and **H.habilis**.

Diversification and disappearances continued another half million years with the appearance of **A.robustus** and **H.erectus** (2 mya), and then the almost simultaneous disappearance of five out of the six species of **Australopithecus** and **Homo** at 1.75 to 1.5 mya. Only **H.erectus** survives.

If these extinctions had happened in the more remote past it would have entered the biological record as another mass extinction. But because these changes happened so near our time, and especially since they involve our predecessors, the tendency is to think of it as "evolutionary changes," where some species are fit and some are not -- in Darwin's parlance, "due to natural selection."

But in fact we should be impressed by the fact that, after a period of nearly 30 million years during which no "evolution" occurs, we are suddenly confronted by the appearance of six species, all of whom, except one, disappear again after a "mere" million years. I would suspect a visit by Saturn as the speciation event, 2.7 mya, and a return visit about two million years later. That means that, for the first time in 500 million years, the orbit of Saturn had been reduced from 27 million years to a very short orbit of a million years or perhaps even much less.

Only a single species, **H. erectus**, carried through the long two-million-year period only to disappear in turn about 200,000 to 50,000 years ago. This is a long stretch where nothing happened, and it is thought to represent a long interglacial period or only sporadic glaciation. Only towards the end of the 2-million-year span, 500,000 years ago, do we see the appearance of other **Homo** species -- **H. heidelbergensis**, **H. neanderthalensis**, and later **H. sapiens**. Glaciation had definitely started up again in earnest by then.

Homo erectus

"The suite of discovery, innovation, and increasing intelligence that gave some australopithecine a better ability to hunt, prepare food, and so on, happened perhaps around 2.5 Ma [mya] at a brain size that was typically australopithecine. That suite changed the diet toward meat, higher protein, less chewing, etc., and at some point the evolving jaw reached a morphology [more] typically [of]Homo. The larger brain [of Erectus] came later, but it perhaps came more easily because the jaw musculature was smaller."

-- Richard Cowen, Geology Department at UC Davis.

In the million years after **H. erectus** became the sole surviving hominid, he spread everywhere -- into all of Africa, Asia, Europe (apparently), and possibly into the Americas (although there is only slim evidence of this). **H. erectus** is our only connection to the remote past, the single link to the earlier diversity. [note 14]

Erectus was most likely naked, and had a very thick skull, like the later Neanderthals. Unlike the later Neanderthals, he did not bury his dead. He ate fruit, vegetables, and road kill; but also hunted down antelopes, used fire to roast meat and burn down prairies, and made tools ... well, he made *one* tool.

The Acheulean Handaxe

In the following, Noel Boaz, a paleontologist, reacts appropriately to this long lineage in detailing a single outstanding fact. This is from his book *Eco Homo* (1997). He is writing about **H. erectus**, who ranged over East Africa and Asia (into China) from 1,800,000 to maybe 200,000 years ago (50,000 ya in Southeast Asia) -- a very long time, more than one and a half million years. **H. erectus** had a brain case (after a half million years) only a little smaller than ours, and likely was a lot smarter than dogs, apes, or chimps. But did he "think?" Noel Boaz writes:

"The available archaeological data on Homo erectus reveals that one type of tool was used for about a million years --one type of stone tool, for a million years, all over Africa wherever Homo erectus is found after 1.4 mya. For some reason it is not associated with Asian Homo erectus."

Actually they are also found in Europe and into the western part of Asia.

"This stone tool is the Acheulean hand axe."

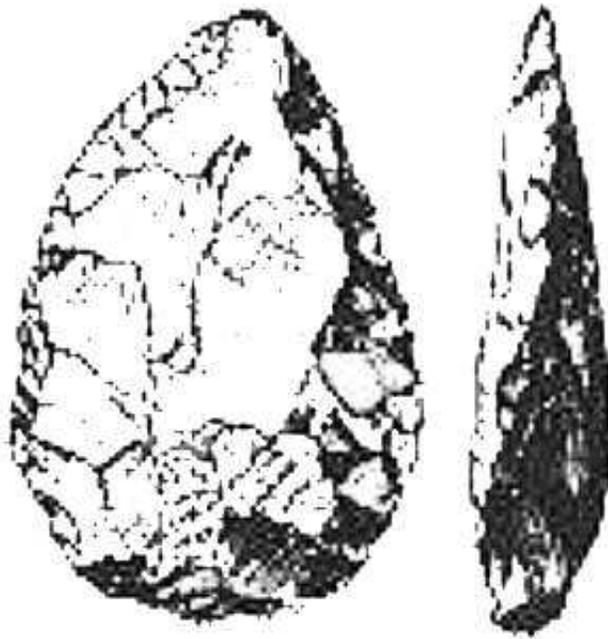
"It is not an easy tool to make and modern Homo sapiens graduate students are not able to fashion a very good one even after an entire academic term of practical experience."

"The implication is that Homo erectus would have expended a tremendous amount of time and energy -- years -- laboriously learning how to make hand axes. The technique must have been passed on by rote repetition. Hand axes stayed the same for untold generations."

"This method of cultural transmission is entirely foreign to us. Nothing that we Homo sapiens learn and internalize stays the same. We have to change it, improve it, make it look better, modify it to fit our specific needs -- be it a chair, an art form, or our own language. But this never occurred to Homo erectus, not in a million years."

-- Noel Boaz, *Eco Homo* (1997)

Erectus made additional tools of stone, but these are at best described as crude, consisting mostly of split pebbles. The Acheulean hand axe is so unusual, and so clearly a finished product of a very specific design, that it almost looks like an import from the future. It is flat, carefully chipped (and sharp) along all edges, almond shaped with the pointed end always displaced to one side of the central axis, and consistently modeled to a shape which does not vary over an enormous span of time and geography. Since it apparently did not enter Central or Eastern Asia or the Americas, we would have to assume a cultural transmission originating in Africa.



[Image: Acheulean hand axe of classical design. Neanderthals in Europe, after about 300,000 BC, reduce the design to look more like an oversized triangular arrowhead with a rounded bottom. After William Calvin, adapted from C.O. Waterhouse.]

What Boaz fails to mention is that the Acheulean hand axe is a very hefty device, a foot high, and weighing over four pounds. It is useless as a tool for working wood, preparing hides, cutting meat, or pulverizing roots. It looks more like an assault weapon for taking down hooved animals by splitting open their skulls.

William H. Calvin, in "The Ascent of Mind, Ice Age Climates and the Evolution of Intelligence" (Internet, 1990), suggests that the Acheulean hand axe is indeed an assault weapon. When tossed *en masse* by a group of Erectus hominids at a closely packed herd of antelopes at a watering hole, the axes would cause deep cuts in the skin of the animals, because the aerodynamics of the axes cause them to always exit from the fall with its edge down. The eccentric point of the axe would rotate and cause a rip in the skin.

Calvin writes, about experiments performed by Eileen O'Brien:

"The replica indeed spun well; that flattened shape and bilateral symmetry are very useful for setting a spin. O'Brien and her two athletic friends discovered a totally unsuspected aerodynamic property of their hand-axe replica: in mid-flight, it would turn on edge and land that way. Indeed, the hand axe would usually slice into the ground and bury its point."

"... the tendency to land edge-on [and point down] matches up with a previously puzzling aspect of the archaeology: hand axes are often found in dried-up ponds and lakes and creeks, sometimes standing on edge!"

The natural reflex of an antelope, writes Calvin, to an impact by a tossed boulder, is to set out its legs on the side opposite the impact. But the reflex to a tear in the skin of its back is to flex its knees, as when the back catches on overhanging branches as in walking through brush. In the next moment the herd, stampeding in flight from the attack, would have trampled and killed the unbalanced animals.

This reasoning, along with other evidence, suggests group action not unlike the group hunting tactics of chimpanzees today. It requires only the coordination of underhand tosses of the group. But to lob this device at individual animals would require quite a bit more hand-eye coordination. Calvin suggests that this may be one of the evolutionary circumstances which quadrupled the brain of Erectus over the course of two million years.

Considering the failure of Erectus to evolve the design of the Acheulean hand axe, I wonder how they conceived of the design and its use in the first place. The Acheulean hand axe includes three required design elements: It has to be flat, it has to be sharpened on all edges, and it has to have an almond shape. This last item, the pointed shape at one end, is a fine design detail, yet so logically useful (for it is the descending point which rips the skin), that it is amazing it ever came into being.

There is, however, a fourth design element which seems to have no useful function. This is the offset of the pointed end from the central axis of the axe. Yet it is copied from one hand axe to the next on three continents over the course of a million years. Every hand axe is lopsided in design, and they all copy from each other.

Every Acheulean hand axe looks like every other Acheulean hand axe, although there is some variation in overall size. Because of the consistent shape, it has been suggested by some people (I cannot source) that these were religious objects. I will try to answer this question in a later chapter.

In the African Great Rift Valley, at a site known as Olorgesaille, in Kenya, there is a ten-acre site littered with thousands of Acheulean hand axes. The materials were sorted into groups -- raw materials, finished axes, and blunted axes (the last apparently for resharpening) -- suggesting a factory. Raw materials were carted from 6 miles (10 km) away. The factory remained in use for *one million years*. [note 15]

The only possible users of the site (there are no bones found) would have been Homo erectus. We can ask the question, "Are these humans or smart animals?" They certainly are not *us*, and there is no indication that we, Homo sapiens, *slowly evolved* from these hominids. When we do finally appear, it is complete and with astounding suddenness -- and with hundreds of specific stone tools, spear throwers, detachable harpoons, serrated knives, thread cutters, basketry, weaving, beads, and cosmetics.

Homo sapiens

We are preceded, however, on the European continent, by *Homo neanderthalensis*. In addition to the Acheulean hand axes, both Erectus and the later Neanderthals developed the method of making cutting blades by knapping pre-shaped flint nodules. This was a development which may have derived from the Acheulean hand axe.

For 300,000 years these cutting blades (generally known as Mousterian tools) are also consistently the same shape. Clive Gamble notes that it was the process of knapping which was culturally carried forward. The Neanderthal mind was on the technique, not on the end product. Only this explains how the blades remain the same for such an unimaginably long time, and how no variations were ever developed. Yet the Neanderthals were apparently effective predators and scavengers.

But for over 100,000 years (and perhaps 300,000 years) the Neanderthals never once dug a trench to sleep in, set up tent poles, placed rocks in a circle for a fire, pierced shells or pretty stones, carved a representative image, or buried their dead. We, **H.sapiens**, did. And we made art as well. [note 16]

Only during the last 20,000 years, when contact is made with the Cro-Magnon **H.sapiens**, who had invaded Europe from the east, does the repertoire of the Neanderthals start to include other cutting tools, as well as ornaments. There are even some Neanderthal burials. Not all groups interchanged ideas and materials with the Cro-Magnon. Some remained separate for upwards of 10,000 years. Meanwhile, Cro-Magnons were painting cave walls.

About the explosive material culture, which is seen to arrive in Eastern and Western Europe at the beginning of what (as a result) is defined as the Upper Paleolithic (45,000 to 35,000 ya), James Shreeve, in *The Neanderthal Enigma* (1995), writes:

"New types of stone tools proliferate, taking on regional style where before there was global monotony. In Africa as well as Europe, elegant implements carved from bone, antler, and ivory appear in abundance. Change replaces stasis."

"In France new industries rush in and disappear again like Paris fashions -- the Aurignacian, the Gravettian, the Solutrean, the Magdalenian -- each with technological styles and innovations all but unknown in the period preceding it. From Spain to the Urals, site lists begin to read like proto-Sears catalogs: sewing needles, barbed projectile points, fish hooks, rope, meat-drying racks, stone lamps, temperature-controlled hearths, complex dwelling structures."

The Neanderthals had appeared in Europe a few hundred thousand years ago, preceded by 100,000 years by **H.heidelbergensis**. In Europe, also, **H.erectus** disappears after the Neanderthals show up. **H.erectus** remains throughout Central Africa and Southeast Asia to 50,000 years ago and maybe later. Later finds of skulls in Asia tend to show a combination of features of **H.erectus** and **H.sapiens**, suggesting to some paleontologists an "evolution" of **H.sapiens**, and to others the more obvious interbreeding.

By many estimates **H.erectus** is our progenitor because portions of mitochondrial DNA extracted from some **H.neanderthalensis** do not match ours. Before these determinations, **H.neanderthalensis** was our favored grandparent (which also presumed that **H.sapiens** was European). But there are problems with **H.erectus** also. In addition to the fact that **H.erectus** seemed to have had the brains of a gnat, the skull thickness does not match. Erectus and Neanderthals both have thick skulls, at one time suggested as a defense against club attacks by members of the same species; we definitely do not. Since the identities of various species shift with the identification of additional archaeological specimens, and as a result also their temporal and geographic distribution, there is no telling exactly where we (**H.sapiens**) came from.

By the time we are established as the single surviving species of hominid, our ancestors had passed through three bottlenecks. The first was the disappearance of primates almost everywhere some 30 mya at the end of the Eocene. The second was the disappearance of all except one of the six species of hominids about 1.5 mya.

The third was the return of Saturn 120 thousand years ago. Three of the four species of hominids in existence at that time become extinct at about 100,000 to 50,000 years ago, although **H. erectus** may have disappeared earlier in Europe. We seem to have speciated at about this time. Perhaps we developed a certain immunity to radiation from the continued plasma strikes. Among paleontologists the typical thinking is that we rose to prominence by wiping out the competing Neanderthals (which mainly existed only in Europe). It is certainly possible, but it is as likely that we either outbred the Neanderthals or interbred. That might also be true for any groups of **H. erectus**, for certainly **H. erectus** traits show up among modern humans. We are very closely related species, and interbreeding would most likely have produced results.

Analysis of *our* mitochondrial DNA (mtDNA), taken from populations throughout the world, places our genesis at about 100,000 to 200,000 years ago -- by mathematical theories of spontaneous changes -- and in East Africa, popularly known as the "out of Africa" thesis. But as noted by R. A. Fonda, one among many,

"The putative common source of all human mtDNA is probably neither chronologically nor causally related to the origin of H.sapiens."

What Fonda is saying is, that the "out of Africa" thesis does not add up. The physical barriers are immense, and the mtDNA trail (the biological inheritance relationship between humans) points to derivations from diverse and long-separated **H. erectus** groups. Fonda suggests a genesis of **H. sapiens** in Eastern Asia as much more likely, followed by the subsequent interbreeding with Asiatic and African **H. erectus** populations. Since Asiatic **H. erectus** can be biologically traced to Africa, the data is easily misread or misinterpreted as concluding that all modern humans came originally from Africa. (The "out of Africa" hypothesis is also politically correct.)

The "moderns" (**H. sapiens.sapiens**) show up in Australia by 65,000 years ago (as Cro-Magnon types, today dated to 40,000 ya), in central Asia and the Levant by 50,000 years ago (currently estimated at 100,000 years ago), in South Africa by 75,000 years ago, and in Europe by 40,000 years ago. We are likely between glaciations during this time. When it starts up again sporadically we are established nearly everywhere. [note 17]

If **H. erectus** was a traveler who could spread throughout all of Asia in a few hundred thousand years, **H. sapiens**, by comparison, races across the globe. After having been sighted in Southeastern Asia (Australia) 65,000 years ago, **H. sapiens** has spread to Southern Europe by 40,000 years ago, the edge of the Arctic Sea by 30,000 years ago, and to the Americas by 30,000 to 50,000 years ago. Estimates vary, but the coincidence of dates is remarkable. About the same time **H. neanderthalensis** and **H. erectus** disappear (**H. heidelbergensis** having disappeared earlier); we are everywhere. [note 18]

Fonda (quoted above) suggests Northeast Asia for the location of the speciation event. He also suggests interbreeding with **H. erectus** in Southeast Asia and Africa. He shows that the chromosomes of the population (of current humans) in these last two regions are further apart than any other two human groups. He suggests that this is due to the million-year separation of **H. erectus** in Southeast

Asia from its ancestors in Africa. Physical characteristics of Erectus show up among **H.sapiens**, as, for example, in the thick skulls of Australian Aborigines.

If the magnetic pole, where a plasma arc from Saturn would touch down, rotated around Greenland to be relocated in Northeastern North America (Eastern Canada), as it seems to have done over the last 60,000 years, then it would have been likely for **H.sapiens** to have speciated (and perhaps in a number of varieties) in North America or Northeastern Asia. But North America was unpopulated 60,000 years ago. (However, Richard Firestone and William Topping, in papers discussed in a later chapter, suggest "*dates [for two North American archaeological sites] should be reset to about 55,000 years before the present and 45,000 years before the present.*")

How did we get there, and especially, how did we get to the Americas? It has been suggested that Native Americans could easily have walked from Alaska to Patagonia in 1000 years at a pace of a mile per day, with frequent rest stops. This assumes humans spread to Alaska from Asia via the Bering Straits. But that discounts the intermediate barriers of the glaciated mountains south of Alaska, the jungles of Central America, and the high Andes. And also, who would want to walk a mile a day for a thousand years?

There is another route, both to Alaska as well as the entire Pacific coast of the Americas, and that is by boat. However, that notion is something almost totally unthinkable to archaeologists who contemplate today's woolly oceans and additionally hold our ancestors as inept. I'll get back to that in a later chapter, for it also involves the spread of languages.

The dates of the appearance of **H.sapiens.sapiens** suggest movement from East or Northeast Asia in the direction south and west into Western Asia, Europe, and Africa. The Americas may have been populated fairly early from East Asia, and Africa may have been populated (invaded) at nearly the same dates as Europe. Along with the early "archaic" **H.sapiens** in South Africa (at 100,000 and 75,000 years ago), the dates suggest travel by boat along the east and south coasts of Asia, the east coast of Africa, and the west coast of the Americas. There are also suggestions of travel to the Americas via Antarctica. [note 19]

Endnotes

Note 1 --

In a later chapter I will present data of the appearances of Saturn and its planets in the past 40,000 years, where records of the Maya *Chilam Balam* books can apparently be matched against a record of excess atmospheric Carbon-14 over the same period. I bring this up at this point only to assert that although the orbit of Saturn seems to have been reduced from 27,000,000 years to 4,000 or 5,000 years, it should not be thought that Saturn was on an orbital period on the order of an Earth year. Apparently this only happened sometime after 10,900 BC.

It should be recognized that the shortening of Saturn's period could only have happened if Saturn came into the solar system from outer space and carried a large positive charge far in excess to the charge on any of the solar system planets. Thus the solar system planets would all be negatively charged (less positive) with respect to Saturn.

An interaction between Saturn and Jupiter would have presented an attractive electric force. Meeting up with Jupiter would have pulled Saturn (if on an outer orbit) closer into the domain of the solar planets (to a shorter orbital period).

The extinction at the end of the Permian, which removed 99 percent of all species, and covered the tropics with glaciers, possibly had nothing to do with the entry of Saturn into the Solar System. If this was a nova event, it could have happened at any time in the 27 million year orbital period of Saturn, although it could be suggested that entry into the domain of the Sun might set the stage for such an event. This goes also for the Cambrian, which, as a matter of fact, is preceded by an extinction event.

If the K-T boundary extinction (the Chicxulub crater) is correctly dated at 63 million years ago, then the Antarctic glaciation would date to **63 - 27 = 36 million years** ago. The northern glaciation would then start at **36 - 27 = 9 million years** ago. Both of these dates match the current range of estimates for both events.

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Note 2 --

The Chicxulub crater is the result of a lateral strike to the Earth (probably as a series of pulses). Saturn and Earth must have been at about the same elevation at the time of the strike. For Tom Van Flandern's comments on the Chicxulub crater, see endnotes in the previous chapter.

G. Keller of Princeton notes (in a paper I cannot locate) of recent geological and dating studies which suggest a 300,000-year interval between the creation of the Chicxulub Crater and the K/T boundary (at geoweb.princeton.edu).

It took the dinosaurs some 10 million years to die out, as estimated by Robert Bakker.

The Chicxulub strike fits the series of regular extinction events. The next extinctions would then be expected at 39 or 40 mya and at 13 or 11 mya and this actually matches the early date of 40 mya for Antarctic glaciation and recent (2007) reports of evidence that the most recent northern glaciations may have first started 11 or 9 mya. Starting dates for glaciation are not easy to determine. I have used 30 mya and 3 mya as the time since the Antarctic and northern glaciations.

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Note 3 --

A plasmoid is a disconnected "spurt" of plasma, a thunderbolt traveling as a discrete object. These have been observed experimentally. The disconnection of the arc from the source is due to a lowering of the driving potential after discharge. On release the extended arc tends to condense back upon itself (while traveling) to form a shortened "object" of a distinct shape -- a twisted body with balls and three tines at each end (actually the denser portions of a chalice-like form with a tongue in the middle). The plasmoids are known from sculptural records in antiquity (as late as Roman times), especially in relation to Jupiter, and closely resemble the shapes of the experimental laboratory discharges. Depictions of the Egyptian name glyph for the predynastic pharaoh Narmer ("catfish-chisel"), dating to 3100 BC, is obviously a plasmoid, complete with a rope-twisted body (depicted in one case), a tripartite tail, and a snout with two whiskers. Models of plasmoids, as seen by humans in late antiquity, still exist in Tibet and Japan today. The European *Fleur-de-lis* is a

remnant of this design, which is first depicted on coins in late antiquity.
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Note 4 --

The magnetic pole was located in the mid-Pacific in the remote past. Over an extended time period it moved north. There is also a record showing the magnetic pole traveling north in the mid-Atlantic. The large displacement of the magnetic pole from the geographical pole of a planet is not unusual.
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Note 5 --

The glaciers, in historical order, are known in Europe as the Günz, Mindel, Riss, and Würm. These correspond to the German names, Weichsel, Saale, Elster, and Weybourne, and the North American names, Nebraskan, Kansas, Illinoian, and Wisconsin. This nomenclature has largely been abandoned in favor of a dating based on the Oceanic Oxygen Isotope record.

The last glaciation, the Würm, started up 70,000 to 60,000 ya. Alpine glacier records suggest that the Würm consisted of four separate glaciation periods.

The Greenland ice core data of the last 120,000 years, which tends to exaggerate temperature fluctuations, suggests 6 long periods of cold (as long as 4000 years) and a greater number of short periods (lasting less than a thousand years). Temperature estimates (the coldest month of winter) from drill cores of a bog in Northern Italy mostly support this, but shows less rapid variation in terrestrial temperatures. Charts are shown in endnotes further below.
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Note 6 --

There is evidence of very early glaciation (2 billion years ago), some hundreds of million years (900 to 650 mya) before the Cambrian, during the Ordovician (450 mya), and at the end of the Permian (250 mya). The Permian glaciation has been discussed.

The last glaciation of 3 mya may have started earlier than 2.7 mya. Mark Maslin and Jonathan Adams, in "The Onset of Northern Hemisphere Glaciation during the Tertiary and Quaternary" (*Environmental Sciences Division*, Oak Ridge National Laboratory, 1998), report:

"The earliest recorded glaciation in the Northern Hemisphere is between 10 and 6 Ma [mya] during the late Miocene.[references deleted] This involved a significant buildup of ice on Southern Greenland. However, the process did not gain much momentum until 3.5-3 Ma [mya], when the Greenland ice sheet expanded to include Northern Greenland."

There is currently still no consensus on the dates, ranges, or the number of glaciations over the last 3 million years. The earliest glaciers may have completely melted before the more recent glaciers appeared, dating roughly to after about 60,000 ya.

"The problem is that glaciers act like giant erasers. Each advance eradicates almost all traces of what's come before."

-- Wallace S. Broecker "Glaciers That Speak in Tongues and other tales of global warming"
Natural History (2001)

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Note 7 --

My original take on the Greenland ice core data followed the critique of the followers of Velikovsky, but their objections cannot be sustained. See, for example, Charles Ginenthal "Ice Core Evidence" in *The Velikovskian* (1994). This article was heavily disputed by Sean Mewhinney, in "Minds in Ablation" (Internet, 1998). I cannot support either side of the arguments. It seems that nothing has been proven either way.

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Note 8 --

That has improved somewhat since I first wrote that statement.

The more recent ice core temperature records are continuous through today, as determined, for example, by traces of lead, which represents Bronze Age smelting practices, the Industrial Revolution of the 18th century, and the use of leaded gasoline in the 20th century. With the introduction of unleaded gasolines the lead traces have dropped.

On the "signature" of the Thera explosion, Peter James, author of *Centuries of Darkness* (1991), writes [reparaphrased]:

"We have always remained sceptical of the case for a high date for Thera [the 16th century BC volcanic explosion], suspecting that the whole thing would eventually fall through. Unfortunately, our position recently led an otherwise favorable reviewer to remark that we took a 'sceptical view of the new scientific dating techniques' (Gerding 1997/8, 160), which is far from the truth. Proxy dating is not to be confused with the scientific techniques themselves."

"As it happens, we have now been vindicated. When further work was published on the Greenland ice-cores the real reason why the 1620s date looked so conspicuous became clear. Due to budgetary constraints, a thorough search measuring the sulphuric acid from each year had never been undertaken! When this was done, the 1620s BC 'event' ceased to be special. Similar peaks of sulphuric acid are now known to exist in the 16th, 15th, 14th and 13th centuries (Zielinski, et alii, 1994)! Any of these (for example those from the ice-core years 1594, 1454, 1327 and 1284) might represent the Thera eruption. Worse still, small particles of volcanic ejecta have now been found in one of the very ice-levels from Greenland."

"Analysis has shown that their chemical composition does not match that of Thera (Zielinski & Germani 1998a). Clearly miffed, Manning (1998) published a 'correction' to the geologists' conclusions, arguing that they had misinterpreted their data and that the particles came from Thera after all. The geologists' response (Zielinski & Germani 1998b) stated, in as many words,

that Manning was out of his depth and simply did not understand the methods involved."

-- www.centuries.co.uk

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Note 9 --

Over the last 250,000 years there were some 17 reversals of the temperature, some representing very short jogs (and thus 8 interglacial periods followed by glacial periods). This represents my inspection of a published chart. Clive Gamble (below) counts 8 complete interglacial/glacial cycles since 787,000 ya, but counts the last five periods since 127,000 ya as one. Other published results have noted 24 interstadials since circa 120,000 ya.

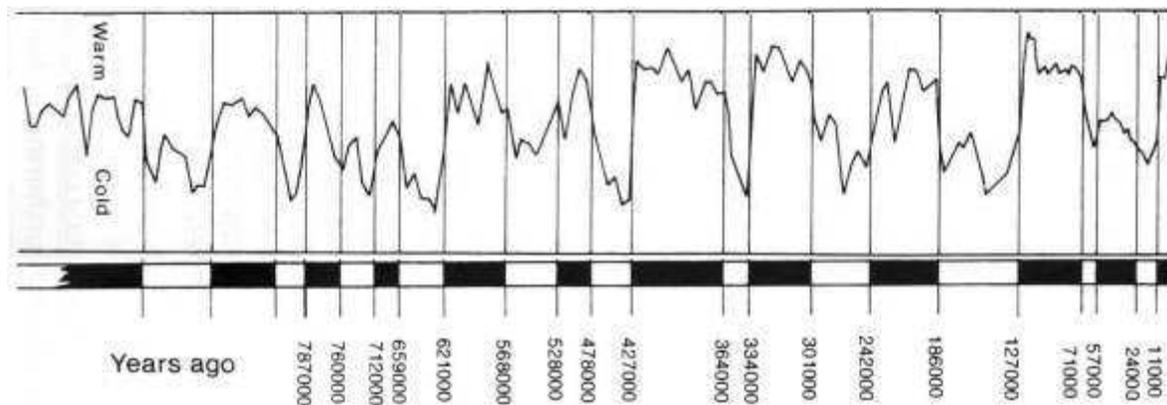
Some of the coldest temperatures are recorded at about 18,000 to 10,000 years ago (this includes the Younger Dryas), and represent a slow gradual decline from a warmer period 120,000 years ago, which followed another cold period of 200,000 to 130,000 years ago (186,000 to 127,000 years ago, per Gamble, below).

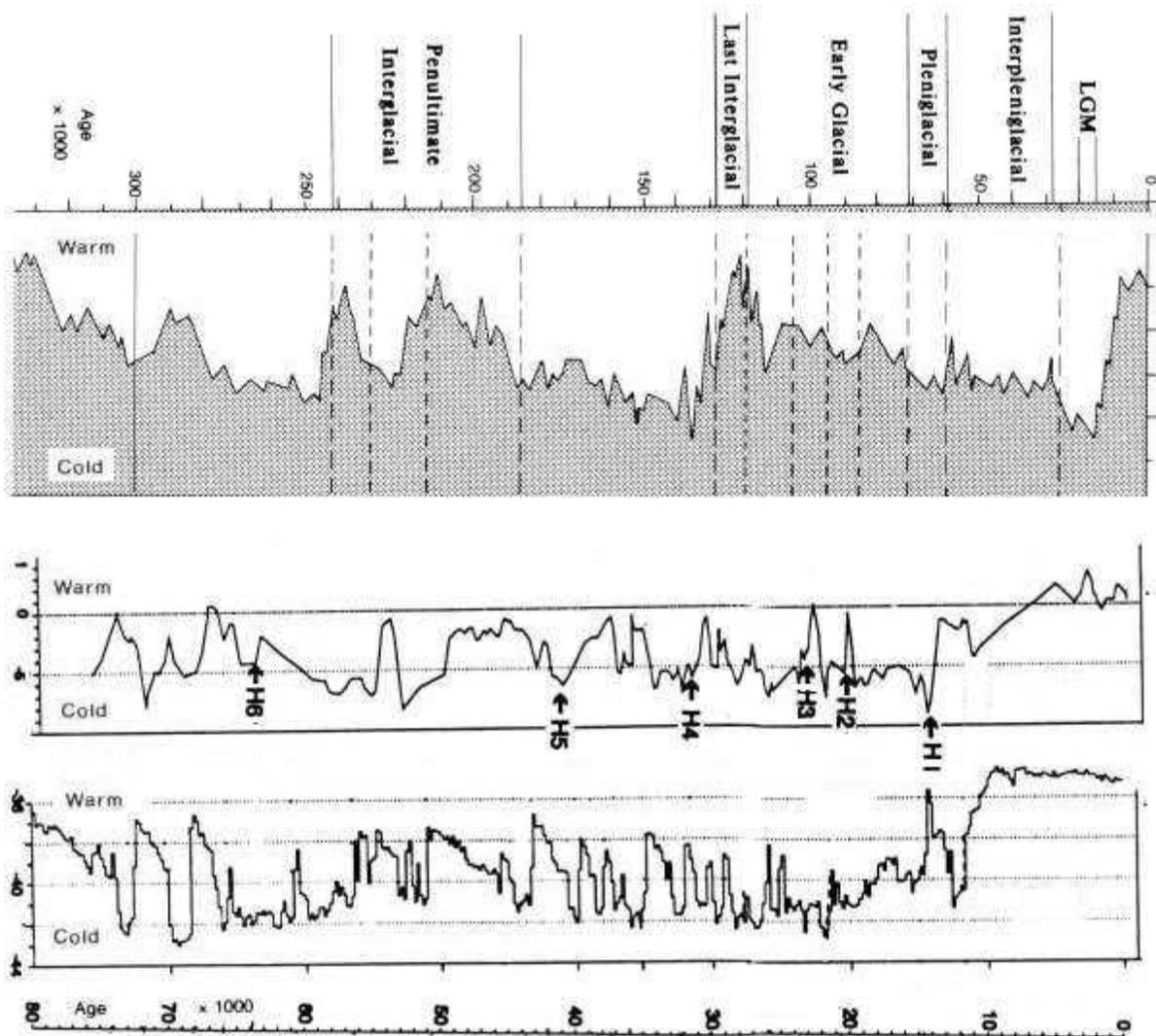
[return to text]

Note 10 --

Tables of climatic temperature and chronology are shown by Clive Gamble in *The Palaeolithic Societies of Europe* (1999).

The tables include Oxygen-16 and Oxygen-18 ratios from a Pacific ocean Core, to 787,000 ya (page 103), shown below; another oceanic isotope core, to 350,000 ya, presented as the ratio of ice and ocean levels (page 185) as shown below; and Greenland ice core and a pollen record (an Italian bog), to 80,000 ya, presented as mean (actually the mid-winter mean) temperatures of the pollen site and the ice core, along with ratios for tree and grass pollen (page 187), also shown below. The temperature ordinates have been flipped to show temperature increasing to the top. The units of the abscissa cannot be compared.





[First graph: Oxygen-16 and Oxygen-18 ratios from the Pacific ocean Core, shown as representing oceanic water temperature, from 787,000 ya to the present. After Gamble, page 103.

Second graph: Oxygen-16 and Oxygen-18 ratios from an Oceanic Core, shown as representing ocean and ice cap levels (equivalent to oceanic temperature), from 340,000 ya to the present. After Gamble page 185.

Third graph: Upper chart: Temperature of the coldest month of an Italian bog. Lower chart: Ice Core temperature; From 80,000 ya to the present. After Gamble page 186.]

Gamble notes the chaotic nature of the records, and comments on the fact that there is, as yet, little agreement among researchers on absolute dates, or, for that matter, the mechanism which gave rise to the repeated cycles of glacial and interglacial periods.

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Note 11 --

Some of the interglacial periods listed for England do not match Oceanic Oxygen Isotope records which are suggested to represent worldwide temperatures.

The existence of **Homo erectus** in Europe is not well established. Erectus is today held to have a genesis in Africa. At an earlier time he was assumed to have first developed in Southeast Asia and in China.

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Note 12 --

The chapter "Event of the Younger Dryas" will present suggestions of electric field contacts with Saturn, based on atmospheric Carbon-14 level changes over the last 50,000 years. In the chapter "The Olmec Record of the Past" I'll suggest that the Olmecs, or their predecessors, had records of the appearances of Saturn dating back to 41,000 years. The record in Europe, which may have been presented with the decorated caves, was cut short with the abandonment of Southern Europe with the cold of the Younger Dryas.

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Note 13 --

I have radically abbreviated the whole course of hominid fossils. If you are interested in more details, look at the following two recent books (plus Gamble, above) which describe the development of paleoanthropology and archaeology of the Paleolithic.

Ian Tattersall, in *The Fossil Trail* (1995), describes the workings of the discipline from the perspective of an insider. He has coauthored articles with Niles Eldredge (who developed the concept of "punctuated equilibrium" with Stephen Gould). Especially interesting are the details of how the researchers remained stuck with received wisdom, and only slowly adopted new concepts.

James Shreeve, in *The Neanderthal Enigma* (1995), spends more time on the European and Middle Eastern Neanderthal fossils. As a science reporter, his book is eminently readable, but as inconclusive as Tattersall's. Nothing really is resolved, yet all the data is presented, generally from discussions with the researchers at the source sites. Only in the last two chapters does he attempt a resolution, but it is entirely based on applying a contemporary perspective to the remote past.

What will strike you, in both books, is, first, that far ranging conclusions are based on enormously sparse data, and, second, that the conclusions which are reached are strongly embedded in contemporary philosophical constructs. Over the past century these have included, for example, the belief that brain volume related to advanced modernity, that there is some innate push toward progress (read, "us") in the changes of fossil forms over time, that only one species of "humans" would have existed at any one time over the last 5 or 6 million years (certainly not so), that all changes in body structure were gradual (driven by some form of Darwinian evolutionary theory), and that our forebears were like us in the many guessed-at aspects of behavior. All of these notions, as these two books point out, are baseless or wrong.

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Note 14 --

Clive Gamble notes that hominids (**H.erectus**) did not invade Europe until after 500,000 BC, and suggests a combination of the prior existence of large African predators and a very variable climate as responsible for their absence. The climate was the result of repeated extensive glaciation in Northwestern Europe. The cats disappeared after a half mya, but the variability of the climate in Western Europe, compared to the rest of the world, did not improve.

In Western Europe **H.heidelbergensis** appears after 500,000 BC, followed in about 300,000 BC by **H.neanderthalensis**. Both of these are indigenous to Europe. **H.sapiens** (Cro-Magnon) is a foreigner who invades Western Europe after 40,000 or 50,000 BC from the east.

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Note 15 --

The research of Eileen O'Brien in "The Hand Axe - A Million Years of Use" *Natural History* (1984), archive.is/8B9jy).

Information on the Olorgesaille site is related by Bill Bryson in *A Short History of Nearly Everything* (2004)

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Note 16 --

The 300,000-year range includes **H.heidelbergensis** and signs of **H.erectus**. **H.neanderthalensis**, as a fossil of distinct morphology, dates from 100,000 to 15,000 ya. The date range is from Gamble, who does not distinguish between the three subspecies.

[return to text]

Note 17 --

We are **H.sapiens.sapiens**. Erectus is officially **H.sapiens.erectus**; Neanderthal is **H.sapiens.neanderthalensis**.

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Note 18 --

For the more recent speciation date of **H.sapiens**, see Ronald A. Fonda in "Age and Origins of the Human Species" *Mankind Quarterly* (2000). Other pages originally at www.raforda.com/ expanded on this. Throughout his writings, Fonda identified the primary **H.sapiens** as "Eurasians," despite definitive differences between the two groups.

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Note 19 --

The concept of the ice-free corridor between the Canadian Rockies and the Wisconsin glacier which covered much of Canada, which would form a route of entry between Alaska and the northwestern states of the US, has been rethought. "Even when the ice-free corridor existed it was utterly inhospitable," writes Charles Mann, in *1491, New Revelations of the Americas before Columbus*

(2006). He also reports that the parallel concept of people streaming through the corridor as big game hunters and the extermination of all the large animals of North America (known as the "Overkill Hypothesis"), has been demolished by paleontologists. Most of the animals disappeared before any sign of humans. (But see my chapter "Event of the Younger Dryas.") Mann quotes Knut Fladmark of Simon Fraser University, as providing an alternative for the population of the Americas, based on migration by (fishing) boats from the northeastern coasts of Asia to the northwestern coasts of Alaska and North America:

"Even primitive boats could traverse the entire Pacific coast of North and South America in less than 10-15 years."

Mann adds:

"Native Americans may have been in the Americas for twenty thousand or even thirty thousand years. ... If [the archaeological date of] Monte Verde [in Chile] is correct, as most believe, people were thriving from Alaska to Chile while much of Northern Europe was still empty of mankind and its works."

A number of people have also suggested that South America was populated by migration via Antarctica, when at various times the coasts were reasonably devoid of ice, unlike today. The location of archaeological sites in southern South America almost force such a conclusion. This suggests, also, a migration via Australia, and the use of sea-going boats. Considering the very early migrations to the islands of the Pacific (long before the current establishment dates), the trip to Antarctica is quite plausible. The Antarctic ocean, as today, was teeming with fish.
[return to text]

*Calculations are in Unix bc notation, where ^ denotes exponentiation; the functions a(rctangent), s(ine), and c(osine) use radians; angle conversions to radians or degrees by the divisors rad=.0174 and deg=57.2958; other functions are shown as f(); tan()=s()/c()
units: million == 1,000,000; billion == 1,000,000,000;
AU == 93,000,000 miles.*



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