THE SKY IS FALLING
OR
ON REVISING THE NINE TIMES RULE

PART IV OF V

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We have seen how all those eerily regular and severe climate changes are the result of earth's rickety orbit and how the other planets cause this bullying. Not too much we can do about that. We have also seen how carbon dioxide was a spectator at these events and not the agent provocateur some would have us believe. We will now take a last turn through the ice ages to better understand what these events actually meant to us. Call it climate change in your face.

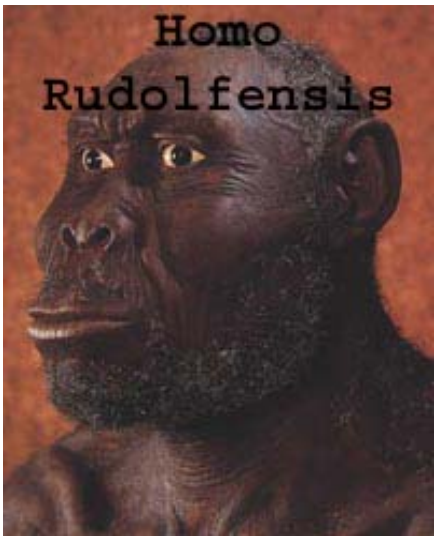
There will be a great many of you (88.9%, to be precise) that will have a difficult time with this installment. Because it contains way too much blatantly obvious truth. And the Nine Times Rule will not allow you to believe what you are about to read, so my advice is maybe you better skip to Part V so you will not have to confront yourself. We are about to learn what climate change means to us, as a species.

THE FIFTH HERESY

Zooming back to 2 million years ago, we see with the clarity of archaeological conviction that climate change has been very good to us. Spend some time reading tons of information on hominid evolution, and you will soon come to know that scientists in that field have long speculated that climate change over the past few millions of years, yes, those same two million or so years has been a very effective agent provocateur in our evolution. Our brain case size has experienced dramatic increases, in fits and starts, of course, to go from about 500 cubic centimeters (cc) to about 2,500cc in the last 2-3 million years. The evidence is sparse, as we didn't start burying each other until just a few thousands of years ago, and a million years is a thousand times a thousand years, and we start this discussion about three of *those* ago.

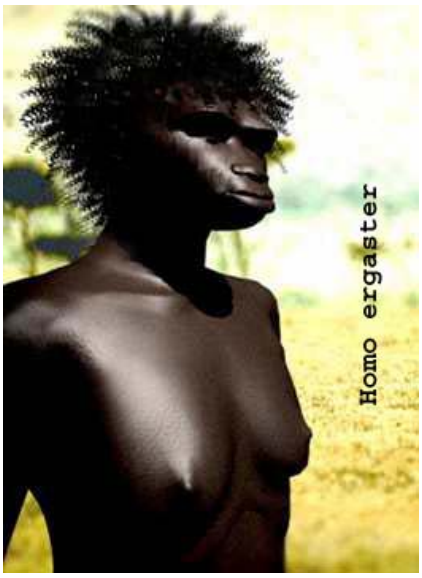
The genus homo diverged from the australopithecines about 2-3 million years ago (mya), after a sea level maxima (also called Global Warming) of between 3.2 to 2.8 mya. This period is presumed, by some, to have ended with a meteoric impact (0.5 km across) in the southeast Pacific Ocean at around 2.95 to 2.82 mya with the onset of the late Pliocene glacial event known as the Northern Hemisphere Glaciation (NHG), which it probably precipitated. This period of global cooling caused temperatures to plummet in Africa. The cooler drier air resulted in humid woodlands to die off giving way to wide, dry grasslands. Campfires were at least a million years away, and we were relatively small in number. So we have to figure we didn't do this one. But we had to smarten up quick and deal with it. Paranthropus boisei made it through this one, and a few more, adapting from soft rain forest fruits and vegetables, to roots and grasses. Although Paranthropus boisei succeeded in transitioning to the savannah grassland environment in the early stages of going into the late Pliocene glacial period, he apparently did not develop tools, or any other diet. He had a braincase size of about 500-550cc and ranged eastern Africa from about 2.6 to 1.2 million years ago.

The glaciation in the late Pliocene appears to have spanned the interval from between 2.95-2.82 mya to about 1.8 mya. Late Pliocene faunal turnover, as known from the Turkana Basin in Kenya and Ethiopia, indicates that from 58-77 percent of the mammal species were replaced during this long-lived cooling event. The majority of this replacement occurred between 2.5 and 1.8 mya.



At roughly 2.4 mya, the first members of the genus Homo arrived on the scene. Homo rudolfensis (2.4-1.9 mya) and Homo habilis (1.9-1.6 mya). Rudolfensis was slightly smaller brained than habilis and many anthropologists place them in the same species (habilis). With a 30% larger braincase (500-800cc, or about 680cc average) than Paranthropus, and having just survived or evolved during what we now call the NHG event. His name habilis means "handy man". During the NHG we had evolved crude stone tools with our more plentiful grey matter. The Stone Age had begun, and with it a prolonged cooling trend in East Africa, both of which are believed to be responsible for rapid evolutionary changes among the hominids stirring around in those times.

It is at this point that we can probably hear Fred Flintstone asking Barney Rubble just what the heck it is he is going to do with that rock he had chipped up. Prior to that moment, we may have been say a million times more susceptible to rumor than we were to fact. Habilis stuck around until at least 1.6 mya, the beginning of the Pleistocene. He used stone tools primarily for cutting carrion off bones, but developed no weapons we have yet found.



At about 2 or so mya, Homo ergaster arrived, with a propensity to explore wide and far in Africa, making it easier for sub-populations to become isolated and we see the emergence of Homo erectus at around 1.9 mya. With a braincase size in early specimens of about 900cc, and 1,100cc in later specimens, Homo ergaster/erectus spread out of Africa for the first time and touched off the Acheulian tool period (hand axes or bi-face tools). Homo Erectus kicked around from 1.8 million years ago to 300,000 years, with the first spear dated to 350,000 years. They disappeared just before the Illinoisan Glacial Stage. About 800,000 years ago, in the Aftonian Interglacial (which followed the Nebraskan Glacial Stage) a large brained robust hominid, Homo Heidelbergensis appeared. It was the first hominid to migrate out of Africa to Europe. Homo Sapiens arrived on the scene about 120,000 years ago, right after the Nebraskan Glacial Stage in the Sangamon Interglacial.

Interestingly, our arrival on the scene was within the margin of error for all this research and corresponded pretty closely (well within measurement error) with a node known as the Penultimate Deglaciation, which is speculated to have peaked at about 127,000 years ago (some

say 135kya). With the harnessing of fire, we may have zoomed past the 10,000 Times Rule, for it became a rapidly recognized fact that you could make fire.

Eventually, via numerous glaciations, and the increased braincase size that these wrenchingly long freezing events spurred, we made it intact to the Nine Times Rule So the question really begs to be asked. Will it take another (let's call it the next, since its actually time for the next one now) ice age to "*smarten us up*" some more? And the answer to that really depends upon whether or not you have glommed on to what the real problem is yet.

If you haven't, we will go there in Part V.

About the Author:

Mr. McClenney is a California Licensed Professional Geologist and Registered Environmental Assessor. He was also appointed the first Certified Environmental Auditor in Victoria, Australia in 1991, empowered to sign-off on contaminated site cleanups. He has been investigating and cleaning up hazardous waste sites for 22 years.