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## Lecture No. 8. The evolution of symbolism

We have arrived at the last lecture of this series on the cognitive evolution of hominins. This is the obvious opportunity of attempting a kind of summary of what we have visited in the course of this series of presentations. It must be said from the outset that the topic we have tried to address remains very much a “work in progress”, and this will necessarily be reflected in any judicious resume. A great deal of the ground we have covered in these seven presentations dealt with propositions that are quite contrary to established dogma—which in a surprisingly high number of cases I have in fact squarely contradicted on many crucial points. This already illustrates the ephemeral nature of our current orthodoxies in this complex area, and how easily the consensus paradigm can be subjected to major challenges.

One of the most dramatic and consequential examples of this is my proposal that there is no good evidence for a major replacement of robust *Homo sapiens* populations by gracile Africans, in Europe or anywhere else, heralding as it has been claimed the introduction of art-like productions, symbolism, and what has been defined as “modern” cognition and behaviors. Especially in Europe, this “replacement” of Robusts by Graciles, be it by competition or genocide, has been virtually unopposed archaeological dogma for the past few decades. The corollary, the destruction of Europe’s resident “Neanderthals” by that pinnacle of human evolution, the descendants of the “African Eve”, is thus no more than a fairy tale. I have shown that it is simply attributable to inadequate archaeological knowledge and a series of dating hoaxes in Germany. The latter, obviously, would not have succeeded in leading the entire discipline of Pleistocene archaeology down the garden path, had it not been for the poor knowledge base of vocal spin-doctors riding the crest of a wave. It is particularly important to appreciate that the refuting evidence has been available long before Eve reared her pretty head, and that the hypothesis always lacked any form of empirical archaeological evidence. It was simply a fad, a worthless passing fashion tailored to meet public expectations: it justified the displacement of “inferior” societies, it illustrated the inevitability of economic expansion, cultural destruction and, perhaps, even genocide. On the one hand, this hypothesis was supposed to reinforce the “genetic” equality of all extant humans, but on the other hand its inherent sinister ideological message cannot be denied. Now that its warm glow is fading, we are back in the harsh reality of the discipline’s shortcomings, and we can again marvel at the ease with which it is possible to mislead mainstream archaeology. It has happened so many times before, it will happen many more times in archaeology, until this discipline establishes a scientific base.

This does not mean that archaeological knowledge claims should be ignored, only that one needs to counsel against uncritical acceptance of the dogma of mainstream archaeology. Pleistocene archaeology, which we are concerned with here, has a tendency of “getting it wrong most times”, and the African Eve debacle provides an excellent case history illuminating the reasons. My conclusion, that modern Europeans are descended from the kind of European Robusts we tend to call Neanderthals, is not necessarily correct, but on the basis of our present knowledge it is practically inescapable. Nor is there anything unusual about it: the development of anatomically modern humans from robust types is a universal feature in four continents, and if we consider just one of these, Australia, we realize that there needs to be a universal explanation for this change from the highly intelligent and well adapted robust people to the much more vulnerable and weaker Graciles with their smaller brains. This regressive trend contradicts the mechanisms of evolution as we understand them, yet it determined the recent evolution of hominins. Its significance is readily appreciated when we consider the trend among australopithecines, who evolved from the early gracile species to the progressively more robust versions of later times. Evolution selects in favor of robusticity, particularly in large carnivores. Time and again we have seen how in human evolution there occurred trade-offs between adaptations that seemingly reduced evolutionary fitness, but favored increased cultural complexity. Thus cognition and culture became primary drivers in hominin evolution, tolerating several physiological “maladaptions”, such as oversized brains and badly designed throats, and ultimately a reversal of encephalization and robustness. The sudden trend to gracility towards the end of the Pleistocene, so fundamental to understanding our immediate origins, has received no attention whatsoever by palaeoanthropology, a discipline whose impotence is graphically shown by its inability to demonstrate or agree whether the recently found Flores pygmies are modern humans, apes, or anything in between. We would not tolerate such failure in any of the hard sciences, so why should we not expect archaeology and palaeoanthropology to improve their performance?

The failure to explain the universal trend from Robusts to Graciles also leads to my second key proposition: that it is best explained by a process of unintended domestication. At a point in the mid-Late Pleistocene, culture began suppressing natural evolution of human society to the extent that even mate selection became culturally mediated. A sexual preference of females with neonate characteristics led to significant reduction in robusticity, in Europe at least first in the females. Even a very minute factor of conscious selection would lead to relatively rapid morphological changes, and they are what we observe between perhaps 70,000 years ago and the present time. The reason for the selection of neonate features (what we call gracility in human remains) is still innate behavior rather than culture: in all animals, especially the higher mammals, the brain is hardwired to respond in a nurturing fashion to neonate

characteristics. In a society such as that of Ice Age inland Europe, which gained most of its sustenance from large game, females (and their young) depended greatly on male support. Those that retained some neonate features began having a slight survival and reproductive advantage, which accounts for the notable decline in robusticity in central European females prior to 26,000 years ago, followed by gradually increasing gracility also in males. Although perhaps accelerated by the bottleneck effect of a major natural catastrophe 40,000 years ago, this process is much more rapid than “normal” gradual evolution in nature. But it must be remembered that selective breeding can lead to massive changes in any population of organisms in very much shorter time. Indeed, the process of human gracilization is so rapid that there appears to be only one realistic explanation: selective breeding.

In the first lecture we have seen that *Paranthropus robustus* was credited with using both advanced tools and fire at Swartkrans, but that this has been explained away as being evidence of imitation of human behavior, an unlikely explanation of the type encountered again later in the human ascent. For instance, when it was shown that *Homo erectus* must have crossed many stretches of sea to colonize a series of islands, it was argued that this occurred on natural drifts of vegetation, even by riding on swimming elephants, to avoid having to admit that these humans had the technology to cross sea narrows with colonizing parties genetically large enough to provide a founding population. The main reason why this was refused was because seafaring proves, among other things, language use, which these same people had denied *H. erectus* and even later hominins. In other words, veracity is irrelevant in Pleistocene archaeology, all that counts is the reputation of the shamans of the discipline, and when they are challenged they will go to any length to preserve their positions. When the Neanderthals were simplistically equated with the Middle Paleolithic, the technologically Upper Palaeolithic Châtelperronian had to be attributed to Moderns, a concept that was refuted in the 1970s by finding a Neanderthal burial of that tradition. When pendants and other paleoart objects were found with this tool industry, it was argued that the Neanderthals must have scavenged these objects from the “invading Moderns”. This accommodative reasoning, designed to save the dominant dogma, has always determined archaeology’s responses to finds challenging the paradigm. Interestingly, since the beginning of formal archaeology, the dominant dogma has been wrong each and every time it was challenged, yet this accommodative practice continues to this day. In favoring it the discipline not only shows that it has learnt nothing from its blunders, or how it resorts systematically to suppressing “heresies”, but also how it uses illogical arguments to do so. For instance, if Neanderthals had no tradition of symboling, why would they scavenge the ornaments of the invaders? What would they do with them? If the invaders were so vastly superior, why did they have to travel all the way from southern Africa to southern France before they invented cave art?

In lecture 4 we have seen that, at a simplistic level one might believe that beads merely indicate body adornment, but that this is just another inanity. Even if vanity were the motivation for wearing such items, stating this explains not why such items are perceived as “decorative”. The concept itself is anthropocentric, we do not assume that other animals perceive the information imparted by the beads as meaningful. Indeed, we have seen that beads are a key-element in tracing the origins of human self-awareness and essentially modern cognition. Therefore the evidence of their antiquity of several hundred thousand years provides important time depth of these developments. Moreover, we have observed that a value system concerning purely abstract criteria existed then: there must have been a socially shared and communicated meaning regarding the significance of the characteristics of these symbolic products. There can be no purpose in producing the evidenced technological perfection if there is no comprehension and appreciation of its ideals. Therefore these hominins of the late Lower Paleolithic had a value system of abstract qualities and a developed self-awareness. They stored significant quantities of symbolic information outside their brains, hence they were essentially modern. This finding, fundamentally contradicted by archaeology, is well supported by the sciences, for instance by ethology. Rudimentary self-awareness certainly exists in chimps, as shown by experiments (from their reaction when seeing in a mirror paint placed on their faces) and field observation (skin strip of colobus monkey used as a necklace). The latter example might even indicate the origins of body decoration as a practice emphasizing an individual’s value, which still today seems to be a principal driver of such practices. There is not such a great chasm between the use of a skin from a valued kill to express status and the use of animal teeth or claws in body adornment—or today’s use of precious metals and stones or pearls for precisely the same purpose. The principle is simple, and it has remained the same.

We have also noted that at least some of the Acheulian beads made a few hundred thousand years ago are deliberate technological masterworks, exploring the limits of the methods available to hominins at the time. These objects were statements of excellence and their specific qualities demand the existence of a socially shared and communicated value system, which would necessarily involve reflective communication. It is repeated and socially “structured” use that confers meaning on symbolic artifacts, we have noted. Without such a mechanism, beads are meaningless, and the extraordinary manual effort that went into their manufacture would have been perfectly pointless.

It follows that beads, one of the most concentrated forms of external storage of symbolic meaning we can expect to find in the Lower or Middle Paleolithic, are of great help in determining cognitive evolution. If we should seek some general indication of the complexity of communication, we only need to examine what might be the minimum cultural, social and linguistic complexity required to support a system of using beads. That, I have suggested, is possible to do in a scientific format, and it is here that a preliminary methodology begins to emerge, for determining the cognitive and

symbolic origins of humans. It has become clear in the course of these lectures that the roles symbols play in society did not come about suddenly, or at a definable time in hominin evolution. Rather, this was a very slow and gradual process, and one we can safely assume is still at work. It began with precursors well before the emergence of our clade, and in its most rudimentary forms symboling is found widely in the animal kingdom. The more crucial development is perhaps the stage at which it became such a powerful selective force in our evolution that it surpassed others. It may be very difficult to pinpoint this stage in time, because we necessarily rely on object finds and our interpretation of them. However, the symbolic complexity of beads and pendants, whatever their precursors may have been, is undeniable, and such objects can be securely identified in most cases. Therefore their earliest known occurrence marks an anchoring point in our quest: at the time such objects were made and used, human cognition was essentially modern.

What I propose is that, to explore the issue scientifically, i.e. in a testable format, we could create a model of minimum capabilities required to have the kind of symbolic system demanded by bead use. The necessary technology is the easiest to establish, and this variable has already been well covered. The same can be attempted with other abilities, such as modulated communication, social structure, cultural transmission of “memes”, or any other variable that may have a bearing on the subject. For instance my observations concerning desired perfection of very early ostrich eggshell beads are most requisite. They demand the establishment of the psychological complexity needed to render such constructs possible. I cannot see any reason why such minimum conditions underwriting the use of beads could not be determined by ethological experiment, by cognitive research, communication theory or similar means. Once such minimum conditions are established, we can relate them to the earliest archaeological presence of beads and pendants.

Another such key reference point for anchoring our timeframe to could be provided by speech, which also can be safely assumed to have emerged gradually. Unfortunately here the relevant timeframe currently available to us is of much poorer resolution. In lecture 5 we considered the origins of human language, and we developed a rough outline of a timeframe for the emergence of verbal communication that is very different from the largely arbitrary speculations so far based on archaeological dogma. Towards the end of the Pliocene, two million years ago, we should expect a communication ability making possible a level of culture underpinning the colonization of inhospitable environments by a creature of the tropics. Towards the end of the Early Pleistocene, a million years ago, the sophistication of culture and communication had to be adequate to enable maritime colonization. All we need to do is determine what is the minimal cognitive and technological capability to underwrite such quests, and we have a realistic outline of the course of non-physical human evolution. Once again, I have presented a testable scenario, showing how a model capable of scientific falsification can be developed. Indeed, I have gone further, and have made major attempts to establish minimum technological conditions for maritime colonization, with my First Mariners Project (<http://mc2.vicnet.net.au/home/mariners/web/index.html>). Certainly “reflective” language and forward planning for several months was available to hominins a million years ago. By around half a million years ago, we have noted ample evidence that symbolic means, such as language, were not only used, they were stored outside the brain, in objects that had no other purpose, or perhaps also in other objects that had utilitarian purposes as well (such as tools). This, in a nutshell, is the answer to the question, when did language or speech-like communication of hominins begin. The reliable information we have about human evolution is perfectly adequate to provide such a rough outline about language origins—provided we read it carefully instead of starting from a priori dogma.

After all, we do know the main reason bonobos lack speech is that their pharynxes are generally too small to produce the required sounds. They have no great difficulty communicating via a keyboard or lexigram such as developed by the Language Research Center at Georgia State University. Operating with a computer, this keyboard consists of a large set of visual symbols that are pressed with fingers, and the synthesized voice from the computer then speaks the corresponding word. The symbols on these keyboards thus are as much semiotic entities as are any others in human experience; they are indeed symbols, and any consideration of the origins of symboling that fails to give due regard to the extensive and intensively studied symboling abilities of various primates needs to be entirely rejected. It can only be an attempt to emphasize differences between humans and other primates, which in the final analysis is inevitably guided by religion-rooted ideologies. There is no room for such misguided thinking in scientific research.

Furthermore, I have suggested that symboling by re-enactment is likely to have originated from neuronal pathways facilitating deceptive behavior, which has been observed in chimpanzees, for instance. Once again, we see that our symbol use may have developed from neuronal circuits that may well have their antecedents in those of earlier primates. It is therefore inappropriate to expect finding a specific development or event that would mark the beginning of symboling. Rather, this must be seen as an incremental process, with its origins deep in unconnected neuronal structures that existed even before humans appeared. It was apparently during the Lower Paleolithic that, in a sequence of developmental events that still need to be identified, various strands or fragments of behavioral traits came together in such a way that what we call “full consciousness” became possible. But in lecture 7 we also noted that our consciousness is far from fully developed. It is merely adequate for perceiving the limited reality we manage to comprehend. The cognitive gap between ourselves and our nearest extant primate relatives is thus even smaller than primate ethology tends to inform us.

What perhaps becomes clearest at the end of all these considerations is that deliberately anthropocentric disciplines such as archaeology and anthropology are not well served by their non-scientific, humanistic framework, steeped in belief systems and encumbered by the human difficulty in achieving non-

anthropocentric modes of academic discourse. They need to be more amenable to falsification than any other academic endeavor, precisely because of their weak epistemology and the limitations I identified in lecture 7. Our failure so far in using archaeological ideas effectively in exploring the beginnings of cognition and symbol use is attributable precisely to these encumbrances. This failure is not, I have argued, due to some inherent intractability, but due to the skewed database we have used, due to skewed interpretations of this distorted database, and due to skewed research orientations. If we can overcome these impediments, the most profound scientific questions we as a species are capable of asking can be pursued profitably. In this quest, informed semiotic study of the earliest forms of human symbolic expression must form a core element. The prerequisites of such a pursuit, the first major improvement since Plato posed the issue of anthropocentrism, have been presented in this course.

The neglect in the study of human evolution of the cognitive and cultural development of humans, in favor of changes in skeletal morphology, has led to distorted perspectives of this evolution. In the Pleistocene record, cognition and culture are primarily accessible through the study of paleoart, which consists of rock art and portable art-like productions. The study of cognitive evolution needs to focus on this corpus and relate it to recent advances in neuroscience, primate ethology and the cognitive sciences. Collaboration between these disciplines and paleoart studies can be viewed as mutually beneficial and sustaining. Research into cognition and brain functioning continues to develop rapidly, and the need to assimilate the various findings in relation to palaeoart becomes all the more imperative. Cognitive studies can help to disentangle the complex ways by which culture and evolutionary factors interact so that a clearer understanding of their respective roles and influences can be made possible. To render Pleistocene palaeoart scientifically useful, evidence needs to be studied as global rather than regional phenomena. Underlying principles and universals need to be identified, and the material of the Middle and Early Upper Pleistocene requires much more attention than has been evident in the 20th century. Here we have succeeded in identifying many of the key issues in such a quest, but we have also had to appreciate that we are only at the beginning of a proper scientific discipline of the evolution of human cognition and symbol use. In the course of the 20th century we have made little headway in this direction; perhaps we can do better in the 21st century. The first step is to reject simplistic mainstream archaeology and either replace it with a scientific pursuit, or reduce its influence on this discipline. In the study of the cognitive and symboling evolution of hominins there is no room for traditional belief systems and academic fascism, which have marred Pleistocene archaeology since the mid-19th century.