

Biology and Philosophy. Part II. The Upper Paleolithic and the Holocene

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Abstract— I present and discuss some aspects of shamans considered as being the first specialists of the Paleolithic. Some important moments leading to their appearance are suggested and the necessity is stressed that the group should have a communication ability complex enough to exchange and understand internal experiences. I define a *before/after* separation for *Homo sapiens*. On the ‘before’ side we have a complex animal. It is following the ‘after’ when some *Homo sapiens* begin to ask themselves about the world as they see it. This transition happened about 40-50 kyr ago. Next, I analyze the expression ‘to be human’ and suggest that to belong to the *Homo sapiens* species it is a necessary but not a sufficient condition to be human. The possibility of defining two different subspecies: *Homo sapiens sapiens A* (people without Neanderthal DNA) and *Homo sapiens sapiens B* (people with Neanderthal DNA) is commented. Some of the questions presented here are not discussed because of non-scientific fears.

Index Terms— Consciousness, Holocene, *Homo sapiens*, Human, Mind, Mankind, Paleolithic, Shamans.

I. INTRODUCTION

Our past, that starts an instant ago consists in all objects (bones, fossils, etc.) and products (paintings, sculptures, ruins, fragments of manufactured things, tablets, papyri, books, etc.) that are or will be in our possession. Also, it includes known facts about people and groups of people. History, widely and vaguely defined, is the placing, in a geographic place and a time line, of one or more facts, objects and products together with an interpretation of them. The problems with history can be exemplified with two cases from recent times. The history of the French revolution is a list of known and supposed facts (the latter are those having no material support). Nevertheless, these facts have produced a large number of books containing different *interpretations* of these facts, some of them being contradictory. In other cases, laws are passed declaring that the *interpretation* ‘F’ of facts x, y and z is the only authentic one, and punishing any other different interpretations (this amounts to declare that unlawful interpretations are heresies like in the ‘good old times’ of the Holy Inquisition when it was stated that “*punishment does not take place primarily and per se for the correction and good of the person punished, but for the public good in order that others may become terrified and weaned away from the evils they would commit*” [1]). When we move back in time we arrive at a point where we can only get fossils, such as the cases of the alleged early hominins *Graecopithecus* (7.2 Mya, [2]), *Sahelanthropus tchadensis* (7

Mya), *Orrorin tugenensis* (6 Mya), *Ardipithecus kabadda* and *Ardipithecus ramidus* (5.5–4.4 Mya). When we move forward in time we find the genus *Australopithecus* and the genus *Homo* of which we have more fossil bones, some fossilized footprints, tools, etc. With the help of data coming from paleoclimatology, geology and other hard sciences we have been able to suggest how evolution/natural selection might have acted to produce the present situation (note that natural selection/evolution is currently acting all over the world on all living beings, us included). This paper, due to the discontinuities of our knowledge concerning the title time periods, only presents my thoughts about some specific topics placed in these ages. To employ a rough expression, I hope that the stones I will throw in the pond will create enough waves in the water to awake some lazy ‘frogs’.

II. SHAMANS: THE FIRST SPECIALISTS?

The reader should agree with me that any scientific statement about shamans must be either true or false. If we cannot decide that a statement is true we may consider it a weak statement. The problem starts when, on the basis of a set of weak unproved statements, people begin to deduce more and more weak statements ending up with theories and models that have feet of clay. Therefore, in the following I will make what I consider reasonable (do not confuse *reasonable* with *true*) comments on some aspects of shamanism. The same strategy will be used in this and ensuing papers.

Shamanic practices *probably* originated as early as the Paleolithic, antedating all organized religions. The most likely date is about 50-40 kyr ago. What was shamanism exactly at these times? We do not know. If I must take a position, I will align myself with evolutionists, expecting something like proto-shamanism in the Paleolithic, something that is unparalleled today [3]. Perhaps a good definition of shamanism is a modification of Eliades’ one in this form: “*shamanism = technique of ecstasy*” (I removed the term religion and I remind the reader that the concept of ‘ecstasy’ suffers of intensionally vagueness) [4, 5]. The very origin of shamanic techniques lies in the darkness of time and is probably rooted in the effect on consciousness (‘consciousness’ of these times!) that repetitive actions such as certain stylized movements or series of movements together with vocalizations produce. Thinking of *Eulemur macaco* picking up and biting millipedes as an insecticide and getting stoned in a ‘*macaco way*’, I think that this phenomenon could occur even in a group of *Homo sapiens* (or Neanderthals) with a very simple social organization (‘dancing’ after a successful hunt for example). Now, and due

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only to genetic differences, not all members of the group underwent these internal changes ^[6]. This suggestion comes from the simple fact that, if all members were affected in the same way, the shamans would never have become a separate group. The most important moments of this process are undoubtedly three. The first one is the moment in which one individual noticed (in his own way) that the other members do not seem to experience the same internal state(s) as he (an altered state of consciousness, ASC). The second moment is when the individual notices that he can ‘get’ (or ‘perceive’, ‘obtain’ or ‘know’) information that the others cannot ‘get’ and that this information may serve for definite purpose(s) of the group. The third moment is when the rest of the group accepts these facts. When this happened the shaman was born. And, at the moment when the individual unconsciously carried out those acts leading to an altered state of consciousness, is when Eliade’s ‘*technique of ecstasy*’ was born. It is very important to stress that the rest of the group must possess a certain level of communication abilities allowing them to receive enough information from the special individual to understand more or less what he experiences, what kind of information he gets from his experience and agree that it is useful enough for the group to accept him as endowed with a special ‘gift’ (magic?).

Summarizing: the community where shamans lived accepted them because they considered that they could offer something valuable and inaccessible to the rest. Note that this statement contains implicitly the notion that the world as common people experience *is not all there is*. I understand that the question whether we see the world *as it is* is still the matter of endless deliberation and is still an unsolved problem. If we take the practical position of *assuming the world as given to us*, we may hypothesize that the shamans’ world *as given to them* may have another nature. The question of *what exactly* the shaman offered is unknown but *perhaps* an analysis of the common elements of actual shamans currently living in Eurasia and the Americas may provide a tentative hypothesis. This hypothesis could be true regarding the Americas if shamanism was born in the Paleolithic and that people crossing Beringia toward America carried some shamans with them. On the other hand, I think that the suggestion of using modern shamans to go back in time is difficult to implement because of what is called “*the cargo cult effect*”: today there is almost no primitive society that is free from contamination with more technologically advanced societies. Even indigenous groups that never saw a foreigner know that “*there is something out there*” (by noticing airplanes, drones and/or ships). Moreover, it could happen that some, most or all modern shamans have lost the knowledge of how to reach one or more ASCs and use them like in the Paleolithic, and become only healers using herbs and rituals. It is possible also that people acting as shamans are not really such and profit from foreigners selling them “*ayahuasca trips*” (as happens in some places in Ecuador for example). Another tentative answer of the shamans’ work is that they offered their mediation between two worlds (two at least, but understanding that one of these worlds *seems* to be the same *given* to all by evolutionary processes) to get *something*. Note that in actual shamanism the worlds are

multiple and superimposed. Nevertheless this answer raises many questions. What other world(s)? Why can only some people do this? Why are most present populations unable to find this second world or others? Etc. Maybe truly Paleolithic shamans disappeared a long time ago and we did not even notice it (see ^[7]).

Schiefenhövel made this interesting comment: “*The early human mind, ..., needed a powerful paradigm which was able to explain all the seemingly unconnected and unpredictable events of nature as well as its awe-inspiring beauty and functionality, and to make sense of the complexity of human wants and actions. Additionally, our ancestors needed rituals to interact with the supernatural powers who were believed to have created and to be in control of the world. Helplessness, stress and anxiety were reduced through belief and ritual*” ^[8]. Without entering here into the question of *what is mind*, this part of Schiefenhövel’s statement “*The early human mind needed a powerful paradigm which was able to explain all the seemingly unconnected and unpredictable events of nature*” **is interesting because it establishes a before/after separation**. On the ‘*before*’ side we have a species behaving only like other animals: being born, living, reproducing and dying. There were no such things as beauty, functionality, unpredictable events, etc. The probable date of the *before/after* point in Eurasia should be placed around 40-50 kyr ago as I suggested earlier ^[6]. Paraphrasing Hesiod, we may say that this is the moment when our Golden Age begins. It is after the ‘*after*’ when *some* humans begin to ask themselves, in their own primitive way, “*why is the world [the world surrounding them] like this?*”. Depending on the answer or answers to this question the many beliefs and ‘religious’ rituals will develop. The statement that “*helplessness, stress and anxiety were reduced through belief and ritual*” seems to be correct on the basis of what we know about obsessive-compulsive disorder and other disorders with similar symptoms.

Returning to more earthly problems and regarding the suggestion of possible shaman burials, we can say this. Almost nothing is known about the social organization of hunter-gatherers. Vanhaeren and d’Errico provided solid evidence for the existence of social inequality in the Upper Paleolithic ^[9]. This seems logical if we look Eurasian historical development as a continuous process. In the first *Homo sapiens sapiens* groups the social order was presumably pyramidal, like in almost all groups of mammals: there was a leader selected (or self-imposed in combat) by his strength and ability to defeat competitors and enemies, capacity to hunt and find hunting places, search for places to rest, etc. The prize was the usual one: most females would mate with him, perhaps he had access the best food, etc. But with the *not-for-all* brain-cultural changes occurring about 50-40 kyr ago, new ways of distinguishing people appeared: feathers, body paint, animal teeth, shells, figurines, etc. And, sooner or later, these ornaments would be placed inside the grave with their owner. In the case of the Saint-Germain-la-Rivière burial (15.57 kybp), Vanhaeren and d’Errico concluded that “*The rarity and probable exotic origin of these teeth [red deer canines], the small number of paired canines, and the technological and morphological*

homogeneity of the collection suggest that the teeth were obtained through long-distance trade and represented prestige items. As observed in a number of hunter-gatherer populations and contrary to the supposed egalitarian character of Upper Paleolithic societies, these items may have materialized the integration of this individual into a privileged social group” [9]. Therefore, what we need is a scientific procedure to distinguish, on the basis of the accompanying material, the status (“what is his/her place in the social organization” and “what was his/her occupation”) of the buried individual. As far as I know, this methodology does not exist. There are two burials that have been suggested to belong to shamans [10-13]. One is located in the southern Levant (12 kybp) and the other in Dolní Věstonice (31 kybp). Grosman et al.’s argumentation that the south Levant burial corresponds to a shaman (a woman) is specially weak and unconvincing because they do not present any scientific reason for their suggestion (read the discussion in [12]). Moreover, the south Levant burial is very recent and human societies were more complex at that time. Therefore, distinguishing between the burial of a shaman and that of a simple woman of high status is not yet possible today. The real fact is that we have no idea about this and other similar topics. But there is a statement we can hold without fear: the first shamans were people endowed with a special genetic heritage, making them apt for their job. I suggest also that the time of the original shamans inaugurates the first distinction between what we call today the Sacred and Profane domains (the two worlds) [14].

III. ON ‘BECOMING HUMAN’

What is ‘to be human’? Noble and Davidson summarized this question as follows: “not all the possible definitions of ‘it means to be human’ can be reconciled. One approach is to look at the anatomy of modern humans to define human uniqueness, but this runs into problems arising from the variations existing in different populations around the world. Moreover, for humans and our ancestors, there is an unparalleled record of fossil specimens which tends to emphasize the continuity of anatomical variations across geographical space and also through time, bearing in mind that variability in space and time must be considered together. Such definitions may, therefore, be practically unsuitable if we wish to identify the point in time, or the place at which, our ancestors become human” [15]. These authors mention that “there is less difficulty in adopting a social definition of ‘human’: humans are those organisms identified by other humans as humans”. Against this seeming lack of difficulty I offer, as a counterexample, the hypothetical case of a society in which some individuals, having a notorious, habitual and constant parasitic life, seem to be human only because they use mimicry to live among ‘real’ humans. This is a good reason why ‘to be human’ needs a full elucidation. I hold here that to belong to any (if more than one) *Homo sapiens* species it is a necessary but not a sufficient condition to be human. We need to clarify this concept to find or propose where the line between the animal *Homo sapiens s.* and the proto-human *Homo sapiens s.* lies, with some members of the last group becoming human with the passing

of time. This is not a taxonomic distinction.

IV. ON THE ONE AND THE MANY.

Use I would like to share some thoughts about an important point. Maybe some readers noticed that I am avoiding the use of the term “mankind”. Believe it or not this term, despite its wide use, suffers from severe intensional vagueness. Only a very primitive definition, such as the one proposed by Carl von Linné, may correspond to “mankind” [16]. I hold that to speak of “mankind” is as vague as to speak of “parrots”. I found this statement in the Web page of the International Commission on Zoological Nomenclature (<http://iczn.org/content/who-type-homo-sapiens>): “From a practical point of view the designation of Linnaeus as lectotype is of limited value, since there is no doubt over the identity of the species *Homo sapiens*. For the same reasons there is no exceptional need for the designation of a neotype”. I hold that there may be several doubts about this assumed identity. Stringer and Buck stated that “although what constitutes living members of our own species is straightforward, in the fossil record this is still a matter of much debate” [17]. Obviously, and considered as a certain set of ordered bones (a partial or full skeleton), all living members of what seems to be the same species belong to this set. But this is only from the point of view of bones (and maybe of the phenotypes).

Here is a provoking example. Let us accept for the moment that modern humans evolved from *Homo heidelbergensis*, *Homo rhodesiensis* or *Homo antecessor*. This process probably produced transitional specimens that might or might not be our (my) direct ancestors. Where is the line to be placed separating the transitional forms believed to be quasi-modern humans (progressive *Homo sapiens sapiens*) from the ones believed to be one of the three *Homo* species just mentioned, if they existed? As we have only bones I can understand that the only way to get a classification is by using the bones but this is not enough to satisfy me.

The current position is that anatomically modern humans (AMHs) are defined as the individual members of the species *Homo sapiens* with an appearance consistent with the range of phenotypes in modern humans (this statement looks quite cyclic). Up to some weeks ago, it was theorized that AMHs evolved from archaic humans in the Middle Paleolithic, about 200 kyr ago in eastern Africa. The recent discovery of *H. sapiens* fossils at Jebel Irhoud (Morocco) and dated about 315 kybp has introduced an important and new element in the map of our evolution [18-20]. We are told that after 70 kybp AMH gradually supplanted the archaic human varieties. This last statement is only a hypothesis and not a proven fact. On the other hand, AMHs include the subspecies *Homo sapiens sapiens* and *Homo sapiens idaltu* (the morphology of the skulls of the latter display archaic features not found in the later *Homo sapiens*, [21]). Therefore, and from this point of view, *Homo sapiens sapiens* is a subspecies. Does anyone know with certainty that no offspring were produced by the mating of members of these two subspecies? No. On the other hand, if *Idaltus* is really one of our direct ancestors, the above comments are unnecessary.

Let us return to Linnaeus' skeleton, the question of phenotypes and the variability of some physical traits. If we take Linnaeus' or any other similar individual as being the lectotype (or the holotype), what is the technical designation of dwarfism (caused by more than three hundred medical conditions) and gigantism? I ask this question only because I could not find clear information about this technical point. One day, if the present world civilization does not destroy itself first, we shall have a full knowledge of the human's DNA, variants included. But today we have enough information allowing me to pose a question that made some geneticists extremely nervous when I asked them for a yes or no answer (I am not leaving the scientific realm but I am putting one foot in the realm of political incorrectness).

I will suggest here that the fact that the DNA of sub-Saharan peoples has no contribution of Neanderthal DNA like the rest of the world populations allows us to define two different subspecies: *Homo sapiens sapiens A* (the sub-Saharan peoples without Neanderthal DNA) and *Homo sapiens sapiens B* (those peoples with Neanderthal DNA). I say subspecies because they can interbreed and produce fertile offspring. I can continue with this work and employ the Denisovan DNA to separate *Homo sapiens sapiens B* into more subspecies following a yes/no basis. Noting that Nature works in its own way, surely we might one day find traces of DNA of other earlier members of the genus *Homo* in some individuals (possible hybridization of some earlier *Homo sapiens* local populations with *Homo erectus* or *Homo floresiensis* in Asia). The question is that the problem posed here has not been analyzed or has been avoided due to nonscientific fears. To end this paragraph I must emphasize two points. We cannot use the relative lack of knowledge of all DNA existing today as a pretext to avoid discussion of this point. The second point is very important. This separation *cannot* be used to 'explain', for example, why sub-Saharan people never built 'great' civilizations like the ones appearing in Eurasia. I must remember, however, that many groups of humans carrying Neanderthal DNA never built 'great' civilizations.

V. CHANGES DURING THE HOLOCENE

The Holocene is the geological epoch that began after the Pleistocene at approximately 11.7 kybp (about 9,000 BCE). At his moment many things had happened: wild grains had been collected and consumed from at least 105 kybp, pigs were domesticated around 15 kybp (Mesopotamia), rice was domesticated between 13.5 and 8.2 kybp (China), sheep were domesticated between 13 and 11 kybp (Mesopotamia), etc. During deglaciation between 9 and 8 kybp, the level rose by about 120 m, covering many human settlement sites that might help specialists to write something more exact about our history. When most specialists agreed that 11 kybp *Homo sapiens sapiens* were small hunter-gatherers-river-fishermen groups, Göbekli Tepe appears in all its splendor ^[22-26]. The inspection of this site strongly suggests that it seems to be the product of many years of previous knowledge and practice of building. On the other hand, with the constant population growth and more frequent contact among different human groups the first social parasites probably appeared in the form

of burglars, small groups of outlaws or raiders, etc. After the first cities were built and their population began to grow, several new types of social parasites began to appear that would endure up to this day in many forms. I will finish this short group of ideas with the following commentary. The Upper Paleolithic and Holocene are a fascinating topic of study and meditation because almost all the sciences studying these periods have, so to speak, two approaches. The first one uses the exact sciences (datation, taphonomy, bone analysis, etc.) and the second one employs our always speculative mind to provide explanations about what we find, sometimes without any use of the results provided by the hard sciences. I think that the best example of the second was the battle around *Homo floresiensis*. Note also that population growth together with settling processes create *frontiers* and *war* when these are trespassed. Malinowski argued about war that "*as regards the theoretical gains, we have shown that war cannot be regarded as a fiat of human destiny, in that it could be related to biological needs or immutable psychological drives*" ^[14]. Without entering into Byzantine arguments, I think that the best counterexample to Malinowski's thesis is the Gombe Chimpanzee War (1974-1978) ^[27]: war has a primary biological basis, unconscious or not.

VI. ABOUT PRESENT-DAY SPEECH

The word I will add here a commentary about speech that will be needed in the next part of this work. We can speak. This activity began to develop at a really large scale after the animal (*Homo sapiens*)/human (*Homo sapiens*) transition. No matter what we have been thinking and feeling in the course of the day, we will be able to find words to describe this experience and give an account of it to those around us. Note that there are some experiences that cannot be described to others because, to do this, the listeners will have had to have similar experiences and the group must have a common set of accepted statements to describe a definite experience. What seems to distinguish us from other species is the number of words we can handle. And the arc is very wide: from very good writers and speakers to people knowing just the words to travel along life. It is true that education and personal environment can have a measurable influence but it is also true that this ability also has a very strong biological basis (see for example ^[28]). Human language has a really important characteristic: with virtually infinite combinations of words to choose from, we can express our states of mind and, if we cannot find the right word(s), *we invent a new one*. The sciences continuously create new terms to avoid intensional vagueness or to define totally new objects or phenomena. On its side, literary analysis produced terms like chleuasmos, counter-litotes, enallage, gemination, isolexism, metabole, parabasis, prolepsis, psittacism, spoonerism, tmesis, zeugma, etc. ^[29]. It is more or less obvious that the complexity of internal thought with words is entirely dependent on the number of words that we know and especially on the number of words that we use daily. And I suppose that all readers have noted this difference along their life after talking to numerous people or when they read a newspaper directed to a population segment that manages just a few words. But we also have an extraordinary ability that seems not to be

possessed on the same scale by any other animal. An example: Good chess players usually consider around forty to fifty positions before deciding what move to play. This analysis is rooted in the player's past (the games he has played, the games he has studied or watched, etc.) and projected to the future (the game of the moment). All humans may theoretically play chess but only a large minority can become grandmasters. Even more noteworthy is the detail that most of our conversation is not rooted in the present: it turns around the past and the future. We have the ability to mentally reconstruct past events, visualizing them in multisensory detail [30]. This capacity to recall depends upon the number of memories we can access directly, a number that is not equal in all humans (the reader may compare, for example, how many of his childhood memories he can remember and compare these data with his friends). Now, let us consider a chimpanzee using a long branch as a tool to scoop up algae, or another chimpanzee searching for a spindly plant with straight shoots, called *Alchornea hirtella*, to catch bellicose ants. These activities need the previous knowledge (i.e., information stored in his memory banks) that this tool use will feed him, that there are places to find branches or plants and the "know how to catch ants or get algae". But chimpanzees cannot (it seems) "think back" and "think forward" in the same measure as us. Regarding this past-future way of thinking, a careful analysis of the present human population shows that there is a very wide arc covering from "grandmasters" to "chimpanzee-like" specimens. And what could be the reason? Obviously, it is a biological one. Do not confuse "has more" and "has less" with "superior" and "inferior" because these terms are not synonymous. A question that remains to be answered is when this capacity of recall and this projection to build possible futures (outcomes) appeared on such a scale. My opinion, based only on the appearance of the known material production, is that this process appeared at least in the Eurasian Upper Paleolithic [6]. The changes that the brain seemed to undergo 50-40,000 years ago in Eurasia are not in contradiction with the abovementioned statement because it was a transition of only a certain number of individuals. *There is a fascinating question that no paper seems to have addressed: Did the sudden 40,000 years old transition affected only the Homo sapiens having a certain percentage of Neanderthal and/or Denisovan genes? Another question that can be raised is if 'Homo sapiens', 'Homo sapiens with Neanderthal genes', 'Homo sapiens with Denisovan genes', 'Homo sapiens with other DNA', etc. all have the same mind.*

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