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DISJUNCTURE VS REVOLUTION
POSTGRESSION VS. PROGRESSION

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Abstract

We are living on a biased philosophy, and we limit ourselves to a simple choice between A and B, B being non-A. One crucial creational generative moment with nothing before, or nothing specified, or some metaphorical something. Either Big Bang, in an unspecified situation, or emergence from "physical logic." Or some divine generating creator of universal and life. Any freedom, free choice, responsibility for man? In recent archaeological discoveries, some approaches were biased and destroyed a lot of what they should have discovered. Naledi's small brain, several steps before Homo Sapiens, invented burials and the first symbolical scratches on the walls of these chambers. Only be produced by big-brained Hominins? What about Neanderthals and Denisovans. Any free choice in the evolution of a language? Is writing an invention around 4-3,000 BCE? Naledi proves it is wrong. The rotation of vowels and consonants increases lexical creativity connected with the brain machine-code that remembers what is useful for biological survival, writing is envisaged and experimented. From a set of limited calls (postgressively containing/producing human language) to a first batch of illimited vocal clusters (progressively produced from what was before), the road to articulated language is blazed. Yet diversification? The matrix of linguistic phylogeny?

Keywords: Disjuncture, postgression, progression, free will, writing, existential bias;

1. INTRODUCTION

We are living in a biased philosophical context that wants to impose onto us a binary vision of any problem whatsoever. There are according to this approach only two solutions to any situation. You must be alive or dead, and all the individuals who are not exactly alive but not dead are considered to be alive and they must be kept alive as long as possible. Some cases are famous. François Mitterrand had cancer, but he survived till the end of his second term, hence his fourteenth year as President of the French Republic, and as soon as he was liberated from the function he decided to retire to his own apartment in Paris and to stop his treatment, as was said after the official announcement of his death. This procedure was of course followed closely by his family and his personal doctor who only provided him with pain relief, probably the simplest of them all, morphine. He was gone in no time. Another case is just as famous. George Pompidou had cancer too, bone cancer actually, which is tremendously painful. He was

elected President of the French Republic in 1969 for a seven-year term. In 1974 he left the Elysée Palace and retired to his own lodging in Paris and did exactly what Francois Mitterrand would do twenty-one years later. It was done under the close attention of his family and his personal doctor who only provided some pain relief, probably once again morphine. He died in no time. That was announced only after his death. As the President of the French Republic, he might have been railroaded into some kind of treatment for survival.

To enter what I am going to present and discuss here, in the field of science and our knowledge about the universe and man, we are confronted with a dual choice of the same sort. Either you are a creationist, and you believe some divine being created the world, life, and man ex nihilo. Or you are a die-hard scientist, and you believe the whole universe started its expansion with a Big Bang out of something that is not even specified. On the first side, you have another dual choice between that divine entity who decided and still decides everything that may happen on one hand, or this divine entity created man with the possibility for him to choose between right and wrong, good and bad. The universe, on the other hand, is free to follow the materialistic scientific logic of its constituents, from the smallest particle to the biggest constellation or other cosmic body. On the other side, everything that happens in the universe is the result of the phylogenic generative equilibrium at all levels of material existence among all participants from the smallest microscopic element to the biggest macroscopic cosmic body. Most scientists believe man is free to decide what is going to happen and to choose between good and bad, right and wrong, though they all know they do not influence the movements of planets, and if they pollute the earth, it might have drastic consequences, but these consequences will be produced by the side effects of man's action like carbon dioxide or overpopulation, hence overconsumption of the earth's resources, etc. According to recent studies, the city of Çatalhöyük in Anatolia died because of its overpopulation in a "city" that had no sanitation, in houses that must have been pervaded with smoke since they had no ventilation, and various diseases, which probably explained why so many newborns and infants were buried under thresholds inside the houses. If what they say is true, the development of agriculture and herding supported the construction of big sedentarized urban communities of this type, and it did not last longer than such living conditions permitted. In many ways, the fate of the Maya civilization, no empire but urban communities at the center of rather small areas, was similar: overexploitation of the Meso-American zone concerned, overpopulation of the urban centers, excessive blood sacrifices, and diseases, though the main event in such a perspective was the genocide carried out by the colonial forces of Spain, the Spanish Crown and the Spanish Inquisition, with some great help from European diseases that spread like real plagues among Maya natives. The free decision to sacrifice one, two, or more prisoners or slaves, to pay back the loan of divine blood for the creation of man, did not prevent the arrival of the Spaniards, their diseases, their fire-arms, and the eradication of between 75 and 95% of the native population

This should enable us to ask the real question here: What freedom does man have in such a situation where everything has been created by a divine entity in such a way that it dictates evolution and everyday life, not to speak of history, or the same way in such a situation where everything is dictated by the physical, chemical, or other material elements that dictatorially govern everyday life, the cosmic expansion and balance, and even the existence of human beings who cannot really change much in the cosmos, and at their level, they create catastrophes every day.

I will analyze three cases to see what freedom man has in such situations: first, an archaeological approach, second, a linguistic problematic, and finally, a historical situation.

2./ ARCHAEOLOGY AND THE FREEDOM OF HOMININS

This section is based on the case of Homo Naledi, discovered in 2013 in South Africa by Lee Berger who spent the whole period since (2013-2022) studying this particular Hominin. Lee Berger is a researcher in paleoanthropology for the journal *National Geographic*. He just published in 2023 his experience on this case in *Cave of Bones*. Apart from two or three particularly graphic chapters that are slightly difficult if you are claustrophobic, the book is outstanding and it opens many new windows in the compact wall of the emergence of the Hominin family, of the Homo Genus, and of Homo Sapiens, hence the phylogeny of the human species. I will first emphasize and discuss the very original conclusions he reaches in the book, and later I will add the phylogeny of language since the Homo Genus is captured a couple of times as a communicational genus. But Lee Berger did not go deep enough on this fundamental dimension of the Homo Genus: the production and phylogeny of an articulated language, and its impact

on the very phylogeny of particular Hominins, here Homo Naledi, in their mental and symbolical development.

Who is Homo Naledi and what does he/she – of course, he/she, not "it" as Lee Berger often says, since he is part of our genus, hence a close relative of ours – represent in the Homo genus?

Naledi was discovered in the Rising Star cave system in South Africa in 2013. This very complex cave system is the only place where a great number of fossils were found in various chambers of the complex. Naledi was never found outside, but was he/she looked for outside? We do not know what life he/she had outside the caves. When Lee Berger says that Naledi could have had some sexual contact with Homo Sapiens who was starting to evolve close by, he has no proof at all, and it will take some time to be able to get Naledi's DNA to see if it can be traced in Homo Sapiens' DNA. So far, we could even consider Naledi is a caveman only living in the complete darkness of the caves as a nocturnal Hominin that would have nocturnal vision. But it is not sure at all since we are going to see that they had fire, and one chamber was used as a cooking area with bones from various small mammal species that live more or less exclusively on the surface of the earth.

The time bracket of its existence is 335,000-235,000 BCE. Homo Sapiens started emerging around 300,000 BCE. The time bracket has been determined only from the dating Lee Berger's team could get for the caves and the various minerals they could find. That explains that Naledi is seen in his (absolutely no mention of women) period of full development with no indication about where they came from, what phylogenic process governed their emergence, and which or what Hominin, who was present in this area of Southern Africa before the 335,000 BCE date, they descended from. We already have here three questions that will have to be solved later: the DNA of Homo Naledi, the geographical and phylogenic origin of Homo Naledi, and the life pattern they had, like cave living, surface activities, social order, the role of women, contact with other Hominins in the area and time. We can say the research is just starting. But Lee Berger and his team have proved quite a few things. I will accept his remarks and conclusions on the basis that it is endorsed by National Geographic which has a good scientific reputation. Some of these conclusions are highly controversial with standard academics and for standard scientific conformity. The conclusions have to be confirmed by further research. Note here the long section on the whole line of the emergence of Homo Sapiens from Ardipithecus Ramidus positioned before "4 million" years ago as opposed to Homo Sapiens identified pages 32-33 as "now."

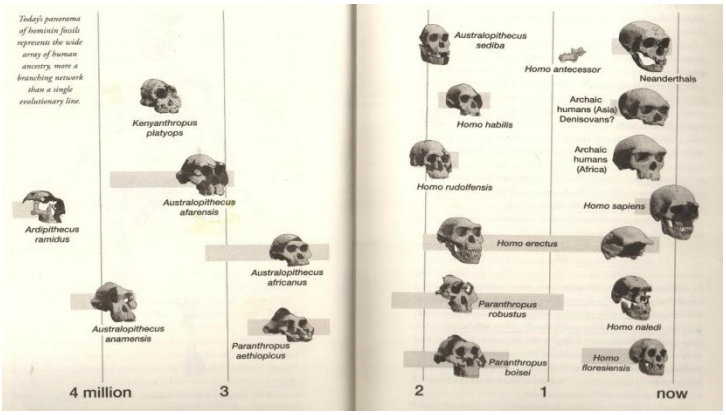


Figure 1: "Today's panorama of Hominin fossils represents the wide array of human ancestry, more a branching network than a single evolutionary line." (Lee Berger, 2023, p. 32-33)

We have to note that this is very superficial since each one of these branches is the result of mutations on the branch from which it or they deviate. It is of course not complete. Many particular Hominin fossils are missing, like Homo Heidelbergensis for Neanderthals. But this gives an idea of the complexity of the Hominin family and of the Homo Genus. As for Naledi, we do not have any clue about who he/she is descending from by mutation. And speaking of descendants refers to sexualized reproduction. Naledi being so different from the simple physical average norms of other Hominins, is it a set of mutations and a new branch appeared on the trunk that generalized in two or three generations, (obviously, it did not, since it disappeared around 235,000 BCE, did he/she not disappear? Then where is he/she?), or is it a haphazard and whimsical mutation, or set of mutations that caused a consensual or segregational bringing together, but outside the main source-Hominin community, of these smaller Hominins in an environment, the caves, in which a normal size Hominin could not easily circulate, if at all, let alone live.

Just to help you visualize the cave system here are some Pictures. First one horizontal projection, then two vertical projections, neither 3D projections.

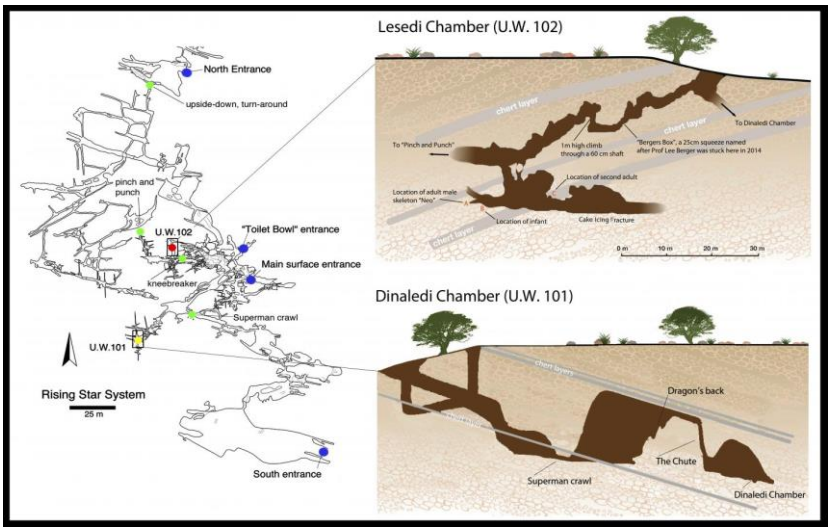


Figure 2: Full horizontal projection on the left. On the right two vertical projections of two sections. (https://www.eurekalert.org/multimedia/907870)

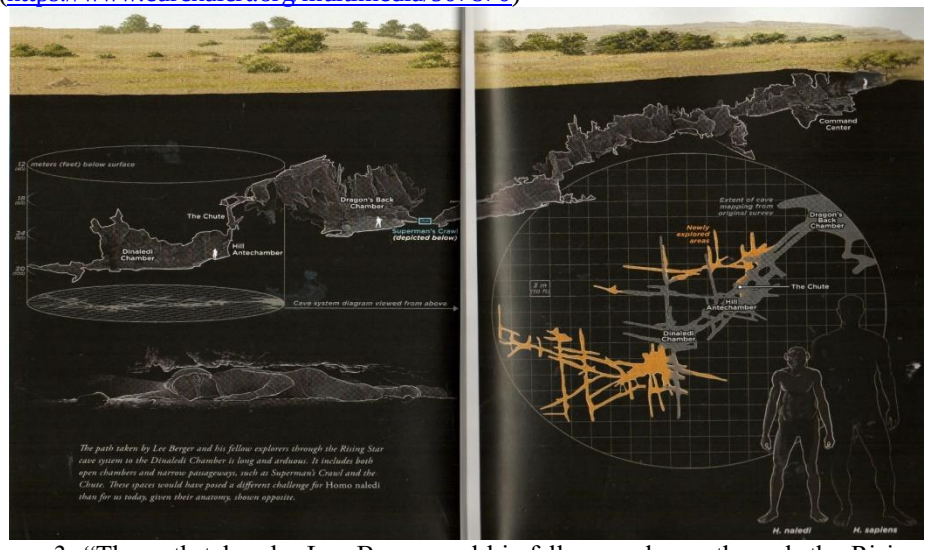
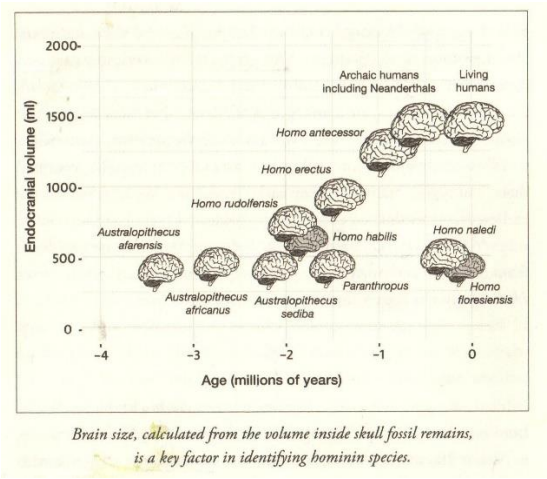


Figure 3: "The path taken by Lee Berger and his fellow explorers through the Rising Star cave system to the Dinaledi Chamber is long and arduous. It includes both open chambers and narrow

passageways, such as Superman's Crawl and the Chute. These spaces would have posed a different challenge for Homo Naledi than for us today, given their anatomy, shown at the bottom right corner." (Lee Berger, 2023, p. I-10-11)

The physical (no real physiology since we only have bone fossils) summary is given on page 200:
1- "a small brain."
2- "a frame built for climbing."
3- "a pelvis and a trunk, as some earliest human relatives did."
4- "long legs."
5- "human-shaped feet."
6- "hands that included thumbs suited for toolmaking."
7- "small, human size teeth."
Each characteristic (here numbered by me) deserves a comment.



Brain size, calculated from the volume inside skull fossil remains, is a key factor in identifying hominin species.

Figure 4: It proves nothing since it assumes the brain is similar in all cases and the sizes are not provided, and thus EQ cannot be considered (Lee Berger, 2023, p. 38)

The small cranial capacity of 465–610 cm^3 (28.4–37.2 cu in), compared with 1,270–1,330 cm^3 (78–81 cu in) has to be corrected with the EQ of the species. The Encephalization Quotient (EQ) is the volume of the brain compared to the mass of the body. And this element is never alluded to in the book. It brings in two other elements, the size, and the weight: Naledis are estimated to have averaged 143.6 cm (4 ft 9 in) in height and 39.7 kg (88 lb.) in weight, yielding a small Encephalization Quotient of 4.5. If compared to an EQ of 10, the difference in size is a lot less flagrant: minimum [(465 : 4.5) x 10 = 1,033], maximum [(610 : 4.5) x 10 = 1,355]. But this assumes that the brains of both Naledi and Sapiens are comparable, meaning have the same structure, the same architecture, and the same general functioning as the center of a central nervous system that is also similar. At times, when EQ is taken into account, we have surprises. Neanderthals have bigger brains than Sapiens, but due to their massive bodies compared to the slender bodies of Sapiens, Neanderthals have an 11% cerebral deficit. I am not sure the 610 cm^3 is correct if compared to the 465 cm^3 because the difference between the two is widely more important in proportion than the difference between the minimum and maximum of Sapiens. We need to straighten up these measurements. If we consider the size, 143.6 cm compared to the average size of a Caucasian man, 177.4 cm, the difference is 33.8 cm, hence Naledi is 23.53% shorter (in his own terms) than a Caucasian Sapiens. But the weight, which is the mass of the body is 39.7 kg as compared to the average weight of an American Caucasian male of 89.6 kg, hence 49.9 kg in difference, and in Naledi's own terms a deficit of 125.7%. This means we should multiply the volume of the brain by (89.6 : 39.7 = 2.25). Hence the maximum brain volume is (610 x 2.25 = 1,372.50 cm^3. This is no deficit at all. I am just surprised that Lee Berger did not take this EQ into account. The two calculations I made led to the same result. There is no cerebral deficit at all; even if we consider the average American Caucasian male weight of 89.6 kg is

excessive within the comparison with Naledi's. I started using this EQ quotient some 15 years ago to compare Sapiens and Neanderthals. Nothing new then, in archaeology.

The frame and the longer thumb are just perfect for climbing, in trees of course, but also in caves. You have to take into account that the thumb is longer than ours because it is adapted to climb trees and grasp branches. That, of course, makes Naledi very good in the caves where he has to grasp rocks in order to climb up and down.

The pelvis and the trunk seem to imply Naledi is advanced in his bipedalism and has maybe moved one step further on the road leading to running.

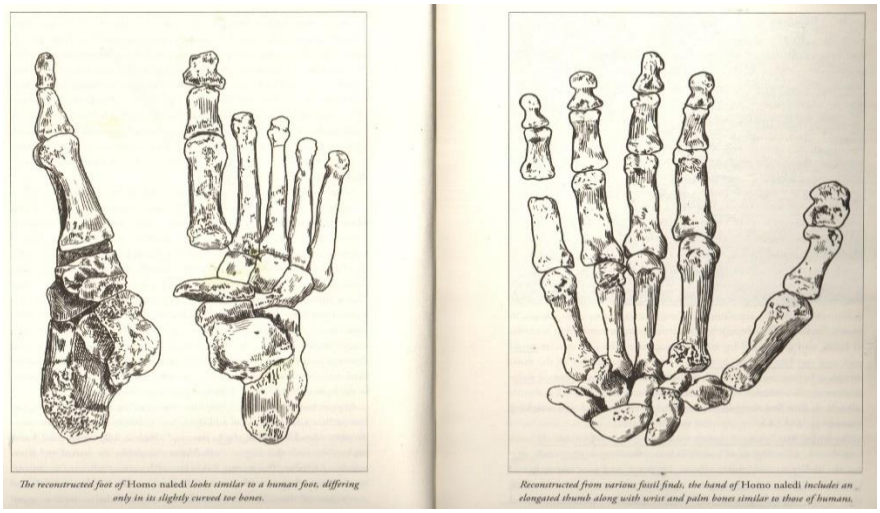


Figure 5: Sapiens runs on the toes, and the structure of the foot depends on it. Note the long thumb. (Lee Berger, 2023, p. 52-53)

But here the foot is not described properly. Similar means nothing. Homo Sapiens is unique among Hominins because the structure of his foot has completely been changed by his becoming a bipedal long-distance fast runner. From the picture given by Lee Berger, it is not conclusive whether Naledi is a walker or a runner. There is a lot of recent research on the problem of Homo Sapiens' foot and particularly its architecture and physiology for what is called endurance running, which I call bipedal long-distance fast running. Homo Sapiens does not run on the heel first but on the forefoot first with the midfoot arched ready to expand the forward movement of the whole body. The foot works like a sort of spring or diving board. See the figure below: Holowka, Nicholas B. & Lieberman, Daniel E., "Rethinking the evolution of the human foot: insights from experimental research," published by The Company of Biologists Ltd | Journal of Experimental Biology (2018) 221, jeb174425, doi:10.1242/jeb.174425 © 2018

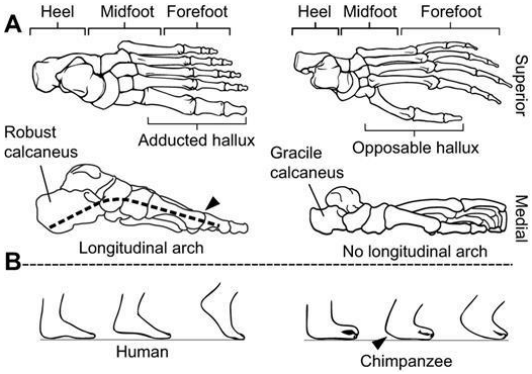


Figure 6: **Human and chimpanzee feet.** (A) Human and chimpanzee foot skeletons, superior view (above), and medial view (below). Arrowhead indicates dorsal doming of metatarsal head, present in humans but not chimpanzees. (B) Gross kinematics of human and chimpanzee feet during push-off in

bipedal walking. At midstance, the plantar surface of the foot is flat on the ground in both species. This posture is referred to as 'plantigrady.' Subsequently, the longitudinal arch helps convert the human foot into a stiff lever, allowing the heel and midfoot to be lifted off the ground simultaneously during push-off. In chimpanzees, the midfoot briefly maintains contact with the ground after heel lift owing to dorsiflexion at the mobile midfoot joints. This motion is called the 'midtarsal break' and is indicated by the arrowhead. Modified from Elftman and Manter (Elftman, H. and Manter, J. (1935a) "Chimpanzee and human feet in bipedal walking," American Journal of Physical Anthropology, 20, 69-79.).

The point is to know if Naledi had the same arched midfoot as Homo Sapiens, and hence how far he was engaged in running, and if he had reached long-distance fast bipedal running, a stage in the evolution of Hominins that selected many mutations whose collateral side effect was oral articulated language. At the present level of research, it is impossible to say, though Naledi's foot seems to be only slightly arched.

The long legs must be compared to the full height of the body. But they can imply he is already entering the running stage, bipedal running, that often when trained early, at times very early, produces longer legs and this might not be genetic because it is the result of training, like pianists and their long fingers. This might also apply to the thumbs. That's one thing that has to be clarified in Naledi's lifestyle. Is he a simple walker or is he a runner? This requires some genetic mutations, and at the same time depends on the training the child, and even the infant gets.

The teeth are not specified in real size, and it is going to be the same as the brain. Smaller yes, maybe but multiply them by 2.25, and then look at the thus-obtained EQ size and compare it with Sapiens' teeth. It is standard to analyze dental tartar deposits on teeth to determine the diet of the person. Great advances were made in this field with Neanderthals and some even older Hominins. It is also used for animals. Such an approach might give better data on Naledi's diet.

But now it is time to shift to the second side of Lee Berger's book, i.e., what he considers the cultural elements. What he says is controversial in many university circles. I will neglect this kind of academic approach. It is not because one is the too often self- or peer-proclaimed authority on any subject for one to believe he has and even detains – in detention – the truth on any subject, even the subject this one is supposed to be the master of. Eric Thompson was wrong despite his knighthood. Maya glyphic writing was a syllabary writing system from the very start. Let me quote Lee Berger.

"Homo Naledi buried his dead. […] We discovered a stone shaped like a tool near the hand of a buried Naledi child. Could this be evidence of ritual burial with artifacts […]? We found evidence of fire in several cave locations, including soot on the walls and ceilings, charcoal, burnt animal bones, and piled stones that suggest a hearth. These findings also point to a differential use of spaces, with specific sites used for burials and other spaces used for cooking animals. Most remarkable of all, certain walls in the Dinaledi Chamber and other spaces bear etchings in the rock – lines that could not have been created naturally, and shapes that inexplicably mirror those found in other caves thousands of kilometers away, caves occupied by species of ancient human relatives with larger brain than those of Homo Naledi. […] All these features combine to suggest what anthropologists might define as "culture." (Lee Berger, 2023, p.201)

You must keep in mind that the small-brain argument is very weak when you put the real data of Naledi into the EQ converter. In fact, there does not seem to be any difference at all, or a lot smaller than what Lee Berger implies but never calculates. But the fact that Naledi is short is more intriguing because, apart from Pigmies in Africa (members of any human group whose adult males grow to less than 59 inches (150 cm) in average height, https://www.britannica.com/topic/Pygmy), and Homo Floresiensis in Indonesia [nicknamed the Hobbit, discovered in 2003, lived in Asia (Indonesia), about 100,000-50,000 years ago, height: 106 cm (3 ft 6 in) (estimate from a female skeleton), weight: 30 kg (66 lbs.) (estimate from a female skeleton). Data from https://humanorigins.si.edu/evidence/human-fossils/species/homo-floresiensis], most of the species in the human family are similar in size, or not much different. How can we explain such a mutation (in what Hominin branch of the family tree?) that could produce such a difference in size, and how it could be selected naturally, for what reason, for what objective that makes these small Hominins effective enough to survive and thrive at the very least 100,000 years. But if we

take into account EQ for the brain, then Naledi is human because his brain is really or nearly equivalent in size to that of Homo Sapiens. Then there is no mystery about burying the dead. What is more surprising on this topic is the first burial identified by Lee Berger, extracted as a block (in three pieces) from the site and scanned by various university or hospital laboratories.

They discovered that the main body was a young teenager they called a child, which is not correct for the period when girls and boys were adults as soon as they could procreate, so as soon as puberty was reached (a rule that was still true in the 19th century and that was inscribed in the constitutions of the various states in the USA where the minimum age for marrying a girl was 11 years up to recently, and I would say it should be checked in every state because these constitutions might not have all been updated. The fact is this body had been buried in a space where there were four other bodies buried before and hence archaeologically older. One was "a child even younger than the main skeleton. Another might be older [which means this one was an adult] There might even be a fourth individual in here […] I think I see tiny bones from what might be an extraordinarily young body. […] They might indeed have been the tiny tubular shafts of immature bones." (Lee Berger, 2023, p. 97) The immature bones may imply we have here at best a newborn who was stillborn or died soon after birth, or even the bones of a fetus that was miscarried. Here again, a lot more research is necessary. These very young burials with very young, buried bodies should have brought an important question to the front. Where are the mothers? Where are the Women? Who was responsible for, or at least who participated in the burials and the rituals for children? Did women do that, as it was proved with cave paintings (around 45,000 BCE or closer to our era) that women or females were 75% of the handprints on the walls, revealing the strong power of women in the spiritual field, and that could only explain the fact that women were the providers of survival to the species and the community. This very first burial goes that way and should have opened the discussion of the role of women in this community, the spiritual role as much as the procreative role, at least as a question.

The elements given by Lee Berger on the oldest burials among Hominins are simply what we have found and have recorded as being burials. But one does not find what one does not look for. We may have missed many signs, just the way Lee Berger had to stop the digging of his team before they dug out the whole burial space and volume, he suspected to be a burial. He ordered the whole section to be extracted and saved, which made it difficult to retrieve the three pieces of it on the surface to send them to the various labs that could do the scanning without destroying the artifact. On page 78, he writes "The oldest certain instances of burial date back about 100,000 years, and the archaeological record of humans does not reveal any common-place mortuary practices until 35,000 years ago." But on page 92, he writes "[…] burials […] the oldest clear cases were found in Israel: They're believed to be between 120,000 and 90,000 years old. In Africa, the oldest human burial is an 80,000-year-old skeleton, a child, found in the Panga ya Saidi cave in coastal Kenya. […] The best evidence of buried Neanderthal individuals comes from fairly late in their existence – far less than 100,000 years ago." (Lee Berger, 2023, p. 78 & 92) You can see there is a contradiction in the oldest date, and there is a fuzzy dating for Neanderthals. The real question here is to know why Naledi was what seems to be precocious by at least 150,000 years, probably more due to the three bodies on top of which the most recent one was buried.

The stone, shaped as a tool, is a weak argument when you look at the stone. It is shaped like a tool and as such was picked and used as a tool, but it was not worked upon apart from a divot confirmed by the two scans the block containing it was submitted to.

Fire is a lot more interesting. Fire was confirmed in the site in several places and with various intensities, including what Lee Berger identifies as a cooking area. Once again, the argument of the small brain is very weak against the facts the teams of cavers have brought back up concerning the use of fire, some places being used as hearths with residual ashes and charcoal, and one used as a cooking area. Even if it is too early for some academic minds, these are facts nevertheless and notwithstanding. We have to push back the limits of things constantly. I will not speak of the time when writing was taken as the beginning of humanity – true enough reduced to "history" in a very narrow meaning – hence 3,500 BCE. All the rest before was simply attributed to some strangers from outside, meaning at times some Extraterrestrials. Then we had the cultural, or modern-man, or Sapiens-Sapiens revolution that was set in 45,000 BCE. Then (ten years ago) that cultural revolution was pushed to 75-70,000 BCE. Yuval Noah Harari tried to play God with *Homo Deus* (2015) and pushed this date a little bit more. But over the last ten years, I have seen that date going back first to 100,000 BCE, then to 200,000 BCE, then 250,000 BCE

and now we reach 300,000 or more. As a linguist working on the phylogeny of the languages that emerged in Black Africa at least 300,000 years ago, if not more, I can estimate the time needed for the human mind to devise and dominate each of the three articulations of articulated language. The question with Naledi is that the dates suggested for their time of existence make them more advanced in vocal language than generally accepted for Homo Sapiens, even by linguistic phylogenists like me.

It is now time to consider the carved inscriptions on the site, particularly on three walls of the Dinaledi Chamber, the main burial chamber of the Naledis. That's the main topic of my next chapter or topic, the shift from oral language to written language, but there are some specific elements here that have to be considered now.

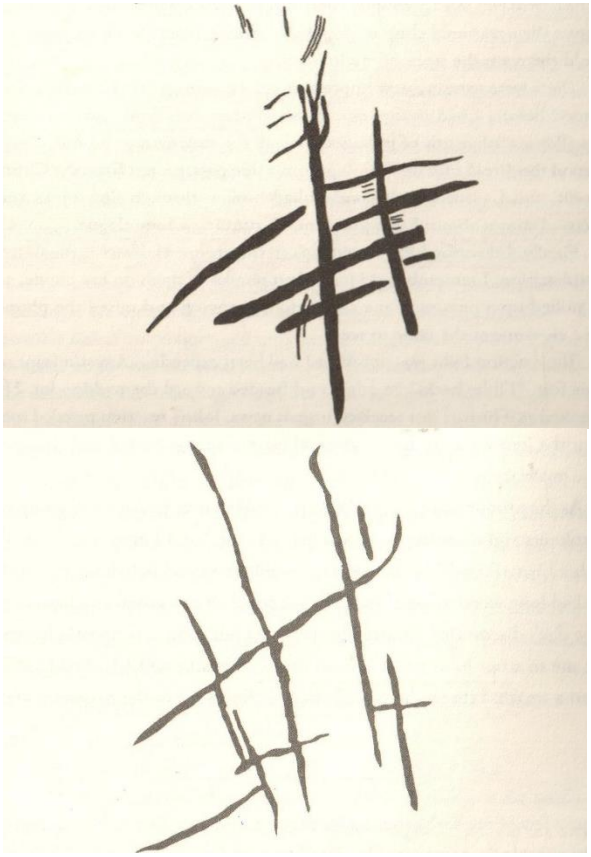


Figure 7: Tracings of the Dinaledi Cave in South Africa (left) and Neanderthal Gorham Cave in Gibraltar (right) engravings show how strikingly similar they are (Lee Berger, 2023, p. 183)

These etchings, or carvings, are in the deepest chamber (mostly seen as a burial chamber) for most of them, and that means there was no natural light. Light could only be brought up as torches. This brings up a question that Lee Berger does not ask. What is the volume of these chambers, and hence their quantity of oxygen? If you use torches you use a lot of oxygen that has to be added to the one used for breathing. These chambers, even if they have some natural ventilation (question to be answered), have enough oxygen for a certain number of hours/persons, and there must be a moment when the level of oxygen is low, producing some mental and psychological reactions, like hallucinations that will be identified as inspiration or contact with the other side of the wall, with death and the dead. This is common to many civilizations and has been noticed, or even calculated, with the painting in some deep cul-de-sacs in the European caves. That was practiced, and at times still is, in some older cultures or some torturing chambers: when prisoners only get 10% of the oxygen they need to survive, they become weak and then they speak. Such calculations have to be performed so that we can know the maximum capacity of these chambers as to people who can live there, and fire that can be ignited there. Then we can understand the etchings can be read with your fingers, and Lee Berger on page 168 alludes to such

touching: "Another area looked almost greasy, as if organic material or some other shiny material had been spread over the surface, or as if it had been smoothed by the touching of hundreds of hands, like the shine that develops on the nose of a statue rubbed by believers as they pass by." (Lee Berger, 2023, p. 168) We could speak here of patina. Touching is the easiest way to read any inscription if you have no light. That means the inscription has to be simple and use easily understandable figures, for example. "[…] Geometric shapes: triangles, hatch marks, crosses, and squares. Other carvings resemble ladders, horizontal lines crossing triangles that make something like the letter A, and even a fish with an X slashed through its inside. " (Lee Berger, 2023, p.201-202)

Instead of using comparisons, "like the letter A" or "even, a fish with an X," the questions that should be asked are of two sorts. First, it is clear the people who painstakingly produced these inscriptions wanted to say something, and they said it while they were working, and visitors or people paying their respects to the dead buried there said these ritualistic things, at times touching the inscription, following the lines, like a blind person would do, but there is darkness all around and torches must have been limited, just to keep the air breathable. That's the first line of questioning: the passage from some oral ritualistic formula to an etching that directly symbolizes this oral ritualistic formula. More later. The second is about the nature and origin of the inscriptions, hence their meaning: basic lines and geometric figures. The question of entoptics is essential here, and that would explain why we can find the same type of carved inscriptions in other places long before writing, long before Sapiens even, or at least the Sapiens of the European or Indonesian caves (among others). Genevieve von Petzinger alludes to entoptic phenomena for the same markings in paleolithic cave paintings. These phenomena are considered as if they reflect the architecture of the sensorial system, the nervous system, and the brain itself. And then they can be universal. That is by the way a sign that Naledi is more human than some are willing to consider.

The last remark here has to do with the level of language these Naledi people had. They had reached a certain level of conceptualization, or abstraction, enabling them to devise symbols of what they have in mind, what they might actually have said since these engravings are the proof this Hominin is a communicating species, and this level can only be reached in the mind via the phylogeny of language. The first articulation (the rotation of vowels and consonants) produces a great number of vocal clusters, and these are then associated with items identified by the brain in brain-machine-code, and they become their names. This leads to the first steps towards conceptualization. And this first step implies the capability to symbolize, hence the symbolical power of Naledi.

But we know some mutations are necessary for this first articulation of language to become possible, and these mutations are essentially due to the long-distance bipedal fast running of Homo Sapiens: low larynx, restructuring and innervation of the glottis and subglottal area, the shape of the articulatory apparatus (jaws, lips, and tongue). All that is necessary for Sapiens' running. We have to wonder if the long-distance walking of pre-Sapiens Hominins might have started the larynx mutation, hence the rotation of vowels and consonants. Naledi incites us to think so since he went beyond this first level of linguistic phylogenetic stage and reached some kind of symbolizing power that enabled him to produce symbolical etchings for the ritualistic formula that may include the names of the buried, to establish contact with these dead people, thus buried in the ground and called for on the wall, from behind the wall, as some archaeologists and anthropologists shifting the Shaman concept from some primeval cultures in the present world to Palaeolithic rituals and supernatural visions. But this was not considered by Lee Berger. He should have gotten into shamanism and the work of David Lewis-Willilams and Jean Clottes. [Jean Clottes & David Lewis-Williams, ***The Shamans of Prehistory, Trance, and Magic in the Painted Caves***, Harry N. Abrams, 1998, ISBN 0810941821 (ISBN13: 9780810941823)]

But in this first section of this presentation, we have been entirely restricted to, and Lee Berger is practically locked up in the single case of Homo Naledi. But the world is no longer living on the myth there is only one civilization because the world is either civilized or not civilized. That was the myth of the Enlightenment and the founding myth of colonialization. We have reached today a completely different world thanks to globalization and the enormous movements of population that have been going on since the end of colonialism (except for the Transatlantic slave trade, and we must not forget the Indian Ocean slave trade to provide the Mediterranean empires and the Middle East with slaves from Africa starting long before the Christian Era, and that was still active at the beginning of the 20th century)

that was slow to come through starting with the American Revolution in 1786 for the USA that caused the enormous flow of immigration to the American Dream. In Europe, we have to go through the attempts to colonialize the European continent under Napoléon Bonaparte (it failed), then Bismarck (it failed), at the same time on the Russian side under the Czars and the USSR (it partially succeeded for a long time but failed at the end of the 20th century), and closer to us with Adolf Hitler (it failed again). At the same time, Europe (mainly the French, the English or British, the Dutch, the Germans, and the Italians) tried to colonize the whole world, particularly the Americas, Africa, Asia, and the South Pacific from Southeast Asia to New Zealand and even beyond, in order to spread Civilization with a capital "C" which was, in fact, only Christian civilization that was a whole palette of various denominations, some of them highly hostile to others but all agreeing on their hostility to Islam. And it failed in America with the independence of the USA though it was the triumph of the European Christians, mostly Protestants, and it failed again with the rest of the Americas that got their independence, country after country, from Spain, Portugal, and France with the sole exception of Canada that remained English with the contained if not locked-up French-speaking Quebec. Russia failed in America too with Alaska when they sold it to the US on March 30, 1867.

I suggested, in this presentation now and then, some explanations that tried to open up the ethnoscape of Homo Naledi, or at least of the researchers who are trying to recapture Homo Naledi. I did not insist too much and remained more or less centered on Homo Naledi. Now, it is time to open up the vision and perspective. We have just reached the point when Homo Naledi managed to shift from an oral language we do not know to some symbolical inscriptions representing some probably ritualistic phrases/formulas, definitely, some text engraved into the rock of these underground burial chambers. Then we have to consider the mental level of these people who extended (Marshall McLuhan's concept, *Understanding Media: The Extensions of Man*, 1964-1994) their oral language into something that has to be called a written form of it. Speaking of language, we do not speak of only one case, and we cannot remain locked up in it. We have to move to a wider questioning of the phylogeny of language. It's here we meet the rich approach of Arjun, Appadurai and his use of the concept of disjuncture/disjunction that he shifts from cytology (the separation of the chromosomes of each homologous pair during the anaphase of meiosis) to sociology, jumping over the logical meaning of the word. His first point is precisely this concept: "The new global cultural economy has to be understood as a complex, overlapping, disjunctive order." (Appadurai, A. (1990). "Disjuncture and Difference in the Global Cultural Economy," in *Theory, Culture & Society*, *7*(2-3), 295-310, page 296) doi.org/10.1177/026327690007002017. Disjuncture is the fact that under globalization that could be seen as unitary, and even homogenizing, we have a multiplying reality of entities that claim their identity and refuse to remain under the rule of nations and states. In linguistics, we have the language competence of Homo Sapiens, but this competence covers an enormous number of different languages and in each language a great number of dialects. The language of Homo Naledi was one instance of the realization of this language competence, but it realizes only one particular language (we assume all Naledis spoke one language that enabled them to communicate among themselves). We have absolutely no way to identify or describe this language, but we can describe the phylogeny of the language competence, knowing that to jump from oral to written forms, the Hominins concerned have to have developed their mind enough to initiate, develop and master the symbolical power of this mind that enables them to shift from purely oral sounds to purely visual engravings.

This being said, we can now get into the second topic of this paper, the passage from oral language to written language.

3./ LANGUAGE AND THE EMERGENCE OF SYMBOLICAL SIGNS AND WRITING

This second part of this paper will be based on a recent book, very recently published in English: Silvia Ferrara, translation Todd Portnowitz, *The Greatest Invention, A History of the World in Nine Mysterious Scripts*, Farrar, Straus, & Giroux, New York, NY, 2022. This article is not a review of the book because I have already published a full review in another journal. (Coulardeau, Jacques, "300,000 (at least) Years for Homo Sapiens to Develop Writing: A Review of Silvia Ferrara's The Greatest Invention, Tr. Todd Portnowitz," in Psychology Research, October 2023, Vol. 13, No. 10, 443-468 doi:10.17265/2159-5542/2023.10.001, David Publishing Company, Wilmington DE 19804, USA.) This

second part is simply going to show what Lee Berger misses when he does not take into account the phylogeny of language. In fact, he misses, in his own way, about the same thing as Silvia Ferrara.

The question is, How can a Hominin who is in the process of developing a mind, a language, and symbolic power shift from oral language to some type of writing?

All animals that have eyes are able to discriminate objects, beings, and artifacts in the world around them. It is vital for bees since that enables them to find the pollen they need and to communicate to their fellow bees what they have found and how to get there by dancing the information with spatial directions articulated in the dancing on the sun. All animals remember the items they discriminate because their brains, no matter how small or big, have this simple power to attach to each discriminated item a brain-machine-code identity. They can remember and, hence recognize these tagged items. They don't speak, so they cannot attach to these brain-machine-code identities a name. But you can observe animals around you, wild, tamed, or even domesticated. They can express a lot of things with body language and some calls, and this body language can cover a great number of facial expressions, and these calls can be any calls used by birds. All spring and summer, in my gardens, when I was working, a blackbird was attracted of course by the worms and other goodies in the soil I was turning over, but he (the male is quite different from the female) took some time to check if he could trust me. For a while, he only came a few meters away from me. But he used a call that was easy to reproduce. So, I whistled the call and he answered and little by little he came as close as half a meter from me. Then the summer went through and now I am back into the garden to work the soil for the winter. And here he is coming close, very close, and he does not even use the call he had used all spring and summer. That's why a bull is never sent to a bullfight arena twice. Once and only once, because the bull learns what the torero is doing, and the second time the bull would be very swift…, and dangerous.

So, all Hominins, like all animals, do this and they get a store of brain-machine-code tags attached to all sorts of items with even some varying qualities: dangerous, friendly, indifferent, etc. But then we can wonder the kind of calls they can produce. What we know is that to be able to develop, produce, and use human articulated language, Homo Sapiens has to be able to produce at least 5 or 6 vowels, in fact often more, and 20-25 consonants, in fact often more too. To be able to do this Homo Sapiens went through various mutations that lowered his larynx, restructured and increased the innervation of the subglottal area, and completely remodeled the articulatory apparatus, jaws, teeth, tongue, and lips, with an increased innervation there too. But the most surprising element is that these mutations had to be selected and they were selected because they gave the individuals a more effective and productive power concerning one essential activity. Homo Sapiens, like most Hominins if not all, is a hunter and as such he has to be able to run, and when he left the forest where he had to climb into the trees to rest, for protection, and to escape some dangers, in order to get out into the savanna, he had to change his lifestyle and his hunting technique. He shifted from trapping or ambushing animals to running them down. The preys were a lot more interesting, but they could run fast at times, but not forever. Homo Sapiens invented a relay-running technique that exhausted the animal in a few hours and then they could kill it. That required good planning after a lot of observation to be able to send and position three or more hunters along the route the animal was going to take when the hunt started. Each hunter was supposed to run the animal over ten or twelve kilometers when a second hunter could relay him, and so on with four or five hunters. When the animal had been chased like that over fifty or sixty kilometers, it was easy to get it down. The first question is, could Hominins perform such a long-distance fast bipedal race because it was a race? The foot of Homo Sapiens changed completely and became perfectly adapted to this type of running. With training and time, Homo Sapiens on his new feet had to go through other mutations without which his brand-new feet were useless. He had to develop a deep larynx which was the pump of deep breathing, with the diaphragm as the lever activating this pump. He had to restructure his glottis and subglottal area to prevent any accidents since the throat was both for breathing and for swallowing. Then he had to change his articulatory apparatus to enable the runner to breathe in and breathe out big quantities of air to feed the larynx and the lungs. Then the heart went on with what it was designed for but with more air, more oxygen coming in, and more air, more carbon dioxide going out, and this blood carrying more oxygen irrigated the brain and the body for this high level of effort. It so happens that these mutations produced all the necessary elements needed to produce a good number of vowels and a great number of consonants. Collateral side-effect.

Hominids like monkeys and apes have calls and their calls articulate vowels on consonants on the simple pattern Consonant-Vowel-Consonant. But three is the maximum number of vowels and five is the maximum number of consonants. With these means Homo Sapiens would produce at least 125 CVC clusters. Monkeys have five, six, or maybe seven such clusters. They are missing one thing: the rotation of vowels and consonants. If some monkeys have the cluster BOOM (phonetic transcription) they could produce MOOB, but they don't. Since they have two other vowels /a/ and /i/, they could produce BAM or BIM, but they don't. Note BOOM is an attention-attracting call, generally doubled up, and with strength and intonation to mean the urgency of the call and the danger. and then they add a danger alarm call, one for "eagle" and another for "lion."

A full study has to be done on the larynx, the subglottal area, and the articulatory apparatus of all Hominins to show the evolution of these three elements, and I insist here that the Hyoid bone is not enough for human articulated language, for the simple reason that horses have such a bone and they do not have any articulated language.

You can see then what we do not have about Homo Naledi.

But the main point here is that with the vowels and consonants I am speaking of, 5-6 vowels and 20-25 consonants, we are speaking of thousands of CVC clusters so that Homo Sapiens can attach such clusters to every brain-machine-code tag, and thus give names to all sorts of items. The rotation of vowels and consonants enables Homo Sapiens to develop a real lexicon. This lexicon is an enormous box in which every purely oral, vocal cluster is a symbol attached to a (more or less) material item around Homo Sapiens. Homo Sapiens can start communicating and Homo Sapiens has stepped on the road to symbolism, and this new dimension is indispensable to be able to go on emerging from animalhood or animality, if we consider language is an essential element to be human. We have to understand that the brain is not doing that by itself or alone because it goes beyond pure mechanisms. The brain is a machine, and it needs the mind to be able to get into abstract thinking, and the mind can only develop if it has the tools of this abstract thinking or communication. And that's articulated language. Without going beyond this first (out of three) articulation, we can see that the six operations of the diagram below are made possible and are contained in this first articulation, in this rotation of vowels and consonants in this language that is purely oral, and vocal. This symbolism develops as soon as Homo Sapiens names animals, plants, items, or artifacts.

Figure 9: The six steps of the emergence and development of articulated language and symbolism leading to the extension of oral language to written language.

Conceptualization is fundamental and the best approach I know is by Lev Vygotsky in his book *Thought and Language*, the full edition of course, because the first one published by MIT was really a selection of a few pages. The second edition published by the same MIT was a little more important, with a few nearly full chapters. The first Western full edition was the one in French published by Éditions Sociales, Paris, introduced by Lucien Sève and translated by Françoise Sève under the title *Pensée et Langage*, (1985). It takes about 18 years for a normal Homo Sapiens to reach the conceptual power necessary to apprehend the most complex concepts of philosophy or mathematics.

Then, the mind will try to make these words and what they refer to visible, like with gestures and body language (and this is still widely done by humans), hence representing them with what we call art, like in the caves all over the world going back to 45,000 BCE (at least). Homo Sapiens had used such representational and non-representational graphs, drawings, or glyphs on nondurable media long before, but we will never know. And that's where Homo Naledi is more than a simple disjuncture because the carvings we are speaking of are representations of the words used behind the ritual, or for the simple mark of respect of the living visitor(s) to the dead. It is obviously symbolic because it has no simple resemblance with the sounds of the words or phrases used by the visitor(s). It is obviously a shift from a vocal oral utterance to a non-representational hence symbolic visual "equivalent." And all the figures, geometric or not found in the main burial chamber are the same type of symbolic inscriptions. A triangle is not a triangle: a figure carved into the stone that has the shape of what we call a triangle today probably corresponding to a vocal cluster or a name and we will never know.

But imagine the disjuncture brought to me, to my mind by this absolutely obvious presence of a symbolical inscription around 300- 250,000 BCE, hence something like 200,000 years before the first inscriptions of the type in the European and Indonesian caves. Remember it implies Homo Naledi has the symbolic power necessary for this inscription and that this symbolic power could only be developed by the phylogeny of language. Homo Naledi had to have some form of articulated language around 300,000 BCE.

The question that comes up next is what level of articulated language, and the same question comes up for Neanderthals who did the same thing in Gibraltar, long before Homo Sapiens in his caves in Europe and Indonesia. What level of articulated language did Neanderthals have to be able to produce such an engraving as the one in Gorham Cave? And we must keep in mind that beads also require a certain level of symbolic power. The oldest beads were found in Morocco and were dated as going back to 300,000 BCE. And there we are with this date again when Homo Naledi was inscribing his hashtags or geometric figures in the Dinaledi burial chamber.

By being retrospective, by using reverse engineering, we block the timeline of the phylogeny of the world to 15,000 years or so before the most ancient element or artifact that we can touch with our hands and see with our eyes. But phylogeny considers other elements like physiology, DNA, and genetic evolution, and with these, we can go back several hundred thousand years, not the miserable 15,000 years before the oldest archaeological artifact that was actually retrieved from the past. Homo Sapiens foot is the real fact we should use here to consider that then, Homo Sapiens was starting to reach articulated language, because by then he was developing the mutations that would produce, and so on… but you know what comes next here. Then the oldest cuneiform tablets carrying the Sumerian writing system are dated most of the time as coming from 3,500 BCE, or even 6,000 BCE if we consider the oldest tablets with cuneiform symbols found in Romania. Then, we cannot go back beyond the peak of the Ice Age: 19,000 BCE as the top peak, and 24,000-14,000, if we consider the period when the cold was maximum.

This is what is missing in Silvia Ferrara's book. She knows that the people who left behind some unknown writing system of some unknown language were not primitive in any way, but primeval in all possible ways. If they devised a writing system for their language, it's because they had reached a high level of symbolism and that was only possible because of their language and their mind. The writing system is the extension of oral language, and it is in no way completely cut from the oral language at all. That's why Cuneiforms had to be Sumerian and not Akkadian because Cuneiforms have four vowels and Akkadian being a Semitic language only has one and when it is at the initial of a word, "alep." Moreover, these four Sumerian vowels were all basic words counting only one vowel, which is by principle impossible in Semitic languages. When the Phoenicians devised their alphabet, it was absolutely adapted to their Semitic language and only had one vowel, "alep," that looked like a bull ready to attack with his two horns. The Greeks added the other vowels of Indo-European languages and they put that poor "alep" upside down, standing on its horns, and the lower-case letter had its horns turned right whereas the old Egyptian hieroglyph was a bull's head turned to the left

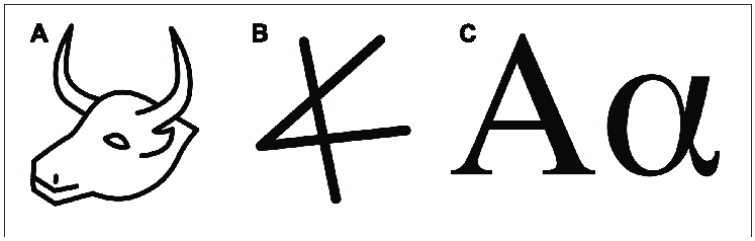


Figure 10: (A) Egyptian hieroglyph representing a bull-head, (B) Phoenician glottal stop [ij], the first letter of the Phoenician alphabet, (C) The first letter of the Greek alphabet: Alpha [a]-(as a capital and as a lowercase letter).

I say here there is a link between the writing system and the script. Cuneiforms are linked to Sumerian by the stylus used, long before a writing system was developed, to "write down" the quantities and nature of the sold or bought goods, since Sumerians were traveling merchants. True enough, the writing system is slightly complicated, but the connection with the language is quite clear, a connection with the main activity carried out in this language by merchants. It, by the way, shows that the market economy is not what some believe, a devilish recent invention of capitalism. It existed long before capitalism and it brought up, and is still bringing up, tremendous inventions and developments, even if we can consider the "fetishism of the consumer" proposed by Arjun Appadurai (1990, p. 307). The fetishized

consumer of the consumer's society is a puppet manipulated with strings and rods by advertisers and the media, and we can here welcome Baudrillard's concept of "simulacrum" ("Simulacra and Simulations," from Jean Baudrillard, Selected Writings, ed. Mark Poster (Stanford; Stanford University Press, 1988, pp.166-184.) that implies the simulacrum is true and its truth is that it hides a lack of truth or even reality behind its bashful loincloth of commercial hypocrisy. Is anyone really free in this system of modern market economy? And yet it is this market economy that brought up smartphones, e-commerce, targeted advertising, and Artificial Intelligence. Who is free in a system where commerce is dominated in the world by just a few consortiums like Amazon or Alibaba? I discovered the frenzied shopping season starting with Black Friday after Thanksgiving, in the USA in 1969. Alibaba has gone beyond whatever the Americans can dream of along this line with 11/11.

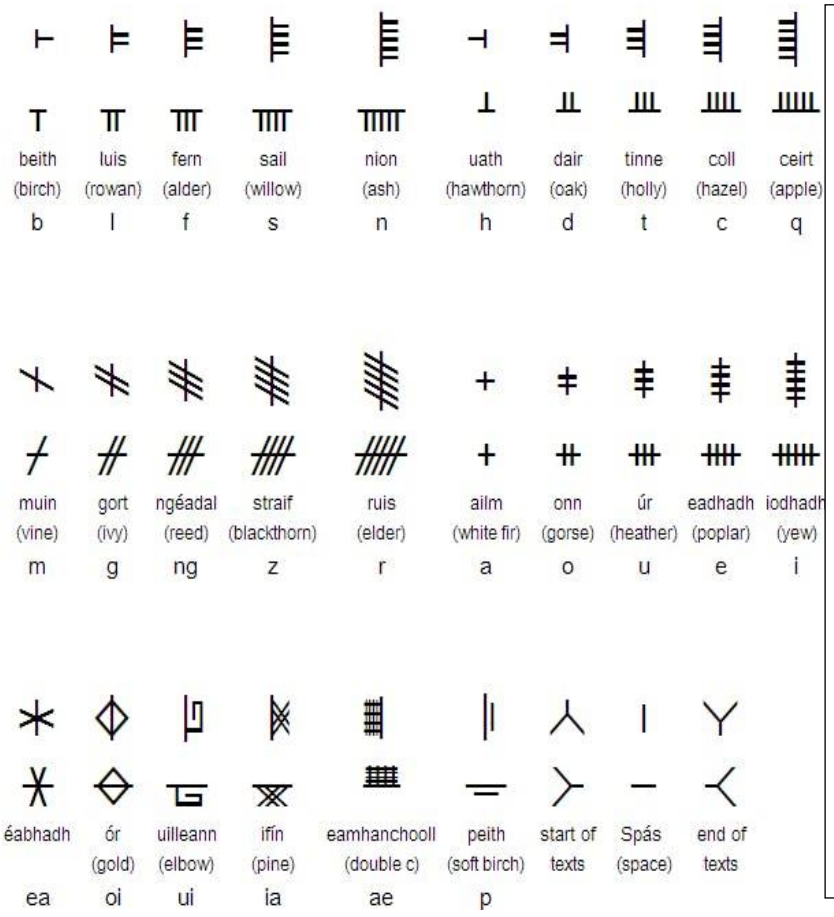


Figure 11: Each letter is associated with a tree, mostly one that starts with the sound the letter represents. The "B" sound, for example is called "Beithe," or birch tree. Note the last line was added by the Benedictines when they arrived in Ireland because they did not like double letters for those vocalic diphthongs, and the tree pattern was lost both with the word behind and with the abandoned treelike design of all other original characters with a trunk and branches (from and after https://www.myirishjeweler.com/blog/ogham-the-ancient-irish-tree-alphabet/)

The case of the Irish Ogham alphabet also called the Tree alphabet because each letter is the first sound of the name of a tree, and the twenty trees necessary for this alphabet, at the time of its development, were growing within a small perimeter in the Rhine Valley around what is Stuttgart today.

The case of the Runes, quoted by Silvia Ferrara is also interesting: Anglo-Saxon runes (ᚠᚢᚦᚠᚱ-Futhorc-Fuþorc). They are an extended version of Elder Futhark consisting of between 26 and 33 letters. It is thought that they were used to write Old English / Anglo-Saxon and Old Frisian from about the 5th century AD. They were used in England until the 10th or 11th centuries, though after the 9th century, they were mainly used in manuscripts and were of interest to antiquarians, and their use ceased after the Norman conquest in 1066.

It is possible that this alphabet was developed in Frisia and then adopted in England, or that it developed in England and then spread back to Frisia.

From the 7th century, the Latin alphabet began to replace these runes, though some runes continued to appear in Latin texts representing whole words, and the Latin alphabet was extended with the runic letters þorn and wynn.

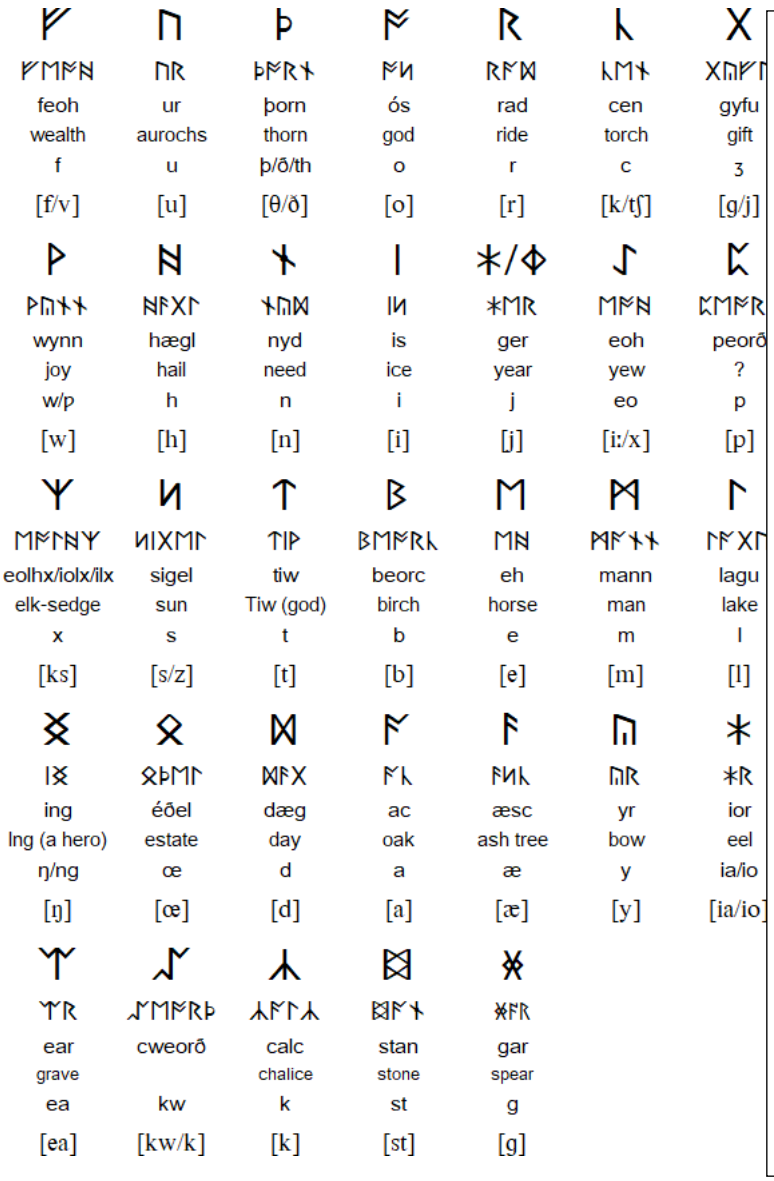


Figure 12: **Anglo-Saxon runes (Futhorc/Fuþorc)**It is the same principle as before: the letter is named after a word whose first sound gives the sound of the letter. No unified or semi-unified semantic field for the words. Some trees, some animals, some activities, some artifacts. We can note some possible, if not maybe probable, borrowing from other existing alphabets like "beorc" that is very similar to the capital Latin letter B. some are purely symbolical, like "tiw" for "God" seen as an arrow pointing to the sky that could very easily express the residence of this god or the elevation it i:mplies for us to contemplate this god, look up and receive. The letter concerned [t] is the initial of the Indo-European root behind "deo," "deus," or even the root "theo." In fact, this alphabet is descriptive of the surrounding world of the Germanic tribes concerned by this alphabet, essentially Anglo-Saxon and Frisian.
1- The Runic character.
2- The name of the letter in runes.
3- The translation in English.
4- The Latin letter
5- The phonetic value.
From and after https://www.omniglot.com/writing/futhorc.htm

In fact, the influence of the Benedictines, and the Christianization they brought made this Runic alphabet be replaced by the Old English alphabet. You can note that some letters are missing as compared to the modern English alphabet: /J/, /K/, /Q/, //V/, /Z/. At the same time, some letters are present and will disappear in the modern English alphabet: /Æ/, /Ð/, /þ/, respectively named "ash" kept from the Futhorc Runes, "eth" which is the standard reading of a letter by adding an /e/ vocalic sound before or after the consonant, and "thorn" kept from the Futhorc Runes. More interesting is the evolution in the number of letters from thirty-three Futhorc Runes to twenty-four Latin letters, and from ten Futhorc vowels to six Latin vowels plus /Y/ which is a semi-consonant or semi-vowel.

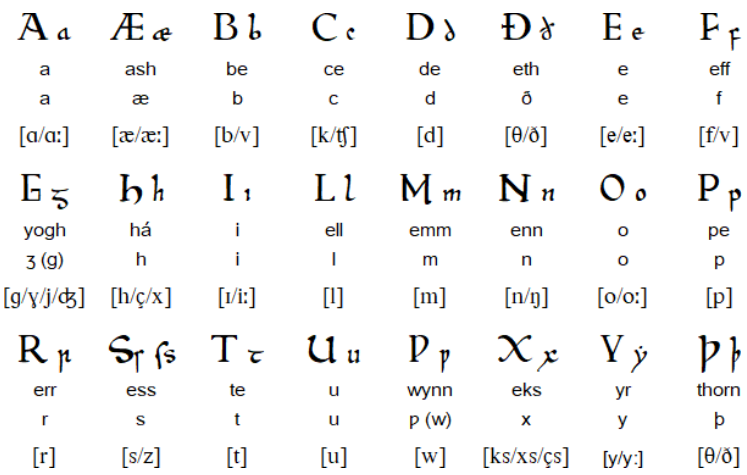


Figure 13: Old English Latin alphabet

The three cases I have given here show how the alphabet of a language is entirely dependent on

1- the language itself (the vowels and consonants actually used in the language).
2- the geopolitical environment.
3- the various heritages or traditions in the population or populations concerned.

The shift from the Futhorc alphabet to the Latin Old English alphabet was triggered by the Christianization of the Anglo-Saxons in England by the Benedictine monks and others using Latin as their basic language and translating the Latin texts into the local language, on one hand. The first known translation of any part of the Bible, The Gospel of John, into the local Anglo-Saxon dialect used at the time (English will come later) was made by the Venerable Bede in the early 700s. As far as anyone knows, it no longer exists.

Then, the evolution of the language toward Old English was due to the invasion and conquest of England by the French-speaking Normans. But such historical or cultural elements are the continuation of the initial argument that the symbolical power of Homo Sapiens comes from language itself, in fact, the development of articulated language in the mind, by the mind, and along with the mind of Homo Sapiens.

The evolution of alphabets is also the result of the evolution of the symbolical power of Homo Sapiens in a particular geopolitical and sociodemographic situation. That leads to a restriction on the number of letters because some conventions are devised and applied that merge several sounds under one letter. Another influence is the order of the letters which is dictated in the alphabet of European languages by the order of these letters in Greek and Latin, this order itself is based on the order of the letters in the Phoenician alphabet. If you consider a non-European, language, you can have some surprises because the order is essentially arbitrary, meaning it has been dictated by cultural elements at the time of the development of the writing system, and later on of various lexicons and dictionaries.

I will take one example, Pāli, an Indo-Aryan language devised from various Indo-Aryan languages in India, often called Prakrits (any of the ancient or medieval vernacular dialects of northern and central India that existed alongside or were derived from Sanskrit), and Sanskrit (Sanskrit is the matrix of all or most languages in India) to transcribe Buddha's preaching for safe-keeping and missionary predication. I choose this language because it does not have a script of its own, but any other script can be used and the Latin, or Roman, transliteration has been standardized by the Pāli Text Society and Thomas William Rhys-Davids who wrote the standard *Pāli-English Dictionary* (1921-1925). Here is the alphabet used in this language and the dictionary. It has eight vowels and thirty-three consonants, in the following order:

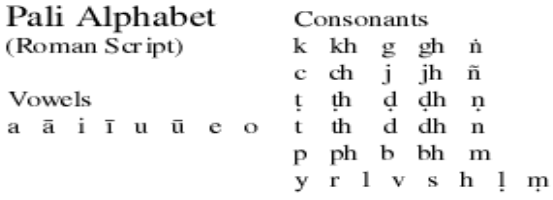


Figure 14: Roman Pāli alphabet in Rhys-Davids' Pāli-English Dictionary

It would be absurd to try to cast French or German in this alphabetic matrix. Writing is absolutely dependent on the community in which it develops, and that is true too of the emerging of language, and later on (a very long time later), the shift from oral to written language, text, or discourse, with first purely symbolic signs often based on some representational elements, and little by little a shift to phonological symbols, most of them arbitrary but within a general concept, matrix, mental matrix that reflects the symbolical and conceptual mental reality of the community concerned. The use of the Latin alphabet, vastly expanded to cover many languages [which is one more element that marks the connection between a writing system and the language it was devised for], is a necessity for various written communicational activities, among others teaching or learning foreign languages. Pāli and other Indo-Aryan languages did not invent the alphabet, but they borrowed it from the Sanskrit matrix that – let's say – devised it from the necessity to write down the Vedas, this cultural monument of this Indo-Aryan civilization. Omnigl:ot.com has a rich presentation of the alphabetic question in Sanskrit. The presentation is in four parts: Vowels and Vowel Diacritics, Consonants, Conjuncts, and Numerals. I only retain the vowels (and their diacritics) and the Consonants. The whole alphabet is available at https://www.omniglot.com/writing/sanskrit.htm.

Figure 15 : The Sanskrit Alphabet, first the sixteen vowels and the sixteen vowel diacritics, second consonants. In a fully alphabet-based writing system, vowels and consonants have the same visual status (g, k, a, e, o, etc.); whereas in Devanāgarī script, the consonant (or a conjunct of multiple two or more consonants combined) is made prominent, while vowels are added by diacritical marks (ka क = consonant, and ke के is consonant 'ka' and vowel 'e,' making 'ke'). Thus, we have ka (क), ki (कि), ku (कु), ke (के), kai (कै), ko (को), kau (कौ), etc. A consonant with no vowel is marked with a stroke beneath it, like this: क्.

Again, the vowel /a/ is assumed in the base form of all consonants but is dropped when a new vowel diacritical mark is added. The vowels are written in their own form as unique letters when they are not preceded by a consonant, such as at the beginning of a word. The consonants are normally in the following phonological order:

1. guttural, 2. Palatal, 3. Retroflex, 4. Dental, 5. labial

We must keep in mind Panini was the grammarian, we would say linguist today, of Sanskrit (6^{th}-5^{th} centuries BCE), which explains the very high level of linguistic understanding of Sanskrit. (Panini, 2019) Note Panini lived in the same period as the Buddha, Siddhartha Gautama.

Note the international phonetic alphabet is normally universal and phonetic symbols are commonly used in dictionaries.

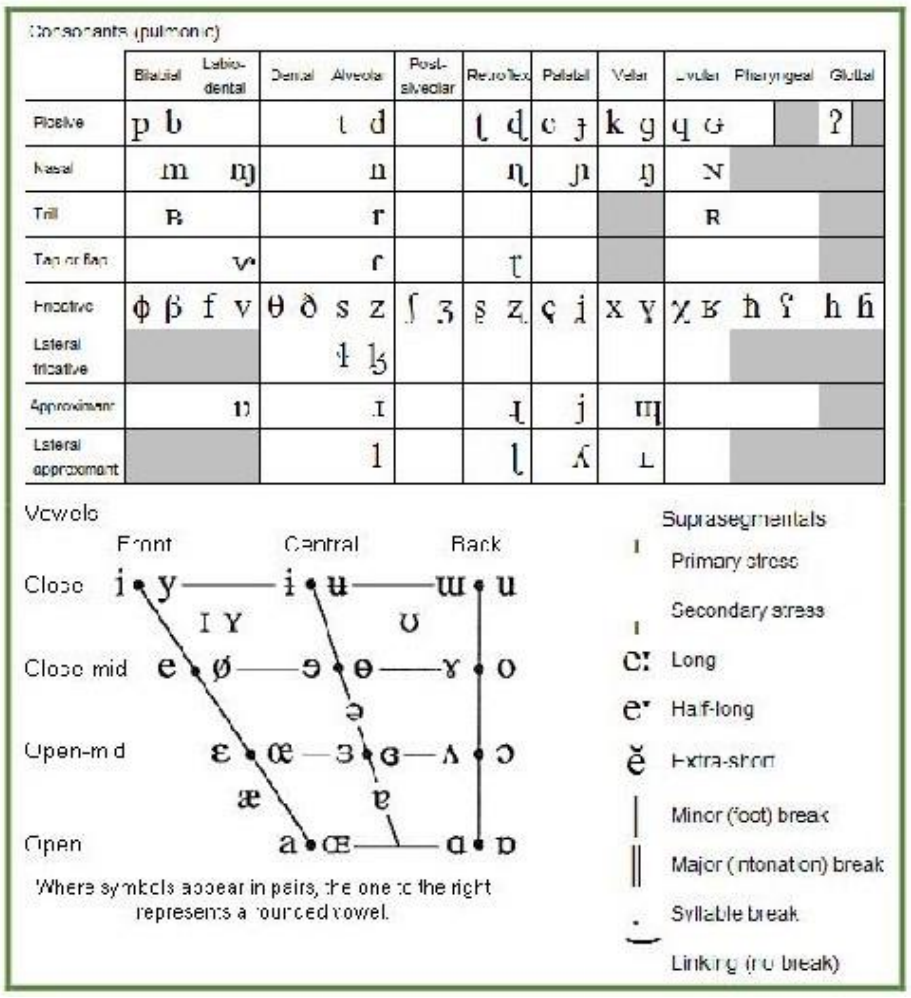


Figure 16: the International Phonetic Alphabet. Concerning consonants, where symbols appear in pairs, the one on the right represents a voiced consonant, while the one on the left is unvoiced. Shaded areas denote articulations judged to be impossible. I have cut off the non-pulmonic consonants, other symbols, diacritics, tones, and word accents. Note, those elements are highly cultural and local-dependent.

Silvia Ferrara is centering her interest on deciphering unknown scripts of unknown languages, which is absolutely original, but the phylogeny that produced the unknown language on the one hand, and the unknown script on the other hand, is the same as for all other languages, at least basically. The oral language in its emerging develops the mind that develops on its own the oral language we consider, and this simultaneous emergence of the mind and oral language enables the symbolic power of Homo Sapiens to emerge and develop on its own side, and probably, though in a varying limited way, of Hominins, some or all of them. This symbolic power enables “words” or rather “articulated clusters of vowels and consonants” to be attached to and to designate various items, artifacts, beings, plants, or whatever Hominins discriminate in their environment. It is the same symbolic power that will enable Hominins to visualize this designation with body language, intonation, onomatopoeias, etc., and then with representational images and non-representational symbols, or vice versa for the order of these last two elements. Writing is the result of this last stage in the symbolical power of Homo Sapiens and Hominins as to the shift from oral to visual linguistic expression. If we followed Silvia Ferrara who refuses to see the continuity, we would then come to the idea that changing the spelling, the writing, and other visual aspects of a language is arbitrary and non-motivated. Changing the spelling of words is typical of French at the present moment, managed by the French Academy in this case, but it follows a logic that what they call “inclusive spelling” breaks. The French Academy has not yet reached this level, and for the time being, it is an empirical decision, both political and cultural with great social consequences under the

dictatorship of smartphones and Short Message Service texts on these smartphones. Note here that the French Senate has just passed a law that would, if it is confirmed by the National Assembly, ban "inclusive spelling" from all official documents and use in schools, at least in papers and exams.

What I have said here is not going to help at all the deciphering of Homo Naledi's inscriptions in the underground Burial Chambers, but these inscriptions prove that Homo Naledi had some level of articulated language, just the same as Neanderthals when dealing with the same type of inscriptions in Gibraltar. But we should really look for some real explanation about why the various marks in the Naledi and Neanderthal inscriptions are the same and that we can find most of them with Homo Sapiens in his cave paintings accompanied by all these geometric symbols or figures. Where are they coming from? Is "entoptics" enough or is it more complex? Let's try to avoid extra-terrestrials. But what was the freedom of Naledi when he did it? Did he have a free choice between what we acknowledge to be a triangle or a square? Was he conscious of the geometric nature and definition of the figures he used? And what were the meanings attached to them?

All these questions either imply that Homo Naledi had the possibility to choose, knowing, or at least thinking his choice was better for his future, or they imply we today are trying to discover some meaning in these actions and "choices" that might have been the only solutions to survive. And yet did Homo Naledi survive? Was his demise the result of general circumstances that condemned him or her to disappear or was it the result of bad choices on his part, for example using fire in these confined underground chambers to the point that still today there is soot visible on the ceiling. Pollution is not a modern invention.

We could ask ChatGPT, but I am afraid it would not go very far since there is so far no explanation or even explicit data on the subject. Let us shift to the historical period going from the Versailles Treaty to the wars in Ukraine and Palestine, hence to what is considered as the battlefield of conflicting freedoms.

4. FROM VERSAILLES TO KYIV AND GAZA

In 1914, they, the French, the Germans, and The English, all thought the war was going to be a short exercise of military gymnastics rather than a war, what's more, a long-lasting war. And it was won – after four years – thanks to the Russian Revolution (March 8, 1917) that should have helped the Germans, but The US entered the war, in the west of course, and that will compensate for the eastern loss of Russia and Ukraine. The Office of the Historian of the Department of State of the USA gives this information: "On April 4, 1917, the U.S. Senate voted in support of the measure to declare war on Germany. The House concurred two days later. The United States later declared war on German ally Austria-Hungary on December 7, 1917." (https://history.state.gov/milestones/1914-1920/wwi#:~:text=On%20April%204%2C%201917%2C%20the,Hungary%20on%20December%207%2C%201917.) The timeline is clear.

March 8, 1917: the first moderate and reformist revolution in Russia?
April 4, 1917, the U.S. Senate voted to enter the war against Germany.
October 24-25, 1917, the Bolshevik Revolution in Russia.
December 7, 1917, the U.S. Senate voted to declare war on Austria-Hungary, a German ally.
February 9, 1918, the treaty of Brest Litovsk was signed between Germany and Ukraine.
March 3, 1918, the Treaty of Brest Litovsk was signed between Germany and Russia.
March 21-July 18, 1918, Ludendorff Offensive, the last German offensive.

But we have to follow these last battles of the war to see how essential American troops were. They only entered the war operations themselves in July 1918, and this last German offensive was cut short and transformed into a defeat. Here is a summary of the end of this war from and after the journal *History*.

"**Ludendorff Offensive March 21 to July 18, 1918**

The 1918 Spring Offensive began with the Germans launching a string of attacks along the Western Front in hopes of winning the war **before U.S. troops could join the Allies.** Despite making successful advances in four attacks, the territory they retake or newly control doesn't lead to strategic gains. **With the American forces arriving in July**, a counteroffensive and exhausted soldiers, the Germans, while claiming victory, are badly weakened.

Second Battle of the Marne: July 15-18, 1918

In their last offensive attack of the war, the Germans struck Allied troops near the Marne River in France's Champagne region in a diversionary attempt to lure them from a separate planned attack in Flanders. But fooled by a set of false trenches implemented by the French, the Germans are met by heavy fire and **a counterattack by French and American troops** as they approach the actual front lines and are forced to retreat.

Battle of Amiens: August 8-11, 1918

The opening attack of what would be called the Hundred Days Offensive, the Battle of Amiens saw one of the most successful advances of World War I, with Allied troops securing more than eight miles in the conflict's first fog-covered day, later called "the black day of the German Army" by General Erich Ludendorff. Catching the Germans by surprise, the Allies attacked with the help of 2,000 guns, 1,900 planes, and 500 tanks, causing large-scale German casualties and a fatal blow to morale.

Battles of the Meuse-Argonne: September 26 to November 11, 1918

More than 1 million American soldiers took part in the Battles of the Meuse-Argonne in France's dense Forest of Argonne and along the Meuse River, making it **the American Expeditionary Forces' biggest World War I operation**. It would leave **26,000 Americans dead**, with **120,000-plus casualties—the deadliest battle in U.S. history**. Joined by the French and aided by tanks and **U.S. Air Service planes**, the Allies captured tens of thousands of German prisoners and, after four months, Germany finally ceded, beginning its last retreat.

Battle of Cambrai: September 27 to October 11, 1918

As part of the Hundred Days Offensive, British and Canadian Corps forces struck a decisive victory in Cambrai in northern France, which had been held by Germany since 1914. Surrounded, exhausted, and with disintegrating morale, the Germans face the certainty that the war has been lost.

Battle of Mons: November 11, 1918

Fought on World War I's final day, the Canadian Corps captured Mons, Belgium, held by the Germans since 1914, in the Battle of Mons. The early morning offensive happens hours before troops learn that Germany has agreed to an armistice at 11 a.m. It also marks the final death of an Allied soldier, a Canadian shot by a sniper minutes before the gunfire ends." [My highlighting in bold red]

(https://www.history.com/topics/world-war-i/world-war-i-battles-timeline)

The Treaty of Versailles is the direct conclusion of WW1, and the USA is represented in the negotiation. In many ways, it was the turning point in the world when the USA became the most important Ally in the West, and this Treaty of Versailles is the event that is the complete summary of something like sixteen or fifteen centuries of European history and the springboard or the diving board of all that has happened since 1918. The Treaty of Versailles is the matrix of what we are living today. But the matrix produced and is still producing all sorts of negative sequels. I used the English version of the treaty available at this address: https://www.census.gov/history/pdf/treaty_of_versailles-112018.pdf. It has 198 pages and to give you a general flavor of this text I will consider three words and their statistics in the text, the three most obvious words expressing an obligation for Germany. There are many other ways to express such obligations imposed onto Germany, like "prohibited," but these three are enough to give you a general taste.

"Forbidden": 14 times

"Must": 78 times

"Shall": 106 times. The surprising use of "shall" for a future obligation, systematically in the third person, and expressing an obligation that comes from a rule, a law, or a treaty.

Total: 198 instances of these three words.

Once for every page.

We must understand that all the articles of the treaty have only one aim: to dictate the future for Germany, and the German armed forces, plus the obligation to pay tremendous reparations, including the occupation of the Rhine's left bank for fifteen years, up to 1934 (keep in mind the timeline of history in Germany) and even the cession, in full property, of the mines of Saar to the French government to compensate for the damage done in the French mines both in northern France and other mines in Lorraine repossessed by the French. Germany is redefined as for her borders, and the alliance with Austria-Hungary, what will become the famous Anschluss, is banned. The case of Hungary is typical:

"The Hungarian parliament declared independence from Austria on October 17, 1918. An independent government was formed on November 1. Austria-Hungary concluded an armistice with the Allies on November 3. A separate Military Convention between the Allies and Hungary, signed on November 13, called for the withdrawal and demobilization of Hungarian armed forces. A republic was proclaimed on November 16. Hungary was proclaimed a kingdom on March 23, 1920, although the throne remained vacant." (https://history.state.gov/countries/hungary)

We could of course mention Poland and Czechoslovakia. At the same time, the Western allies launched a counter-revolutionary intervention in Russia with a de facto alliance with the anti-Russian forces of Ukraine and Crimea, particularly the remnants of the feudal order inherited from the old Czarist Russia.

Altogether, it is clear that Germany is purely butchered in this treaty. Let me give you a summary coming from the University of Perpignan, France.

Le traité de Versailles 28 juin 1919 (texte complet : http://mjp.univ-perp.fr/traites/sdn1919.htm)

Les États-Unis d'Amérique, l'Empire britannique, la France, l'Italie et le Japon, d'une part ; ***(et des puissances dites associées)***
Et l'Allemagne, d'autre part ;

intro	Les hautes parties contractantes, Considérant que, pour développer la coopération entre les nations et pour leur **garantir la paix** et la sûreté, il importe … Adoptent le présent **pacte** qui institue la Société des Nations.	**La Société Des Nations (SDN) pour garantir la paix**
42 et 43	**42 :** Il est interdit à l'Allemagne de maintenir ou de construire des fortifications soit sur la rive gauche du Rhin, soit sur la rive droite, …**43 :** Sont également interdits, dans la zone définie à l'article 42, l'entretien ou le rassemblement de forces armées…	**Zone démilitarisée**
51	Les territoires cédés à l'Allemagne en vertu […]du traité de Francfort du 10 mai 1871, sont réintégrés dans la souveraineté française à dater de l'armistice du 11 novembre 1918.	**Retour à la France de l'Alsace + la Moselle**
87	L'Allemagne reconnaît, comme l'ont déjà fait les puissances alliées et associées, la complète indépendance de la Pologne et renonce, en faveur de la Pologne, *(suit la description)*	**Reconnaissance de la Pologne**
119	L'Allemagne renonce, en faveur des principales puissances alliées et associées, à tous ses droits et titres sur ses possessions d'outre-mer.	**Perte de toute les colonies**
163	… la totalité des effectifs de l'armée des États qui constituent l'Allemagne ne devra pas dépasser cent mille hommes, …destinée au maintien de l'ordre sur le territoire et à la police des frontières. …	**Armée limitée à 100000 hommes**
171	…Sont […] prohibées la fabrication et l'importation en Allemagne des chars blindés, tanks ou de tout autre engin similaire pouvant servir à des buts de guerre.	**Interdiction de l'arme blindée**
188	… tous les sous-marins allemands, ainsi que les navires de relevage et les docks pour sous-marins, … devront avoir été livrés aux principales puissances alliées et associées.	**Démantèlement des sous marins**
198	Les forces militaires de l'Allemagne ne devront comporter aucune aviation militaire ni navale… Aucun ballon dirigeable ne sera conservé.	**Interdiction de posséder une aviation**
231	Les Gouvernements alliés et associés déclarent et l'Allemagne reconnaît que l'Allemagne et ses alliés sont responsables…	**Responsabilité de l'Allemagne**
Annexe III	§ 5.Comme mode supplémentaire de réparation partielle, l'Allemagne s'engage à faire construire des navires de commerce, sur les chantiers allemands, pour le compte des Gouvernements alliés et associés	**Réparations matérielles**
232	…Les Gouvernements alliés et associés exigent … l'Allemagne en prend l'engagement, que soient réparés tous les dommages causés à la population civile … Le montant de ces sommes sera déterminé par la commission des réparations, et le Gouvernement allemand s'engage à faire immédiatement une émission correspondante de bons spéciaux au porteur payables en marks or …	**Réparations financières**
428	A titre de garantie d'exécution par l'Allemagne du présent traité, les territoires allemands situés à l'ouest du Rhin, … seront occupés par les troupes des puissances alliées et associées pendant une période de quinze années, à compter de la mise en vigueur du présent traité.	**Création d'une zone occupée par les Alliés**

Figure 17: The Treaty of Versailles, general summary proposed by Digithèque de Matériaux Juridiques et Politiques (MJP), University of Perpignan, https://mjp.univ-perp.fr/mjp.htm

The document is in French, but you can check with the full text in English I have already specified. I corrected a mistake. Article 163 was in the same place (before 171) but listed as 198. Apart from the reduction of Germany to a ghost of what it was before the war, it imposes sanctions, reparations, and damages that are even acknowledged as not realistic. We have to keep in mind that this was devised to be implemented in normal economic times. It is simple to understand that 1929 and the Great Depression were going to throw Germany into an abyss. But the clear deprivations imposed onto Germany are the best fuel possible for trouble. We could list what the treaty imposes as follows in English: Germany has to become a demilitarized zone; she has to return Alsace and Lorraine to France; she has to recognize the independence of Poland; she loses all her overseas colonies; her armed forces are limited to 100,000 men; She has to accept the ban of all armored cars, tanks, and all similar constructions; she has to have no submarines; plus she has to accept the complete dismantling of submarines and their

necessary servicing infrastructures; the armed forces of Germany must not include any military or naval air forces; Article 231: "Germany accepts the responsibility of Germany and her allies for causing all the loss and damage to which the Allied and Associated Governments, and their nationals have been subjected as a consequence of the war imposed upon them by the aggression of Germany and her allies"; she has to provide material and financial reparations; she must accept an occupied zone seen as a way to accelerate or keep Germany in line with her reparations and damages. The schedule of the progressive withdrawal of allied forces from this zone, essentially the Rhine's left bank – if everything goes right – is supposed to be terminated in 1934. This last clause is clearly specified in Articles 428, 429, and 430: "At the expiration of fifteen years [it] will be evacuated… If at that date the guarantees against unprovoked aggression by Germany are not considered sufficient by the Allied and Associated Governments, the evacuation of the occupying troops may be delayed…" "In case either during the occupation or after the expiration of the fifteen years referred to above the Reparation Commission finds that Germany refuses to observe the whole or part of her obligations under the present Treaty with regard to reparation, the whole or part of the areas specified in Article 429 will be re-occupied immediately by the Allied and Associated forces."

This summary may have been long, but it is clear this treaty has never been standard at the end of a war because it shows no compromise. It targeted punishment and compensation. It had immediate results. It frustrated the German people so deeply that they were unable to cope with the situation, and they did not even have the means to. The Big Depression of 1929 arrived, and the situation got unmanageable. Some political forces in the new Weimar Republic tried to start a social revolution on the model of the USSR, but the German Communists implemented Stalin's order and abode by their own experience, and they refused to work with the Social Democrats who refused to work with the Communists anyway, thus exploding the German left (by far the majority of the population after the war, and the German government blocked any attempt that were all defeated, even if necessary with the remaining armed forces that "shall be devoted exclusively to the maintenance of order within the territory and to the control of the frontiers." (Article 160)

But on the other side of the political spectrum, hence on the right, this situation created a popular movement for those who claimed it was possible to reconstruct the power of the Reich, the Empire, and they suggested a Third Reich. The Second World War and all its crimes against humanity, culture, and any human activities are contained in the frustration, alienation, and even castration feelings, this settlement, in many ways inspired if not piloted by the USA, created among the people.

To ask whether this was a free choice on the various sides of the multi-various participants in the Treaty of Versailles negotiations cannot really be answered. These participants would say they chose these sanctions, reparations, damages, and all sorts of restrictions freely and to keep the world free of war. But the longer-run vision goes against this freedom. It created, based on a victorious bias that was born in 1918 and their victory against Germany and her allies, a frustration that was so important in Germany and Austria, or even Hungary, that it paralyzed any attempt from the left and extreme left to deal with the situation: various revolutionary attempts in Germany (Ernst Thälmann who died in Buchenwald in 1944, Rosa Luxemburg assassinated in Berlin in 1919, and a few others), Hungary (Béla Kun, executed after a secret trial in Moscow in 1938), and other countries, failed because the said movements were only supported by a portion of the socialist-oriented left deeply divided between the communist (3rd International) and the social-democratic parties (2nd International) and because the frustration created a real growing momentum for an extreme right solution, even if it had to use the S(ocialism)-word to widen their appeal. And that is just the point. This Treaty of Versailles was the nursery of extreme right movements. The winning freedom camp, in the name of THEIR freedom draped in the vestment of UNIVERSAL freedom, was, in fact, a lure, a trap, and even a plain mirage. Is there any freedom, real freedom of decision, totally objective, meaning completely cut off from the circumstantial surrounding conditions that have to be fulfilled and accepted around such freedom of decision? The aftermath of this treaty seems to show it is not true: freedom is an illusion. Then are we all the puppets of this history that is, in fact, total determinism either from some divine being who decides everything, or from a general, social, planetary, or even cosmic determinism that leaves no freedom to anyone, or anything. Human history would then be either written up there in the Big Book, as Jacques le Fataliste says 150 times in the namesake novel by Denis Diderot first published in 1785, within the preparation of the General States of the Kingdom of France that would start the French Revolution in 1789, four years later, and Jacques's

famous “Tout est écrit là-haut” (it’s all written up there) leaves little doubt about the total lack of any liberty of choice or decision among the French people, from the King to the last slave in French colonies like Guadeloupe, Martinique, or La Réunion.

The Zionist movement supported heavily by the United Kingdom started and amplified the going back to the historical Israel that had been disbanded by the Roman emperors. Due to the Holocaust, the United Nations voted a resolution to allow the Jews of the world to recapture the land of Israel where they had not been present for nearly twenty centuries after the diaspora. No guarantee was set on the table for the Palestinian population of this territory who were more or less pushed away. The constant and repetitive crisis in Palestine and Gaza is the direct result of this return of a population that had been absent for 20 centuries and their occupying, and even repossessing of the land they decided to take, initially based on a resolution of the United Nations, but very fast, motivated by the simple logic of war and colonization.

Ukraine is the second inherited and unsolved problem of the First World War that used Ukraine against Russia and the USSR, including by sending Western troops supporting those against the Soviet revolution in Ukraine. These forces were defeated, and the Western troops were sent back home, dead or alive, by the Red Army. The remnants of the feudal order of the tradition and Cossacks were dismantled, actually rather brutally by Stalin confronted with a man-made bad harvest of wheat and other cereals. Man-made for sure but who was responsible, the Ukrainian farmers who refused the cooperative organization, or the Soviets who imposed a land reform that did not satisfy the farmers? No one will probably ever know, and probably a little bit of both plus other motivations like religion, and old historical feuds and resentments.

After the Second World War, Ukraine was reintegrated into the USSR after the war during which many Ukrainians collaborated with the Germans, hence the Nazis. After the war, Stalin was ruthless. Khrushchev granted Crimea to the Soviet Socialist Republic of Ukraine on February 19, 1954, more or less to pacify the Ukrainians, but one more thing we might never know is why it happened. History made the situation explosive. Ukraine has a tremendously rich mining and steel industry in its eastern third or so. But the workers in these industries, at all levels of qualification and responsibility are vastly Russian by origin, only speak Russian, are affiliated to the Russian Orthodox Church, and not the Ukrainian Orthodox Church, and they all have relatives in Russia itself since the industry only developed rather recently in the Donbas area. Despite the Minsk Agreement, the Ukrainians did not really implement it, and they are caressing the idea of imposing their official national language, Ukrainian, as the only language in the public sphere, including schools. We end up with a similar situation as the one in Palestine, Ukrainians vs Russians in the same way as we now have Palestinians vs Israelis.

But the world has changed The French were defeated in Vietnam, or Indochina, then in Algeria. The British did not do better in their own empire, and today these colonial empires do not exist anymore, and they have become like some friendly linguistic clubs. The USA decided to intervene in the Korean War, and they were obliged to accept a compromise that was, in fact, a defeat. Then they were bluntly defeated in Vietnam. They, since then, have been defeated in Afghanistan out of which they had to run, and in Iraq and Syria where they were unable to impose a Kurdish state, unable to bring down Hassad in Syria, and unable to prevent Iraq from falling into the hands of the majority of their population who speak Farsi, or some dialect close to it, an Indo-European language, the official language of Iran, and who are Shia Muslims whereas the Kurds are speaking another Indo-European Language but they are Sunni Muslims.

The question is whether anyone is free to decide what they want and do what they want, even when they are a big state like the USA or a big union of states like the European Union, that has elections pending in 2024, there is a fair chance the populists and nationalists will get a fair if not good or dominant result in many countries, including France and maybe Germany, and even maybe capture a majority.

There is no vaccine against such political pandemics, especially when the matrix of it all, for the West, is this Versailles Treaty, and yet the majority of the world, what Niall Ferguson called the Rest, is getting together more and more and has a demographic soon economic majority, and political if they want, in the United Nations with one or two permanent members in the Security Council with veto power. We can wonder if “containing China” will be enough to prevent what some call the Asian century from coming up and sitting on the throne for some decades.

5. CONCLUSION

Here is the voyage of Hominins from the forest to writing.

1- First Stage. Leaving the forest, descending to the Savanna.

Is it a choice motivated by overpopulation, fewer natural resources available, or the expansion of the species?

Or is it a necessity motivated by the need to expand, by haphazard mutations of foot and hand, by a mutation that makes them no longer able to climb and live in trees, and that implies walking differently?

2- Second Stage. New hunting procedure.

When they get into the savanna, they definitely are bipedal when walking and their size is essential because they have to stand taller than the savanna to see the animals they can hunt or that could be dangerous. Running is becoming important, and the physiology of the foot has to change.

Then they target running animals and they have to start running long-distance, and fast, what is called endurance running. The physiology of the foot is completely transformed.

Along with this first mutation of the foot, Hominins in this phase have to get a deep larynx, reorganize their glottis and subglottal area, restructure their articulatory system (jaws, tongue, teeth, and lips), and the whole process of endurance running is governed by the diaphragm and the Broca area in the brain to coordinate the whole body with the respiration and the heart. Endurance running requires the whole body to work as one single organism.

3- Third Stage. These mutations and collateral consequences.

Hominins are then able to develop 6+ vowels, and 25+ consonants, and produce thousands of CVC clusters thanks to the rotation of vowels and consonants they learn how to dominate pretty fast.

It may have been seen as a game at first, like birds in the nest learning the calls of their father. But they must have embedded these new vocal resources into their communication, what Steven Mithen calls “humming” for Neanderthals. This stage is really the turning point, and it must have been short because these Hominins who have a hard life and difficulty surviving are practical people, and they learn very fast how to use what they have.

4- Fourth Stage. From brain machine-code to language

Due to the great number of CVC clusters the first Hominins who went through this situation must have used these clusters to attach them to the brain machine code they had in their memory, which is to say to the items designated by these memory brain machine codes. Then the clusters become names for the items discriminated by Hominins around them. These clusters are of course only vocal. When this grafting of the CVC clusters onto the items discriminated in the brain and memorized there, Hominins have a vocal symbolic lexicon that can now be considered as a lexicon. Homo Sapiens developed this capacity, but it must have been developed, at least partially before because this tool is needed for communication, coordination, migration, communal life, and many other activities with planning and inventiveness.

We have reached here the real first form of symbolism in Hominins. The vocal A represents the material B. These Hominins have come to names and that makes their life better, and easier.

5- Fifth Stage. From blabbering to communication.

So far, a few names and here Hominins are going to produce concatenated pairs or triplets of words and the meaning will come from the association of such words. But then some words are going to designate objects, static, and spatial artifacts whereas other words will designate actions, processes, changing elements that are changing in time (Hominins who have reached this point must have an idea of what we call time, even if for them it is duration. They then differentiate the two types of words and the possible association of one type with the other.

At this level these words are becoming symbolical of what we would call categories, one is purely spatial and static, and the other is purely evolutive and changing, with probably some words that are neither. At this level, we can recognize the spatial nouns and the temporal verbs, and the others are just

utilitarian words. Hominins are thus manipulating them and assembling them in many ways, always within communication. This is the second articulation of human language.

6- Sixth Stage. The Matrix of communication.

To go beyond this simple concatenation of different categories of words to make sense by simple concatenation and ellipse, a matrix for the architecture of the utterance has to be found and one exists in the everyday experience of all these Hominins, the communicational situation.

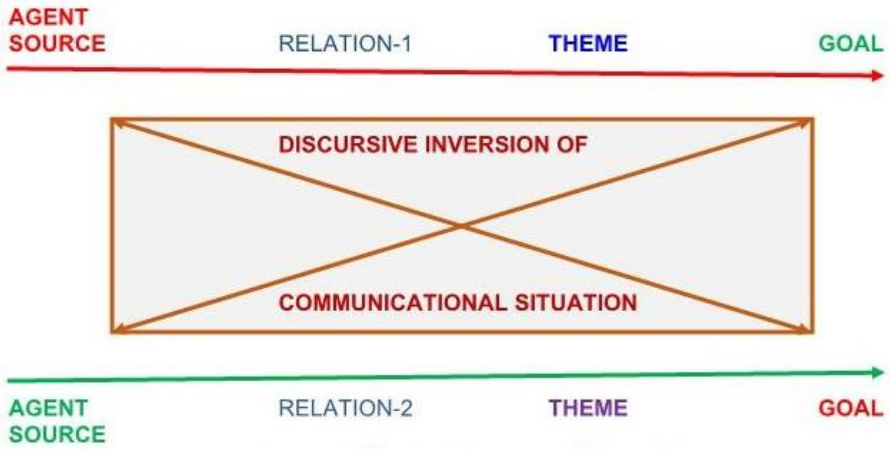


Figure 18: **A**-R1-B-**C** becomes **C**-R2-B-**A**

This new symbolical step is essential since the words used to build such utterances are, in fact, symbolical of functions (for nouns, with all sorts of marks) and of time-oriented conjugations (for verbs, with all sorts of marks). This matrix is captured by Hominins very early, at least Homo Sapiens captured it very early. A baby knows what he/she is doing when it cries or calls for help.

The real question here is to know when this level of linguistic power is reached. This type of communication is not only human. Birds talk in a way, and many animals if not all communicate in one way or another and they know that when they call, they will receive a response, or at least they hope they may receive a response.

The new symbolical power here sort of casts on communication, hence on the communicating community, hence society at large, a matrix that states positions of dependence, and these relations of dependence can be reverted inverted. There is in this communicational situation a basic democracy that cannot be reduced to two people. It may, why not, but in a Hominin community, before the Peak of the Ice Age or 300,000 years ago, due to the duress coming from their living conditions, communication has a fair chance to be collective. Yet the matrix projects some positions of control and/or dependence onto the participants even in the Palaeolithic.

7- Seventh Stage. From oral language to representation.

This shift will take place in two phases.

a- It will use representational images. We can only know what was done on durable media like rocks and cave rockfaces. But before that, they could have used non-durable media like leaves, bark, and wood. They only came to bone, ivory, and stone around 45,000 BCE all over the world, most of them signed with the prints of the hands of the people who were there when the paintings were performed, and after, when they were ritually used for various ceremonies. Temples and rituals were not invented by Homo Sapiens after let's say 10,000 BCE with Gobekli Tepe, or some older temple yet to be discovered.

b- At the same time and in the same cave, and without any real paintings in the case of Naledi, a whole set of geometric symbols were used, and have been neglected up to a very recent period. Thanks to Geneviève von Petzinger, we have in her book (Petzinger 2017) a universal collection of such symbols. We cannot know if these symbols are the global representation of a ritualistic formula, only one word, one syllable, or one phoneme. Actually, that is not important. What is, is the fact it is some kind of primeval form of writing. And Homo Naledi had reached that level, but 200,000 years before everyone

else, and that is a surprise. It might be denied later on, but nevertheless, we have to keep this figure in mind. If human beads were found in the Moroccan mountains, they must have been brought there by some Hominins, if not Homo Sapiens who is the only Hominin who had beads, then who? What's more, that was in 300,000 BCE.

Figure 19: Geneviève von Petzinger, The geometric Signs of Ice Age Europe. There are more, even in Europe. It is universal because you find them all over the world in the same situation.

These geometric figures are a mystery, if we want to avoid extraterrestrials, and if w<e want to remain logical with a God who had entrusted man with the mission to name all the plants and animals of the planet, a vision that is in phase with what most linguists would accept to endorse.

8- Eighth Stage. The shift from representation to writing.

This shift is both simple and difficult. Simple to understand that either from representational glyphs or from simple non-representational marks from a stylus, a visible and reproducible symbol of either syllables or phonemes can be developed by Hominins who had reached this level of symbolism, and that was a long time before the 45,000 or 70,000 or even 100,000 years BCE as conceded by a few who do not want to get beyond their linguistic Big Bang. Homo Sapiens started speaking as soon as the mutations brought by his fast endurance running were reached and concerning other Hominins before him as soon as their bipedalism had produced the first mutations, even if partial, of the various organs or physiological architecture necessary to widen the array of vowels and consonants necessary to trigger the rotation of vowels and consonants. Naledi, 300,000 years BCE had reached the symbolical level of what I called the 7th phase. Either the dating of the Dinaledi Cave is wrong, or we have to sit down and back, and be humble and thankful for this new light.

But the main idea here is that you can have hundreds of different alphabets or syllabaries in the world, or even still primeval writing system with some representational elements, but any writing system is never cut off from the language it is used for, it has been devised from in a specific context. In fact, when such a position is declared unavoidable that the writing system and the language have no connected logic, it is one of these quotations that the 1968 Trotskyite period in France, the country of all excessive beliefs, produced. Let me end up with Roland Barthes on such a linguistic leftist illusion in his inaugural lecture at Collège de France in 1977.

"Language is neither reactionary nor progressive; it is quite simply fascist; for fascism does not prevent speech, it compels speech." (Roland Barthes, 1977)

In the original French if you prefer:

« Mais la langue, comme performance de tout langage, n'est ni réactionnaire ni progressiste ; elle est tout simplement : fasciste ; car le fascisme, ce n'est pas d'empêcher de dire, c'est d'obliger à dire »

The English translator is as bad as the automatic translators you find on the Internet because he or she does not know the two French words "langue" and "langage" do not mean the same thing in French, even, if a sloppy translation into English translates both with the same word "Language." Webster's Dictionary is clear: "**langue,** noun: language viewed abstractly as a system of forms and conventions used for communication in a community."

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