Depredatory intersexual selection as a mechanism for population expansion[1] in the Homo genus. How Neanderthals achieved supremacy as they contributed to a space faring polyphenism.

This written piece is a continuation of my summary of the Calpe 2015 Conference[2] in which I posited in relation to ancestral humans that "If the directionality of population gene flow was through male conquest and usurpation of territories, taking into account the females living in those areas, that might be reflected in the Y chromosome makeup of the males relative to the mDNA lineages surviving." After reading David Reich's book, *Who We Are And How We Got Here,* who, like Svante Paabo before him (I read Svante's book also referenced from in this piece after David's), writes in the unprecedented unequivocal style of archaeogenetics, I had since the Calpe 2015 Conference the potential of expounding on the theme of traceable depredatory intersexual selection. Archaeogenetics conclusively answers archaic and modern humans cladistics interpretation impasses which would otherwise have been left unresolved by the traditional method of comparative anatomy of osseous and other archaeological remains of archaic and modern humans. This piece which I have written and published just before the Calpe 2018 Conference on Neanderthals is very much the product of preparing for that same conference, which I had endeavored in preparing for from several months before, which I had not envisaged writing.

Humans have through adaptive cultural selection meta-cognitively evolved into a species that deprecates the homicidal projections and consequences of ancestral conspecific depredation. The phenotypically extended[3] engineered niche construction that propagates this behavioral change, that perceives of the seizure of the resources that others have worked for or depend on as dysfunctional, is expressed by the same genome that our distinctly violent anarchic ancestors had, both distinguishable phenotypes describable by the blanket denotation of polyphenism.

Polyphenism is the phenomenon where two or more distinct phenotypes are epigenetically produced by the same genome but specifically in this piece it is changes in the internal neuropsychology[4] and neuroscience[5] that is being referred to and not external morphology. This difference in genetic expression in humans, who are amenable to being taught to redirect their behavior in a specified structured way by hardwired plasticity, is called sublimation, (The modification of a natural expression of an impulse or instinct to one that is socially acceptable) which is culturally taught and learnt. Ancestral Hominin culture once based on reproductive biology has evolved into a biology influenced by that culture rendering it so behaviorally distinct it can be considered a new polyphenism. For the purposes of a clarified categorization, later in this piece I will be using news terms I have coined, these being the human antepolyphenism and human neopolyphenism to be applied as diametrical phenotypical designations evinced by the same genome. This contrastively elucidates our ancestral aggressively androcentric primate phenotype expression and inversely, the modern manumitted manifestation of complete intersexual universal suffrage and equality of opportunity, respectively. This conceptual tool is used to differentiate on two very sharply

distinguished phenotypic expressions of cognitive order: the antepolyphenism whereby environmental stimuli prompts adapted hardwired responses[6] that lead to persecutory behaviour that would be regarded in modern settings as illegally anti-social, and on the other hand, the modern polyphenism whereby sublimated behaviour which has through temporally downstream epistemic engineering[6] specialized in educational niche construction, lead to a gregariousness sense of humaneness, therefore a better quality of life for all. The neopolyphenism being described here is meant strictly in the sense of a marked difference in the internal cognitive order of humans and not in any way intended to describe a visually apparent external morphological change as with other polyphenisms in nature. To visualize the change in cognitive order that overrides and redirects our ancestral biologically based behaviour when this does not tally with reality, we will use as an example the nowadays commonsense knowledge that our home planet Earth turns on its own axis orbiting around a star, in a thought experiment devised to show how simply knowing something as factually verifiable inside a human brain can totally change perspectives on the phenomenal experience of the world perceived on the outside. If you look up the time-lapse astronomical video[7] listed as an internet accessible link at the end of this piece, in step 1 of this experiment the first thing you will see is the Milky Way along with its accompaniment of stars rotating to the right, around the salient silhouette of an African Baobab tree. Our hunter gatherer ancestors, ever since time immemorial, must have routinely gazed and remembered the passage of the heavens through the changing seasonal night sky. They would have had the same outlook as anyone viewing the speeded time lapse video for the first time, but at the slower speed of the planet Earth's rotation, in which the content of the sky is turning to the right. Even though the latter is just an optical illusion and is not what is really happening, it is understandable that our ancestors believed that some version of the now discredited superseded geocentric model of this universe, which had the Earth at its center, was correct until only a recent number of centuries ago. Our ancestors experientially studied the starry nights with their bodies fixed on the landscape, without being aware that they were living on a planet that turned around on its axis whilst it orbits the star that we know as our Sun, which itself orbits the Milky Way galaxy. Because their field of view afferently informed them that the night sky was turning to the right, and they had no way of knowing that what they were witnessing was that the Earth was turning on its own axis against the relatively fixed stars, this retrospectively caused a mental aberration derived from astronomically consumed unknowing eyes.

Figure 1. **Janus** is the Roman god of beginnings, gates, transitions, time, duality, doorways, passages, and endings. He is usually depicted as having two faces, since he looks to the future and to the past and is the

appropriate symbol for both polyphenisms, the antepolyphenism and the neopolyphenism. From Wikipedia.

Continuing this thought experiment with step 2, involving a mental juggle, have another look at the video simultaneously maintaining in your mind that the Earth is turning around on its axis, which it veritably is, whilst the starry background is genuinely relatively immobile. If you keep this mind frame constant with your eyes on the video within the latter parameters, after a little while (and a little substantive based faith) you will noticeably see the Baobab tree firmly rooted in the ground turning to the left, together with the rotation of the earth in the foreground of a motionless star lit sky background, now discernable without any optical illusion. It is amazing that this perceptive feat is possible because of something we only know of, which has been made knowable by technological evolution. Physically tethered as our biological species is to a subjective experience of the phenomenon presented by this universe, we must inform that subjectivity with phenotypically extended[3] technologically derived objective knowledge that is factually verifiable therefore self-reinforcing as a belief system. With the latter thought experiment we can prove that an erroneous belief system with distorted bearings on reality can evolve because of the limitations of biological evolution in physically existential circumstances, correctable by technology. Knowledge derived from objective facts enhance prospects of a better quality of life in a gregarious context otherwise blind to them, by discovering verifiable reasons for existence that imbue a shared motivational faith (Belief system), or improved coalitionist resource extraction for sustenance. It is conducive of methods that constructively achieve that lifestyle, whose only possible jointly desired direction, once cognizant to the fact, is for social order within a balanced self-sustaining ecology. If genetic group selection is individual selection for gregariousness inducing traits, the individual being the vehicle carrier of genetic inheritance[8], once there is commitment to a societally contracted verbal or written agreement everyone else's enlightened hardwired self-interest will work against any infringements. Cognition that mindfulness of one's participatory status as a contributive agent cog in a larger societal clockwork leads to one's own wellbeing is conducive to that mindfulness.

Humans have only recently in our evolutionary past evolved a sense of truly objective verifiable truth and that is why we have not been able to look at ourselves with an objective eye[9] hardwired with propensities as we are, none of us has a psyche formed from a blank slate without instincts.[10] Lack of factually verifiable evidence about the cosmologically and biologically evolutionary universe constricted our breadth of cognition as conspecifics, hampered by not knowing that what biologically makes living possible is ultimately accounted for in the physics of the periodicity of a chemically deterministic[9] universe born out of nucleosynthesis. We humans have just managed to mathematically extract ourselves from a quagmire of inaccurate or completely erroneous concepts of reality emanating primitive allegories of naturalistic phenomenon.[11a] These have been more akin to broad approximations, given the dearth of corroborating factually verifiable evidence available to us as agents in existence as we evolved grasping for undeniable objective truths. Examples of objective truths are the Archimedes principle, Mendeleevian periodicity of the chemical elements, the properties of light which gives us the colours of the light spectrum and is what we experience as a phenomenon filtered by the colour biases of our own visual adaptations[11b],

and finally, the equation for the speed of light, $E=mc^2$. All the latter are now perceptible without the subjective biases of primitive human interpretation. I wonder how our species will look at the universe it is part of in about 1000 years' time and how much will our perceptions have changed by then? It took a leap forward to evolve out of the geocentric model of this universe and in the process many people were persecuted for believing such a thing, just as Giordano Bruno[12] who burnt to death at the stake in the year 1600 due to false accusations when institutional inertia erroneously believed he was wrong. Giordano Bruno believed in the then newly formed Copernicus heliocentric model of this universe but had extended it and already corrected its errors. Giordano posited that the stars hanging in the sky were suns just like our own and that they too had planets orbiting them which might have evolved their own biological pathways of life. All the latter is currently known as fact or at least possible and he got killed for being right. A major advancement of his over Copernicus was that he did not think that our Sun was also the center of the universe, this also having been proved nowadays.[12] Surely in the future we will find new ways of analyzing phenomenon or evolve technology that can extend even more our senses to make palpable what is not yet obviously apparent. All that will contribute to the fact that humanity has metacognitively evolved to the true point of view that we are this universe aware of itself.[13] With so many injustices in the past against the daring to be proven true in substantive interpretations of this universe, it's no wonder that naturally aggressive human primates with self-centered covert motivations out to assert their existence projectively towards others, evolved concepts disassociating what they considered the immaterial mind from the material body often called Cartesian dualism, in honor of Rene Descartes.[14] How else could have a Cartesian dualist explain the self-experienced identifiable mind, that is a mind that is purely the virtual product of the physical brain without knowing that this brain is the central organ of the nervous system or what its constitutive neurons are? Neurons were only conclusively demonstrated to be individual nerve cells in the 1950s thanks to electron microscopy[15] so it took an advancing in technological evolution to lay to rest in peace any doubt causing an artefactual disembodied ghost in the machine.[16] In the inherent mind-body dualism that Descartes upheld, consciousness and self-awareness are distinguished from the brain so the logical mental execution of his "I think therefore I am," can only be contemplated upon within those parameters. Therefore, thinking in error along Cartesian lines, my thinking concomitantly reinforces some part of me existing as an incorporeal mental being. Contrary to Cartesian dualism, physically animate beings that we are with a psychoneural identity,[17] I have a metacognitive awareness about my thoughts as virtual emanations of my material brain and I can factually objectively ascertain my subjective experience of my mental activity. True objectivity, obtained from verifiable facts, can be found to be valid wherever in this universe were they to be tested for and are a very recent arrival in the mental landscape of the human evolutionary scene. An analogy with Cartesian Dualism can be drawn with the also dualistic empiricist versus nativism debate.[18] In trying to understand how a human being´s personality arises, the contention is that the Empiricist approach believes that all knowledge is obtained from experience whilst Nativism considers that this comes about due to innate traits. I personally calculated that we need innate traits which might be augmented by

technology to be able to empirically ascertain any factual conclusion on the inner workings of the brain and the process itself is a gained learned experience so both camps partially hold their ground and cannot do so without each other.[19] Prior and around the advent of the modernity of universal intersexual suffrage, life in general, as we shall now see starting of in the next paragraph, was focused and centered on men being dominant in a patriarchally primate stratified society and so were they very blinkered, finding objective thinking opaque.[20]

Understandably derived from a ubiquitous androcentric culture that intersexually has traditionally assigned the given appellative of our species with the denomination of Man,[21] many people have for a few decades now considered this to be sexist. Instead, the most progressive of contemporary scientifically minded conspecifics categorise our species as Human which conceptually does away with the implicit sexist message that intellectual life is an exclusive male centered domain, as if women were not able to achieve an enlightened sense of cognitive ability, or if intersexually in accordance, are openly submissive to the notion. We must remain unapologetic in an evolutionary sense, but without condoning the practice, when entertaining the causes of antepolyphenic patriarchally biased sexism due to intersexually evolved adaptations, and no more sobering a realization of this is the phenomenon of The Women's Anti Suffrage League[22] in the early 1900s, in which some women of their own volition were opposed to women being granted the vote in United Kingdom parliamentary elections. The social life ontogenetically experienced then was demarcated within an entirely gens based culture, which itself persists post universal suffrage, but was then weighed down by political subjugation and intersexual servitude to men, unlike when everyone got the right to vote. Commonsense evidence of unilaterally predominantly patrilineal surnames being passed down intersexually and the male dominant gens culture that comes from, gives causal reasons for the occurrence of women competing intrasexually by voting against the enfranchisement of other women, as no concurrent matrilineal surnames existed then nor were passed down to the present. Not all men at the time were of an intersexually oppressive disposition and we know that from the fact that women did eventually, in an increasing number of nations and different degrees of accomplishment, get the same suffrage rights as men did, but that took several decades to finally materialize as marital rape only begun to be outlawed in some parts of the world just in the 1970s.[23] Does the lack of self-awareness of matrilineal bloodlines permeating globally dominant Westernized culture, that has spread to the point of cultural homogeneity for our species across all four corners of this planet spaceship Earth, mean that humans suffer from androcentric myopia? Is this androcentric myopia impelled by institutional inertia in that many representatives of the latest scientific paradigms, whilst their empirically obtained facts are illuminatingly right, still use sexist male pronouns in the manner of their writing when the best practice, if we are to be true to the empirical method and professed adherents to that practice, would be to use expressions of neutral objectiveness, that is, an intellectually asexual mode of seeing the world without artifactual subjective biases? In our case it takes two sexes to make a species. We know from the study of genetics that nuclear genomes are ancestrally intersexually bilateral lineages, that is, half on a person´s nuclear genome is

inherited from the females and the other from the males. The extranuclear matrilineal mDNA that both sexes inherit from their mothers is as much of a marker of sexual lineage as the mammalian patrilineal Y chromosome in humans

Molecular genetic data of mDNA can be used in combination with Y Chromosome analyses to obtain information on past human populations and their ratios with regard of the amount of breeding men relative to the amount of breeding women. The results from the relative analyses are compatible with the modern human "expansion of effective male population sizes," and suggest that polygamy was the norm throughout history.[24] That would mean that only a small percentage of men would have contributed to most of the conspecific gene pool in every generation before the behavioral change to monogamy came into common practice, although de facto or de jure polygamy is still much practiced in many parts of the world. Adding to that, there is in genomic studies of Homo sapiens a recorded variance in which it was thought that the common male ancestor of all men was younger than the common female ancestor of all women.[25] More recent studies have placed the intersexually bilateral divergences closer in time though there is still no full agreement on this by everyone in the field.[25] Further back in time in the Homo genus ancestry, there is also substantial variance between the demographic size of males and females ancestral to present day human populations which are temporally incongruent in provenance as conjoined bilateral maternal and paternal genomic lineages from cradle periods. This differs sharply from what be expected had our line of descent been derived from a fanciful geographically static monogamous endogamy that never exogamously bred with genomically differentiated populations. Such consistency would be reflected, had it been the case, in either maternal mDNA or nuclear genome wide counts being ascribed a most recent ancestor of all present-day humans which would numerically temporally tally, but we know from the evidence it does not. The date of the most recent shared ancestor of all present day humans along the "Mitochondrial Eve" maternal line is 160,000 years ago and discrepantly, the age of the most recent shared ancestor of all present day humans anywhere in chromosomes 1-22 is 320,000 years ago, almost twice as old.[26] Even further back in time, the same trend is revealed of the main ancestral population of modern humans, Neanderthals and Denisovans (An Asian cousin of Neanderthals[27]) that separated from the superarchaic lineage they had in common 1,400,000-900,000 years ago[26], and the genetic estimate of Neanderthals and Denisovans splitting into differentiated forms 470,000-380,000 years ago[26], the latter almost precisely overlapping concurrently with the Neanderthal mDNA split from the human lineage 470,000-360,000 years ago. The distinct latter mDNA split from humans does not coincide with the genomic estimate of population separation between Neanderthals and humans 770,000-550,000 years ago[26] and again, the same as with the inconsistent "Mitochondrial Eve" 160,000-year old split compared to the 320,000 year split leading to the most recent ancestral bilateral descent intersexual lineages of all present day humans. It's not so much that different super archaic populations went extinct but maybe rather, thanks to bilateral genomic dates, we might be seeing the annihilation of some males lines whilst others prospered getting absorbed by some of the female lineages that survived but others died out too.

How could the annihilation of distinct male lines come about? If "sexual selection could select for male tactics that increases their mating success but imposes direct costs to the females,"[28] then "females preference for mates clearly result in biased mating because females only mate with males who have certain preferred traits or a certain level of that trait." [28] If that desired trait involves the increased physical strength in gregariously philopatric males, letting them perform better at intrasexual competition, leading to improved fitness, supremacy in depredation adaptations would coevolve with females not being able to aggressively resist forced copulations by males who are on average 20% larger[29] and more muscular, disproportionally more muscular even when size differences are accounted for.[29] Men being able to physically overcome any resistance by women, intersexually will make them both coevolve divergent reproductive optima in male selection for female traits and vice versa.[28] What evidence is there of conspecific depredation as a vehicle of reproduction in humans and other members of the Homo genus? If the percentage of deaths in warfare[30] is consistent with male intrasexual competition leading to Y Chromosome lineages population expansion,[1] in the non-state societies that existed before state societies evolved there is a much larger proportion with the trend markedly decreasing through time as shown in figure 2 below.

In the intersexual human evolution story violence and polygyny are inextricably intertwined[29] in the same way that within parental investment theory violence is a conspecifically distinguishable male human trait,[29] because if nurturing mothers were just as aggressive to their children as men are intrasexually, obviously children would not have much of a chance of survival and the species would die out. There are two described means by which violence supports polygyny. First, the possibility of having a harem is greater the more violent and better at discouraging through fear men are of other men and secondly, organized violent warfare causes a shortage of men which otherwise might create a source of rebellious disturbance in the otherwise disproportionate distribution of women as a reproductive resource in which many men would not have a chance to breed.[29] A small number of breeding men are all that are needed to maintain a population and if these men are dominantly polygynous there will always be consequently a significant number of men who will not be able to have wife for themselves. For every male with a harem of 10 wives there are 9 men with no woman.[29] Many of these reproductively unsuccessful men would have been young risk takers with nothing to lose and quite disposed to violence if there is the opportunity for gains.[29] So if our ancestors were polygynous such as genetic studies suggest[24] there would have been an ample amount of single men competitively eager for women to reproduce with, plus the resources these women's dominant polygynous men monopolised, with greater incentive to overcome the risk to try and appropriate those resources.

The art of war in nonstate societies is by far almost exclusively the domain of men[30] In more recent times," according to two ethnographic surveys, 65 to 70 per cent of hunter gatherer groups are at war at least every two years, 90 per cent engage in war at least once in a generation and virtually all the rest report a cultural memory of war.[30]" War as an adaptation has coevolved with depredatory sexual selection in the usurping of all of the resources of men

Figure 2

Percentage of deaths in warfare. From The Better Angels Of Our Nature

by other men, including potentially reproductive women.[9] War, with its ensuing forced copulations and opportunistic rape is a ubiquitous behavioural hallmark of our species occurring from urban jungles to actual rain forests or any other part of the world humans have inhabited, making armed conflict a male reproductive strategy.[9] Homo sapiens are not the only hominin for which there is evidence of homicide. A 430,000 year old fossil skull, one of 28 hominin skeletons found at The Sima De Los Huesos site in the Atapuerca mountains in Southern Spain has two holes in it which after a forensic analysis was determined to most likely to have been intentionally perpetrated.[31] The fortuitous find of 28 middle Pleistocene hominin skeletons located together down a vertical shaft had never conclusively been explained. It was thought that the individuals had either fallen accidentally down the shaft or that they had accumulated there because of funerary doings.[31] A study on the origins and

evolution of lethal violence in humans,[32] "suggests that a certain level of lethal violence in humans arises from the occupation of a position within a particularly violent mammalian clade, in which violence seems to have been ancestrally present. This means that humans have phylogenetically inherited their propensity for violence. We believe that this phylogenetic effect entails more than a mere genetic inclination to violence. In fact, social behaviour and territoriality, two behavioural traits shared with relatives of H. sapiens, seem to have also contributed to the level of lethal violence phylogenetically inherited in humans. Our analysis of human lethal violence shows that lethal violence in prehistoric humans matches the level inferred by our phylogenetic analyses, suggesting that we were, at the dawn of humankind, as violent as expected considering the common mammalian evolutionary history. This prehistoric level of lethal violence has not remained invariant but has changed as our history has progressed, mostly associated with changes in the socio-political organization of human populations. This suggests that culture can modulate the phylogenetically inherited lethal violence in humans.[32]" My own suggestion, as I made in the second paragraph to this piece, is that culture can modulate the phylogenetically inherited violence in humans to the point of sublimation into a neopolyphenism whose mind frame is emergently nonviolent within still prevailing relatively erstwhile conspecific violence in a given population.

If depredatory male intrasexual selection, together with subsequent intersexual selection of the victors of the surviving women as a reproductive resource, was a behavioural strategy for the Homo genus are there any potential clues as to this having occurred from the ever-increasing wealth of information we have on hominins? Neanderthals were much stronger than Homo sapiens so in inter/subspecific male intrasexual competition had a greater advantage over them.[33] Neanderthals are also known to have interbred with Homo sapiens but even though there is evidence of interbreeding directionally from Male Homo sapiens into female Neanderthals, only Homo sapiens has survived, be it subject to diluted introgression from Neanderthals or as populations that never interbred with them such as sub-Saharan Africans.[34] We know from the Lager Velho child fossils that Neanderthals/sapiens hybrids were strongly built, stronger than just pure sapiens,[35] so they would potentially have had the upper hand over sapiens who had not bred, and with a combined sapiens gracileness a more agile form, which would also be an advantage over pure Neanderthals. Another avenue that might shed light on increased fitness resulting from depredation and forced copulations is the genomically intersexual bilateral chronological discrepancies I mentioned before. David Reich's *Who We Are And How We Got Here* begs the question of why are supposedly specific single Y chromosome or mitochondrial DNA lineages temporally incongruent and why do some go extinct throughout time whilst others persist and recombine with one another in other species/subspecies?[26] One last possible addition to this latter line of enquiry comes from the study of nuclear mitochondrial DNA segments, which is the transfer of genetic material from mitochondria to the nucleus and their integration into the nuclear genome.[36] Because fifty percent of the nuclear DNA that makes up one individual is passed down from either parent, once mitochondrial material has integrated itself into the nuclear genome it too

can be passed down by either parental sex, no longer restricted in being only inherited from the maternal line. If one day our technology evolves to the point that we will be able to determine the provenance of nuclear mitochondrial DNA segments by retracing any change in them to the present we might be able establish whether or not, for example, had the introgression of Neanderthals into sapiens mainly involved Neanderthal males intrasexually competing for female sapiens. That could possibly explain the total lack of surviving Neanderthal female lineages in the present day, but it is possible that they could have just died out as lineages anyway. Retrieval and positive identification of archaeogenetic nuclear mitochondrial DNA segments could also help clarify anomalies such as the Denisovan MDNA found in Sima De Los Huesos fossils[26] and also contribute likewise in other archaeogenetic fossil finds. The latter is just my personal speculation and at this moment in time I do not know if it ever will be possible to back track to the specific/subspecific origins of nuclear mitochondrial DNA segments.

It is possible to be conclusive though, that Neanderthals were more closely related to Denisovans and that they interbred with sapiens at different times from as early as 100, 000 years ago.[34] The technological kits associated with the fossil hominin fossils remains at Skhul and Qafzek caves were the same as those used by Neanderthals[36] despite the osseous remains exhibiting mixed traits found in archaic and modern humans. Both anatomically modern humans and European Neanderthals had both independently used flint lithic tools characteristic of the Mousterian.[37] Neanderthal admixture into modern humans had certainly been happening for at least 100,000 years in the Eurasian region so the creators of the succeeding emerging technologies of the Chatelperronian, Aurignacian and Gravvetian could well possibly have generally or wholly been made up of introgressed individuals descendants of Neanderthal and sapiens sexual unions. Both hominin evolutionary branches prior to admixture had the same degree and manner of technological development and the subsequent technological explosion by hybrid descendants begs the question of whether it was due to merging behavioural outlooks culturally passed down, or greater biological resolvable perception by having inherited desirable traits from either hominin branch which resulted in a better processing brain. If this had happened it would in no way mean that anyone with Neanderthal ancestry is more advanced than anyone else alive on the planet without such ancestry. Europeans do not have Denisovan ancestry which could also through admixture have contributed to the overall technological explosion mentioned before. The human neopolyphenism makes use an appropriate environment in which to rear its children with sublimation techniques that retrospectively cure the archaic persecutory behavioural inadequacies of our antepolyphenism in the present and that happens only due to a cultural transmission that aims to make all modern sole surviving humans around the world humanitarianly productive. Living Neanderthal DNA made it into outer space and has been continuingly living at the International Space Station since the 2 November 2000. Neanderthal descendants along with their Homo sapiens ancestry landed 31 year earlier on the Moon 20 July 1969. If depredation and rape was the way in which our ancestors ultimately survived and so eventually evolved into modern society we must remind ourselves

that such behaviour were merely adaptations we have evolved out of through cultural adaptations as a neopolyphenism which expresses itself as if we were a totally new type of polyphenism.

References

1) Finlayson Clive. *The Humans Who Went Extinct.* Paperback 2010. My original title for this piece had been, "Depredatory intersexual selection as a mechanism for expanding population migration in the Homo genus. How Neanderthals achieved supremacy as they contributed to a space faring polyphenism." After reading the bit Clive's Book in page 49, paragraph 3, lines 4/5 explaining the differences between migration and expansion, he convinced me to change my title and follow him on that. Retrospectively begs the question, does introgression of favourable fitness traits, such like increased physical strength in male intrasexual competition, propagate themselves in an accelerated rate in the introgressed population if that population has traits that also promote fitness to the point of wiping out the introgressing population? The analogy of two galaxies merging until only one remains comes to mind.

2) Planet Andrew. *Personal Summary of The Calpe 2015 Conference.* https://www.researchgate.net/publication/282975606_Personal_Summary_Of_The_Calpe_Conference_2015

3) Dawkins Richard. *The Extended Phenotype.* Revised edition with new afterword and further reading and corrections 2008.

4) On neuropsychology. https://en.wikipedia.org/wiki/Neuropsychology

5) On Neuroscience. https://en.wikipedia.org/wiki/Neuroscience

6) Sterelny Kim. *Thought In A Hostile World.* The Evolution Of Human Cognition 2003.

7) Time lapse video taken by Bernard-Lucas Photography who gave their kind permission that I may use it in this piece on cognition. To view the video please do so from the links below. The first link is from my own online storage and is accessible by everyone. The second link takes you to the Bernard-Lucas Photography Facebook page, where I saw it first and for those of you with access to Facebook please click on or tap the Like icon.

https://drive.google.com/file/d/1zRs3dh0C56JBSb6MRMxzJ-txEoxbXTo5/view?usp=sharing

https://www.facebook.com/BLphotography/videos/10156611145777698/?fref=mentions

8) Dawkins Richard. *The Selfish Gene.* Paperback edition 1989.

9) Ghiglieri Patrick Michael, *The Dark Side of Man* 1999.

10) Pinker Steven. *The Blank Slate.* New edition 2003.

11a) Dennett Daniel. *Consciousness Explained.* UK Penguin books 1991. I had also arrived at this idea by myself when I took up reading regularly as an adult and watching movies especially, but had only ever heard of anyone else thinking the same thing when I read his book and he used better words.

11b) Dennett Daniel. *Consciousness Explained.* UK Penguin books 1991.

12) Giordano Bruno https://en.wikipedia.org/wiki/Giordano_Bruno

13) Sagan Carl. This is the same as the reference for Daniel Dennett in that I'd by myself conceived of intelligent life being this universe aware of itself in my twenties, before knowing of Carl in my forties, as this gave me faith to carry in troubled times, necessity being the mother of invention. Carl actually said, "We are a way for the cosmos to know itself," which means the same. It's nice to find that other people can come up with the same ideas and it should be of no surprise to anyone as the chemistry that gives rise to life occurs everywhere in this universe and if intelligent life ever happened elsewhere in the cosmos they would have invariably come up with their own version of the periodic table of chemical elements.

14) Rene Descartes and mind-body dualism https://en.wikipedia.org/wiki/Mind%E2%80%93body_dualism#Descartes_and_his_disciples

15) On the discovery on neurons. https://en.wikipedia.org/wiki/Neuron_doctrine

16) Ghost in the machine quote https://en.wikipedia.org/wiki/Ghost_in_the_machine

17) The psychoneural identity hypothesis https://www.interaction-design.org/literature/book/the-glossary-of-human-computer-interaction/psychoneural-identity-hypothesis

18) Nativism empiricism debate. https://sites.psu.edu/intropsychs14n1/2014/02/05/nativism-

vs-empiricism/

19) I reached that conclusion reading, Cowie Fiona. *What's Within? Nativism reconsidered.* Edition 1 1999.

20) Planet Andrew. *The Revised Declaration Of Human rights* https://www.researchgate.net/publication/309187810_The_Revised_Universal_Declaration_Of_Human_Rights 2017.

21) Definition of "Man, Mankind or people?" https://dictionary.cambridge.org/grammar/british-grammar/man-mankind-or-people

22) Women's National Anti-Suffrage League https://en.wikipedia.org/wiki/Women%27s_National_Anti-Suffrage_League

23) Marital rape. https://en.wikipedia.org/wiki/Marital_rape

24) *A Recent Shift from Polygyny to Monogamy in Humans Is Suggested by the Analysis of Worldwide Y-Chromosome Diversity.* (Obtained from reference 31). https://www.researchgate.net/publication/10577809_A_Recent_Shift_from_Polygyny_to_Monogamy_in_Humans_Is_Suggested_by_the_Analysis_of_Worldwide_Y-Chromosome_Diversity

25) *Sequencing Y Chromosomes Resolves Discrepancy in Time to Common Ancestor of Males Versus Females*

https://www.the-scientist.com/the-nutshell/male-lineage-not-younger-than-females-38910

http://science.sciencemag.org/content/341/6145/562.full

26) Reich David. *Who We Are And How We Got Here.* First Edition 2018, impression 2.

27) San-Hee Lee, Shin-Young Yoon. *Close Encounters With Humankind,* 2018 English translation.

28) Muller Martin N, Wrangham Richard W. *Sexual Coercion In Primates And Humans*, 2009.

29) Barash David P. Out Of Eden, *The Surprising Consequences Of Polygamy.* First Edition 2016.

30) Pinker Stephen. *The Better Angels Of Our Nature.* 1st edition 2012.

31) Newscientist. https://www.newscientist.com/article/dn27611-csi-stone-age-was-430000-year-old-hominin-murdered/

32) *The phylogenetic roots of human lethal violence* https://www.nature.com/articles/nature19758.epdf?shared_access_token=-098gA9EQlTPAJeem7I5rtRgN0jAjWel9jnR3ZoTv0MV6-Ms_XF0JyPRKMYcJKvFJGoDsXo6yTWTtIr7PWj28Tdv4-

GrXLK5pKPoRA1F5h8tSDm8RtRFeAfpI9eamG3b0q-WBn-I4miyDArUk7a3ai9sX_x9V4v6vookFIRZ5YM%3D

33) On Neanderthals. http://www.bbc.co.uk/nature/life/Neanderthal

34) Male Neanderthal bred with female sapiens. https://www.bbc.com/news/science-environment-35595661

35) Papagianni Dimitra, Morse Michael A. *The Neanderthals Rediscovered.* Revised and updated edition 2015, reprinted 2017.

36) Paabo Svante. *Neanderthal Man. In Search Of Lost Genomes.* Paperback 2015.

37) Skhul and Qafzek hominins. https://en.wikipedia.org/wiki/Skhul_and_Qafzeh_hominins

https://journals.openedition.org/bcrfj/1192