
Revisiting Engels's 'The part played by labour in the transition from ape to "man"'

Sheila McGregor

Abstract

Theories about the evolution of *Homo sapiens* remain contentious since Darwin published *The Descent of Man and Selection in Relation to Sex* in 1871. Darwin emphasised the role of sexual selection as well as the importance of the size of the brain; others initially focussed on the size of the brain. Frederick Engels stressed the key role of labour. Today, many paleontologists pursue investigations of remains of fossils and artefacts, combined with analysis of the environment, and ever more sophisticated scientific tools, alongside research of the brain and genetics. In the 1950s, the current known as sociobiology emerged, with its focus on lessons to be learned from the rest of the animal kingdom. More recently, feminist oriented biologists, zoologists and primatologists challenge a male dominated and one-sided perspective on evolution with theories centring on the role played by the female in different species. Does Engels's central argument on the role of labour remain valid?

Key words: evolution, Darwin, brain, Engels, labour, sociobiology, feminising sociobiology

Theories about the evolution of *Homo sapiens* have been, and remain, contentious since Darwin published *The Descent of Man and Selection in Relation to Sex* in 1871. Whereas Darwin emphasised the role of sexual selection as well as the importance of the size of the brain, others initially focussed on the size of the brain.¹ Frederick Engels, on the other hand, stressed the key role of labour as the driver of evolution. Today, palaeontologists such as Louise Humphries and Chris Stringer from the Natural History Museum (to select two amongst many worldwide),² pursue the path of investigating remains of fossils and artefacts, combined with analysis of the environment, using the ever more sophisticated scientific tools available, alongside developing understanding of the brain and genetics. In the 1950s, the current known as sociobiology emerged, with its focus on lessons to be learned from the rest of the animal kingdom.

More recently, feminist-oriented biologists, zoologists and primatologists began to challenge what they viewed as a male-dominated and one-sided perspective on evolution. This gave rise to theories centring evolution on the role played by the female in different species: what I would term a 'feminist' socio-biology. This article will look at Engels's central argument on the role of labour in driving our evolution and review this in relation to a selection of recent ideas about our evolution. I will look at Craig Stanford's analysis of how we became bipedal,³ and then review Christopher Boehm's arguments on how the ideas and practice of altruism evolved,⁴ followed by a brief survey of the views of two archaeologists, Kent Flannery and Joyce Marcus, in *The Creation of Inequality*.⁵ A summary of Frans De Waal's suggestions on the influence of our primate inheritance on our evolution⁶ will be followed by Sarah Hrdy⁷ on the role of alloparenting. Frederick L. Coolidge and Thomas Wynn,⁸ who examine the relationship between toolmaking and brain development, and John Partridge,⁹ who emphasises the crucial role of language and human post-natal development, provide examples of scientists looking more closely at our evolution without making presuppositions about a 'primate inheritance.'

In 1827, a Catholic priest, John Macenery, found flint tools in Kent's cavern in Torquay. He was convinced they were evidence of early humans from tens of thousands of years earlier. His work was derided, on the basis of Bishop James Ussher's Biblical chronology,¹⁰ which dated the Creation to 4004 BC. In the autumn of 1859, following the work of Pengelly at the Brixham Cavern and of Jacques de Perthes in France, the Royal Society, the Society of Antiquaries, and the British Association agreed that the excavations had established the antiquity of humanity.

Coincidentally, Darwin published the *Origin of Species* in 1859 – the account of evolution that essentially put paid to the idea that the earth was only 4,000 years old and established a theory of evolution that validated the conclusions drawn by a number of thinkers like Alfred Wallace. However, Darwin did not extend his ideas about the evolution to 'man' himself until 1871 with *The Descent of Man and Selection in Relation to Sex*. He applied principles of evolution to 'man' (from now on referred to as Homo) to show that we evolved but insisted on the pre-eminence of the brain:

'He manifestly owes this immense superiority to his intellectual faculties, to his social habits, which lead him to aid and defend his fellows, and to his corporeal structure. The supreme importance of these characters has been proved by the final arbitrament of the battle for life. Through his powers of intellect, articulate language has been evolved; and on this his wonderful advancement has mainly depended.'¹¹

Engels wrote *The Part Played by Labour in the Transition from Ape to Man* in 1876 in response to Darwin's *Descent of Man and Selection in Relation to Sex*. He wrote

it between May and June 1876, but it was first published in *Die Neue Zeit* in 1895-96. The point of writing it was to counter non-materialist explanations of our origins. His biographer, Tristram Hunt, writes: 'As ever, Engels had his eye trained on the Idealist tradition, which in this case, meant the false doctrine by which Homo sapiens was primarily identified in terms of his brain power.'¹² Rather, Engels proposed that human beings are part of nature, albeit a conscious part of nature and the brain is part of the evolution of the body.¹³

Below, I will outline Engels's main ideas about evolution contained in *The Part Played by Labour*, an unfinished chapter of *Dialectics of Nature*. I will then look at several different presentations of our evolution including approaches based on a sociobiological comparison with chimpanzees and other primates and then finish with two accounts that attempt to correlate the development of labour and tool use with the development of the brain.

Stephen Jay Gould points out in *Ever Since Darwin*,¹⁴ that Engels based his views on Ernst Haeckel, a German zoologist and naturalist who argued for the decisive importance of bipedalism in our evolution and reconstructed our ancestor as *Pithecanthropus alalus*, an upright, speechless small brained ape-man.¹⁵ Gould emphasises the importance of the evolutionary sequence in Engels of becoming upright, the transformation in the hands, use of tools and the impact on the brain. He mentions two other advocates of the idea of coevolution of the use of tools and the brain, Lorenz Oken in 1809 and Freud in 1930. In the main however, those who followed Darwin's view that our ancestor would be big brained, triumphed until 1974.

Engels makes several points in *The Part Played by Labour* that are particularly relevant to my review: 1. That we created ourselves through labour or our interaction with nature and labour starts with the making of tools; 2. Bipedalism was the decisive step in our transition from ape to man; 3. This permitted the development of the hand and is itself a product of labour; this in turn stimulated a socialisation process that resulted in greater mutual dependence and ultimately language; 4. This in turn provided the stimulus for the development of the brain. Engels summarises the sequence of evolution as follows: 'First Labour, after it and then with it, speech – these were the two most essential stimuli under the influence of which the brain of the ape gradually changed into that of man, which for all its similarity is far larger and more perfect.'¹⁶

Engels's dialectical materialist approach and sequence (and Haeckel's) were ignored. Rather the views prevailed of Karl Ernst Baer, an important embryologist, who argued in 1828 that the brain was key, as did the English anthropologist G. E. Smith a hundred years later. Overwhelmingly, those scientists who believed big brains were fundamental prevailed, so there was no search for small brained bipedal fossils. This had consequences for scientific advances in palaeontology and anthropology as George Gaylord Simpson pointed out in 1963.¹⁷ The two best-known examples of how the idealist approach led sci-

entists astray are the 'discovery' of Piltdown Man in 1912 and Raymond Dart's discovery in South Africa of the 'Taung' child in 1924.

In 1912 Charles Dawson, an amateur archaeologist, discovered fossil remains of a large brained skull. Dawson claimed it was 500,000 years old and the 'missing link' between ape and man. When the fossil was properly dated it turned out to be 500 years old comprising part human and part orangutan. Some believe the hoax was perpetrated by Charles Dawson himself.¹⁸

In the case of Raymond Dart, the fossil remains found by quarrymen in Taung, South Africa, were authentic, but Dart was ridiculed when he described the skull, now known as an example of *Australopithecus Africanus*, as a bipedal, upright small brained predecessor of modern humans. Anthropologists were steeped in the racial and cultural stereotypes of the period and refused to believe that the predecessor to *Homo sapiens* could be found in Africa and have a small brain: in other words, that a forerunner of our species could have been a bipedal toolmaker with a small brain. According to the views of the day, early hominins originated in Europe or Asia and would have big brains.¹⁹ 20 years later, Dart's judgement was accepted.

As stated at the outset, the field of evolution in relation to our species has always been contentious. Some have been reluctant to abandon a creationist view of our existence, others prefer to argue that our biology is our destiny. Sir Francis Galton, Darwin's cousin, invented eugenics and the idea of selective breeding in 1883.²⁰ Biologists Solly Zuckerman in the 1930s,²¹ and Konrad Lorenz in the 1950s and 1960s,²² propagated ideas based on analogies with the animal kingdom, particularly with studies of monkeys and great apes allegedly proving that aggression and male dominance were part of human nature. The biologist E. O. Wilson is synonymous with the field of sociobiology and the study of the biological basis of all human behaviour.²³ Similarly, in the 1970s, Richard Dawkins argued that what drives our evolution is what he termed 'the selfish gene' in his influential book of the same name.²⁴ In contrast, Gordon Childe, a highly influential Marxist archaeologist from the 1930s, based his work on an Engelsian approach, putting labour and tool making at the centre of his research.²⁵

In the field of primatology, chimpanzees are often the focus for a comparison with *Homo sapiens*. Partly this reflects the fact that far more research has been done on chimpanzees than bonobos both of which are our nearest relatives.²⁶ Chimpanzees seemed to present a better fit for explaining human behaviour²⁷ and bonobos were only identified as a separate species in 1929.²⁸ The genus *Homo* split from chimpanzees and bonobos approximately 7 million years ago,²⁹ so direct comparisons with either is problematic. Piecing together how our evolution occurred is a difficult task with a paucity of evidence, the further researchers go back in time. The palaeontologists Louise Humphries and Chris Stringer, from the Natural History Museum in London, provide a very careful reconstruction of what is known so far and emphasise

that there was no automatic 'ladder' of evolution.³⁰ Nevertheless, how do you establish the role of labour, the development of tools and technology, and the development of the brain in that evolutionary process? In the next section, I will look at the importance and consequences of becoming bipedal in relation to this question.

Bipedalism

Craig Stanford, the co-director of the Jane Goodall Research Centre and Professor of Biological Sciences and Anthropology at the University of Southern California, wrote *Upright* in 2003. He rejects Darwin's fixation on the brain,³¹ arguing that Engels was closer to the truth. He points out that bipedalism and tool use preceded the enlargement of the brain by millions of years.³² For Stanford, walking upright led to the decoupling of breathing from locomotion and over millions of years 'may have enabled the co-option of the circulation of the adjustable flow of air for speech'.³³ He concludes with a focus on the development of language 'We can be sure that speech evolution was a wonderfully fortuitous by-product of walking upright'.³⁴ Moreover, Stanford points to the importance of meat in the diet, since it provides concentrated protein more efficiently than plant protein. He quotes the anthropologist Katherine Milton on the role of meat eating, concluding 'that meat was responsible for the second key event of human evolution after our shift to an upright posture: the emergence of intelligence'.³⁵ He cites work from archaeologist Lawrence Straus who argues that the shift from ambushing to pursuing prey developed late, approximately 20,000 years ago with modern humans and occurred 'only through cooperation and planning' and the use of more complex weapons.³⁶ Stanford's overall conclusion is that *We are human in large part by virtue of our technology, so if our ancestors had not stood up and walked, tool use would not have reached its extraordinary level.*³⁷

However, although Stanford emphasises the importance of tool use, he also introduces two ideas that derive more from a speculative sociobiological standpoint than an Engelsian materialist one: the first is that the transition to bipedalism not only led to changes in the birth process and ultimately to 'rotational birth', which is uncontroversial, but that since the baby emerges facing away from the mother, this would entail help from other females, laying the basis for female cooperation. He references work by two anthropologists, Karen Rosenberg from the University of Delaware and anthropologist Wendy Travathan from New Mexico State University. According to their review of 300 birth cultures, 90 percent were attended by other women.³⁸ Other research by George Engelmann, obstetrician and gynaecologist,³⁹ a century earlier from that of Rosenberg and Travathan seemed to point to women having births without complications, often on their own.⁴⁰ Engelmann attributed this to a way of life that favoured healthy physical development and therefore

short and relatively easy births with little impact on the mother's mobility and physical well-being.⁴¹ I would argue, that the evidence is contradictory and that a degree of caution is in order because it is all based on records of societies within living memory and therefore cannot simply be transposed back in time for up to possibly a million years.

Stanford's second somewhat problematic assumption is that we evolved from 'male-bonded groups that defended large territories in forest-grassland mosaics ...When males weren't trying to ward off intruders, they competed among themselves to mate with females'.⁴² This is based on an analogy with chimpanzees. It is not clear what was the last common intercessor for chimps, bonobos and hominins. Here, Stanford is introducing the idea that somewhere, however many millions of years ago (at least 7 million) we were a male dominated, aggressive species.

Christopher Boehm, a primatologist and cultural anthropologist, shares a similar view point to Stanford on our evolution from a male dominated, aggressive species. In 2012, he wrote *Moral Origins: The evolution of virtue, altruism, and shame*. He takes his cue from Darwin's *Descent of Man*. Boehm's aim is to give an evolutionary explanation for the development of moral origins. Firstly, he presupposes that our evolution necessarily entailed suppression of egoism and tendencies to violence, in other words a Hobbesian world view of a war of all against all. As Boehm states his own purpose:

Much of this book is about punitive social control, a harsh form of social selection indeed, has acted on human gene pools. I shall be proposing that aggressive (and originally nonmoral) social sanctioning shaped the earlier human genome to give us an evolutionary conscience, and that extensive curbing of free riders was another effect. In turn, free-rider suppression opened the way for the evolution of altruism.⁴³

His entire argument is based on equating behaviour observed amongst chimpanzees and bonobos with early hominins and that behaviour was necessarily hierarchical, selfish and prone to violence. The transition to large game hunting was the key to becoming 'efficient, cooperative equal-opportunity meat sharers'.⁴⁴ He dates the emergence of cooperation (and monogamous pair bonding) to 250,000 years ago. Although Boehm shares with Stanford the importance of large game hunting in our evolution, any relationship to the labour process, of how we 'laboured' in interacting with our physical environment to live, is entirely absent in Boehm.

A further example of a similar sociobiological approach can be seen in the work of two archaeologists, Kent Flannery and Joyce Marcus, in *The Creation of Inequality*.⁴⁵ They argue: 'When we look at hunters and gatherers, we see a dominance hierarchy as clear as that of chimpanzees. It is, however, a hierarchy in which the alphas⁴⁶ are invisible supernatural beings, too powerful to be

overthrown by conspiracy or alliance, and capable of causing great misfortune when disobeyed...⁴⁷ Flannery and Marcus have an idealist view of how language and intelligence developed: 'human language and intelligence evolved not to make us better at foraging but to make us better at social networking'.⁴⁸ This begs the question of why greater social networking would have been an evolutionary advantage.

Challenges

Some of the assumptions about the behaviour of our primate cousins in the accounts quoted above are open to challenge. Frans de Waal is a primatologist and ethologist,⁴⁹ and a prolific writer on primatology. He focuses equally on the behaviour of bonobos and chimpanzees in his discussion about what might have contributed to the shaping of behaviour in the evolution of the genus *Homo* with the rather timely reminder: 'we have a bit of each inside us, while in addition we've had several million years to evolve our own unique traits'.⁵⁰ De Waal proposes that 'The typical primate society is at heart a female kinship network run by older matriarchs'.⁵¹ And in contrast to the picture of all (physically) powerful alpha males, he argues that factors such as networking, personality, age, strategic skills, and family connections all have a bearing on who becomes the 'alpha' male.⁵² One of the roles of the alpha males in the wild observed by Boehm (ironically given his own theory) amongst chimps in Gombe National Park, was precisely to stop fights and protect the weak against the strong.⁵³ The hierarchy amongst the males is mirrored by a hierarchy amongst the females and De Waal gives the example of an 'alpha' female from a large chimp colony in the Netherlands who played a key role as a peacemaker in resolving conflicts.⁵⁴ Amongst bonobos, female dominance prevails, male bonobos look to their mothers for protection and the bonobos use sex to smooth interpersonal relations.⁵⁵ However, as De Waal points out, the media has preferred to highlight action and violence amongst chimps rather than the sexual behaviour of bonobos, for example the BBC refused to show film footage of bonobos having sex.⁵⁶

Observations of primate behaviour have been shaped by cultural attitudes of primatologists themselves with even female primatologists initially more focussed on observing male primates rather than females.⁵⁷ All too often, presumptions about male dominance, violence, heterosexuality, and the like have shaped what is observed and how it is interpreted.⁵⁸ Unsurprisingly, as cultural assumptions are challenged in wider society, primatologists and cultural anthropologists are suddenly observing behaviour they hadn't 'seen' before. Hence, De Waal has an entire chapter on same-sex sex.⁵⁹ as well as observations of one female chimp who appeared to adopt a male role.⁶⁰ Nevertheless, it is worth remembering De Waal's own words of caution cited earlier, that millions of years have elapsed since *Homo* first split from our nearest primate

cousins. Welcome as many of the changes in perspective are of the likes of De Waal, he still uses comparisons with chimps and bonobos to posit that certain male and female traits in human behaviour are biologically determined.⁶¹

A female-oriented sociobiological perspective

One of the consequences of changes in the approach to male-female relations in the last 50 years has been the development of a 'feminist' sociobiological evolutionary perspective, encapsulated by Sarah Blaffer Hrdy,⁶² that reflects what appears to be a broadly accepted view of the key role of the reproduction process. From the outset in her key work, *Mothers and Others*, 2009, Hrdy argues that our uniqueness neither lies in bipedalism or tool use, because chimpanzees use tools, but lies in 'hyper social attitudes'. She takes the views of Michael Tomasello, co-director of the Max Planck institute for Evolutionary Anthropology in Leipzig, as her starting point. Tomasello proposed: 'that the crucial difference between human cognition and that of other creatures is the ability to participate with others in collective activities with shared goals and intentions'. Hrdy continues: 'For the moment, this trait, along with our extra-large brains and capacity for language, marks the new dividing line separating our natures from those of other apes.' Her stated aim is to understand how 'other-regarding tendencies could have evolved in creatures as self-serving as apes', and that: 'The desire to psychologically connect with others had to evolve before language'. Her account is based on the premise that the vulnerability of the human baby and the long maturation process entailed collective care that ensured the baby was fed and taken care of, in part by releasing the mother to continue to forage for food. Another consequence of collective care was that our ancestors could have babies at more frequent intervals than our nearest cousins, chimpanzees and bonobos, giving an evolutionary advantage.

The research by Hrdy and others like her on reproduction,⁶³ alloparenting and, in Hrdy's case, the role of grandmothers in providing food, is full of insights on cooperation in many animal species including our own. However, these insights are not integrated into an overall understanding of the relationship between producing and reproducing. Hrdy foregrounds reproduction and the evolution of Homo as 'cooperative breeders',⁶⁴ so Engels's insistence on labour and transformations in interactions with nature as the key driver in our evolution is entirely absent. Thus, it remains unclear from Hrdy's account what brought about change. Such accounts might benefit from being measured against archaeological findings such as at Çatalhöyük in southern Anatolia. Ian Hodder led the excavations for many years of this neolithic settlement that flourished from 7,500 to 6,400 BC.⁶⁵ Hodder firmly insists that it was an egalitarian society, without class divisions, rigid gender roles, or division of labour and that children were not brought up by their biological parents. An Engelsian starting point would be to look for the ways in which changes in the

ways of interacting with nature to secure food and shelter, alongside the development of tools and other artefacts, drove a process that sets in train a range of physical changes, including changes in sexual reproduction and changes in mental capacity reflected in the development of brain size, language and social organisation. Coolidge and Wynn attempt to go some way to such an approach by linking changing tool production and habitats to changes in the brain in *The Rise of Homo Sapiens*,⁶⁶ as does John Parrington in *Mind Shift*,⁶⁷ although none of these authors explicitly refer to Engels.

Tools and brains

Frederick L. Coolidge is a Professor of Psychology who specialises in cognitive archaeology. He currently co-directs the Centre for Cognitive Archaeology at the University of Colorado, Colorado Springs. Thomas Wynn is an Emeritus Professor of Anthropology at the same institution who specialises in Palaeolithic archaeology, with a particular emphasis on cognitive evolution. They use a variety of techniques to develop their account of the possible evolution of Homo sapiens: an analysis of the modern brain and how it works;⁶⁸ an understanding of genetics and epigenetics; remains of fossils and what they can potentially tell us about the size and shape of brains in the evolution of Homo sapiens; environments where the fossils were found and more. They then attempt to correlate the changes in the production of tools and habitats and the kinds of 'thinking' this might entail, with changes they identify in the brain. Their argument is complex, and it is not possible to do it justice here. The analysis by Marxist writer Chris Harman,⁶⁹ who argued in a 1994 article that Engels's fundamental thesis about the dialectical relationship between the evolution of labour and intellect was correct, has interesting parallels with that of Coolidge and Wynn.

Coolidge and Wynn argue that there was not much difference between the size and nature of the brain in chimps and bonobos and the emergence of Homo erectus over millions of years and that the brain capacity to produce the earliest stone tools differed little if at all from the brain capacity to use a stone to crack open a nut or a twig to poke for termites. Thus, the reference to tool use by primates by many anthropologists to discount their role in the evolution of Homo sapiens, misses the point. It is not the use of tools as such, but how the tools were used and the changes in tool production and habitat that are key. This is a point made by Harman, who argues that over several millions of years, small changes in tool use could have been occurring, without there being a change in brain size.⁷⁰ Coolidge and Wynn identify three main leaps in cognition. The first is 1.8 million years ago (mya)⁷¹ with Homo erectus, who they argue:

developed a dramatically new way of life that included movement away from the relative safety of wooded habitats and expansion into a variety of habitats throughout much of tropical Europe and Asia ... *Homo Erectus* acquired abilities in spatial recognition and social cognition that were linked to changes in social and landscape use. We think that this first leap in cognition may also have been facilitated by physiological changes in sleep patterns tied to ground sleep.⁷²

They also point to the decrease in sexual dimorphism with the growth of females and the resulting need for a greater calorific intake. In addition, babies would be born 'prematurely' and therefore with a greater degree of helplessness. They conclude that 'Homo Erectus must have used some kind of cooperative social provisioning'.⁷³ *Homo erectus* is associated with different kind of tools known as biface that are made differently from the previous simpler technique known as 'knapping', splitting flakes from a core. Making biface tools involved selecting a larger core and using two hands to 'knap' the tool. These tools followed a standard pattern over 1 million years.

For Coolidge and Wynn, the second leap is between 1 million and 500,000 years ago when brain capacity increased by 25 percent to a mean size of 1,200 cc. with the emergence of *Homo heidelbergensis*. Neanderthals, Denisovans, ourselves, and other groups evolved from *Homo heidelbergensis*. Again, there was a change in tool production both in terms of materials and techniques. Now, cores were selected, prepared for the 'knapping' of flakes with a 90 degree turn that led to both flakes and the core being shaped as a tool. The use of softer material like bone and wood led to sharper flakes and now the cores and useable flakes were transported from the work site. These kinds of tools were found all over Africa, Europe and South Asia by 300,000 years ago. Here we see the first signs of body decoration and depictive imagery as well as big game hunting. Coolidge and Wynn point out that the emergence of *Homo heidelbergensis* in a period of rapidly changing rainfall leading to expanding and contracting forests, grasslands and deserts, implying that the ability to adapt to different habitats would have been an advantage. Interestingly, they conclude about the emergence of *Homo heidelbergensis*: 'Just how remains a bit of a puzzle but we contend, and are not alone in this, that the key lay in *Homo Heidelbergensis*' minds.⁷⁴

The third leap, they argue, starts 200,000 years ago and was complete by 60,000 and led to 'completely modern thinking', involving 'a neural event ... that led to a reorganisation of the brain to enable fully modern thinking'.⁷⁵ This final phase is amply documented in the archaeological record: 'personal ornaments, cave art, artistic and imaginative figurines, elaborate ritual burials, with thousands of beads, complex multicomponent technologies like bows and arrows, long distance exchange of artefacts, calendars, and scheduled hunting and gathering organised months and years in advance'.⁷⁶

Coolidge and Wynn make several important points: they urge caution about the greater 'evidence' from sites in Europe because of more extensive archaeological research there than in Africa. It is important to remember, *Homo sapiens* emerged in Africa. They point to the transition possibly being in the African Middle Stone Age, a period much less researched than sites in Europe but roughly contemporaneous with the European Middle Palaeolithic.⁷⁷ They point to evidence of development in tool making and a more varied diet including plants and corms and fish. Finally, they point out that their hypothesis would be completely undermined if chimpanzees were shown to have an equivalent working memory capacity to human beings or more complex tools were found at *Homo erectus* sites.⁷⁸

Parrington's focus is on the role of language as a tool in human thinking. Unlike Coolidge and Wynn who think that early tool making could have been learned without language, Parrington points to studies that show that learning of competence in the biface tool making associated with *Homo heidelbergensis* was speeded up using gesture (doubling the quality of production) and language (quadrupling the quality) in the teaching process, compared with learning from observation. He concludes that language development at least with gestures would have been available over 2 million years ago.⁷⁹ Although such tool making might well be speeded up for *Homo sapiens* using language, this does not prove it was the case with *Homo heidelbergensis*. If they evolved from tool makers who didn't have language, they might have been more attuned to learning through imitation than *Homo sapiens* used to learning with speech. However, Coolidge and Wynn, and Parrington all see the possibility of language emerging through gesture and Parrington points out that sign language is syntactically as complex as verbal language.⁸⁰ He also points to the possibility that language development may well have taken place on the basis of neural networks established by the making of tools.⁸¹ Furthermore, he insists on the impact on learning that takes place with *Homo sapiens* because 20 percent of babies' brain growth takes place after birth. This means the environment a baby is born into has a much greater importance in the development of the brain than at an earlier evolutionary stage.⁸²

The work of Humphries and Stringer, Coolidge and Wynn, and Parrington illustrate the importance of developing our understanding of the evolution of *Homo sapiens* based on integrating an understanding of the physical environment, fossils, and material artefacts with an understanding of complex changes in our anatomy in tandem with up-to-date techniques of understanding the evolution and working of the brain. Accepting the constraints of material evidence minimises, although doesn't completely eradicate, the impact of cultural assumptions of scientists.⁸³ And there appears much to be gained by working with Engels's approach and locating our evolution in how we interacted with nature as our starting point. This was the starting point for Marxists such as the archaeologist Gordon Childe in the 1930s, although much of his account

has been overtaken by the advancements in archaeology and palaeontology.⁸⁴ The analysis of Marxist writer Chris Harman, in its fundamentals, stands the test of time.⁸⁵ Regrettably, in my view, many anthropologists have moved away from a materialist analysis of how our ancestors lived their lives, to a more Hobbesian view of human nature combined with an emphasis on the role of reproduction. A reassertion of the fundamental argument made by Engels (and Marx) that how we interact with nature shapes our evolution and our ability to reproduce ourselves could be fruitful.

Notes

- 1 See Stephen Jay Gould, *Ever Since Darwin*, London, 1980, chapter 26.
- 2 Louise Humphries and Chris Stringer, *Our Human Story*, London, 2018, provides a good recent summary of this kind of work.
- 3 Chris Stanford, *Upright*, New York, 2003.
- 4 Christopher Boehm, *Moral Origins*, New York, 2012.
- 5 Kent Flannery and Joyce Marcus, *The Creation of Inequality*, Cambridge MA, 2012.
- 6 Frans De Waal, *Different: What apes can teach us about gender*, London, 2022.
- 7 Sarah Blaffer Hrdy, *Mothers and Others*, Cambridge MA, 2009.
- 8 Frederick L. Coolidge and Thomas Wynn, *The Rise of Homo Sapiens*, New York, 2018.
- 9 John Parrington, *Mind Shift*, Oxford, 2021.
- 10 Bishop James Ussher, <https://archive.org/details/james-usher-annals-of-the-world>.
- 11 Charles Darwin, *The Descent of Man and Selection in Relation to Sex*, http://darwin-online.org.uk/converted/pdf/1889_Descent_F969.pdf, p.48.
- 12 Tristram Hunt, *The Frock-Coated Communist*, London, 2010, p.291.
- 13 Stephen Jay Gould, *Ever Since Darwin*, Ibid, pp.25-26.
- 14 Ibid.
- 15 Ibid., p.211.
- 16 Frederick Engels, [1876] 'The Part Played by Labour in the Transition from Ape to Man', *Marx Engels Selected Writings*, Volume 1, London, 1968, pp.354-358.
- 17 George Gaylord Simpson, quoted in Stephen Jay Gould, *Ever Since Darwin*, London, 1980, p.208.
- 18 John Parrington, *Mind Shift*, Oxford University Press, New York and Oxford, 2021, pp.35-36.
- 19 See https://en.wikipedia.org/wiki/Taung_Child#Initial_criticism_of_Dart%27s_claims for a summary of the negative response to Dart's claims.

- 20 Dominique Aubert-Marson, 'Sir Francis Galton: the father of eugenics', *PubMed*, NIH, National Library of Medicine, 2009, <https://pubmed.ncbi.nlm.nih.gov/19602363/>.
- 21 Solly Zuckerman, *The Social Life of Monkeys and Apes*, London, 1932.
- 22 Konrad Lorenz, *King Solomon's Ring*, London, 1961.
- 23 See Steven Rose et al., *Not in Our Genes*, London, 1988, chapter 9.
- 24 Richard Dawkins, *The Selfish Gene*, Oxford, 1976.
- 25 Gordon Childe, *Man Makes Himself*, London, 1951; and *What Happened in History*, Middlesex, 1954.
- 26 Jane Goodall is perhaps the best known for her pioneering studies of chimpanzees in Gombe Stream National Park. Jane Goodall, *In the Shadow of Man*, London, 1971.
- 27 De Waal, *Different*.
- 28 *Ibid.*, p.109.
- 29 See Humphries and Stringer, *Our Human Story*.
- 30 *Ibid.*
- 31 Stanford, *Upright*, p.8.
- 32 *Ibid.*, p.9.
- 33 *Ibid.*, p.52.
- 34 *Ibid.*, p.53.
- 35 *Ibid.*, p.140.
- 36 *Ibid.*, p.168.
- 37 *Ibid.*, p.173.
- 38 *Ibid.*, p.55.
- 39 George J. Engelmann, *Labor among Primitive Peoples*, 1883, <https://ia802608.us.archive.org/23/items/laboramongprimi01engegoog/aboramongprimi01engegoog.pdf>. See also Sheila McGregor, 'Social reproduction theory, back to (which) Marx?', *International Socialism*, 160, 2018, <http://isj.org.uk/social-reproduction-theory/> for further discussion on this point.
- 40 Colin Turnbull, *Wayward Servants: The Two Worlds of the African Pygmies*, New York, 1965, p.129.
- 41 McGregor, 'Social reproduction theory, back to (which) Marx?'.
- 42 Stanford, *Upright*, p.100.
- 43 Boehm, *Moral Origins*, p.83.
- 44 *Ibid.*, p.142.
- 45 Kent Flannery and Joyce Marcus, *The Creation of Inequality*, Cambridge MA, 2012.
- 46 The term 'alpha' was originally used in relation to wolves by Rudolph Schenkel in the 1940s. See Frans De Waal, *Different*, chapter 9.
- 47 Flannery and Marcus, *The Creation of Inequality*, p.59.
- 48 *Ibid.*, p.58.

- 49 He is the Charles Howard Candler Professor of Primate Behavior in the Department of Psychology at Emory University in Atlanta, Georgia, director of the Living Links Center at the Yerkes National Primate Research Center at Emory, https://en.wikipedia.org/wiki/Frans_de_Waal
- 50 De Waal, *Different*, p.9.
- 51 *Ibid.*, p.6.
- 52 *Ibid.*, p.203.
- 53 *Ibid.*, p.201.
- 54 *Ibid.*, chapter 9.
- 55 *Ibid.*, p.96 and chapters 5, 6 and 7.
- 56 *Ibid.*, p.116.
- 57 *Ibid.*, p.201.
- 58 Another assumption is what is known as the Bateman's Principle, i.e., that males will fertilise as many females as possible whilst females will seek out the best possible mate. According to De Waal, this has led to a lack of research and is anyway somewhat belied by recent observations that females often mate unobserved by the 'Alpha' male. De Waal, *Different*, p.164.
- 59 *Ibid.*, chapter 12.
- 60 *Ibid.*, pp.50-54.
- 61 *Ibid.*
- 62 The anthropologist Kristen Hawkes proposed grandmothers played a crucial role in human evolution. This is referred to as 'the grandmother hypothesis'. She based her theory on field observations of the Hadza in Tanzania. See Lucy Cooke, *Bitch*, London, 2023, pp.220-221.
- 63 Hrdy cites the influence of the anthropologist Polly Wiessner, Wiessner's son, Niko Larsen, as well as a seminar on socio-biology co-taught by Edward O. Wilson, on the development of her ideas. Hrdy, *Mothers and Others*, p.403. Another account with a zoological approach can be found in *Bitch* by Lucy Cooke.
- 64 Hrdy, *Mothers and Others*, p.204.
- 65 Ian Hodder, *The Leopard's Tail*, London, 2006.
- 66 Frederick Coolidge and Thomas Wynn, *The Rise of Homo sapiens: The Evolution of Modern Thinking*, Oxford, 2009.
- 67 Parrington, *Mind Shift*.
- 68 Necessarily this reflects their viewpoint about which part of the brain is essential for what activities. It varies from the account given by Parrington.
- 69 Chris Harman, 'Engels and the origins of human society', *International Socialism*, 65, 1994, pp.86-102.
- 70 Harman, 'Engels and the origins of human society', pp.90-91.
- 71 Mya means millions of years ago. It is worth recalling that the split from chimps and bonobos occurred 7-8 mya.
- 72 Coolidge and Wynn, *The Rise of Homo sapiens*, p.5.

73 Ibid., p.130.

74 Ibid., p.162.

75 Ibid., p.5.

76 Ibid., p.5.

77 Ibid., p.226.

78 Ibid., p.263.

79 Parrington, *Mindshift*, p.40.

80 Ibid., p.131.

81 Ibid., p.131.

82 Ibid., p.78.

83 Coolidge and Wyn are scrupulous in their approach but accept the view that spatial cognition is inferior in women than men. Coolidge and Wyn, *The Rise of Homo sapiens*, p.61. Such cognition varies by gender but there is no difference in ability according to research done by the University of Limerick. <https://neurosciencenews.com/spatial-cognition-sexes-15576>.

84 See Childe, *Man Makes Himself*, and *What Happened in History*. His account necessarily needs to be updated with the vast accumulation of archaeological knowledge since his day. However, this needs to be done without rejecting the fundamental point of departure of how our interaction with nature grounds our evolution and changing societies. Having shaped the approach to archaeology for many decades, his views are now being discounted. See Ian Hodder, *Entangled - An Archaeology of the Relationships between Humans and Things*, Oxford, 2012.

85 Harman, 'Engels and the origins of human society?.'