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University of Southampton

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**The Paragon of Animals:
Anthropocentrism and Human
Origins**

by

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Thesis for the degree of Doctor of Philosophy

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UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF HUMANITIES

Department of Archaeology

Thesis for the degree of Doctor of Philosophy

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by

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Recent years have seen the development of the “animal turn” and the rise of animal studies as a multi-disciplinary field dedicated to moving beyond anthropocentrism. Yet its ripples have been barely felt within archaeology, and not at all within the study of human origins, arguably the domain where these insights are most keenly needed given its focus on “what it means to be human”.

This thesis takes the form of a critical history of the discipline, that we might better understand the way forward. I seek to illuminate the degree to which there has been intellectual continuity in the discourse, and the degree to which this discourse has been driven by anthropocentric political ideology. To this end I examine two themes within human origins research, phylogeny and mind, looking firstly at texts from the earlier decades of the discipline and subsequently at those from recent decades. I show that, both in phylogenetic and mental/cultural terms, the loaded dichotomy between human and animal, as well as “moderns” and “archaics”, has been continually forced upon the data to meet political ends, with *a priori* conclusions having made the recognition of contrary evidence virtually impossible. This is as true now as it was a century or more ago.

Having exposed the long and continuing hegemony of anthropocentric ideology I argue it is high time for a decisive break with it, and advocate a metahumanist approach that both affirms the “animality” of the human and the “humanity” of other animals. I conclude with a case study showing how we may begin to actually apply such an approach to the subject, looking at hyenas, now recognized as conscious agents, and their interactions with prehistoric humans, no longer defined in opposition to the animal or by an archaic-modern dichotomy.

Table of Contents

List of Figures	7
Research Thesis: Declaration of Authorship.....	9
Acknowledgements.....	11
Chapter 1: Introduction	13
1a. Aim.....	13
1b. Research Questions	13
Chapter 2: Background	15
2a. Human Origins	15
2b. Anthropocentrism	19
2c. Metahumanism.....	26
2d. Methodology	28
Chapter 3: Literature Review: Historiography and Epistemology of Human Origins Research.....	32
3a. An Empty Niche.....	32
3b. Studies in Epistemology	36
3c. The Uses of History	40
3d. Palaeoanthropology is Politics By Other Means.....	45
3e. Histories of the Human	52
Chapter 4: Phylogeny and Pithecophobia: Master Race vs Universal Kinship	56
4a. Introduction	56
4b. Pre-Darwinian Classification	59
4c. Wallace's Orangs	76
4d. Summary of subsequent developments.....	94
4e. Conclusion.....	96
Chapter 5: Phylogeny and Pithecophobia Part 2: The 1%	99
5a. The Human-Chimpanzee Clade	99
5b. The Great Ape Project	108
5c. Mitochondrial Eve and Noah's Ark	114
5d. Racial Politics	123
5e. Palaeogenetics.....	131
5f. Conclusion.....	140
Chapter 6: Human Mind and Animal Instinct: Supreme Reason or Dominant Beast?.....	143
6a. Introduction	143
6b. Pre-Darwinian.....	147

6c. Darwinian Developments.....	170
6d. Huxley.....	183
6e. Haeckel.....	197
6f. Wallace.....	210
6g. Eclipse of Darwinism.....	219
Chapter 7: Human Mind and Animal Instinct: Man the Symboler.....	235
7a. Cognitive ethology and Symbolic thought.....	235
7b. Archaics Reappraised.....	249
7c. Human Mind and Animal Instinct: Conclusion	261
Chapter 8: Case Study.....	266
8a. Introduction.....	266
8b. Perceiving Hyenas	270
8c. Conclusion.....	288
Chapter 9: Final Conclusion	290
9a Concluding Statement	290
9b. Future Research	295
References.....	298

List of Figures

Figure 1 Möbius Strip by M.C. Escher (National Gallery of Canada)	20
Figure 2 Aristotle's scala naturae from Charles Singer, A Short History of Biology (1931).61	
Figure 3 Owen's 1857 Classification of Mammalia (Owen 1857).....	76
Figure 4 Mounted orang-utan specimen collected by Wallace (Natural History Museum Picture Library).....	80
Figure 5 Sibley and Ahlquist 1984 Phylogram of the Hominoids (Sibley and Ahlquist 1984)	102
Figure 6 Newsweek 1988 Cover "The Search for Adam and Eve"	116
Figure 7 Newsweek 1988 Models of Modern Human Origins	127
Figure 8 Scenarios of Modern Human Origins (Gibbons 2011).....	135
Figure 9 Separating Them from Us (Gibbons 2010)	139
Figure 10 Extant Human Genetic Heritage (Stringer 2012)	139
Figure 11 A schema of contrasting approaches to Human-Animal Mind.....	145
Figure 12 Aristotle's hierarchy of souls (Ian Alexander, Wikimedia Commons).....	148
Figure 13 Phyllis rides Aristotle like a beast, by The Master of the Housebook c1485 (Rijksmuseum).....	159
Figure 14 An ape chained to a block c1500 (Musée de Cluny)	161
Figure 15 Portrait of Jenny the Orang (Printed by W Clerk, High Holborn, in December 1837)	171
Figure 16 Lubbock caricatured as a bee (Punch August 19, 1882, page 82).....	178
Figure 17 Fenian depicted as a bestial ape threatening white womanhood and human civilization (reproduced from Curtis 1996)	194
Figure 18 Haeckel with stuffed Gorilla (Phyletisches Museum, Jena).....	209
Figure 19 Frontispiece to The Malay Archipelago (Wallace 1869).....	212
Figure 20 Illustration for The Murders in the Rue Morgue (Daniel Urrabieta Vierge, 1870)	213
Figure 21 Neanderthal vs modern human mind as conceived by Mithen (1996)	246
Figure 22 Neanderthal with personal ornamentation (Mauro Cutrona).....	251
Figure 23 Homo naledi funerary activity (National Geographic October 2015)	257
Figure 24 The Anthropocentric approach	268
Figure 25 The Metahumanist approach	269
Figure 26 Hyena desecrating corpse, from the Aberdeen bestiary (University of Aberdeen)	271
Figure 27 Hyenas consuming erectus (from Boaz and Ciochon 2001).....	273
Figure 28 Hyenas in cave art (from Spassov and Stoytchev 2004)	286
Figure 29 Creeping hyena spearthrower from La Madeleine (Klaus D. Peter, Wiehl, Germany)	287

Research Thesis: Declaration of Authorship

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I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

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Chapter 1: Introduction

1a. Aim

The aim of this study is to examine how the humanity/animality of human ancestors has been conceptualised in the discourse of human origins- who is considered human and who animal, and on what grounds? I will seek to investigate the interplay of science and politics in the influence of inherited concepts and contemporary concerns upon such conceptions, and also explore how bio-archaeological narratives and representations cohered with contemporary concepts of humanity/animality and their political programs.

1b. Research Questions

I will attempt to answer two important questions.

Firstly, to what extent do we see continuity in the discourse on human origins? This is something of a contentious issue as attempts by anthropologists to demonstrate a deep historical/intellectual continuity in human origins discourse have been criticized by historians of science for failing to account for historical context. This is to some extent a fair criticism, for it easy to perceive a spurious continuity in textual fragments plucked out of space and time. Nevertheless, it is perfectly valid to assume continuity where there is direct evidence of one author relying on another, and/or where the socio-political context is similar, which should be simple to demonstrate if we avoid an overly narrow definition of the political realm.

Secondly, to what extent is the development of this discourse driven by political ideology? It is safe to say that the history of human origins research is not regarded as the model of a disinterested and unbiased endeavour by any of its current practitioners or historians of science. Nevertheless, it is worth pursuing this question with regards to anthropocentrism specifically, since as implied above this is an area of ideology so naturalized in the contemporary west that even the most explicitly political statements along these lines are commonly not recognized as such.

A study of this kind will have a dual nature. It is both history and theory, historiography and epistemology in tandem. The assumption is that a better understanding of the past will lead to greater understanding of present issues. Disciplinary history has been seen as “a source of knowledge of alternatives and as a means of denaturalizing current opinions and practices” (Corbey and Roebroeks 2001:4), and the aim of this study follows in the same vein. Bowler (2001:10) “takes it for granted that palaeoanthropologists will gain insights from historical studies demonstrating the extent to which ideas on human origins have been shaped by assumptions about what it is to be human.”

While this study thus has a dual nature in its design, it has a dual nature in its subject matter too- human origins and anthropocentrism. It can be seen as a study of the former topic in light of the insights of the latter, an attempt to elucidate important aspects of its past in a manner that will be of great value to the discipline going forwards. But it can also be viewed as a case study of the influence of anthropocentrism on one significant field of inquiry, in fact a field that impacts upon many others, and in this regard can be read profitably by those in other archaeological/anthropological fields and as a contribution to animal studies more generally.

Chapter 2: Background

2a. Human Origins

Human origins research is interdisciplinary, defined by its subject matter rather than the methods of investigation, but it is primarily comprised of two main fields; Palaeolithic archaeology, centred on artefacts, and a form of biological/physical anthropology centred on fossils/bones. The field is concerned with one central, overarching problem- that of an animal origin for the human.

One could easily take any area of archaeology and critique its anthropocentrism, just as one could with regard to, say, gender, and such studies would be very valuable. Overton and Hamilakis (2013) made a brief foray along these lines with regard to zooarchaeology. Thus the choice of human origins for this study by no means implies that the field is unique in the strength of its anthropocentrism. But this choice is in no way arbitrary. It would make a fitting subject purely based on its influence alone. The topic of human origins has a broader appeal that is unmatched by any other area of archaeology. In addition to being the subject of intense popular interest, its findings are drawn upon extensively by scholars in a variety of different disciplines. These scholars typically take these conclusions as objective fact- even if only tacitly, in accepting them uncritically. In explaining the origin of humanity from animality, it could be regarded as foundational to archaeology/anthropology and the humanities as a whole. Moreover, the “original narratives” that this field generates have unmatched political legitimacy and influence (Conkey and Williams 1991). Thus any sustained challenge to anthropocentric ideology will need to confront the subject of human origins.

However, human origins would be the most obvious choice for this study based purely on factors internal to the field, regardless of its wider impact. The human origins literature “remains characteristically focused on ‘the big questions’: ‘what is it to *be* human?’ ‘What *makes us* human?’ ‘What does it *mean* to be human?’ And so on” (Boyd 2013:147). These questions are the focal point for the way the discipline presents itself to the public and prospective students. For

example, the description for Sheffield's MSc Palaeoanthropology states "From both biological and philosophical perspectives, [the] fossil record is the ultimate source of our perspectives on what it means to be human." The April 2011 cover story for *Popular Archaeology* magazine on the Smithsonian Hall of Human Origins was titled simply "What does it mean to be human?" A vast number of similar examples could be enumerated. These are only "big questions"- in fact, are only really intelligible- from an anthropocentric standpoint; they are really asking for an account of the ways that humans are uniquely different from and superior to all other animals, in order to justify the exploitation of the latter. The true significance of these questions is nicely demonstrated in Vercors' 1952 novel *Les Animaux dénaturés*, describing the modern-day discovery of a living "missing-link" species, and focusing on a court case regarding their human status; if judged animal, they can be killed and enslaved with impunity, while if judged human these become murderous and criminal deeds.

But these questions can also be taken to represent insecurity more than confidence, an expression of unease in the face of an animal origin for humanity. Scholars of human origins cannot be quite so naive in their anthropocentrism as later prehistorians, zooarchaeologists, historians and anybody else for whom the human-animal boundary can be simply taken for granted, never examined or questioned. Here definitions of humanity/animality come to the fore; the nature of the human is the topic of debate, and delineating its boundaries an explicit aim, a role openly acknowledged from the very beginnings of the field. What is anthropocentric subtext in other fields becomes anthropocentric text here; who or what counts as human is openly discussed rather than blithely assumed. Thus the role of anthropocentrism in human origins discourse is ripe for critical examination, and its illumination would be of even greater use to scholars in this field going forwards than it would in related fields.

In the discourse of human origins the abiding figure of unambiguous animality is the ape (with other "higher primates" such as baboons also prominent). As Corbey (2005) and others have pointed out, the significance of the ape in western culture has been out of all proportion to people's real-life dealings with such beings. An animal which so closely mimics the human is a conceptual threat to anthropocentrism; its

behaviour/mind must be clearly defined as animal to counteract the obvious physical resemblance, and very great weight placed on those physical differences which are apparent. It is these beings which for the most part constitute “the animal” in discourses on human uniqueness; the ape stands symbolically for the metaphysical essence of animality and synecdochally for the animal kingdom in general. The scientific study of apes obviously reflects this ideological significance; thus the discourse of primatology has been described as “simian orientalism” (Haraway 1989:10), and it has been argued that “primatology is politics by other means” (Haraway 1984).

With regard to anthropocentrism, I believe the discourse of human origins is perhaps even more revealing than primatology, though the latter has received much more critical examination in this connection than the former. While certainly heavily informed by evolutionary theory, primatology is not fundamentally an evolutionary discourse, but a more simple matter of comparing and contrasting. Human evolution on the other hand is fundamentally about origins and development, and introduces a whole host of liminal beings which make drawing the boundaries of the human a much more difficult problem to which a great deal of attention must be devoted. That the discourse of human origins is potentially more revealing than primatology while simultaneously being less-examined makes a study of this nature very valuable.

Human origins is unfortunately a field in which any kind of critical examination has been somewhat uncommon. Landau’s pioneering (1991) study of narratives of human evolution “hit a raw nerve” (Bowler 1991:364) among scholars of human origins, generating extremely defensive and ill-considered reactions from some of them. In the process they exposed the extent of their naiveté, since scientists in other fields had been well aware of these issues for decades and Landau’s study added nothing essentially new to the wider debate at a theoretical level (Bowler 1991). While there has been a tendency towards greater self-awareness since then, a dismissive attitude to critical thought still prevails in some quarters. For example, Tim White (2011:291) advised prospective palaeoanthropologists “If you truly want to improve the understanding of human evolution (and help others do so), immerse yourself in modern biological thought and research. Hox genes, pattern formation, biochemistry, lithic technology, and geomorphology are more important than “meta-

narratives” or “multiple modernities.”” In other words, the discipline should keep proceeding as usual, perhaps sharpening its methodological tools, but never stopping to question how or why they are applied. However, recent developments in the field make such an attitude even less defensible than previously.

The vision of the modern human, heavily weighted with ideological import, which has prevailed for decades is no longer tenable. Its bloodline is no longer pure, with Neanderthal ancestry and the presence of archaic genes in modern populations now demonstrated. John Hawks observed after the Neanderthal and Denisovan genome revelations, “a large-scale reorganization of the science of human origins is upon us” (2010). Nor is the modern human now unique in its mental capacities, for the much-vaunted “symbolic thought” that secured its superior status is now widely accepted to be shared with Neanderthals, with evidence indicating their utilization of feathers, talons, production of shell jewellery, cave art and so on. Nor is the wider picture of human origins unaltered. The recent discovery of the enigmatic *Homo naledi* adds to the disorienting impact of the earlier *floresiensis* discovery, throwing the comfortable narrative of human evolution into disarray. Fred Grine was quoted thusly in the October 2015 edition of *National Geographic*; “What *naledi* says to me is that you may think the record is complete enough to make up stories, and it’s not” (56). It is surely an especially fitting moment for such a study, when scholars are displaying such scepticism towards their own field. Now that old certainties are crumbling, both old and new evidence is increasingly going to be looked at more critically, with new conclusions drawn from re-interpretation. An open mind will most certainly be a virtue, and an awareness of long-standing prejudices and errors necessary. The time is ripe to move away from approaches steeped in anthropocentrism.

2b. Anthropocentrism

Anthropocentrism is a worldview granting humans a superior status conferred by possession of attributes all other beings are held to lack, holding humans to be categorically different from all other forms of life, which are subsumed under the category of “the animal.” Anthropocentric ideology places humans at the apex of a hierarchy of life, and devalues all groups placed on an anthroparchal *scala naturae* as less or lower than fully human, which justifies their exploitation.

Anthropocentrism thus historically and presently devalues nonhuman animals, in addition to “lower” races and classes (who substantially intersect, both in reality and ideology), women, children, and so on. The “human” is not simply a biological species like any other; it is a position of power, a social construction. Thus we would not expect a field devoted to defining this category and explaining its origins to be an impartial record of objective reality- but we would expect it to present itself as such.

This anthropocentric worldview is a descendent of the classical tradition, in which an essential distinction between “man” and “beast” was elaborated in terms very similar to those still in use today, with possession of reason being the factor of greatest importance. Rational man sat at the top of the hierarchical *scala naturae*. This ontology was simultaneously a political program for the human domination of other animals, the foundation of an anthroparchy; which- notably in Aristotle’s arguments on slavery- was also intimately connected to the domination of other humans. The Church fathers took up this classical anthropocentric ideology, and raised it to dogma. As a result, defining the boundaries of humanity became a much greater concern than it had ever been before, as seen for example in the debates over the Plinian races. The same arguments about slavery and humanity were the subject of the Valladolid debate concerning the Amerindians, who had now taken the place of the Plinian races as a figure on the border of humanity.

Bourke uses the analogy of the Möbius strip (**Figure 1**) for attempts to define humanity/animality; “The Möbius strip embodies the roller-coaster ride of life... it deconstructs the human versus animal dilemma. The boundaries of the human and the animal turn out to be as entwined and indistinguishable as the inner and outer sides of a Möbius strip. Marking these boundaries is not a neutral exercise in establishing the facts – it is an exercise of power, which can be contested” (Bourke 2011:10). Or in other words, “Human” is a position of power, and the borders between human and animal are as much socio-political as they are natural (Fuss 1996:2). Species are not “natural” units, but “natural/cultural” units. They are not built up from facts of nature, but are made as well from the concerns and interests of the classifier, who works partly according to the cultural mind-set and issues of the age (Marks 2015:112).



Figure 1 Möbius Strip by M.C. Escher (National Gallery of Canada)

This is true to some extent of all species, but with those close to the human/animal boundary it is exceptionally so. As Bourke outlines, the instability of definitions of who is truly human is clearly apparent in historical perspective; “What history has taught us is that there is nothing sacred about any definition of humanity and nothing eternal about its scope” (Douzinas 2000: 187-8).

Within the worldview of anthropocentrism the category of the animal can only be imagined as a lack in relation to the human, not as a fullness of being in its own right (Hudson 2008). However, it is apparent that “once we bracket our prejudices long enough to pay attention to what animals actually do, we find that they are at least as interesting, and individuated, as we are. They are unpredictable; they have lifeworlds that brim with ambiguous meaning; they are moved by thought as well as by passion” (Sanbonmatsu 2005:109). In discourse animals are traditionally silent; as Fudge (2011:97) observed, this is not only a silence based on their perceived

inability to speak, “it is also a silence based on humanity’s unwillingness to speak fully about and for them.” But this silence is now thankfully being broken.

Anderson used the phrase “animal turn” to describe a developing trend of “Post-Cartesian challenges to the conceptual boundaries segregating “humanity” and “animality”... the human-animal divide is increasingly being problematized in the human sciences” and as a result “the study of animals has thus been brought into a culture/society framework from which it has long been excluded” (1997:466). This animal turn has characterized a broad range of fields within the humanities, including studies in postcolonial theory (Hepburn and Anderson 1995, Anderson 2007), feminist theory (Adams and Donovan 1995, Birke 1994), cultural geography (Philo and Wilbert 2000), history (Bourke 2011, Fernandez-Armesto 2005) and philosophy, such as Agamben’s (2004) discussion of the “anthropological machine” separating human from animal. The writings of Derrida (2002, 2008) have been another significant milestone in the development of the field, a theoretical exploration initially sparked by an otherwise mundane encounter in which he recognized in the gaze of a cat a subject rather than an object. This animal turn has led to the emergence of “animal studies” as a multi-disciplinary endeavour.

While “the human/animal dichotomy constitutes an unverified a priori assumption on which the development of anthropological discourse regarding humans, human culture, etc. is based” (Tonutti 2011:184) and thus anthropology has traditionally limited itself to the boundaries of an essentialist concept of the human (Noske 1997), recent years have seen the emergence of “multi-species ethnography” (Kirksey and Helmreich 2010), “an anthropology that is not just confined to the human but is concerned with the effects of our “entanglements” with other kinds of living selves” (Kohn 2007:4). It is imperative that research “should begin by treating other animals as subjects who have personalities, wills, desires and social relations and who are capable of experiencing both pleasure and suffering” (Nibert 2003:21). Thus, “to understand elephants (say), we do not have to pretend that they are “just like humans”, let alone that they are just like 20th-century, Western, middle-class humans. But we may have to apply some of the interpretative methods common to the humanities and classically reserved for the study of human culture and history” (Ingold 1994:10). Noske was an early pioneer of this approach, stating that if

anthropology “would shed its a priori notion of animals as beings unworthy of an anthropological approach, and would share its insights with critical ethologists, it might grow into an integrated science of humans and animals alike under the name of anthro-zoology or zooanthropology. Anthropologists of all people should know that Otherness can never be an excuse for objectification and degradation either in practice or in theory” (1989:170).

With the development of cognitive ethology, focused on “minding animals” (Bekoff 2002) the scientific study of animal behaviour has to a significant extent moved away from the reductionism and the denial of animal mind and capacities that characterized the traditional approach. The earlier objections of sceptics to cognitive ethology have been proven unfounded, with animals clearly demonstrating true cognition (Klopfer 2005). Panksepp (1998, 2005) championed “affective neuroscience”, a return to the Darwinian emphasis on the shared basis of human and animal emotion. It is evident that animals have the capacity to feel pleasure, a fact which has usually been downplayed or ignored (Balcombe 2006). As Kropotkin argued, animals can be seen to possess a moral sense (Bekoff and Pierce 2009). Not only mammals but birds too have demonstrated “human-like” traits, with corvids and parrots in particular demonstrating surprising capabilities (Pepperberg 1983, Marzluff and Angel 2012). These truths are not even restricted to “higher vertebrates”. Fish perception and cognitive abilities often exceed those of other vertebrates, they experience pain in a similar manner and use tools (Brown 2014), and even invertebrates such as octopuses clearly have complex minds (Montgomery 2011). This is of course not to promote a simplistic Cartesian division between body and mind in the narrow sense, but these studies should be seen as a necessary correction to the anthropocentrism of that still common approach.

In other words, there has been something of a convergence on this topic between science and the humanities, which is indeed exactly what one would expect from the breaking down of the anthropocentric human/animal boundary; once animals become recognized as subjects, not objects, the traditional distinction between the two fields is no longer relevant. But these theoretical/scientific developments cannot be separated from politics. Sanbonmatsu (2005:109) observed that “the rise of the animal rights and feminist movements has spurred scientists to

begin to chart the continental expanse of animal mind- terrain previously ruled out of bounds by empiricists.” Cognitive ethology is clearly convergent with animal rights in seeing animal experience as worthy in itself; Allen and Bekoff in a discussion of scientific reactions to cognitive ethology state “from the applied (and perhaps political) side of things, views on animal minds are tightly linked to issues that center on animal welfare” (1997). When animals are recognized as subjects in an epistemological sense, they also become subjects in a political sense, and vice versa. On the other hand, the traditional impoverished view of animal nature clearly legitimates their exploitation.

Though it is thus intimately connected to animal rights, the political implications of challenging anthropocentrism are not confined to the treatment of non-human animals (though it would certainly be a valuable enough endeavour if it were) but also extend to those considered fully human by contemporary liberal humanists. Nibert has discussed at length the “entanglements of oppression” between animals and devalued humans under modern capitalism (2002, 2013), for example in slaughterhouses, as Sinclair’s *The Jungle* long ago intimated. A strict dichotomy between animal and human rights is itself a form of anthropocentrism which fails to perceive these connections.

The category of animality provides a way to brand certain human groups with “the mark of the beast”, a consignment that justifies their domination and exploitation. This animalization is made possible by anthropocentric conceptions of the animal; while ritually transforming humans into animals is not in itself a pernicious act *animalization* “refers specifically to the course of action that grew out of a number of theories first aimed at establishing human superiority over animals and then at the domination of certain classes and groups- a process that sought to ascribed, both “philosophically” and “scientifically,” the presumed inferiority and brutality of various animals to these groups and classes” (Roberts 2008:x-xi). This process has been especially strong in connection to anti-blackness but has also applied to the lower classes, so-called primitive or savage societies, the mentally ill, women, children, and so on. The reality is that under the ideology of anthropocentrism “there is no safe ground for the “authentically” human individual” given that “We can all be reduced to the “animal”” (Bell 2011:174-5).

The only sure way to exorcise this animality as a tool of human repression is to exorcise the concept altogether; it requires “a fundamental change of our sensibility, of our entire vision of animals and their place in the world—which, in turn, requires a sustained attack on attitudes that would impose and continually reimpose the mark of the beast. To begin with, one must ask a simple question: What’s so bad about animals? The answer is unambiguous: Nothing at all” (Roberts 2008:179).

Even aside from these concerns, it is clear that the anthropocentric disjunction between humanity and animality leads to a “grotesque misrepresentation of essence of our own species” (Sanbonmatsu 2014:39) which is problematic in its own right. “Modern human identity is bound up with the negation of animality in ways that fundamentally implicate and compromise our own freedom... the violent conceptual collapse of all other beings into the single metaphysical category, of “the animal” results in a double self-estrangement. In alienating ourselves from the other beings... we alienate ourselves from our own embodied being *as* animals, slighting those parts of ourselves—the feeling, loving, sensuous, intuitive dimensions of our existence that don’t fit the requirements of the callous machinic order” (42)

It is clear that we must move beyond an unproductive dialectic between humanity and animality that bears little relation to the true nature of the beings in question and has harmful political implications. However, the “animal turn” has had very little impact within archaeology. There has been little attention paid to anthropocentric conceptual frameworks and the modes of action they inform; anthropocentric definitions of humanity/animality are considered scientifically objective and politically neutral, when they are clearly neither.

Material culture studies and so-called “symmetrical archaeology” claim to adopt a non-anthropocentric perspective, but this is really only of a very superficial nature. Ingold noted that researchers in this paradigm “continue to operate with a conception of the material world, and of the nonhuman, that focuses on the artifactual domain at the expense of living organisms” (2012:248). Furthermore, he argued that the much-vaunted principle of symmetry remarkably rests on a claim to human exceptionalism; “Paradoxically, an approach that deontologizes the division between the human and the nonhuman and that establishes in its place a level playing field is justified on the grounds that in the manner of their engagement with material

things and in the progressive history of this engagement human beings are fundamentally different from all other living kinds” (2012:430). Dethroning the human without reappraising the animal, a supposedly non-anthropocentric discourse that is in fact lacking a critical analysis of animality, does rather little to aid our understanding and in political terms is effectively the same as an outright affirmation of human exceptionalism; granting things the same ontological status as people is in the last analysis nothing more than a methodological conceit, a perspective that might generate some interesting if flawed insights but does not grant these objects any political significance in the present.

In fact, these same issues apply to the theoretical discourse of post-humanism as a whole, which can appear in certain ways problematic, as Weisberg has argued, with reference to a recent call that we “preoccupy ourselves with infinitesimal microorganisms who have been unjustifiably neglected in metaphysics, ethics, and politics for so long” (2014:108). Since it is clear that bacteria cannot be subjects in any meaningful sense of the word, such arguments simply lead to the de facto persistence of anthropocentrism. Post-humanism often tends to be anti-humanist, yet rejecting anthropocentrism does not mean we must reject every facet of traditional humanism; Weisberg argues for “a new interspecies humanism” (2014:111), citing Sanbonmatsu’s call for a “metahumanism” which would “affirm a “two-sided” freedom in which the liberation of other animals from human oppression, and the emancipation of ourselves as animals—that is, the restoration of the sensual dimension of existence, free sexual expression, and valorization of the labor and love of the body” (Sanbonmatsu 2007:117).

This bears comparison with the project of sensorial archaeology as set out by Hamilakis (2014) - though most sensorial studies to date have simply perpetuated anthropocentrism in that only the senses of a human subject are considered to be of interest- as well as the archaeology of the body, where there have been rare attempts to move beyond the human-animal binary (Conneller 2004). With regards to zooarchaeology, Overton and Hamilakis (2013) called attention to the discipline’s lack of engagement with animal studies and argued that “zooarchaeology’s ability to contribute to these discussions is heavily limited by the subdiscipline’s firm footing within anthropocentric ontologies and reductionist epistemologies” (111). They

attempted to outline a framework for “a new social zooarchaeology that moves beyond the paradigm and discourse of ‘subsistence’ and of representationist and dichotomous thinking, which have treated non-human animals merely and often exclusively as nutritional or symbolic resources for the benefit of humans” (111). The overwhelmingly positive response and valuable reflections by the commentators was a sign that the necessity of a non-anthropocentric archaeology is now appreciated by many. In this vein, it should be noted that Ingold has recently predicted/advocated the demise of the concept of the human in anthropology/archaeology (2012:81-98). The political dimension did not go unappreciated either, as Argent (2013:142) observed that “including animal others as impactful agents in our interpretations of past societies- doing intersocial zooarchaeology- requires a reassessment of our responsibility to animals in the present. Zooarchaeological narratives which portray animals in past societies as nothing more than un minded objects... support a broader rhetorical vision which has the result of allowing the ongoing objectification and exploitation of animals in the present.” Thus we should not only “welcome animals into the human social as worthy of study” but simultaneously “welcome them into our schemes of social justice” (143). This study will be a timely contribution towards these ends.

2c. Metahumanism

Having explained what anthropocentrism is, it is well to explain what the approach that we should advocate in its stead- a truly non-anthropocentric approach- would actually consist of. For there is a great deal of misunderstanding and misinformation on this subject. Sociobiologists and their ilk decry anthropocentrism in their diatribes, while failing to comprehend its true nature, and what they champion is nothing more than the familiar anthropocentric wolf in sheep’s clothing. They advocate a position that “refuses to anthropomorphize people” (after Morgenbesser, quoted in Boldender 2010:159), applying the metaphysical concept of animality and everything that comes with it not just to animals as classical

anthropocentrism would have it, but to people as well. It does not eliminate the scientific errors and political repression entwined in the anthropocentric approach, rather it doubles down on them. Expanding the category of animality to cover humans also is not the opposite of anthropocentrism, it is an extension of it.

What we advocate is metahumanism (after Sanbonmatsu 2007), a humanism that extends beyond the boundaries of the human species to encompass other animals, recognizing subjectivity and agency in them and not only in humans. Metahumanism recognizes no essential metaphysical distinction between humans and other animals, but rather a continuity of common nature. This common nature is not one of animality, of bestial instincts ruling over reason, as the sociobiologists would have it, but rather in the continuity of mental and sensuous experience and the “humanistic” qualities of subjectivity and agency that accompany it that. Anthropocentrism is not wrong in granting these qualities to humans, rather it is wrong in withholding them from other beings. However, metahumanism does not take as unproblematic the category of “humanity” either- for it not simply wrong in being restricted to humans, but in omitting crucial facets of our existence as embodied and sensuous being in favour of an abstract reason. Not only must we do justice to other beings, we must do justice to ourselves also.

Metahumanism is thus the only approach which is truly non-anthropocentric, in understanding the fundamental problems with anthropocentric ideology and avoiding them. It is surely no coincidence, then, that the essential features of the metahumanist approach have been very rarely applied in the discourse, and that we often see little more than the merest hint of them, and even that is often mistaken for a sociobiological approach by critics who perceive all human-animal comparisons through a thoroughly anthropocentric lens and cannot perceive even what may seem to us the most obvious of differences. The distinction between classical anthropocentrism, metahumanism, and sociobiology will be elaborated at greater length later.

2d. Methodology

This study can be defined as “problematic history”, as defined by Ernst Mayr (1982:6-7). Problematic histories “study the development of sciences in terms of attempts to solve problems, and origins of and changes in key conceptual issues”, an approach that “acknowledges the longevity of earlier concepts, and sees the study of the history of the discipline as one way of evaluating current conceptual structures and research practices and reformulating them productively” (Corbey and Roebroeks 2001:1). Mayr contrasted this approach with sociological history, which he saw as focussed on the impact of scientific ideas on social institutions, politics and culture and not vice versa since “up to now it appears that the influence of social factors on the development of specific biological advances has been negligible” (1982:6). However, such a statement is clearly not tenable for biology, much less for human origins. In fact, Bowler (2001:11) even suggested that historians of science had neglected the field because “the cultural influences on palaeoanthropology are so obvious that the subject is seen as a “sitting duck” that it would be unsporting to shoot at.” Thus, any problematic history that does justice to the topic will need to also be a cultural/sociological history, which is the intent of this study. Intellectual developments will be considered in their socio-political context.

Being mainly interested on the development of ideas within the discipline of human origins, the primary focus of this study will be on academic texts rather than popular presentations. However, the distinction between the two is by no means as clear-cut as may be assumed. There have been a large number of “semi-popular” works that, while aimed at a broad audience, also contained much of interest to scholars. This is especially true of the earlier decades of human origins research, with these books often being much more informative than their author’s strictly academic articles; “though the story of human evolution can be traced in even the more specialized journals, it appears most readily in the books of these authors” which despite being intended for a popular audience were not merely popularizations. Often they contained “the first complete expression of a scientist’s views and were seriously read and reviewed by students of human evolution”

(Landau 1991:5). This is not so much the case in more recent decades, although it still remains true to an extent.

However, these works are of interest for another reason- they tend to be in some ways more revealing than the drier and more technical academic works. They are typically unafraid to state explicitly that which is left implicit or excised from strictly academic articles; what is subtext there becomes text here, thus is easily identified and quoted. Furthermore, they usually include much more detail on the supposedly “extra-scientific” aspects- such as the author’s background and context and socio-political implications of theories- which are in fact very important, and very relevant to this study. It follows that (auto)biographical accounts, interviews, and the writings of major figures on explicitly socio-political themes will also be of interest to us. These accounts are written in the ordinary voice of the “lifeworld” rather than the authoritative, technical, emotionally neutered and ostensibly objective voice of the scientist (Fairclough 1992), which for our purposes makes them more informative in exposing the author’s motives, concerns, and prejudices. This work is certainly not intended to be a “Great Man” history or a study of personalities, but such accounts are useful in exposing the anthropocentric bias we seek to detail.

The broader socio-political context, which is of great importance to this study, will mostly be derived from secondary sources, but in certain cases that are particularly important or revealing the documents will be studied directly. Newspapers and magazines give a good idea of which ideas attracted widespread attention and how they were generally received, but will only be used selectively, as a detailed discourse analysis of this textual corpus would be a full study in its own right. Strictly popular presentations in a variety of media will be discussed where relevant and informative, but as stated they are not the focus of the study.

This study will focus on works from c1860 to the present. Prior to that, the field of human origins research as we know it did not exist; this date marks the beginning of the study of human origins through archaeological evidence in the context of Darwinian theory. 1859 has been dubbed an “*annus mirabilis*” (Evans 2009), witnessing as it did the first publication of *On the Origin of Species* with its conclusion that “light will be thrown on the origin of man and his history”, and the validation of de Perthes’ Abbeville discoveries by Evans and Prestwich. Shortly

afterwards, Huxley (1863) in the foundational text of palaeoanthropology would demonstrate *Man's Place in Nature*, proving the close relationship of humans with apes, and arguing that a fossil “missing link” must exist. Pre-Darwinian material is however worthy of briefer consideration as it provides valuable context within which the later developments that are our main focus can be better understood and their significance more fully comprehended.

The field of human origins can be divided into two main periods, the earlier phase up to c1945 and the later phase beginning in the post-war era. The start of this second phase broadly corresponds to the rejection of racism as a structuring paradigm both scientifically and politically with the UNESCO statement(s) on race, as well as the acceptance of the modern synthesis in evolutionary biology (which was one influence upon the statement). With regard to fossil ancestors, it corresponds with the general acceptance of the australopithecines, the debunking of Piltown, and (a little later) the rejection of Boule's image of the Neanderthal. Geopolitically, this corresponded with the slow death of the British Empire and the global dominance of the USA, which consequently became the prime source of funding for scientific research, thus playing the leading role in human origins research. In this study we will not focus on the changes taking place at the post-war transition. Rather, we will first consider the state of research before the 20th century, and then focus on developments in recent decades. This will allow us to examine the extent to which continuity has persisted in spite of the major changes in the field.

The study will be confined to the Anglo-American discourse. France and Germany, while equally inheritors of the western anthropocentric legacy and major centres of human origins research, also had different historical traditions and socio-political influences which would complicate and broaden the study further than would be desirable. However, it will be necessary to consider key developments there to the extent that they impacted upon the Anglo-American discourse.

Defining who is and is not a scholar of human origins is not exactly a clear-cut matter; it is after all a multi-disciplinary endeavour, and all will have been trained in other disciplines. Furthermore, in its earlier phase, human origins research was not the large specialised field it would later become. While we must thus necessarily adopt a rather broad definition, there are certainly figures who cannot sensibly be

deemed scholars of human origins, but who are nevertheless relevant to this study. It will be necessary to consider certain influential figures in anthropology and biology, whose works provided intellectual context, explicitly or otherwise, for developments in human origins. However, the main focus will naturally be on the works of scholars who did deal directly with the topic of human origins.

Chapter 3: Literature Review: Historiography and Epistemology of Human Origins Research

This study seeks to illuminate the extent to which human origins research has been, not a progressive increase in knowledge gained through scientific objectivity, but rather a thoroughly ideological quest informed by and informing the politics of the present. Examining this interplay would not only be a matter of historical interest and political import; it would also bear upon the epistemology of the discipline going forward. It is also concerned specifically with the subject of anthropocentrism, the extent to which the human/animal binary has been manufactured not given, a cultural construction inextricably tied to the actual treatment of other beings. These two fundamental topics only very rarely appear on the archaeological radar; works based on just the former are rare enough, and as far as I know there is no sustained treatment that considers both. Before anything else, we must discuss the intellectual background of this study and its precedents, such as they are.

3a. An Empty Niche

Histories of archaeology have tended to be descriptive, atheoretical, and progressivist. They are a form of “Whig history”, constituting “narratives with a good ending... stories with a particular aesthetic, realism, and a particular politics, commitment to progress” (Haraway 1989:4). Often constituting “preface history”, they present a “showcase” view of the past, serving to “legitimize current practices by giving them a respectable ancestry” (Corbey and Roebroeks 2001:1). Absent entirely from these accounts is the sense in which “scientific practice and scientific theories produce and are embedded in particular kinds of stories”, in which the sciences have “complex histories in the constitution of imaginative worlds and of actual bodies” (Haraway 1989:4-5); such discourses can indeed be read as science fiction (1989:5).

These progressivist histories depict a steady accumulation of data and knowledge in which socio-political factors do not come into the equation at all, or were corrupting influences on certain early figures but have thankfully been purged from recent studies. Although Trigger (2002) does seek to provide socio-political context for intellectual developments within archaeology, his account is ultimately still committed to progressivism. While admitting “there is no evidence that in their interpretation of archaeological data archaeologists are less influenced by the milieu in which they live than they were formerly” he still insists that the history of archaeology “suggests that a growing body of archaeological data offers ever stronger resistance to the misapplication of such ideas and the specific misinterpretation of archaeological evidence” (2002:484) and thus that “archaeology has grown considerably more resistant to subjectivity as its database and techniques for studying these data have expanded” (2002:529). It is no doubt comforting for both Trigger and the discipline as a whole- his history now has the status of a textbook- to believe this, but as we will see in the rest of this discussion there are concepts effectively immune to data, which is already a form of interpretation.

It should be noted that general histories of archaeology, besides showing no interest in the subject of anthropocentrism, don't cover Palaeolithic archaeology to any significant degree. Besides a brief account of “the discovery of the Palaeolithic”, there is almost nothing on human origins in Trigger (2002). Schnapp (1996) does touch upon historical discussions of monogenesis/polygenesis and Classical proto-evolutionary schemas, but does not bring out their significance with regards to the broader question of constructing humanity or later paleoanthropological theories.

While the history of human origins research has tended to attract little serious interest from archaeologists, it has been overlooked by historians of science too. In his postscript to the Pithecanthropus centennial symposium, Theunissen remarked on the “paucity of papers” dealing with the history of palaeoanthropology: “One would have expected this subject to draw much more attention, not only considering the theme of the Pithecanthropus Centennial as a whole, but also because the issue of human descent touches right to the heart of the discussion on human-ape relations, past and present. Despite its many ramifications into such diverse fields as philosophy, theology, literature, biology and anthropology, only a handful of scholars have until now given more than passing attention to this important field”

(1995:407). Similarly, Bowler has stated that “despite the emphasis on Darwin and Darwinism, historians have been reluctant to study the palaeoanthropology of the late 19th and early 20th centuries. When I wrote my own survey of theories of human origins, I was driven by a sense of frustration that so obviously important a topic had been neglected” (2001:11). The lack of interest in the history of palaeoanthropology led Pilbeam to dub the field an “empty niche” (1988:xiii).

The overviews of the history of human origins research that exist are as much popular as academic, and are as Reader (1988:xvii) himself admitted, “very closely allied with the romance and treasure-hunt aspects of palaeoanthropology”. It is a type of history which “concentrates throughout on the stars of the field- the anthropologists who made or first interpreted major discoveries- and on the objects- the fossils” (Pilbeam 1988:xiii). Three notable works are Lewin (1987) *Bones of Contention*, Reader (1988) *Missing Links: The Hunt For Earliest Man* and Trinkaus and Shipman (1993) *The Neanderthals: changing the image of mankind*. They provide good overviews of the material they cover, but are mostly lacking in genuine analysis. The focus on fossil discoveries feeds into the progressivist narrative that these works are ultimately indebted to. For example, despite showing that “in almost 140 years, Neanderthals have been cast in virtually every imaginable relationship to ourselves” (1993:398), Trinkaus and Shipman proclaim in their conclusion that “the possibility of sorting out what really happened to the Neanderthals and our other ancestors has been reopened. Their fates are no longer pawns to be rearranged or sacrificed in support of one or another rigid model of reality” (1993:397). Yet they give no reason for believing that the science of the present will be any less biased than that of the past, demonstrating a lack of political reflexivity.

The heavy focus on individual biographies makes them largely seem like “great man” histories. In a topic like this, a strong biographical element is to some extent a necessity, but there is no need to make a virtue of it as these works do. Although very keen to play up the controversies and arguments between scientists, the focus on individuals leads to the influence of disciplinary background and methodology being largely overlooked, and most importantly the socio-political context of discoveries receives little consideration. At the rare points where Trinkaus and Shipman do deal with political context, this is over-simplified and portrayed as the corrupting influence of certain individuals. For example, Haeckel is blamed for

promoting a racist eugenicist interpretation of Darwinism which was further twisted by Hitler who used it to promote racial extermination. The impression is that one (German) scholar perverted Darwinism with his individual prejudice, which then formed a springboard for one (German) politician's agenda. No reference is made to the wider context of scientific racism and its connection with concepts of humanity/animality, or the earlier Herero genocide. The Malthusian inheritance of Darwinism and its influence on eugenic thought and the American eugenic programs that Hitler emulated is not mentioned; within archaeology the "great man" who most clearly expressed this connection would be Henry Fairfield Osborn (cf Rainger 1991), who appears insignificant in their narrative. The complex relationship of Darwinism to anthropocentrism and attitudes to humans and other animals is never considered.

Lewin is perhaps the most concerned with the non-scientific nature of palaeoanthropology, which operates with "humanity's self-image invisibly but constantly influencing the profession's ethos" (1987:319). But again, his history is mainly confined to individual scientists and their ideas, with less on the wider intellectual context and next to nothing on political context. The challenge of history to progressivist, positivist archaeology was also brought up by Pilbeam in his introduction to Reader (1988). Since historical research demonstrates the "continuity of palaeoanthropological discourse over more than a century and the extent to which many apparently quite new problems are not in fact new" (1988:xiii), the question is raised "Could we be partly fooling ourselves in letting an incomplete and ambiguous record be moulded by theoretical assumptions that have remained essentially unaffected by the fossil record? (1988:ix)" We must explain "the invention of the concepts which are built upon, or sometimes exist in spite of, the fossils" (1988:xi) by looking "more closely at the history of science, to see what actually did happen in the development of an idea rather than what ideally ought to have happened" (1988:x). He also noted that "there is more general pressure too for answers to cosmic questions, a hunger that sometimes makes paleoanthropologists priests of a new kind of secular theology" (1988:xi), another factor for consideration. The aforementioned works are only a small, inadequate step towards this task.

A work that delves much deeper into these conceptual issues is historian of science Bowler's (1986) *Theories of Human Evolution: A Century of Debate, 1844-*

1944. Bowler chooses the publication of Chambers' speculative evolutionary work *Vestiges of the Natural History of Creation* rather than Darwin's *Origin of species* as the book's starting point, which makes sense given that theory rather than discovery is the book's emphasis. As is obvious from the title, the book does not cover the post-war development of theories of human evolution. Bowler was motivated to undertake the study by his finding that comparatively little research had been done on theories of human evolution by historians of science, while the few publications on the history of human origins research that did exist treated the theoretical domain "merely as background to the fossil discoveries."

While Bowler does an excellent job of detailing the intellectual context of theories of human origins, the socio-political context receives relatively little attention in his book. For example, he quote a passage by turn-of-the-century German anatomist/anthropologist Klaatsch which states "The Australian aboriginals, the Samoans, and the Cinghalese are actually closely related to us, but a Zulu or a Herero is not." He fails to note that around the time that Klaatsch was writing, the German empire was waging a genocidal "campaign of annihilation" against the Herero, a context which is obviously of great significance. Interestingly enough in light of his remarks below, Bowler is constantly highlighting the distinction between truly Darwinian and non-Darwinian evolutionary theories, a distinction which really serves little purpose in his analysis other than to emphasize that the latter are "wrong." This distinction was of far less importance to the scientists themselves than it is to Bowler, and indeed in popular contexts Darwinism and evolution were typically conflated entirely.

3b. Studies in Epistemology

Some scholars have used history for epistemological purposes, seeking to identify inherited concepts and show their non-scientific status. These histories "show how much the story-laden disciplines of paleoanthropology and primatology are sites for the articulation of human identity, or identities, offering mirrors to Western selves" (Corbey 1995:6). The two most notable are Landau (1991)

Narratives of Human Evolution and Stoczowski (2002) *Explaining Human Origins: Myth, Imagination and Conjecture* (a revised and translated edition of a 1994 work). One thing both these authors are in complete agreement upon is that the progressivist, positivist, data-led conception of the discipline is utterly false. Stoczowski stated that “the increase in factual data has had only a limited impact on the way in which experts explain the origin of mankind” (2002:25), while Landau argued that “Most schemes of human origins have been relatively unconstrained by the fossils, which seem, instead, to be used merely to support or embellish pre-existing frameworks... Despite their claim to be based on fossils, these “paleontological” accounts have been relatively “fossil-free”” (Landau et al: 1982). The fossils are as much relics in the ecclesiastical sense as they are in the archaeological sense, serving to legitimate accounts rather than genuinely informing their structure.

Landau (1991) *Narratives of Human Evolution* demonstrated the narrative structure inherent in human origin stories. Her account “asks what happens if we look at these texts *as* narratives, leaving aside issues of truth or justification. What it finds is that these texts are determined as much by traditional narrative frameworks as by material evidence” (1991:x). She analysed the work of a handful of significant 19th and early 20th century scholars, showing how their accounts of human origins conformed to one particular kind of narrative, that outlined in Propp’s *Morphology of the Folktale*. These hero stories have relied on four main events- terrestriality, bipedalism, encephalization, and civilization- which have different meanings depending on where they occur in the overall narrative of human evolution. Thus “paleoanthropologists have told the same story over and over. This story, recounted in the days when fossils were few, has constrained the interpretation of new fossil discoveries. It is by *constraining* interpretations of new fossil finds that narrative has held paleoanthropology captive” (1991:178).

Stoczowski for his part was not too impressed by Landau’s work- “Misia Landau was right to point out that the hominisation scenarios are constructed from prefabricated elements, but these are not provided by folk-tales nor can those tales explain their nature” (2002:188). Rather, he held that the true source of hominization scenarios was “common-sense anthropology”, a set of beliefs about anthropogenesis that can be traced as far back as Classical texts. He argued that “the differences

between the vernacular or philosophical opinions about anthropogenesis and scientific explanations of hominisation, these latter supposedly founded on newly acquired palaeontological and archaeological data, are amazingly slight. Each of them is constructed out of the same conceptual matrix” (2002:129-30). In fact the majority of archaeological explanations do not even make any reference to Darwinian mechanisms, instead reliant on simple causal relationships or Lamarckian principles (2002:131).

The unstated assumptions of the reasoning involved in this conjectural history are environmental determinism, materialism, utilitarianism, and individualism, assumptions which have determined the structure of all human origin stories. “The assumptions of environmental determinism and materialism allow human cognition – believed to be indeterminate and unpredictable- to be eliminated from the anthropological vision, while the assumptions of utilitarianism and individualism banish the equally awkward role of social conventions, the arbitrary and local character of which would get in the way of huge generalisations and historical retrospect. So, what remains active is an ecological and biological determinism which provides apparently solid foundations for a deductive reasoning. What could be more simple than reconstructing prehistory! Since it is obvious that in the beginning was the individual, that the individual was weak, determined by nature, and that nature was hostile, nothing could be easier than to foresee, or rather to “retrospect”, the behaviour of the first humans and the way culture must have come into being” (2002:17). Thus the credibility of hominisation scenarios “has more to do with their conformity to premises of common-sense anthropology than with their conformity to empirical data or to the absence of alternative conceptions” (2002:123).

Latour and Strum’s textual analysis of origin stories found that “too many new facts have been made to fit into a structure that has been little studied” (1986:170). They discovered “more coherent views are found in the least informed texts” (1986:169) which had to base their arguments entirely on logical consistency. For example, Rousseau’s *Origins of Inequality* was more coherent than Leakey and Lewin’s *Origins* (1977), though the latter incorporated the latest scientific data. Thus, while Landau and Stoczowski posited a narrative/explanatory structure to accounts that remained unchanged by data, which simply acted as illustration, Latour

and Strum see the narrative/explanatory structure of accounts as having been not only unimproved by data but actually weakened by it.

What Landau and Stoczowski did for origin stories, Moser did for reconstruction images, which are typically viewed as mere popularisation and thus not subjects for serious consideration, leading to a dearth of analysis. Moser (1998) dispels this perception, demonstrating the importance that reconstruction images have played in the development of archaeological thought as well as showing the very ancient roots of such iconography. Unfortunately, 20th century illustrations appear in the work almost as an afterthought, though this deficiency is partially remedied in a series of short articles by Moser (1992, 1996, Moser and Gamble 1997). Moser does not however discuss socio-political context to any great extent, and the humanity/animality of prehistoric ancestors is not an explicit concern. The gender bias of reconstruction images has been discussed by others (see below). All these works are limited to reconstructions of prehistoric ancestors, and evolutionary trees play no part in them, though they will need to be examined in our study.

Roebroeks and Corbey (2001) outlined the biases and double standards in interpreting evidence relating to “modern” humans compared to “archaic” hominids. According to this double standard, “the position on either side of the Middle/Upper Palaeolithic boundary greatly determines the scientific treatment that finds receive: the inferred level of “humanity” of the hominid involved forms the basis of behavioural reconstruction. Similar finds are interpreted differently” (2001:67). Thus, “The “Moderns” are capable until proven incapable, whereas the “Ancients” can be summarized as incapable, until proven capable” (2001:72). Clark (2001:141) described their article thusly- “the reader comes away with a picture of a discipline practically devoid of an explicit concern with the logic of inference, and riddled with essentialism, simplistic dichotomies, dubious boundaries, and implicit discontinuity, all of it predetermined by whether the hominids involved are construed as “modern” or not. I don’t take issue with a word of it. In fact, I’d put it even more strongly than Roebroeks and Corbey do. In my opinion, and despite nominal acknowledgement of evolution, palaeolithic archaeology and human palaeontology make all kinds of unwarranted global assumptions over the modern/pre-modern divide that are seldom

(if ever) subjected to critical scrutiny.” A similar study by Hayden concluded that “the trend to dehumanize Neanderthals has gone to such extremes that it constitutes a betrayal of data, common sense and good theorizing” (Hayden 1993:114).

This topic was recently returned to by Villa and Roebroeks (2014), who argued that there was “no data in support of the supposed technological, social and cognitive inferiority of Neandertals compared to their AMH contemporaries” (2014:7). Rather, the difference was a manufactured one, a result of deep-seated bias leading to a double standard in interpretation; “archaeologists’ characterizations of Neandertals as cognitively inferior to modern humans have created an interpretive framework within which subtle biological differences between Neandertals and modern humans tend to be overinterpreted” (2014:7). Villa and Roebroeks (2014) dubbed this the “modern human superiority complex”. Similarly, the role of bias in the study of “archaics vs moderns” has been stressed by Bednarik (eg 1994). Unfortunately these studies are only surveys of recent papers, with no further historical research. They also show no awareness of how the modern/archaic split relates to the broader human/animal boundary or its political significance. The lack of interest in politics is a feature all the accounts discussed above share.

3c. The Uses of History

The historiography and epistemology of human origins research was the focus of explicit discussion in a 1998 Leiden conference. The conference was beset by a debate on “how to do “proper” history” (Corbey and Roebroeks 2001:2) resulting from “a serious clash of cultures, a kind of territoriality problem” (Corbey and Roebroeks 2001:3). The criticism mostly came from the side of the professional historians. In Theunissen’s epilogue he argued that “there is an important sense in which the history of science does not matter to the working scientist” (2001:147) who must “aim for transcendence and therefore have to pass judgement on past developments that still affect their research” (2001:151), whereas the historian “consciously refrains from taking such an evaluative stand” (2001:151). Similarly, Bowler emphasised “I am interested in the past for its own sake” (2001:9). While “History offers a warning to scientists to be on their guard against the blinkering

effect of their own preconceptions” (2001:9) it has no direct role to play in exposing them, as the unconscious prejudices of one era are unconnected to those of the next.. The historians stressed the fallacy of transcendent “pure science” in the light of history, but in emphasising the “disinterested” nature of their historiography in comparison to the “service histories” of scientists, they implicitly claim for themselves the miraculous power of transcendence enabling “pure history”.

The historians in this debate assumed that any connection between past and present must result in a distortion of the historical truth, and thus historians can write a true and convincing historical account only if they have no personal interest or interpretation of their own. Yet there is a fundamental irony in their promotion of “disinterested” history when they themselves demonstrate that disinterested science is a myth. In fact, it is clear that just as “the notion that a scientific study can be conducted by a completely detached observer from a neutral standpoint has been shown to be impossible in physics”, it is “also an illusion in historiography. The question is not whether, but which kind of interest are the underlying motivation for a historian” (Junker 1996). All history is “interested” history, whether motivated by improving scientific knowledge in the present or other concerns. In a further irony, by stressing the irrelevancy of their histories to present concerns, the historians here have effectively written themselves into insignificance.

This contrast between historicism and presentism was rightly rejected as “a gratuitous, useless distinction” by Stoczowski, who stated that “the ideal situation would be for the archaeologist to have a dual competence and be able to transform himself, according to his needs, into either a historicist Doctor Jekyll or a presentist Mr Hyde. Historicism is actually a methodological ideal, which should not be ignored, whereas presentism remains bound to one of the possible uses of historical research” (2001:22).

Bowler’s stance here was already present in his earlier review of Landau (1991), where he attacked her not only for writing poor history but for writing history full stop- “Why is a thesis supposedly relevant to all explanations of human origins presented in the form of a history? ... To impress palaeoanthropologists with the extent to which their theories have a narrative structure, she should have confined her attention to modern ideas” (Bowler 1991:365-6). The implication again is that

history is profoundly useless, and if we wish to effect some change in the present we must confine our thoughts to the present.

However, Theunissen's epilogue quoted above makes an interesting comparison with his postscript to the earlier Pithecanthropus centennial symposium, where he sensibly avoided the unproductive distinction he would later stress- "the boundary between the humanities and the sciences never seemed to be as sharp in our symposium as it is still frequently believed to be"- and insisted on the importance of present concerns for research- "the important questions raised by workers in the field of animal ethics need to be discussed from a multidisciplinary perspective. Such a perspective can contribute, for instance, to overcome an anthropocentrism that ideologically justifies human over-exploitation of other species and their habitats" (Theunissen 1995:407).

This recognition of blurred boundaries and shared interests is far superior to the unproductive binary between idealised notions of Science and History. Corbey and Roebroeks noted of the Leiden conference that "most of the contributors treat the history of our disciplines as a source of knowledge of alternatives and as a means of denaturalizing current opinions and practices" (2001:4) - it is clear that this applies not just to science but politics too. Histories in this vein have been produced by Haraway and Bourke (see below), a far cry from the "disinterested history" promoted by the historians at that conference.

In spite of the disciplinary posturing, some genuine concerns were raised in the dispute, most importantly over historical continuity vs discontinuity. The practitioners emphasised the former, influencing their view of history as useful, whereas the historians emphasised the latter, influencing their view of history as useless. These concerns were the focus of Bowler and Stoczowski's articles. Stoczowski argued for the role of history in exposing inherited concepts, ultimately allowing better science- "Every scientific community unconsciously cultivates a number of received ideas, which everybody believes in so strongly that their critical examination seems useless... Historical analysis is one of the rare methods which can be used to show that these unquestionable "primary truths" are, in fact, social constructions which appear solid due to their long-standing existence in our culture and to their insidious transmission... When carrying out research, belief in these received ideas is often an obstacle to reflection. Hence, bringing to light respected

commonplaces is an important step towards cleansing our conceptual tools. History- not only the history of science, but also the history of ideas- can play an important role here” (2001:23).

Bowler, a notable historian of science, was critical of Stoczowski’s work- “my suspicion is that the fragments of text cited to prove the antiquity of modern ideas will not bear the burden that Stockzowski wants to impose upon them. The fact that what we see as distinctive human characteristics were mentioned at an earlier period does not necessarily show that they were given the same significance as that attributed to them in modern theories. The continuity thus may be more apparent than real, the product of a deliberate attempt to impose modern ways of thinking onto the past” (2001:15). In fact, “When we look at the context of the “recycled” ideas- including the ideological context- we often find that the later version functions in a different way to the earlier” (2001:10).

He levelled similar criticisms at Landau for ignoring changing historical context, instead “treating her texts almost as timeless pieces of literature speaking directly to us today” (1991: 366). In the absence of evidence of direct influence of earlier ideas on later scholars, continuity cannot be assumed; “To use a phylogenetic analogy derived from evolutionary biology, are we dealing with homologies or homoplasies (similarities generated by common descent or by convergence in two distinct lines of descent)? If the latter, is it possible that the conditions which led to the convergence of structure might be more interesting than simple evolutionary descent?” (2001:10).

For our purposes it is not really too important whether specific ideas in human origins are homologous or homoplastic with their earlier incarnations. What is important is the persistence of the human/animal binary, which has certainly changed in its particular manifestations over time, but has nevertheless remained a fundamental feature of the cultural and political landscape. This is something neither Bowler nor Stoczowski apprehends. In fact, they both seem unable to imagine an ideology with deep historical continuity. Their debate over continuity is solely about scientific concepts, leaving them in tacit agreement that ideology is ephemeral and specific to particular historical contexts.

In his study of recurrent ideas in human origins research, Stoczowski states that ideological factors can be discarded straight away as an explanation, since these

recurrent explanations come from the texts of authors from different ideological contexts (2002:53). But this hardly seems as self-evident as Stoczowski believes it to be. “Ideological context” is not a particularly useful or meaningful term in the abstract- Stoczowski takes the fact that the texts in question came from different Western nations at different times over the last century and a half as sufficient to establish ideological difference, without reference to any specific ideologies. But while there certainly would be ideological differences here, it is obvious that there are commonalities too, most importantly for our purposes in the ideology of anthropocentrism. Stoczowski’s unthinking dismissal of the significance of ideological factors on archaeological thought appears to stem from his conception of archaeology as apolitical, and a suspicion of any discussion of politics in archaeology as a corrupting influence. He stated “It is astounding that many archaeologists who adopt... social determinism in epistemology are strongly attracted to political militancy, often to the detriment of reflection, whose virtues they obviously do not believe in” (singling out Tilley as “illustrative of this phenomenon”) (2001:24). We can only say that Stoczowski here demonstrates quite unintentionally that belief in a virtue is no guarantee of its application.

Similarly, Landau completely ignored the role of ideological factors, a point that Bowler criticised her for- “Landau concedes that she has not taken account of the gender issue raised in Donna Haraway's *Primate Visions* (1989), but neither is there any reference to the literature on race, imperialism, the professionalization of science, changing theories of evolution, or any of a number of other topics that one would have assumed to be essential background for a historical study of ideas about human origins” (1991:365).

For his part, Bowler explains apparently recurrent ideas as resulting from the existence of conceptual limitations that “function independently of the cultural and ideological forces that generate enthusiasm for particular models at particular times” (2001:11). Thus “It is not that we continue to be fascinated by myths and traditions built into our ancestral culture, but that all thinkers, naive and scientific, are forced by the structure of the conceptual problems to move in well-defined circles” (2001:19). Bowler gives an example; the recent dismissal of Neanderthals from our ancestry with the “mitochondrial Eve” hypothesis, with its emphasis on the genetic unity of all living humans, and the earlier removal of Neanderthals from our ancestry

popularized by Boule, widely used by imperialists anxious to justify the wiping out of “primitive” living races. The latter had intellectual foundations very different to the former, and clearly different ideological implications were drawn from it, the apparent similarity resulting from limitations in conceptualising continuity and discontinuity in human evolution.

We can agree with Bowler that scholars will always face similar conceptual limitations in seeking to define the human as unique from all other animals- these limitations are an inevitable result of framing an issue in a similar manner and asking similar questions. Yet he fails to consider *why* these questions were asked- they are not a given, but are themselves of an ideological nature. Who is “human” is a matter of political importance. We can see this clearly in the example he himself chose to illustrate his point- despite the differences he identified, in both cases the issue is in defining the human, and this “conceptual problem” is not inevitable but the result of a particular politics, an ideological context which has in fact remained fundamentally the same between these different historical periods. Thus politics must be a topic that is brought to the fore.

It is easy to fall into the trap of failing to see the forest of continuity in the trees of discontinuity. The broad historical picture may reveal significant discontinuity in who is judged human, but much more continuity in the standards by which the judgement is made; and a perfect continuity concerning the necessity of making such a judgement.

3d. Palaeoanthropology is Politics By Other Means

Human origins research has not simply suffered from conceptual biases, but has also had an important ideological/political component. Rose observed that evolutionary biology “lays claims to be in a position to tell us, as humans, who we are, where we came from, where we are going, how we must live and relate to our fellow living creatures. It does what religion used to do” (1998:67). In this vein Latour and Strum described human origin stories as functionally mythological, in that they play the same role as myth in legitimating social conditions and justifying

political and moral programs; “accounts of the origin of society, even when written in a scientific genre, are functionally equivalent to the myths of origins as we understand them. Myths are created precisely in order to handle these timeless structural problems; to define who we are, what our relevant units are, what our relationships with animals are, what the source of our guilt is and what the purpose of living in society is” (Latour and Strum 1986:186). Describing Leakey and Lewin’s *Origins* (1977) they stated “Nowhere is the ‘mythical’ character of an origin account so obvious. It is not the information, or the morals, or the style that makes the book seem mythical; it is the functions of the story. The narrative enlists the past, the environment, other species, and other races to create a genealogy of present day society” (1986: 182). Thus, “Because reactions to origin stories reflect hidden preferences for the consequence of an account as it modifies the existing statuses, roles, and rights of the audience, the science of our social origins must be particularly cognizant of its own social construction... The mythic character of origin accounts also requires a better understanding of the effect on audiences and the political lessons that will be extracted, since this is an inevitable part of the process, whether conscious or unconscious, whether desired or not” (1986:186).

There certainly have been criticisms of the political/ideological role of human origins research, although they have on the whole been less sustained and historically-focused. Gender bias in human origins research is a subject that has received some attention (though still far less than it merits). While palaeoanthropology in a sense constitutes an “original narrative” of gender (Conkey and Williams 1991), serving to legitimate gender roles in the present, it is not in truth seen to represent their origin as such. Hurcombe (1995) began her article on gender in archaeology with a quote from Gould discussing the attribution of modern western gender roles to *Opabinia*, part of the Burgess Shale fauna! Sociobiologists have located these gender roles virtually at the origin of life itself, seeing them as developing naturally and logically once the method of sexual reproduction has evolved. They are perceived to exist throughout the animal kingdom. The gender roles of human ancestors are typically derived from (perceptions of) animal antecedents. In those cases where this is not so, it is invariably because the opposite argument is being made- that humans are not bound to any set gender roles in the present because they have transcended nature and animal instinct. Thus human

origins research is simply one discourse among many that is permeated by these concepts of gender, having no unique status in this respect. Concepts of humanity/animality are in fact intertwined with gender, as will be discussed later.

Race is another political issue, one that proponents of theories in human origins research have often been themselves aware of their; this reached a head in the “propaganda war” of the early 90s between Wolpoff and the multi-regionalists and Stringer and the replacement advocates, each attacking the other’s model for its supposed inherent racism and promoting their own based on positive racial implications (which will be examined in this study). The concept of race is intimately connected to concepts of humanity/animality. Anderson (2007) distinguishes between racism as xenophobic prejudice, which is ancient, and scientific racism, characteristic of the modern west. She demonstrates the latter’s evolution from the challenge colonial encounters with indigenous Australians posed to enlightenment concepts of the human as a being transcending nature. Scientific racism is conceptually dependent on the human/animal binary, without which its tenets are simply meaningless (Roberts 2008). The racial issues present in human origins research are part of the question of defining humanity/animality.

It is clear that human origins discourse is concerned above all with defining the human/animal binary, making this the most prominent political issue here. Unfortunately, those authors who have taken to task the political role of human origins research have not critically examined the human/animal binary. Rather it is precritically accepted by them, thus is not seen as a political issue, and allowed to be completely overshadowed by other issues even where it ought to appear strikingly obvious. Thus for example, we find Conkey and Williams (1991:123) arguing that “the debate over man-the-hunter/woman-the-gatherer is really a debate over when two very nineteenth-century social science institutions came into being: the nuclear family and a gender based division of labor” and argued this debate should be superseded by inquiries into “particular food-getting strategies in varying sociohistorical contexts” (ibid). Of course there is a highly significant gendered aspect to “man-the-hunter”, but in stating that the discourse on hunting is “really about” gender alone they are ignoring a central aspect, the domination of animals. When they refer to this with apolitical obfuscations like “food-getting” the bias-exposers expose their own bias.

Peace (2008) documented an overt case of the eminently political role of human origins research in naturalising animal exploitation, a major advertising campaign by Meat and Livestock Australia, (reminding us that “Institutions like MLA are powerful players in the global market place; they are the agricultural equivalent of oil companies” (2008:5); tobacco companies would be another comparison) in which “the authority of anthropology as a discipline was drawn upon to endorse the evolutionary claims about meat consumption central to the MLA campaign” (2008:9). In this campaign, including posters showing “Stone Age man” hunting for meat, “meat-eating is identified as the source of intelligence, progress and modern civilization” (2008:6). It was stated that a “craving for red meat has been central to our evolution as the superior species” making it “An essential part of the diet of the most highly developed species on the planet” (2008:6). Ironically, the General Manager of Marketing for MLA- that is, their paid propagandist- referred to Peace’s *Current Anthropology* article in a reply as “a selective piece of anti-meat propaganda” (Thomason 2008:23).

Cartmill has apprehended the ideological nature of the human/animal boundary and its incompatibility with scientific objectivity, but only dimly, being unwilling to pursue these observations to their logical conclusion. In fact, he has vehemently scorned anything that might bring Objective Science into disrepute. Cartmill claimed that Haraway’s *Primate Visions* “infuriated” him (1991:67), calling it an “expression of hostility and contempt, to the scientific enterprise in general and to primatologists in particular” (1991:73). He objected to Haraway’s “fundamental assumptions” (1991:67) - most importantly, that “politics, not empirical inquiry, determines what scientists are allowed to believe” (1991:68). Yet Cartmill’s own observations suggest the truth of the point he imperiously dismissed, most notably this one- “As long as we continue to think of the family Hominidae, or the genus *Homo*, or “anatomically modern *Homo sapiens*” as a natural kind distinguished from ancestral taxa by essential properties that mark the boundary between humans and beasts, Linnaean essentialism will continue to survive as a tiny but crucial enclave of archaic thought within the larger domain of [cladistics]. I suspect that the practical costs involved in eradicating this enclave will deny a final victory to [cladistics] until the animal-human boundary ceases to be a feature of our moral landscape” (Cartmill 2001:106). In other words, by Cartmill’s own reckoning taxonomy is not scientifically objective

or even logically consistent, but is determined by the politics of the present- human domination of other animals.

Cartmill has stated, in effective agreement with Latour and Strum, that “the origin stories paleoanthropologists tell are necessarily myths. They are myths whether they are true or not, because they embody a fundamental cultural theme: they define and explain the difference between human beings and beasts” (quoted in Lewin 1987:318). Thus, “the list of human peculiarities that paleoanthropologists are expected to explain is not so much a bald description or taxonomic diagnosis of the human species as a mythological charter of the human dominion, a tally of generally admired human characteristics that we like to point to in explaining and justifying human domination of nature”(Cartmill et al 1986:410). In reality, “All the stories of human discontinuity that some evolutionists have spun, involving abrupt shifts in adaptation- a sudden decisive descent from the trees, or a crucial shift to predation, or a change in the regulatory genome that produced humanness through some big heterochronic transformation- all these ideas are fantasies, born ultimately of our wish to see ourselves as more decisively set off from other animals than we actually are” (Cartmill 2012:218).

Our concern here is not *whether* facts and values are intertwined but rather *how* they are in any specific case. The debate over transcendence vs social construction is now rather passé and, at least in the abstract, no longer very productive or interesting. Normative archaeology has accepted some form of “mitigated objectivism” (Wylie 1994) which concedes that facts and values are ultimately inextricable without believing that this reduces archaeology to an “anything goes” relativism. The implications are not that we stop attempting to produce better accounts of the past, but rather that we must be aware of their allegorical nature (Fotiadis 1994). As Hamilakis has argued, if it is accepted that the archaeological “record” is not simply pre-existent but produced by disciplinary practices and discourse on identity, archaeologists must “acknowledge and fully accept the responsibility that goes with this realization”. We have a duty to “interrogate and challenge institutional regimes for “the production of truths”, illuminate and expose the links of knowledges with power, and adopt a critical stance in the current global battlefields of cultural production and consumption” (1999:74).

This debate does seem to have somewhat passed over human origins research, however, which to a significant extent appears as an enclave of positivism. As Stockzowski (2001:24) emphasised, “Positivists, who believe that new knowledge is derived exclusively from new empirical data, see no use in the history of archaeology because history rarely provides access to new data”- explaining the general lack of interest in the history of human origins research by its practitioners. In this climate of positivism, Landau’s (1984, 1991) study “clearly hit a raw nerve” (Bowler 1991:364), leading many practitioners to vigorously deny its implications; “Don Johanson was adamant that even if people told stories in the past, they certainly didn’t now. The science is so sophisticated, so objective that he for one is engaged in an unbiased search for the truth” (Landau, quoted in Lewin 1987:37). As Bowler emphasised, Landau’s observation that evidence is interpreted to fit the particular story being told, which palaeoanthropologists regarded as a threat to their scientific integrity, was already banal- “Historians and sociologists of science have made this point so often that we ought to be able to take it for granted” (1991:365). It should be noted that those who have insisted most strongly on the separation of Objective Science from unscientific values have typically peddled the most demonstrably false and value-laden accounts of all; human origins research has been rife with models “employ[ing] the prestige of science for disguise and protection” (Hobbs 1953:17), constituting scientism in the truest sense of the term (as defined by Haack 2009).

The aforementioned *Origins* (Lewin and Leakey 1977) serves as a good example of these points. The argument presented in this work is that, contra Ardrey (1961), “the notion that humans are innately aggressive is simply not tenable” (1977:221). Rather, “we are essentially cultural animals with the capacity to formulate many kinds of social structures” (1977:223). They could hardly disclaim a preference for the political implications of their account over Ardrey’s, a discussion of which constitutes the last chapter of the book, but would not maintain for a second that this preference makes their account less scientific. In fact, the cover of this book was singled out by Landau as the most revealing illustration of the contention that “fossils literally speak for themselves” (Lewin 1987:43). Central to their account is the role of food-sharing, a theory which was argued by Isaac (1978a, 1978b), and central to this theory is the status of “large game” as the most important foodstuff.

This assigns hunting to a role of overriding importance – supposedly an exclusively male activity, thus entailing a strict gendered division of labour between active male hunters and passive stay-at-home females. The reconstruction images of prehistoric life in the book typically place a large animal carcass at the centre, dominating the scene. The prehistoric evidence is accompanied by numerous ethnographic illustrations of the !Kung, who supposedly exemplify and thus confirm their theory.

Yet the authors themselves mention in passing that there are hunter gatherer societies such as the Hadza “who eat little meat and derive most of their food from plants” as well as societies which are “characterised by some degree of cooperation between men and women in their hunts” (1977:233). Strikingly, they do not seem to perceive this as a challenge to their hypothesis, and make no attempt to justify their exclusive use of the !Kung as the model for prehistoric behaviour over these alternatives. Moreover, their use of this one model for prehistoric life hardly coheres with their aforementioned contention that “we are essentially cultural animals with the capacity to formulate many kinds of social structures” (1977:223). In a later publication, *Origins Reconsidered* (Leakey and Lewin 1992), they ironically did not reconsider these aspects, repeating them “in spite of modern, Western, feminist objections” (1992:181). A Scientist listens only to fossils, not feminists.

It should be noted that the basis of positivism, pure reason (coterminous with the soul, in its pre-romantic conception), is also the traditional basis of the human-animal divide. Reason participates in the fundamental structure of the universe (mathematics/logos) and allows communion with the divine. The description of scientists as aiming for transcendence has been quite literally true, in a mystico-religious sense, since the classical era, through the middle ages and into Comte’s church of positivism- revealing enough called The Religion of Humanity, as humanity for Comte was the “New Supreme Great Being”. Pure reason is viewed as a divine spark in humans allowing transcendence of the material world. Thus Haeckel believed that in discovering the principle of evolution, scientists were ushering in a new phase of humanity. He held that the highest branch of humanity was his own Germanic race “who are in the present age laying the foundation for a new period of higher mental development in the recognition and completion of the theory of descent”. Indeed the recognition of evolutionary theory “forms the best criterion for the degree of man’s mental development” (1868:332). In claiming his

intellectual theorizing as proof of his own superiority, his scientific authority as political authority, he was merely stating explicitly what is typically implicit in scientific accounts.

3e. Histories of the Human

Interestingly, in light of the professional historians' criticisms of "practitioner's history" discussed earlier, the authors discussed in this section all opted for broad historical overviews covering large expanses of time, at the expense of examining specific contexts in fine detail. They clearly felt this to be the best way of elucidating their ideas about humanity/animality. All organized thematically rather than chronologically.

Fernández-Armesto's *So You Think You're Human?* (2004) argues that humanity has come under a "conceptual threat" (ibid 1) from the discourses of primatology, animal rights, palaeoanthropology, cladistics, artificial intelligence, and genomics. The work "confronts these problems from an historical perspective, showing that our present definition of humanity is a recent contrivance... neither fixed nor scientifically verifiable". He admittedly overreaches in attempting to cover the whole history of the subject in only 170 pages- a flaw consistent with his previous work (eg *Civilizations* 2000). Significantly for our purposes, he refers to the Neanderthals as the key example of the difficulty of drawing a satisfactory line between human and nonhuman hominids, and states that "arguments over the human status of Neanderthals have been conducted in terms startlingly reminiscent of nineteenth-century controversies about blacks" (ibid 4), although his discussion of this is extremely brief.

Unfortunately, he lacks a critique at the meta level- in other words, while he illustrates the problematic and contrived nature of all attempts to define the human, he does not take the next logical step and question the concept as such. He states that while our claims for uniquely rational, godlike human nature may be myths they are also aspirations, thus "if we want to go on believing we are human, and justify the

special status we accord ourselves... we had better not discard the myth, but start trying to live up to it" (ibid 170). Thus he remains an anthropocentrist.

Bourke's *What it means to be Human* (2011) is both more detailed and informative in its presentation of material and more penetrating in its analysis. Her aim is to de-naturalize the human-animal boundary, and she views a historical survey as essential to this task; "To understand the instability of definitions of who is truly human, we need history." Bourke chooses to begin her study, which runs to the present, in 1791 as it was then that the 1789 Declaration of the Rights of Man "saw its first trial by fire, sword and rifle" in slave revolts on the French colony of Haiti. Bourke emphasises that "Distinctions between humans and animals are not fixed or impermeable", using the aforementioned analogy of the Möbius strip which she believes "provides a way of challenging tyrannical dichotomies such as biology/culture, animal/human, colonizer/ed, and fe/male" (ibid 380). Marking the human/animal boundary "is not a neutral exercise in establishing the facts- it is an exercise of power, which can be contested." Bourke concludes that "Humanity's obsessive attempts to demarcate the territory of the human from that of the animal- to tie a knot in that Möbius strip in order to declare "*here!* Is the fully-human. *There!* Are the others, the animals, the women, the economically and politically disenfranchised, the subaltern"- is both the greatest driving force of history and also the inspiration for systematic violence" (ibid 328). She argues instead for "a politics that is committed to uniqueness of all life forms as much as to the creative, exhilarating desire and struggle for community and communion". The main omission of Bourke's study is that human origins is not considered at all.

Corbey's *The Metaphysics of Apes* (2005) is another significant work analysing the significance of the human/animal boundary and its role in academic discourse, with many valuable insights. Its main focus is on apes specifically, and Corbey admits to "a certain amount of "primatocentrism" at the expense of other animals" (ibid 13), which does result in some broader issues around animality being missed. He notes the "interconnections as well as tensions between scientific categorizations, on the one hand, and philosophical, moral, and vernacular categories and appreciations, on the other" (ibid 3) and states that his work is "aimed at the clarification of conceptual and epistemological issues as they are presently at stake in the study of human and non-human primates" (ibid 12). He observes that "the

history of the anthropological disciplines to a considerable degree has been an alternation of humanizing and bestializing moves with respect to both apes and humans, a persistent quest for unambiguousness and human purity, and an ongoing rebuff of whatever has threatened to contaminate that purity” (ibid 1). Corbey choose range over depth, which means that while the fossil and archaeological evidence of human origins is considered here alongside a number of different topics and disciplines covered in the book, it is the focus of only one short chapter.

In conclusion, the over-riding problem with the archaeological/paleoanthropological literature is that anthropocentric notions of humanity/animality and their ideological nature have not been appreciated as a subject of importance. They have never been the explicit concern of any significant study, and are rarely even touched upon. A secondary problem is that the history of human origins research has in general attracted less serious investigation than might be expected, with those histories that have been produced tending to be progressivist and atheoretical, the focus being on important discoveries and scholars with the intellectual developments divorced from both their socio-political context and implications and from visual and popular productions. Thus, within the history of human origins research a study is needed which places these notions of humanity/animality and their ideological nature as the prime focus of investigation, taking a theoretical approach and integrating intellectual and socio-political developments without ignoring visual and popular presentations.

Chapter 4: Phylogeny and Pithecophobia: Master Race vs Universal Kinship

4a. Introduction

A phylogeny is essentially an evolutionary genealogy, depicting relationships among a number of species/genera/races. A phylogeny is often depicted diagrammatically as a tree of relationships, akin to the family tree of genealogy, though a visual depiction is by no means an essential feature. Some relationships are simple enough to be described in textual form- such as the simple fact of humanity's ape ancestry. Just as the word genealogy refers not only to a tree of descent, but also to the process of mapping out such a tree, so too does the term phylogeny refer both to process and outcome.

Kinship can be conceptualised as the moral obligations imposed by genealogical relationships. Thus, just as a genealogy depicts relations of kinship, so too does a phylogeny. This is, however, a fact that the authors of said phylogenies have often failed, or indeed refused, to acknowledge explicitly, as we shall see. When we talk of kinship in the following discussion, we mean the moral dimension of a phylogeny- which, when we are dealing with broad classes of being, is not simply moral but political. All phylogenies- or at least those depicting the relationship of other animals to humans, or different human races- are thus inherently political.

Pithecophobia is a term coined by William King Gregory, defining it as “the dread of apes - especially the dread of apes as relatives or ancestors” (1927:601). While the term never really caught on, and Gregory was probably not entirely serious in his “diagnosis” of this condition among his contemporaries, it in fact provides a very useful concept. Pithecophobia can be seen as a specific manifestation of anthropocentric ideology, which lies at the intersection of anthropocentrism and phylogeny. Apes, as the animals most closely resembling humans and our closest

living relatives, act as an anchor tying humanity as a whole to the animal world with all that this implies, and have also been used to mark certain races as closer to the animal world than others. While pithecofobia has certainly led to the exploitation of living apes, it is not really about apes as such, which are of course very rarely encountered in the west. Rather, the apes play a symbolic role, standing in for animals more generally, and often also as non-white races.

Perhaps the most visceral depiction of pithecofobia occurs in one of Lovecraft's short stories, *Facts concerning the Late Arthur Jermyn and His family* (1921). The titular protagonist was the great-great-great-grandson of a British explorer and a "white ape" from the Congo. He commits suicide by setting himself on fire when he discovers compelling proof of this fact in the form of the mummified ape wearing the family locket. Lovecraft wrote "If we knew what we are, we should do as Sir Arthur Jermyn did"- the correct response to ape ancestry is self-immolation. This fictional narrative expresses clearly the violence inherent in pithecofobic ideology- though normally this is directed outwards, in this case it is turned inwards, like an auto-immune disease, recognising his own person as alien and monstrous.

Lovecraft is infamous for his racism, and indeed pithecofobia has been intimately connected to scientific racism, the discourse on race that "animalizes" its targets in order to place them lower on the *scala naturae*, envisioned as a biological caste system. Not all racial discourses are of this kind, but scientific racism was omnipresent in the 19th and early 20th century, and still persists to this day, though no longer unchallenged. Yet the relationship between pithecofobia and racism is not a straightforward one- some scholars have relied on pithecofobia to bolster racist narratives, likening "inferior" races to the ill-regarded apes, while others have attempted to mobilize pithecofobia to counter racist narratives, stressing a gulf between all living humans and these apes. The view of the ape as a bestial relative can act as either a foil for humanity in general or a slander on certain classes of humans, and these two modes of representation can even coexist uneasily in the same author as they slip between more and less inclusive definitions of humanity.

In the early phase of human origins discourse and its precursors with which we begin our analysis, there are really only two main issues of phylogeny. The first is that of the ape ancestry of humans and the relation of the extant apes to humans. While these are not synonymous, they were part and parcel and usually treated as effectively the same issue. Of course, this debate was intimately connected with pitheco- it was in this context that Gregory originally coined the term. It should be noted that the rejection, even implicitly, of ape ancestry is still an intellectual position on such a phylogeny. Of course, this does not apply in the earlier historical periods, when scholars were unaware of evolutionary concepts- while these scholars were thus strictly speaking concerned not with phylogeny but simply taxonomy, they will still be considered briefly here as they provide an important background to the debates over phylogeny, and in their classification of apes and defence of the *scala naturae* prepared the ground for pitheco-phylogeny.

The second issue is that of the origins of human races, to which the Genesis/Exodus narrative was foundational. This has always been genealogical in character, and often evolutionary as well though of course natural selection was not invoked until after the *Origin of species* was published. Monogenesis, the traditional Christian position, derived all living humans from a common source, Adam and Eve. Polygenesis, originally a heterodox interpretation of scripture which later became associated with racist politics, derived the human races from separate creations. This originally scriptural debate was easily translated into phylogenetic terms once human evolution was accepted. Although the polygenesis/monogenesis debate was distinct from that over ape ancestry, the two will be shown to be intimately connected by pitheco-.

Scholars have of course brought multiple lines of evidence to bear on questions of phylogeny. We will here adopt a certain indifference to the type of evidence used in any particular argument, for it is the reasoning and conclusions on phylogeny, and associated ideology, that interests us here. Thus while we will consider all types of evidence that major authorities cited in their phylogenetic arguments, we will focus more on the anatomical/physiological evidence than the mental/cultural, for a detailed analysis of the latter will be the focus of a subsequent chapter.

In the following analysis, we will examine the role of pithecophobia in the debates on the ape origin of humanity and the origin of races in an effort to determine the extent to which they were shaped by this ideology (and other political factors) and the degree to which there was continuity or change in the development of this discourse.

4b. Pre-Darwinian Classification

The notion of kinship with other species long predates Darwin, the theme being evident in many classical texts. Throughout the whole classical period, “those who emphasized our similarities to other species claimed that we shared *communitas* with them and hence had moral obligations to them”, while “those who stressed the differences denied *communitas* and correspondingly rejected the moral obligations” (Preece 2005:300). For example, Porphyry of Tyre argued that animals “are allotted the same soul that we are, [so] he may justly be considered as impious who does not abstain from acting unjustly towards his kindred” (Porphyry trans. Taylor 1823:125). The slaying and eating of animals was thus a “twofold injustice” (ibid 126). This view was shared by many Pythagoreans, Neoplatonists and other philosophers. But this is kinship in the broader sense, based on a shared essence, rather than in the narrower sense of common descent; there is nothing specifically genealogical about it, so it has no relation to phylogeny. Moreover, these examples are not based on the comparisons of shared traits in any kind of scientific method, or even for the most part on empirical observation, but were essentially based on religious beliefs about the soul.

We can, however, find precursors of phylogenetic kinship in classical sources; in fact, the Greek philosophers often cited as proto-evolutionists were evidently concerned with the moral implications of their ideas. Anaximander theorized that humans had originally been generated from fish-like creatures that lived during a wet

phase of the Earth's past. Plutarch reported that "Anaximander, having declared that fish are at once the fathers and mothers of men, urges us not to eat them" (*Table Talk*, 730 DF). Empedocles' zoogony described all life as originating from spontaneous aggregations of organs produced from the earth, the result of chance not design; in fact Henry Fairfield Osborn believed that he "may justly be called the father of the evolution idea" (1894:52). Thus he not only held in common with Pythagoreans and others that humans and animals share the same souls, but that they had the same material origin also. He was a firm opponent of animal sacrifice and proponent of ethical vegetarianism, viewing animal slaughter as murder and meat-eating as cannibalism, urging his contemporaries "Will you not cease from the din of slaughter? Do you not see that, in your careless way of thinking, you are devouring one another?" (*Purifications* 136).

The view that was to become dominant, though, was the Aristotelian *scala naturae* (**Figure 2**). According to the organizing principles of this ladder of life, the relationship between any two given species could only be hierarchical in nature, never one of equality. All organisms were ranked according to degree of perfection, with Man, the only fully rational creature, indisputably the pinnacle of nature; females were held to be imperfect males, and ranked below them. This "chain of being" proceeded by continuous gradations, with traits developed in higher forms present as rudiments in lower forms (Lovejoy 1936). But this continuity was not evolutionary in nature, for species were separate and immutable; the chain of being was not a phylogeny. Thus while Aristotle observed that "some animals share the properties of man and the quadrupeds, as the [Barbary] ape, the monkey, and the baboon" (*History of Animals* II:VIII), making them intermediary links in the chain, these beings were not held to be in any sense ancestral to humanity, and certainly not considered part of the moral community. The *scala naturae* had clear political implications- lower beings existed to serve the needs of those at the top of the ladder. The supposedly natural hierarchy paralleled the classical social hierarchy. In the subsequent development of western philosophy and science, classical proto-evolutionary speculations were to be all but forgotten, and notions of kinship with animals rejected, with Aristotle's hierarchical vision of life taken as foundational.

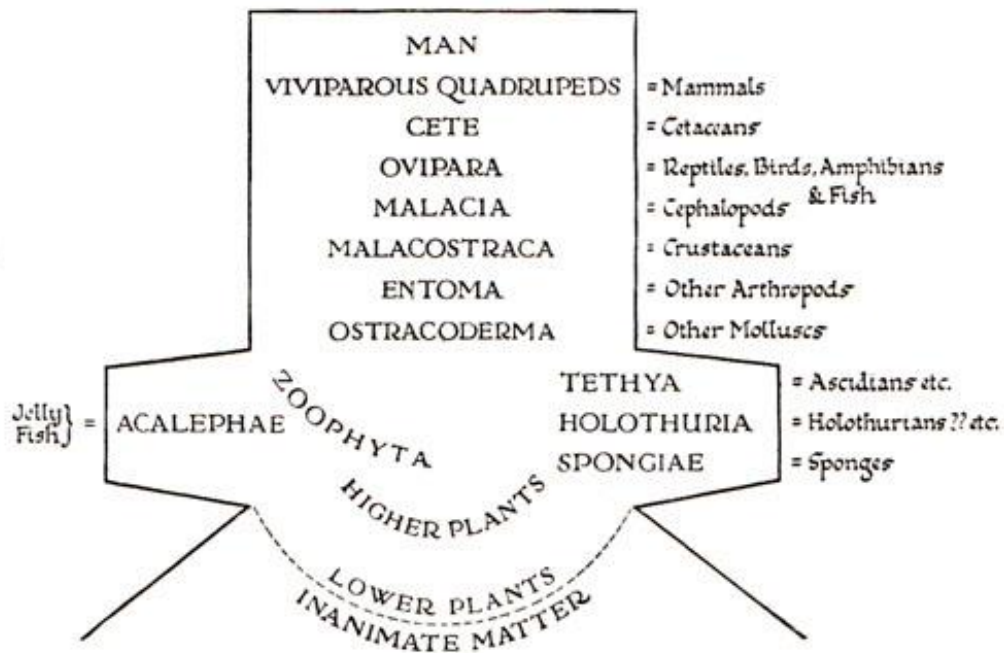


FIG. 18. The *Scala Naturae* or 'Ladder of Life' according to the descriptions of Aristotle.

Figure 2 Aristotle's *scala naturae* from Charles Singer, *A Short History of Biology* (1931)

The *scala naturae* later became the Christian great chain of being, with angels and ultimately God outranking humanity. The origin of humans was explained by special creation and the descent of all humanity from Adam and Eve, the original family. Humans were created in the image of God, and stood above and apart from all other animals. It was the Genesis/Exodus narrative, and not classical anthropocentric philosophy, that attached great importance to genealogy in the narrative of human origins, and prefigured the importance of phylogeny in determining kinship. The importance of descent in defining humanity can be clearly seen in the debate over the Plinian races- including Cynocephali (dog-headed people), pygmies, Cyclopes and a whole variety of strange and fanciful beings. The ancients were generally uninterested in the lineage of these monstrous races, but to those beholden to the Genesis narrative, their existence raised significant questions; "any Christian who had read Pliny's chapter on the races, or who had seen them depicted in the traveller's guides of the pilgrimage roads, was bound to wonder,

since these races were not mentioned in the scriptures, if they had descended from Adam, and, if so, how they had survived the Flood and what should be the attitude of the Christian towards them” (Friedman 1981:88). Augustine of Hippo addressed the question of “whether we are to believe that certain monstrous races of men described in pagan history were descended from the sons of Noah, or rather from that one man from whom they themselves sprang” (*De civitate dei* XVI c.8.). While he did not believe the evidence allowed one to say with any confidence that these beings did possess rational souls, or if they even existed at all, he *could* confidently answer that “No faithful Christian should doubt that anyone born anywhere as a man- that is, a rational and mortal being- derives from that one first-created being” (ibid). In other words, if these Plinian races did indeed exist as rational beings, they were most certainly descendants of Adam, for by definition all rational mortals were human, and all humans descendants of Adam; this much was not open to debate.

If these beings were truly descendants of Adam, their rightful place was within the moral community of the church, and thus missionaries would be obligated to bring the gospel to them. Rimbert, a 9th century missionary to Scandinavia, a land where it was believed that cynocephali could be found, wrote to his friend, the theologian Ratramnus of Corbie, asking whether “they arose from the line of Adam or possess the souls of animals” (trans. Dutton 2004:452). The influence of Augustine’s judgment is clear in the phrasing of his question, which makes the capacity for reason and genealogical descent two sides of the same coin instead of separate issues. Later medieval authors often viewed the Plinian races as members of a cursed and degenerate lineage, believing them to be either Adam’s sons who became distorted after disregarding his warning not to eat certain herbs, or as descendants of Cain or Ham. Others believed their strange forms resulted from the effects of the extreme environmental conditions in their distant homelands, just as the Aethiopians’ black skin was believed to be burned by the tropical sun. Nevertheless, all such views of the monstrous races assumed their decline from the perfection of prelapsarian man, as descendants of Adam and not separate creations.

There could be no pithecofobia as such in this era. While monkeys were often described as caricatures of humanity in medieval times, there was no suggestion that they might be in any way classed as human or ancestral to humanity,

and the great apes were unknown to the medieval world. The later scientific discovery of these beings was, however, nonetheless strongly influenced by classical and medieval discourse, as it was mediated by texts on the Plinian races. The first great ape to be scientifically studied was a juvenile chimpanzee dissected in 1698 by Edward Tyson, regarded as the founder of modern comparative anatomy. Tyson would “relocate the figure of myth in the discourse of science, position that figure between man and ape as a liminal figure of science, and then denying the possibility of a liminal status, demote it to the status of an ape” (Nash 1995:52). He described the creature’s anatomy as human-like in many respects, but in most features it was “inferior”. He did not try to bridge the gap between humans and the rest of the animal world or advocate humanity’s kinship with the pygmy and ape.

While Tyson thus provided the first scientific evidence pertaining to the great apes, his study was far from an objective examination free of preconception- rather, he worked from the preconception that Pygmies were mere beasts and discarded all textual sources that presented them otherwise. “Even before Tyson was ever exposed to a “real” Pygmy, he already knew that it was not human. His image of a Pygmy was profoundly influenced by a selective reading of ancient and medieval texts” (Thijssen 1995:48). To his “Anatomy of a Pygmy” he appended “A philological essay concerning the pygmies, the cynocephali, the satyrs, and sphinges of the ancients. Wherein it will appear that they are all either apes or monkeys, and not men, as formerly pretended” (1699), his verdict on their animality clearly stated in this title. The dubious Plinian races had thus gained a firm material existence as apes, but in the process they were removed from the lineage of Adam and demoted to soulless beasts, leaving the anthropocentric fiction of a uniquely superior humanity secure.

Thomas (1983) argued the development of taxonomy in 18th century natural history and the rise of the binomial system constituted a conceptual weakening of anthropocentrism, for animals were now to be classified according to their intrinsic properties, rather than their practical or symbolic usefulness to humans as was typical of earlier and contemporary vernacular systems. Indeed, Linnaeus appears to have held less strongly anthropocentric beliefs than was typical for his era, believing

that humans need feel no shame about their membership of the animal kingdom. His 1735 *Systema Naturae* classified humans along with apes, monkeys and sloths in the order *Anthropomorpha*, despite the challenge to human uniqueness this posed—though in the 1758 tenth edition of the work this name was discarded in favour of the somewhat less controversial *Primates*, and the order was also widened to include lemurs and bats. He had first-hand experience with apes, keeping a number of them in a small zoological collection at Uppsala, and regarded these observations alone as sufficient refutation of the Cartesian view of animal nature, quipping “Descartes assuredly never saw an ape.” These beings were compelling proof of human-animal continuity, though this was not of course perceived as an evolutionary continuity. Linnaeus stated “I know scarcely one feature by which man can be distinguished from apes” (quoted in Frängsmyr et al. 1983:167). Indeed, he described *Homo* not in the anatomical terms he used for every other genus, but with the simple phrase *Nosce te ipsum*—“know thyself”. This was a tacit admission of his failure to find any grounds within his system of zoological classification to support the privileged position of humanity within the traditional anthropocentric schema.

Linnaeus apparently believed that our conduct towards other animals should be guided by our essential kinship with them, writing in his 1733 *Diaeta Naturalis* “One should not vent one's wrath on animals. Theology decrees that man has a soul and that the animals are mere *automata mechanica*, but I believe they would be better advised that animals have a soul and that the difference is of nobility” (quoted in Frängsmyr et al. 1983:166). A recent study stated “putting aside the language of philosophy for a moment, one may say that he loved animals” (ibid); in particular, he was rather fond of a pet racoon named Sjupp. However, the moral status of animals was not a subject Linnaeus pursued in any depth, or showed much concern for in practical terms.

Linnaeus’ statement that humans were anatomically virtually indistinguishable from apes proved too much for many of his highly anthropocentric contemporaries. His classification of humans was contentious enough that some editors of the *Systema* left out the offending material, while others, such as Robert Kerr in his 1792 English translation, quietly changed taxonomic names to more palatable ones (Gaukroger 2015:241). Those with no interest in natural history

simply denied that such findings had any significance, Adam Ferguson stating “in opposition to what has dropped from the pens of eminent writers, we are obliged to observe, that men have always appeared among animals a distinct and a superior race... and we can learn nothing of his nature from the analogy of other animals” (1767).

This anthropocentric modification of Linnaeus set the pattern for later taxonomy. While the Linnaean taxonomy had begun to suggest a continuum fixing humans firmly in the animal kingdom, the classifiers that followed him believed firmly in God’s creation of separate species, discretely organised with humans at the very top. The German anatomist and naturalist Johann Freidrich Blumenbach saw fit in 1799 to create a new order reserved for humans alone, the highest of the nine mammalian orders he proposed. Humans were placed in *Bimanus*, defined by their “two perfect hands” and two distinct feet giving them the “power of walking erect” (1825:34), while apes and monkeys were classed together in the order *Quadrumana*- “four-handed”- as their hands and feet were supposedly indistinguishable. Thus, in contrast to Linnaeus’ stated uncertainty, Blumenbach argued he had “established such characters, by means of which Man can be unerringly distinguished from the most anthropomorphous Ape, as well as from all other Mammifera” (ibid). Yet Blumenbach’s “discovery” of human uniqueness was by no means the result of a disinterested study of the evidence, but rather part of an anthropocentric political agenda. In 1775 he had written in a letter that he intended to “defend the rights of mankind and to contest the ridiculous association with the true ape, the orang-utan” (quoted in van Wyhe and Kjærgaard 2015:3). Thus “Blumenbach’s was more than a scientific interest. He was determined to defend human uniqueness and his emphasis on functional rather than structural morphology was used deliberately to drive home the point (ibid).

Blumenbach classified apes as genus *Simia*, the tailless members of *Quadrumana*, comprising four species- satyrus (orangs), troglodytes (chimpanzees), lar (gibbons), and sylvanus (Barbary apes). He stated “there is but one species of the genus Man; and all people of every time and every climate with which we are acquainted, may have originated from one common stock” (ibid 35). Though he

identified five races, he believed that human differences “run so insensibly, by so many shades and transitions one into another, that it is impossible to separate them by any but very arbitrary limits” (ibid 36). He did not rank these races, believing them all of equal worth, and was strongly critical of contemporaries who argued Africans were an inferior race. However, he did believe that “the Caucasian must, on every physiological principle, be considered as the primary or intermediate of these five principle Races” (ibid 37), with the others having degenerated under the influence of climate. Thus, while not explicitly superior, whiteness was the biological norm for humanity, and blackness a deviation.

Georges Cuvier, “Father of palaeontology”, adopted the *Bimanus/Quadrumana* division from Blumenbach and secured its dominance in scientific literature, but differed in his discourse on race. His three human races- Caucasian, Mongolian and Ethiopian- were defined in terms of “certain hereditary conformations which give rise to peculiar distinctions among them” (1827:96), and were more akin to subspecies in the modern sense. Though he held that all humans were descended from Adam and Eve, the three racial groups being descendants of Noah’s three sons, this was a rather contradictory position, given that he firmly believed in both the fixity of species and strict limits to environmental influences on development. His racial taxonomy was also explicitly hierarchical; he claimed the Caucasian race was superior to others, while the Ethiopian race, which “manifestly approaches to the monkey tribe”, was lowest on the *scala naturae* (ibid 97). Thus, although Cuvier was technically a monogenist, “his racialism had a quasi-polygenist dimension and crossed into scientific racism” (Baum 2006:102).

Their contemporaries were no less pithecophobic. Johann Illiger, another influential taxonomist, placed humans alone in the order *Erecta*, while the quadrumana were relegated to one of five families in the order *Pollicata*, grouped along with lemurs, tarsiers, aye-ayes and marsupials (1811). Naturalist Comte de Buffon, whose *Histoire naturelle* was read by “every educated person in Europe” (Mayr 1982:330), was similarly anthropocentric, arguing that the orang “in truth is but a pure animal, wearing a human mask” (de Buffon and Daubenton 1766, XIV:41). The orang’s morphological similarities to humans did not put it “closer to the nature of Man, nor elevate it above that of animals” (ibid 70). The ape

“notwithstanding his resemblance to the human form, is a brute, and so far from being second in our species is not even first among brutes” (1797, IX:144)- for Buffon this honour went to the elephant, which he believed was the most intelligent of animals. In contrast, the Creator had infused his divine breath into the body of man, making humans “vassal of Heaven, King of the Earth” (quoted in Corbey 2005). Buffon stated explicitly that “Man knows how to use, as a master, his power over animals” and that in thus making “domestic slaves” of them, had “acquired the right of sacrificing them for himself” (quoted in Williams 1883:166). He thus justified human carnivory, which he acknowledged was a matter of taste not physiological necessity, through a version of the natural slavery doctrine.

While Blumenbach had professed a spurious certainty regarding the anatomical distinction between ape and man, for Buffon, anatomy had simply to be dismissed as misleading in determining the apes place in the *scala naturae*, relying instead on their supposed lack of a human-like mind in classing them as pure animal; “The ape, which philosophers, as well as the generality of people, have regarded as a being difficult to define, and the nature of which was at least equivocal, and intermediate between that of man and brute animals, is, in fact, no other than real brute, wearing externally a human masque, but internally destitute of thought, and every other attribute which constitute the human species: an animal inferior to many others in his relative faculties” (1797, IX:148-9). Buffon described the ape in the same terms that the medieval writers had described monkeys, as a caricature of humanity, and stated that a human could not look upon the orang “without contemplating himself, and being convinced that his external form is not the most essential part of his nature.” (1797, IX:110).

While he denied any humanity to apes, Buffon also saw the “lowest savages” as close to the brutes, and described “American man” and black Africans at length, in unflattering terms; for example, he stated that “the Negroes... are really as savage, and almost as ugly” as the orang (1797, IX:110). He drew a particularly repulsive portrait of the Hottentots, the lowest humans on his scale (Jahoda 1999). Buffon described human races in the modern sense of varieties of the same species whose characters have become hereditary, while acknowledging that races shade into one another. However, like Blumenbach he believed racial differentiation originally

occurred as a result of degeneration from Adam and Eve under environmental influence. Indeed, he believed that climate could change an individual's skin colour significantly within the span of a single lifetime. Thus, for Buffon hereditary difference and inferiority was ultimately environmental in origin.

Blumenbach, Cuvier, and Buffon all believed firmly in the supremacy of humans over other species, a natural supremacy that legitimated the exploitation of animals. However, for Cuvier and Buffon, not all humans were in fact fully human, as some bore closer resemblances to apes- and even for Blumenbach, who decried rankings of racial superiority and inferiority, the Caucasian race was "primary." In their hierarchical taxonomies of the natural world, these scholars were emulating Aristotle's *scala naturae*, and now human racial variation was beginning to be conceived in the same mode.

These were attitudes that would harden considerably in subsequent decades; all of these scholars embraced at least a qualified monogenism with a large role for environmental influences, but scientific racists in the 19th century would not only reject any significant role for environmental influences in favour of heredity, they would also reject the monogenism of the Genesis narrative altogether, and espouse the separate origin of the human races in their polygenic phylogenies. This was not an unprecedented development, for earlier scholars had posited the existence of "pre-Adamites" and espoused separate creations rather than the common origin of all humanity from Adam, originally as an explanation for how humanity came to exist in the Americas (Livingstone 2009). With the scientific racists, however, polygenism took on an explicit connection to the politics of racism and justifications for slavery, that had been originally been entirely absent from pre-Adamite theory.

Blumenbach, Cuvier and Buffon also exemplify two contrasting positions, the influence of which continues into the present day. Though both highly anthropocentric pithecophobes, their deployment of pithecophobia in relation to human racial variation was exactly opposite. For Blumenbach, the bestial ape was the Other against which all humans were ennobled by way of comparison; their kinship with each other is born of their lack of kinship with the ape. For Cuvier and Buffon, emphasising the kinship of certain "lower" humans with the ape served to demonstrate the superiority of "higher" humans and thus diminish their kinship with

“inferior” races. Both firmly believed in a naturally superior master race destined to rule over all lower beings; only for Blumenbach this was the human race as a whole, while for Cuvier and Buffon it was only a particular subset of humanity.

None of these early-19th century scholars had espoused evolutionary ideas, so only their human taxonomy, which unlike their description of animal life was based on descent, had any phylogenetic character. However, ideas of transmutation of species were beginning to circulate at this time. Lamarck speculatively suggested an ape origin for humanity, arguing that “if some race of quadrumanous animals, especially one of the most perfect of them... were forced for a series of generations to use their feet only for walking, and to give up using their hands as feet” there was no doubt they “would at length be transformed into bimanous, and that the thumbs on their feet would cease to be separated from the other digits” (1809:170). In contrast to the efforts of Linnaeus, Cuvier and other taxonomist to define each species and its fixed place in the *scala naturae*, Lamarck argued that species were rendered arbitrary and artificial by transmutation- “among her productions nature has not really formed either classes, orders, families, genera or constant species, but only individuals who succeed one another and resemble those from whom they sprang” (1809:21). Such classifications are “artificial devices” (ibid). With this in mind, the naturalist and proponent of Lamarckian evolution Bory de Saint-Vincent in 1827 argued against the bimana/quadrumana division, describing cases of resin-collecting peasants who had from tree-climbing developed dextrous toes that they could use to write with. He concluded that “only vanity drove us to ally oranges with the “stupid brutes,” while elevating ourselves to a dignified position” (Desmond 1989:289).

Cuvier, champion of the bimana/quadrumana division that underpinned human uniqueness, was stridently opposed to such evolutionary notions. He ridiculed Lamarck's theory of transformation and defended the fixity of species, going so far as to pen a thoroughly hostile eulogy after his death, and his influence would win out (Bowler 2003:110). While evolutionary ideas had thus not become scientific orthodoxy, they were nonetheless regarded as dangerous by Britain's

“scientific clerisy,” alarmed at the threat to its power from democratic forces following the Reform Bill of 1832, which extended the franchise, causing the electorate to double in size (Desmond 1985). In the political climate prevailing in Britain after the Napoleonic wars, French transmutationism was strongly associated with radicalism; as a worldview emphasizing progressive change, it certainly had an affinity with such politics. The scientific clerisy were troubled as much by the implications of the evolutionary process for the social hierarchy as the implications of kinship with other animals for the biological hierarchy- not that there was, or ever has been, a strict separation of the social and biological hierarchies, of course. While there was thus more than simply anthropocentric prejudice at play in opposition to transmutation, this certainly played a large role. Physician John Elliotson in 1835 criticized anatomists who emphasised human-ape similarities as “perversely desirous of degrading man” (quoted in Desmond 1989:288), a conventional sentiment at the time.

In this vein, Lyell argued against transmutation in his *Principles of Geology*, writing disapprovingly that Lamarck “renounces his belief in the high genealogy of his species” in asserting “that all animals, that man himself, and the irrational beings, may have had one common origin; that all may be part of one continuous and progressive scheme of development” (1835:495). Lyell mocked Lamarck for proposing a “progressive scheme, whereby the orang-outang, having been already evolved out of a monad, is made slowly to attain the attributes and dignity of man.” (1835:22). However, in private he was more open to the possibility of transmutation, but knew that in the contemporary climate he would have “raised a host of prejudices” (1837) against himself by any public endorsement of such ideas.

Lyell could certainly see the logic in a general theory of animal evolution, and doubtless would have spoken much more favourably of it, were it solely a discourse concerning other animals. What troubled him was the application of this theory to humanity. He wrote in 1859 that accepting evolution fully was to “go the whole orang” (van Wyhe and Kjærgaard 2015), and indeed was primarily motivated in his criticisms of evolution by pithecophobia. The pithecophobia of Lyell and other prominent scholars thus actively prevented a phylogenetic discourse on human origins from arising in the earlier 19th century as it otherwise likely would have

done, by denying any possibility of an animal origin for humanity. Pithecophobia delayed the acceptance of evolutionary discourse for decades, not because it was scientifically unsound, but because it was politically unacceptable. Anthropocentric ideology squashed scientific objectivity.

The most popular expression of evolutionary ideas prior to Darwin was Robert Chambers' anonymously published 1844 work *Vestiges of the Natural History of Creation*, which speculatively advanced stellar evolution combined with the transmutation of species, though without the mountains of evidence that would be accumulated by Darwin. Chambers, like Lamarck, argued for an ape origin for humanity, and thus believed "we should expect man to have originated where the highest species of the quadrumana are to be found" (1844:296), which he stated was South-East Asia- the same argument Haeckel would make later. *Vestiges* attracted virulent criticism from the scientific establishment. Prominent member of the scientific clerisy, geologist and Anglican reverend Adam Sedgwick angrily decried this "mischievous, and sometimes antisocial, nonsense" in a lengthy and rambling review, averring that "no man who has any name in science... has spoken well of the book, or regarded it with any feelings but those of deep aversion" (1845-2-3). The suggestion that humans were the "children of apes" was abhorrent to him, and he worried that "our glorious maidens and matrons" would be seduced by "the serpent coils of a false philosophy, [that] asks them again to stretch out their hands and pluck forbidden fruit" (ibid:3), predicting "ruin and confusion in such a creed" which, if taken up by the working classes, "will undermine the whole moral and social fabric" bringing "discord and deadly mischief in its train" (quoted in Desmond and Moore 1994). Speculating on the identity of *Vestiges*' author, Sedgwick claimed he could "trace therein the markings of a woman's foot" as "no man could write so much about natural science without having dipped below the surface, at least in some department of it" (ibid 4). Anyone who would disrupt the *scala naturae* in this way could surely not be at the apex of it; these could not be the views of a fully rational man, only an irrational woman. Of Sedgwick's review Darwin observed understatedly in a letter to Lyell that "some few passages savour of the dogmatism of

the pulpit, rather than of the philosophy of the Professor chair", making it "far from popular with non-scientific readers" (1887:344).

Yet Chambers' work was in fact far from eschewing anthropocentrism. He wrote of man, "A signal superiority, however, belongs to him as the centre and apex of all; the undoubted king and lord of this portion of animated nature" (1844:203), and while this superiority was "betokened in the immediately preceding portions of the line... The advance, nevertheless, which man makes above his immediate predecessors is very great" (ibid 202). In Chambers' zoogony, all other animals were side-branches off a main line leading progressively to humanity. This was not a theory of evolution by chance, but creation by natural law, presenting the transmutations as the gradual unfolding of a preordained plan, in keeping with God's perfect knowledge of the future. It appealed to radical Quakers and Unitarians, such as zoologist and Unitarian William Benjamin Carpenter, who helped Chambers to edit later editions of the work. These religious critics of the establishment attacked the "narrow-minded and bigoted Saints of the present day" who joined in a "cry from hypocrisy and self-interest" against the author. Yet, despite their approval of the vision of nature presented in the work as a whole, they were not inclined to favour its application to humans, and expressed a preference for the special creation of humanity over "that which would lead us to regard the great-grandfather of our common progenitor as a chimpanzee or an orang-outang" (Paine 1872). They could not accept a phylogeny that included the lowly apes as our ancestors. The dispute over evolution was thus never a simple conflict between science and religion; it was not scripture as such, but rather pitheco-phobia that led the deeply religious to reject an ape origin for humanity, the same pitheco-phobia that has made even atheists uncomfortable with the fact.

Pitheco-phobia was certainly an influence on the most prominent anti-Darwinian, Richard Owen. His scientific work was inextricably related to an anti-Lamarckian ideology and fears about Lamarckism's socially-disruptive consequences; "His revamped monotremes, apes, and dinosaurs were not simply the product of disinterested application. Each was rebuilt to anti-Lamarckian specifications expressly to meet urgent social needs" (Desmond 1985). In other

words, Owen did not simply reject evolution, he tailored every aspect of his scientific work towards preventing its acceptance. For example, Owen claimed the fossil reptiles he reconstructed as large quadrupeds and classified as *Dinosauria* constituted “additional disproof” of “the hypothesis of the transmutation of species, by a march of development occasioning a progressive ascent in the organic scale” because “they were as superior in organization and in bulk to the Crocodiles that preceded them as to those which came after them” (1841). He was later to write in his review of *the Origin of Species* that the work “parallels the abuse of science to which a neighbouring nation, some seventy years since, owed its temporary degradation” (1860), alluding to supposedly disastrous social consequences of French transmutationism.

Despite his concerns over transmutation in general, it was the idea of an ape origin for humanity that bothered Owen most, and led to his most ideologically motivated and distorted studies; “by the mid-1830s he had made the morphological separation of man and ape a moral imperative” (Desmond 1989:288). In his 1835 paper “On the Osteology of the Chimpanzee and Orang Utan” he argued that the “disposition and proportions of the teeth” afford “unfailing and impassable generic distinctions between *Man* and the *Ape*”- that anthropocentric holy grail which had eluded Linnaeus- and proclaimed that the anatomical (not evolutionary) “transition from the *Monkey* to the *Man* has been assumed to be much more gradual than a more extended investigation will be found to sustain.” Pithecofobia was again playing an influential role in actively preventing a phylogenetic discourse on human origins.

Owen was to take anthropocentric classification even further than Blumenbach, Cuvier and their contemporaries had. In a paper on the classification of Mammalia in the journal of the Linnaean society he argued “I am led to regard the genus *Homo*, as not merely a representative of a distinct order, but of a distinct subclass of the Mammalia, for which I propose the name of *Archencephala*” (1857:20) (**Figure 3**). By placing humans on such an elevated taxonomic pedestal, he aimed to keep them out of reach of the hypothesis of the transmutation of species. Whatever the merits of evolutionary theory, he would firmly deny it could have any application to humanity; “The considerations involved in the attempt to disclose the

origin of the worm are inadequate to the requirements of the higher problem of the origin of man” (1860).

“The culmination of Owen’s taxonomic exercise in separating humanity from the rest of the animal kingdom” (Rupke 2009:190) was his Rede lecture *On the classification and geographical distribution of the Mammalia*, given at Cambridge in May 1859. In contrast to the limited and specialist readership of the Linnaean society paper, this lecture was intended for the wider circle of friends from whom he derived his political support. He used the occasion “to stage the taxonomic crowning of *Homo sapiens* as the only representative of the subclass Archencephala and dramatically to present humankind’s elevated status as a legitimization of its claim to spiritual uniqueness” (ibid). The lecture was substantially the same as the earlier paper, but with some meaningful changes. This discourse ended with a triumphant crescendo on the glory of the human spirit, where he stated “The supreme work of Creation has been accomplished that you might possess a body—the sole erect—of all animal bodies the most free” (1859). With his annunciation of this new subclass of “ruling brains” on the eve of the publication of the *Origin of species*, Owen was doubtless overcompensating- the more inevitable the recognition of an ape origin for humanity became, the more distance he needed to put between humans and the rest of the animal kingdom.

In this lecture, he also omitted a revealing passage from the earlier paper about the fundamental similarity of humans and apes- "I cannot shut my eyes to the significance of that all-pervading similitude of structure—every tooth, every bone, strictly homologous—which makes the determination of the difference between *Homo* and *Pithecus* the anatomist's difficulty” (ibid). This revealing redaction did not go unnoticed by Huxley, who called attention to the “unaccountably omitted” passage in his 1861 essay “On the relations of man to the lower animals”, later published in his 1863 *Man’s place in nature*. Huxley quipped “It is so rare a pleasure for me to find Professor Owen's opinions in entire accordance with my own” and used Owen’s own words to reject the Archencephala subclass- “Surely it is a little singular, that the “anatomist,” who finds it “difficult” to determine “the difference” between *Homo* and *Pithecus*, should yet range them on anatomical grounds, in

distinct sub-classes.” It was pithecophobia, not sound anatomical judgement, that motivated Owen’s classification.

Comparing Figures 2 and 3- the first a representation of Aristotle’s ideas in the classical period, the second a diagram by Owen on the eve of Darwinism, demonstrates very well the continuity underlying superficial change that we have seen in this overview. Aristotle’s schema is relatively crude, based on both the relatively few animals known to him, and his much less sophisticated methods for studying their anatomy, while Owen’s is far more detailed and accurate. Nevertheless, they both place humanity at the top, a being in a league of its own- not a judgment made from impartial observation, but from political ideology. Furthermore, the fact that Owen’s diagram is *not* phylogenetic is important in its own right- for this was not the result of ignorance of evolutionary concepts; rather, it was specifically designed to avoid any notion of evolution, again as a result of political ideology.

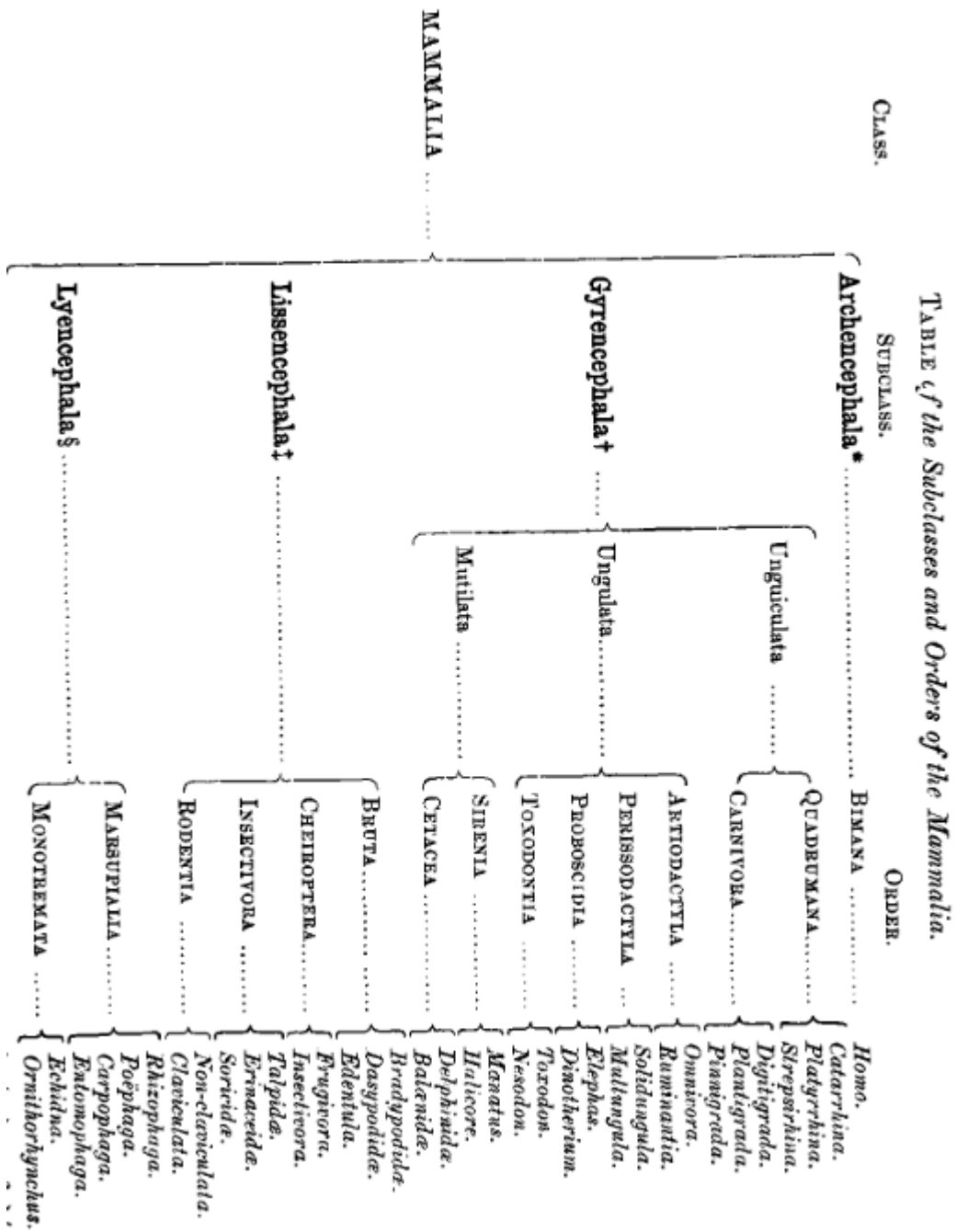


Figure 3 Owen's 1857 Classification of Mammalia (Owen 1857)

4c. Wallace's Orangs

Alfred Russel Wallace was a figure of exceptional historical significance, thus worthy of close examination. Not only was he co-discoverer of natural selection, he was also the first scientist to encounter great apes in the wild. Just one of these landmarks would suffice to warrant a prominent place in a narrative such as this. What is striking, however, is the degree to which these two developments- which in light of all the subsequent controversy over and popular understanding of evolution, one would naturally take to be intimately connected- in fact failed to intersect. Not only did apes play no significant role in the development of his theory, he did not apply evolutionary theory to derive kinship with apes.

Wallace travelled to Sarawak, Borneo in 1855, and spent 17 months there accumulating specimens to sell to both institutions and private collectors, with the revenue from this specimen collecting financing his travels. Orangs were a particularly lucrative source of profit; the South Kensington Museum, for example, offering one hundred pounds in gold for the skin and skeleton of an adult male orang (**Figure 4**). Thus Wallace's case was a rare one in which pithecophobia was more than symbolic, in justifying the oppression of other animals and certain races and classes of humanity, but in fact had direct practical benefits in justifying exploitation and extermination of real living apes for profit. While certainly an exotic and fascinating creature, they were to Wallace "just another animal specimen. He used the conventional language of the times to describe them as monsters" (van Wyhe and Kjærgaard 2015:7). For example, he referred to them as "strange creatures, which at once resemble and mock the "human form divine,"- which so closely approach us in structure, and yet differ so widely from us in many points of their external form" (1856b:31), and stated that "we see in the monkey tribe a caricature of humanity. Their faces, their hands, their actions and expressions present ludicrous resemblances to our own" (1889). This traditional language locates the apes' monstrosity in their liminality, in their resemblance to humans despite their animality, a theme going back to medieval times where the ape was the *figura diaboli*, and foreshadowed even earlier with the Plinian races. But for Wallace, as for Owen, Buffon, Cuvier, and Tyson before them, this liminality was only apparent, nothing more than a superficial

resemblance, for the apes were truly animal in the fullest sense, and in no sense human.

In all of his accounts on oranges, he refers to them throughout as an animal, without any proof or argumentation to back up this designation- to Wallace, their animal status was a simple uncontroversial fact that needed no further explanation. It meant that they were not moral subjects and could be killed with impunity- and Wallace clearly had a direct financial incentive to do so. In other words, as soon as the theoretically murderous pithecophobic ideology, encapsulated in the personage of Wallace, encountered real living apes, it became literally murderous. Wallace stated without compunction “I have altogether examined the bodies of seventeen freshly killed Orangs, all but one shot by myself” (1856a:471), noting that “their tenacity of life is very great,- from six to a dozen bullets in the body being required to kill them, or make them fall” (1856b:27). Wallace’s orang encounters were not all lethal, but no adult orang ever escaped alive by his design, only when he proved a poor shot. He gives an account of every individual he shot in his book *The Malay Archipelago* (1869b:54-101), and though Wallace did not sensationalize or provide very much detail, his accounts of the killings are often rather grisly. He was unconcerned about the sufferings of the oranges, and could take for granted a similar sentiment or rather lack thereof in his audience, so felt no need to downplay the brutality:

“It fell at the first shot, but did not seem much hurt, and immediately climbed up the nearest tree, when I fired, and it again fell, with a broken arm and a wound in the body. The two Dyaks now ran up to it, and each seized hold of a hand, telling me to cut a pole, and they would secure it. But although one arm was broken and it was only a half-grown animal, it was too strong for these young savages, drawing them up towards its mouth notwithstanding all their efforts, so that they were again obliged to leave go, or they would have been seriously bitten. It now began climbing up the tree again; and, to avoid trouble, I shot it through the heart.” (1869b)

Wallace similarly described shooting monkeys in the Amazon, though in this case he went even further- “Having often heard how good monkey was, I took it home, and had it cut up and fried for breakfast” (Wallace 1889a:29). This is despite

his observation that the monkey's "cries, its innocent-looking countenance, and delicate little hands were quite childlike" (1889a:29), and his earlier statement that monkeys kept as pets were capable of "great affection" (1854:452). He felt the need to review his dining experience, which was apparently satisfying; the "meat something resembled rabbit, without any very peculiar or unpleasant flavour" (ibid). This is in line with his accounts of other fauna; for example, the Agouti (a larger relative of the guinea pig) is first introduced by Wallace as "another new dish" (1889a:30), before any description of the being is given by him, placing its status as a resource to be exploited not only above the being's own interests, but above scientific interest too.



Figure 4 Mounted orang-utan specimen collected by Wallace (Natural History Museum Picture Library)

There was, however, one exception among his encounters, in which Wallace did not attempt to kill the orang. After spotting an orang in the forest, which he fired upon “without losing a moment” (1856d:327) and killed, he discovered next to the corpse “a marvellously baby-like and innocent-looking little creature, apparently quite unhurt by its fall, and which clung to me with a most amazing tenacity” (1856d:327). The orang had been carrying a child, and Wallace resolved to take care of this infant- “I had killed the mother, so I determined, if possible, to save her offspring” (ibid). His motives in raising the infant were not purely altruistic, for he

hoped “some day to introduce her to fashionable society at the Zoological Gardens” (1855b), where he assumed the orang would prove a very popular attraction, and no doubt of far greater value than a preserved specimen.

Wallace raised the infant and took note of her habits, but although he was struck by the orang’s resemblance to a human baby, being a helpless infant she was hardly capable of impressing him with her intelligence and behaviour in a manner that could overturn his anthropocentric preconceptions in the way that the “savages” he encountered had done. Wallace had bought a tame monkey to provide warmth and companionship for the infant, and noting the monkey’s more advanced development at what he presumed to be a similar age to the still helpless orang, stated “there could not be a greater contrast, and the baby Mias [oraang] looked more baby-like by the comparison” (1856b:388). He also noted the infant’s “expressive countenance while slowly eating its soft rice” (1856d:326), which made the baby appear more human than simian.

He seemed to have at least some level of affection for the infant, effusing in a letter to his sister “I am sure nobody ever had such a dear little duck of a darling of a little brown hairy baby before” (1855b). Wallace often describes the infant with language more often associated with a human baby than a captive animal- though as previously noted, he gave a somewhat similar description of a small monkey, before killing and eating it. In fact, in a popular account he wrote of his experience with the infant (1856d), titled “a new kind of baby,” he uses the conceit of not revealing the infant to be an orang until the end of the piece, leaving the reader to at first assume he is describing a human baby. However, he opens a similar account in a *Natural History* journal (1866b) with the words “This little animal” (ibid 386), marking the baby as unambiguously animal not human, just as he had the other oranges he described.

Unfortunately, after a few months the baby grew ill and died, a fate Wallace attributed to an inadequate diet- “milk was not to be procured, and a diet of rice and water was not sufficiently nourishing for so small an infant” (1856d:326). Wallace appeared at least somewhat saddened by this outcome, stating “I much regretted the loss of my little pet, which I had at one time looked forward to bringing up to years

of maturity, and which had afforded me daily amusement and pleasure by its curious ways and the inimitably ludicrous expressions of its little countenance” (1856b:390). However, he treated the baby’s remains without ceremony, preserving her as a commercial specimen just like the other oranges he had killed. Though this was certainly the closest he came to acknowledging an orang as more than mere animal, in the last analysis he did not do so; for Wallace the baby seems ultimately to have been not much more than a curiosity, “a never-failing amusement” (1869b:68). Perhaps the clearest indication of his attitude towards the baby is the fact that he did not give her a name, as one would a human baby or even an ordinary pet.

That Wallace initially perceived apes just as the foremost contemporary authorities of anatomy and zoology did is hardly surprising, yet he had an unprecedented chance for further investigation, as unlike any previous scholar he was able to encounter numerous living apes in their natural environment. However, he did not afford the oranges any chance to prove him wrong, as he tended to shoot first and ask questions later. While he did seek to describe their habits as far as he observed them, and what he could glean from native accounts, he made no special effort to observe their behaviour beyond what he witnessed while shooting at them. This left him not much more than anatomical data to go on, and while he certainly had an abundance of material, the significance of any anatomical similarities between ape and man had been dismissed strongly enough by such authorities that he made no effort to challenge them on this basis. He did not use the measurements from the oranges he had killed in any attempt to elucidate “man’s place in nature” by comparing them to humans, rather he compared them to each other in an attempt to resolve the question of how many species of orang there were; Wallace described the Sumatran (now *Pongo abelii*) and Bornean (now *Pongo pygmaeus*) oranges as two species of the genus *Pithecus* and believed them to be identical in their habits (1856b:26).

So natural would a connection between Wallace’s orang encounters and his evolutionary theory seem that even some scholars have assumed its existence despite a lack of proof for it. For example, Desmond and Moore (1994) stated that Wallace

had intended to go to “Borneo, the land of orangutans, where he hoped to gain clues to man's ancestry.” Yet, as van Wyhe and Kjærgaard (2015) note, “there exists no evidence of any kind to support the view that Wallace went to the East to study human origins nor that he thought orangutans would be relevant to such studies prior to his departure”, and furthermore “although he was actively pursuing his private interests in evolutionary theory at exactly this time, his notes on orangutans contain no mention of human origins or evolution” (ibid:8). The claims that Wallace was seeking evidence of human ancestry from the study of orangutans are based solely on a single retrospective remark made by Spenser St. John, Acting Commissioner and Consul General in Borneo, and one of Wallace’s acquaintances during his stay in Sarawak. He wrote in 1879 that Wallace had been while in Sarawak “elaborating in his mind the theory which was simultaneously worked out by Darwin- the theory of the origin of species; and if he could not convince us that our ugly neighbours, the orang-outangs, were our ancestors, he pleased, delighted, and instructed us by his clever and inexhaustible flow of talk” (St. John 1879).

Wyhe and Kjærgaard (2015) point to a marginal comment made by Wallace in his copy of Darwin’s *Origin* as the closest contemporary evidence of Wallace’s view on the phylogeny of humans and orangutans. Where Darwin had written “So with natural species, if we look to forms very distinct, for instance to the horse and tapir, we have no reason to suppose that links ever existed directly intermediate between them, but between each and an unknown common parent”, Wallace had noted in the margin “So with the orangutan & man.” That the best evidence we have is a perfunctory private scribbling, written after he had read Darwin’s *Origin* and several years after he had travelled to the Malay Archipelago and formulated his own version of natural selection, surely demonstrates a certain lack of interest on Wallace’s part. Moreover, it directly contradicts St John’s remark, for Wallace does not claim orang-utans are human ancestors, but rather that human and orangutans share a common ancestor; St. John’s recollections are doubtless less than reliable.

Nevertheless, Wallace was clearly not entirely ignorant of the connection between apes and human origins. He had read *Vestiges* in 1845, which had persuaded him of the general truth of evolutionary theory, and while we do not know for certain that he specifically accepted an ape origin for humankind as posited in

that work- and Chambers had on this basis specifically pointed to South-East Asia as the probable birthplace of mankind- he most likely acknowledged that humans were part of an evolutionary process. At the very least, he would certainly have been aware of the idea. The closest he came to acknowledging a connection, without explicitly doing so, was in the passage with which he concluded his 1856 article “On the habits of the Orang-Utan of Borneo.”

“When we consider that almost all other animals have in previous ages been represented by allied, yet distinct forms, - that the bears and tigers, the deer, the horses, and the cattle of the tertiary period were distinct from those which now exist, with what intense interest, with what anxious expectation must we look forward to the time when the progress of civilization in these hitherto wild countries may lay open the monuments of a former world, and enable us to ascertain approximately the period when the present species of Orangs first made their appearance, and perhaps prove the former existence of allied species still more gigantic in their dimensions, and more or less human in their form and structure! Some such discoveries we may not unreasonably anticipate, after the wonders that geology has already made known to us. Animals the most isolate in existing nature have been shown to be but the last of a series of allied species which have lived and died upon the earth. Every class and order has furnished some examples, from which we may conclude, that all isolations in nature are apparent only, and that whether we discover their remains or no, every animal now existing had its representatives in past geological epochs”
(1856a:31-2)

If “all isolations in nature are apparent only” since even the most isolated extant forms are “but the last of a series of allied species which have lived and died upon the earth”, what are we to think of humans, traditionally perceived as the most isolate species of all- especially if, as Wallace intimates, there were even more human-like species existing in the past? With its notable enthusiasm for future discoveries in the fossil record, and the suggestion that there may be fossil ape species more closely resembling humans than extant apes, it is clear that this passage anticipates subsequent notions of the “missing link” between apes and humans, and doubtless explains his later eager embrace of the idea, which is a natural conclusion of the very observations and speculations he made here.

Wallace was indeed very enthusiastic in his subsequent embrace of the “missing link” idea, showing none of the reluctance and hesitation that other scholars such as Lyell displayed. In an 1894 letter concerning the recently reported discovery of *in situ* worked flints as part of the Geological Survey of India, Wallace hailed “The great, the grand, and long-expected, the prophesied discovery” of Miocene or Old Pliocene Man in India, ending “Of course we want the bones, but we have got the flints, and they may follow. Hurrah for the missing link!” (quoted in Kjærgaard 2011).

Wallace agreed in every essential particular with the vision of human evolution set forth in Huxley’s “Man’s Place in Nature” (1863), discussing the area in his *Darwinism* (1889b). Wallace stated the anatomical similarities of humans with apes were proof that all had diverged from a common ancestor, and constituted a “demonstration that man, in his bodily structure, has been derived from the lower animals, of which he is the culminating development” - describing the revelation of human evolution in traditionally anthropocentric terms, though no less so than Huxley. Wallace believed the evidence was “sufficient to convert the probability of his animal origin into a practical certainty” (1889b).

With regards to the phylogeny of the extant apes and humans, Wallace stated that the comparative anatomy presented “a tangled web of affinities which it is very difficult to unravel” (1889b). He argued that “no one of the great apes can be positively asserted to be nearest to man in structure” as each of them “approaches him in certain characteristics, while in others it is widely removed.” However, he held that “peculiarities of external form and motion” common to the apes but not humans demonstrated that “while they have diverged somewhat from each other, they have diverged much more widely from ourselves.” Wallace thus held that humans had diverged from the common ancestral form before the existing types of anthropoid apes had diverged from each other, holding the human lineage as separate from all the other great apes, just as Huxley had done. Wallace pointed to the Eurasian fossil *Dryopithecus*, discovered in 1856 by Lartet, as a large, gibbonlike ape with dentition more closely resembling humans than that of extant apes. As

Dryopithecus had been found in Upper Miocene deposits, Wallace concluded that the common ancestor of apes and humans had lived earlier than this. Wallace's promotion of a Miocene ape to human ancestral status based on very dubious speculations about its teeth closely parallels the later elevation of *Ramapithecus*, as indeed the pithecophobic impetus was virtually identical- locate a very early human ancestor to remove the extant apes from our family tree and push our animal ancestry much farther back into the murky past.

Wallace also agreed with Huxley's conclusion that the Neanderthal fossils were not "appreciably nearer" to a pithecoid form, thus while an archaic race of humanity, they were not a missing link. He took a dim view of the controversy surrounding the discovery of these fossils, noting that these "earliest remains of man have been received with doubt, and even with ridicule, as if there were some extreme improbability in them. But, in point of fact, the wonder is that human remains have not been found more frequently in pre-glacial deposits." He was convinced that a true humanlike missing-link would be found in time; "It seems impossible but that ample remains of Miocene and Pliocene man do exist buried in the most recent layers of the earth's crust, and that more extended research or some fortunate discovery will some day bring them to light" (ibid).

Yet Wallace's seemingly easy departure from the earlier pithecophobia that had led him to kill so many oranges was only superficial. While he felt compelled to reject the idea of special creation for man, calling it "entirely unsupported by facts as well as in the highest degree improbable" this only applied to our "physical structure and the course of its development" (1889b). In the human mind, Wallace argued, "we see the true grandeur and dignity of man" who is by its power rendered "a being apart, since he is not influenced by the great laws which irresistibly modify all other organic beings." Far from rejecting outright the anthropocentric taxonomy of Owen, Buffon, Cuvier and other authorities, as we might expect him to in the light of evolution, Wallace instead stated "On this view of his special attributes, we may admit that even those who claim for him a position as an order, a class, or a sub-kingdom by himself, have some reason on their side" (1864:Clxviii).

Once this unprecedented agent had appear on the world's stage, it freed humanity of their shackles to the laws of nature that ruled all animal life. Wallace noted Professor Boyd Dawkins' contention that humans could not have existed in Pliocene times, as the entire mammalian fauna of that epoch was comprised of distinct species from extant forms, and therefore the same natural selection in response to environmental change that led to the modification of mammalian species would have led to similar changes in human ancestors. He retorted that "man may have become truly man—the species, *Homo sapiens*—even in the Miocene period" for while all other animals were being modified under the influence of ever-changing physical and biological conditions, humans were advancing in intelligence and "by that advance alone would be able to maintain himself as the master of all other animals" (1889b) - this superior faculty thus granting humanity dominion over other species. Wallace was even able to use this model in a rather unconvincing attempt to account for the apparent scarcity of human fossils, stating "we may well suppose that the superior intelligence of man led him to avoid that extensive destruction by flood or in morass which seems to have often overwhelmed other animals" (1889b) and thus greatly reduced the chances of fossilization.

So amazingly powerful was the human mind, so qualitatively distinct from the lowly faculties of animals, that Wallace did not believe it could possibly have been derived from them by any natural evolutionary process, but only under the direction of an "Overruling Intelligence" (1869a:394). In other words, he had to abandon the mode of explanation of evolutionary science and resort to supernatural intervention. Wallace's account of the human mind will be explained in more detail in a later chapter on mental evolution, but it should be obvious that this notion reinstated with a vengeance the extreme anthropocentrism that a sincere acceptance of human evolution would rule out, and denied any possibility of true kinship with apes or any other animal.

Flannery famously wrote that "Archaeology is the only branch of anthropology where we kill our informants in the process of studying them" (1982:275). He meant this only metaphorically, of course, yet in Wallace's case this was true in a literal

sense, and the significance of this fact should not be understated. The impact on the orangs was obviously fatal, but the effect on Wallace's science was at the very least injurious. Clearly, as a naturalist interested in biogeography and studying a wide variety of species, we cannot expect human origins to have been one of Wallace's primary concerns, and certainly to publish anything on the matter during his time in Sarawak would have created intense controversy. Even so, it does seem to be a topic that he actively avoided considering- given that it made good theoretical sense, and he had an unparalleled source of data- and his treatment of orangs may well have played a large part in that. After all, for Wallace to acknowledge kinship with the apes would be tantamount to a confession of murder. Thus, he initially avoided the issue of animal origin, and when he subsequently did accept it, kept the apes in our family tree as distant as possible, his phylogeny placing all extant apes in a separate lineage, and positing the existence of *Homo sapiens* as far back as the Miocene, thus pushing our ape-like ancestors even further back in time. Moreover, he rendered even this distant relationship irrelevant through his anthropocentric evolutionary theory focused on the uniquely superior human mind, even though this entailed invoking the supernatural and breaking the scientific logic of his work. Wallace ended up espousing what unequivocally amounts to "bad science," and it appears to be the pithecophobia he inherited from his intellectual forebears- and, unlike them, was able to put into practice- that led him there. Wallace was certainly exceptional in his encounters with apes, but the issues of evolutionary phylogeny and moral kinship were much broader- and the other Darwinian scientists faced a similar contradiction between the revelations of their science and its practices, such as in the vivisection controversy.

Wallace's anthropocentric model of human evolution was also intended to avoid undermining the rights of other humans in the face of their animal origin, given a worldview in which animals could not be conceived as moral or political subjects. Indeed, Wallace's cold-blooded killing of orangs appears especially jarring when compared to his statements on human rights. Wallace was far from unusually callous and unsympathetic. Quite the opposite, he was in fact unusually sympathetic towards the oppressed classes of humanity, including indigenous people in the

colonies, the working class of England, and women, and he expressed his political solidarity with them far more than any other prominent Darwinian ever did. However, though as co-discoverer of natural selection he would presumably have been best-placed to do so, Wallace did not combine his broad advocacy of human rights and progressive politics with any advocacy for animal rights based on evolutionary kinship, as for example Henry Salt later would.

His remarks on the indigenous populations he encountered during his travels in South-east Asia and South America displayed a comparatively high level of sympathy and relatively little disparagement, compared to similar contemporary accounts. Wallace stated “the more I see of uncivilized people, the better I think of human nature on the whole, and the essential differences between so-called civilized and savage man seem to disappear” (1855:684), and had a high opinion of their intellectual and moral capacities. He went even further than praising “savages”, and was willing to criticize the practices of the supposedly “civilized” whites. He stated “The white men in our Colonies are too frequently the true savages, and require to be taught and Christianized quite as much as the natives” (1865:671), such that “the poor savage must be sorely puzzled to understand why this new faith, which is to do him so much good, should have had so little effect on his teacher's own countrymen” (1865:672). He was critical of colonial practices he witnessed and knew of, which he perceived commonly demonstrated “a determination to pursue our own ends, with very little regard for the rights, or desire for the improvement, of the natives” (1865:672).

Wallace was asked by John Stuart Mill to join the committee of his Land Tenure Reform Association on the basis of the remarks criticizing English society that he had included in *The Malay Archipelago*. In 1881 Wallace was elected as the first president of the newly formed Land Nationalisation Society, subsequently publishing a book on the subject dedicated to “The working men of England” in the hope that it would “point out to them that great reform which will enable labour to reap its just reward” (1882). He declared himself a socialist in 1889 after reading Bellamy’s *Looking Backwards*, a famous work of the era. He was also opposed to eugenics (1890) and wrote on the dangers of militarism, advocating an international treaty to ban the military use of aircraft, referring presciently to the “proposed crime

against humanity” of bombing cities from airships as the “crowning wickedness of the combined forces of war and capitalism” (1909a:4).

He was also a supporter of women’s suffrage, stating “As long as I have thought or written at all on politics, I have been in favour of woman suffrage. None of the arguments for or against have any weight with me, except the broad one, which may be thus stated:-- All the human inhabitants of any one country should have equal rights and liberties before the law; women are human beings; therefore they should have votes as well as men” (1909b:10). It is notable that he here explicitly bases his support on the status of women as humans worthy of the rights befitting that status.

Although he would later move towards anti-imperialism- criticizing for example “that love of place and power which... still refuses all self-government or political rights to the countless millions in British India” (1900:111) - the sympathy for “savages” and criticism of colonial excesses expressed in *The Malay Archipelago* and his mid-century articles was not the same as criticism of imperialism itself. He saw nothing inherently unjust about colonial exploitation and believed it had a beneficial and progressive civilizing effect on the native population. He expressed his preference for the Dutch system of colonial rule over the British, believing the former had made greater progress towards this end (Clement 2016). He had close ties to the colonial administration of the “White Rajah” of Sarawak James Brooke- who was in 1854 subject to a Commission of Inquiry due to accusations of excessive use of force against natives under the guise of anti-piracy operations- as St. John’s recollections indicate. When Chinese workers tried to “get up a strike for short hours and higher wages” while Wallace was staying at the Si Munjon Coal Works in Borneo, the English manager swiftly responded by “sending off the ringleaders at once, and summoning all the Dyaks and the Malays in the neighbourhood to his assistance in case of any resistance being attempted.” Wallace approved of this exercise of colonial power, stating “It was very gratifying to see how rapidly they came up at his summons, and this display of power did much good, for since then everything has gone on smoothly.” He hoped that the coal works would have “a vast influence on the progress of commerce and civilization in Borneo and the

surrounding countries.” Wallace saw “some truth” in negative perceptions of the Chinese as “thieves, liars, and careless of human life” (Wallace 1855a:683).

As these statements indicate, he did occasionally slip into casual racism in his language. In a letter to his sister he called the baby orang he was raising a “curious little half nigger baby” (1855b). He stated “I had indulged hopes of sending this infant prodigy to England, where it might have rivalled in popularity the ape-like Aztecs” (1856d)- Wallace had earlier been “one of the gazers at the Zulus and the Aztecs in London” (1869b:349), these people exhibited as anthropological curiosities in a kind of human zoo. While such language was pervasive at the time, it is particularly chilling coming from Wallace, who had killed so many apes by his own hand. To refer to or compare someone to an ape was implicitly to mark them as an acceptable target for violence.

While such remarks in letters and popular articles were not intended to carry much weight, Wallace did give a degree of theoretical support to these attitudes in an 1864 address to The Anthropological Society of London, an institution strongly associated with polygenism and racist politics. He set out to answer the question “Are the various forms under which man now exists primitive, or derived from preexisting forms; in other words, is man of one or many species” (1864: clviii)- the question central to the polygenist/monogenist debate on the phylogeny of human races. Wallace believed the opposing theories could “be combined so as to eliminate the error and retain the truth in each” (ibid clix) by applying the theory of natural selection. He did so by invoking the anthropocentric vision of human evolution described above, namely that natural selection no longer acts on humans, having removed themselves from the conditions of animal life by way of their uniquely superior “mental and moral qualities.” The existing races of humanity, Wallace argued, had maintained their separate physical forms though the millennia of recorded history not, as the polygenists claimed, because they were originally distinct, but because once the final development of the human brain had occurred, the human mind freed humanity from the whims of natural selection, which would “check any further physical change.” Thus, while humanity had indeed originally been a homogenous race of common origin, this was “at a period so remote in his history, that he had not yet acquired that wonderfully developed brain, the organ of

the mind, which now, even in his lowest examples, raises him far above the highest brutes.” This was an ancestor possessing “the form but hardly the nature of man”, lacking the speech and moral feelings held to be unique to humans. This meant of course, that the races of humanity had attained their human mental faculties separately, after their evolutionary paths diverged– which of course, left ample space to argue that this final stage of development was an unequal one.

Wallace therefore held that both the polygenist and monogenist positions could be true, depending on one’s definition of the human:

“If, therefore, we are of opinion that he was not really man till these higher faculties were developed, we may fairly assert that there were many originally distinct races of men; while, if we think that a being like us in form and structure, but with mental faculties scarcely raised above the brute, must still be considered to have been human, we are fully entitled to maintain the common origin of all mankind” (ibid)

Wallace’s own definition of humanity, to which the superior mind was so central, would by this logic place him firmly in the polygenist camp, though he did not explicitly favour that interpretation.

Wallace also stated that the law of “the preservation of favoured races in the struggle for life” led to “the inevitable extinction of all those low and mentally undeveloped populations with which Europeans come in contact” (ibid clxv), for “the intellectual and moral, as well as the physical qualities of the European are superior.” The European was thus naturally destined to “conquer in the struggle for existence” just as European weeds had spread throughout the Americas and Australia, displacing the native flora. Thus he predicted that “the higher- the more intellectual and moral- must displace the lower and more degraded races” until “the world is again inhabited by a single nearly homogenous race, no individual of which will be inferior to the noblest specimens of existing humanity.” In other words, he predicted a future world effectively populated solely by whites; the “lower” races were thus rendered aberrations on humanity’s otherwise linear path of progress, destined to be exterminated literally or through reabsorption into the main stem.

The notion that the “lower” races were destined for extinction was pervasive in 19th century discourse, and by no means Wallace’s innovation, but in adopting it rather than challenging it he gave a degree of legitimacy and certainly inevitably to even those colonial practices he was explicitly critical of. Wallace’s address did not convince the society’s president Hunt, an avowed polygenist and defender of slavery, who especially disliked Wallace’s predictions of a future homogenous race, for he was opposed to any kind of “race-mixing” which he believed was inevitably deleterious. However, Herbert Spencer wrote to Wallace stating “the leading idea is, I think, undoubtedly true, and of much importance towards an interpretation of the facts” (quoted in Shermer 2002:221).

Thus, it is obvious that while Wallace’s model was intended not only to justify animal exploitation, but also to safeguard human rights, it was hardly a resounding success at the latter. In defending the *scala naturae*, it ending up providing a backdoor to undermine the rights of precisely those whose humanity was already most precarious. Far from securing the rights of humans, Wallace’s pitheophobic ideology rendered them insecure.

When we examine the development of Wallace’s ideas, it becomes strikingly apparent that, where we would expect change and indeed see it in superficial form, there is a deeper underlying continuity. He was after all doubly significant in our narrative, being firstly the co-discover of natural selection, thus allowing the widespread acceptance of evolution by providing it with a proven mechanism, and secondly the first scientist to encounter apes in the wild, in great numbers. Yet, following the pitheophobic script he received from Owen, Buffon and other authorities- and of course the wider culture- he simply shot the oranges as he would any other animal, without delay or compunction. Moreover, he made no effort to collect data from the oranges that was relevant to human origins, a subject he at first avoided entirely. When he did acknowledge the ape origin of humanity, he denied its relevance as far as possible, even where this involved invoking the supernatural. Far from disavowing the anthropocentric tradition on the basis of his discoveries, he did the best he could to support it. Yet this was not simply because he was a mere puppet of tradition- although the power of inherited ideas here was certainly great- but because of the political situation in the present, and indeed his own actions. Not only

did Wallace, like other scientists and wider society, have a direct stake in animal exploitation, he exceptionally had a direct stake in specifically *ape* exploitation- the very beings who would otherwise have provided the most compelling evidence against anthropocentric science. And by allowing the ape to persist in his discourse as a figure which could be killed with impunity, he also left an opening for racism within his ideology.

4d. Summary of subsequent developments

Huxley and Haeckel were pivotal figures in promoting an ape origin for humanity. Huxley's 1863 *Man's Place in Nature* can in many ways be considered the foundational text of paleoanthropology. Huxley proved conclusively that the quadrumana/bimana division made no scientific sense, and that the apes were much closer to humans than monkeys, overturning the traditional anthropocentric classification. Moreover, in applying the newly-minted evolutionary theory to humans, it argued human descent from an ape-like ancestor, making a convincing case for the animal origin of humanity. Huxley hypothesised that a fossil "missing link" between ape and human would be found, and examined the recently discovered Neanderthal fossils, classifying them as an archaic human race but human nonetheless, not a pithecoid missing link. The work and the Neanderthal fossils themselves generated a great deal of controversy, but also a great deal of enthusiasm for finding fossil man and the "missing link."

Haeckel also played a highly important role in advocating evolution and the ape origin of humanity. He was also enthusiastic about the "missing link", and his ideas influenced Dubois in the discovery of *Pithecanthropus*, a creature which had been hypothetically described beforehand by Haeckel. Haeckel also disseminated the "tree of life" imagery, which presented the evolution of life as a *scala naturae* with humanity at the top. While Darwin, Wallace and Huxley all had racist elements to their work, they were all, by the standards of the time, anti-racist in their attitudes, and all supported at least a qualified version of monogenesis. Haeckel, however, was very explicitly racist and incorporated this strongly into his polygenist theory.

The first decades after the publication of *Origin* witnessed two highly significant controversies, both involving issues of evolutionary phylogeny and moral kinship, and prominently involving Darwin himself as well as other Darwinian scientists. The first was the 1865 Governor Eyre controversy, the aftermath of a brutal suppression of a revolt in Jamaica, with a campaign to bring the offending governor to justice. Darwin strongly supported this campaign, and was moved by the events to write the *Descent of man* as a vindication of monogenesis. This was his attempt to end the debate over racial origins once and for all, depriving the polygenists of any excuse for racial oppression based on a lack of phylogenetic kinship.

The second was the anti-vivisection controversy, reaching a peak in the early 1870s. This was in many ways the culmination of the mainstream movement against animal cruelty which had been steadily advancing during the century. Vivisection was perceived as the epitome of cruelty, without any practical benefits to humanity (which only began to appear much later, at the end of the century), all the more concerning as it was the domain of intellectuals, rather than the “brutish” lower classes. Darwin was- much more so than most scientists at the time, and even subsequently- sympathetic towards animals, and indeed in other cases advocated in their interests. Nevertheless, although he personally advocated a parliamentary bill for the restriction of vivisection, this was perceived by the anti-vivisection movement as a cynical ploy aimed at forestalling more restrictive and effective measures. Darwin and other scientists ultimately placed the interests of scientific practice above the interests of animals, while the anti-vivisectionists were typically sceptical of Darwinian science and evolution.

A few exceptional figures at the end of the Victorian age, notably Henry Salt and J.H. Moore, did what neither the Darwinists nor other anti-vivisectionists could, in embracing evolutionary science and its implications without contradiction and advocating the rights of animals explicitly based on evolutionary kinship- a *Universal Kinship* (Moore 1906). However, by this time the general discourse was moving in the opposite direction. The anti-vivisection movement had lost the support

of establishment figures, and would soon die off, with no comparable political movement for animals appearing for the better part of a century. The landscape of human origins too was to take on a very different and more pithecophobic character, with enthusiasm for the “missing link” eclipsed by the hunt for “dawn man”.

4e. Conclusion

Though our narrative has so far not progressed beyond the infancy of paleoanthropology, we can already offer an answer to the questions we began with, based on our examination of this material. To the questions “to what extent was there an underlying continuity in the discourse on human origins” and “to what extent was the development of this discourse driven by political ideology”, we must answer “a great deal.”

Certainly, the anthropocentric philosophy of Aristotle with which we began was vastly different to Wallace’s evolutionary discourse with which we ended. Yet, there is an underlying continuity here in the qualitatively superior position accorded to humans in their respective visions of the natural world, a superiority which furthermore was ultimately based not on empirical observation or logic, but political ideology. And while ancient Greece was certainly a vastly different place to Victorian England, the political status of the non-human was effectively the same in both.

This continuity becomes all the more apparent the closer in time we approach. While the idea of an ape origin would certainly have been unprecedented to classical or medieval scholars, it was hardly so to the Victorians. Rather, it was a probability which had to be stridently denied, that authorities such as Owen not only rejected but did everything they could to render it an impossibility, regardless of the detrimental effect on their science. This was driven by pithecophobia, not scientific objectivity.

Thus, the eventual revelation of our ape origin was not so much a shocking new discovery as a truth which could no longer be suppressed, more like the bursting of a dam than an asteroid strike.

We certainly do have some very significant changes here- the acceptance of a human phylogeny including the extant apes as cousins, and an ape ancestor for humanity- thus making humans not a special creation but a relative of all other animals- along with a program for future research in the form of finding fossil ancestors and especially the “missing link” between ape and human. However, despite talk of the “Darwinian revolution”, there was little that could be called revolutionary in the acceptance of these notions, for the idea of ape origin was only promoted once it had been defanged and rendered politically acceptable to a pithecofobic audience. So politically important was this the neutralization of any phylogenetic notion of kinship with other animals that in Wallace’s case, he was even willing to break with the scientific method and invoke the supernatural to achieve it. Furthermore, securing the position of the most privileged humans and their right to exploit animals was ultimately a greater priority than defending those humans most at risk of being “animalized.”

Chapter 5: Phylogeny and Pithecophobia Part 2: The 1%

The post-war era was a definite watershed in human origins discourse, marked by growing professionalization within the discipline, a variety of new methodological techniques and investigative interests, the acceptance of the modern evolutionary synthesis, and the discovery of many older fossil hominids in Africa. Probably the greatest new development, however, was the rejection of scientific racism and association promotion of equal rights for all humans. With the rejection of scientific racism and acceptance of australopithecines and Neanderthals, there was a very broad definition of humanity, which nevertheless rejected any kinship with animals and maintained apes as a separate lineage with a very ancient split from humanity. The early biochemical studies challenging this ancient separation of ape and human were strongly attacked, but eventually accepted after the supposed early human ancestor Ramapithecus was shown to be an ape.

From the mid-80s onwards, evidence from genetic studies utilizing newly-developed techniques would build on earlier biochemical studies by demonstrating an even closer kinship with apes than previously acknowledged. A major phylogenetic issue at this time was the “trichotomy problem” of the relationship between humans, chimpanzees, and gorillas. This was to be unexpectedly resolved, with profound implications for prevailing pithecophobic ideology. Studies in human genetics, and later palaeogenetics, would soon produce further unexpected results bearing on the phylogeny of recent human origins and racial politics.

5a. The Human-Chimpanzee Clade

Crucial to the resolution of the trichotomy problem were the DNA-DNA hybridization studies of Charles Sibley and Jon Ahlquist, who had beginning in the late seventies used this method to construct a phylogeny encompassing all extant birds. This new method seemed the answer to a long-standing desire- Ahlquist recalled “discussions dating back to 1964 in which we yearned for a single genetic

measurement, yielding clusters of related species, groups of related genera, and so on.” Their first DNA-DNA hybridization data “were so clear, so unambiguous, and so promising that any lingering doubts quickly disappeared. Here was a technique that provided simple numbers, reproducibility, reciprocity, and a range of resolution that encompassed all living birds” (1999:856). The culmination of their technique was the construction of an automated “DNAlyzer.” With this apparatus, Ahlquist stated, “Data poured forth; our confidence soared, perhaps too much!” (1999:857). Indeed, their results though enlightening were far from definitive; no authority would now accept their bird phylogeny in its entirety.

Their method seemed the positivist dream, producing seemingly objective phylogenies with minimal human interpretive input. Where their genetics contradicted other evidence, this evidence was ignored. Their results differed in some major aspects from the traditionally accepted bird taxonomy; “all bets were off concerning existing classifications” (Ahlquist 1999:856)

As ornithologists, Sibley and Ahlquist had by their own admission “little interest in becoming involved in the controversy of human relationships” but believed their method could be put to good use in resolving the trichotomy problem where previous studies had failed; “we knew that DNA-DNA hybridization could distinguish, for example, the genera of birds-of-paradise; why not apply it to humans?” (1999:858). Not uncommonly for geneticists they had an arrogant faith in their method (and in Sibley’s case, a notorious personal arrogance) combined with a lack of concern for socio-political context; “We weren’t clued into the feelings about hominoid relationships. We simply looked at the numbers, and there it was” (Sibley quoted in Fellman 1988). Sibley and Ahlquist were certainly not by any means opposed to prevailing pithecofobic interpretations; their faith in their method simply outweighed all other considerations. And it was a method that had not already been perfectly tailored to foreclose any possibility of producing conclusions unwelcome to pithecofobic attitudes.

It was this application of this method to primates that was to prove by far the most contentious; “If the results of the DNA-DNA hybridization studies on birds generated controversy, they paled in comparison to what happened with the

hominids” (1999:857). Now it was not merely scientific orthodoxy at stake, but political orthodoxy too.

Their results were first revealed in 1984 as “The phylogeny of the hominoid primates, as indicated by DNA-DNA hybridization” (**Figure 5**). In this publication, they took time to point out that their current study was not in fact the first clear genetic evidence of a human-chimpanzee clade, revisiting the 1972 “Examination of hominoid evolution by DNA sequence homology” by Hoyer et al. Hampered by experimental error and a small data set, these authors had concluded that “the present DNA data do not tell us whether the chimpanzee and gorilla are closer cladistically to each other than to Man or whether one of these African apes might be closer cladistically to Man”, believing a clearer picture would only emerge after further research. Sibley and Ahlquist noted “these statements indicate that the authors did not realize that their data quite clearly showed that Homo and Pan are closer than Pan and Gorilla or Homo and Gorilla,” constructing a cladogram from Hoyer et al’s data that matched that resulting from their own study. The evidence had in fact already been available for over a decade; it had simply been overlooked, for the answer was not one that anthropocentric ears were prepared to hear. In 1987 Sibley and Ahlquist published an expanded data set, now with 514 DNA hybrids instead of the 183 in their original study. These new results confirmed the Homo-Pan clade and placed the chimpanzee-human split at 5.5-7.7 MYA, far shorter than earlier estimates.

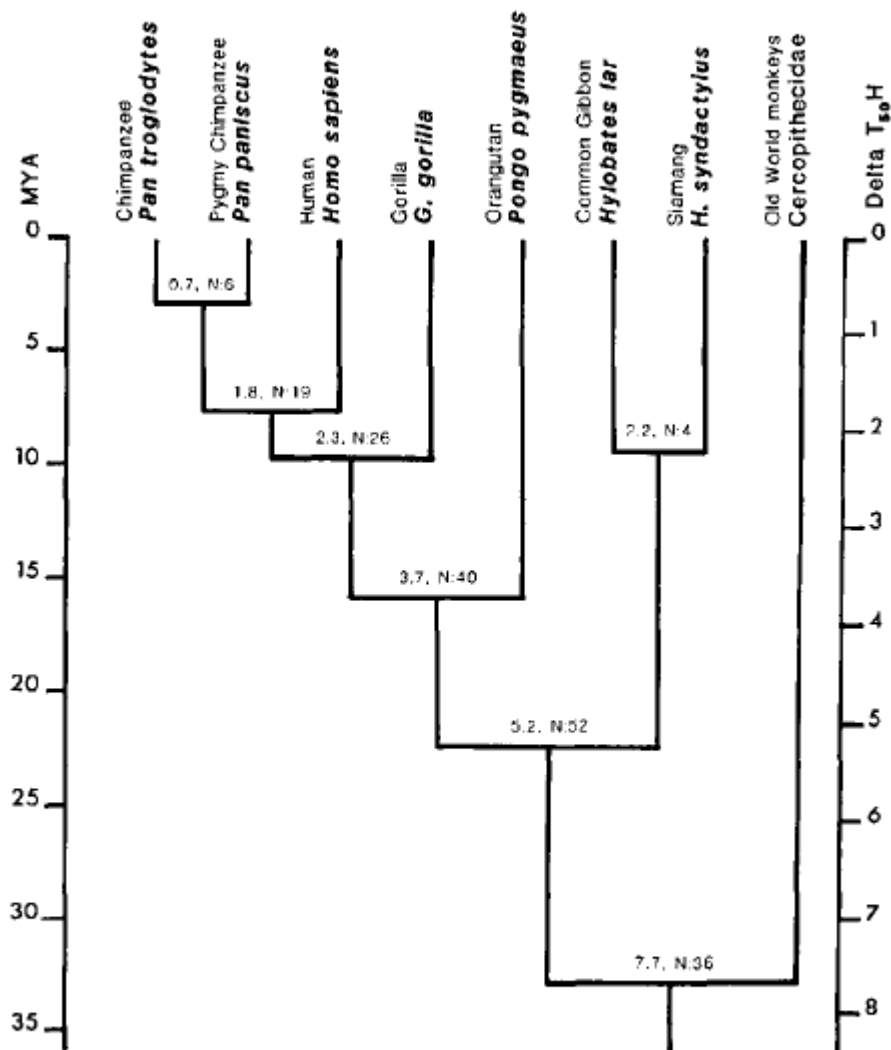


Fig. 6. Phylogram of the hominoids and cercopithecoidea. The divergence dates are based on a proportionality constant of $\Delta T_{50H} 1.0 = 4.3 \text{ MY}$ (see Fig. 5)

Figure 5 Sibley and Ahlquist 1984 Phylogram of the Hominoids (Sibley and Ahlquist 1984)

Now that Ramapithecus had been shown to be a member of the pongine, not the hominine, clade¹, and the Pliocene australopithecines from Hadar and Laetoli had

¹The ponginae being Eurasian apes, with the orang the only extant species, and the homininae being African apes

been dated to 2.6-3.8 MYA (Johanson and White 1979; White et al. 1981), Sibley and Ahlquist noted that the fossil evidence of human evolution “fit easily within the Homo lineage indicated by the DNA hybridization data” (1984:12).

Palaeoanthropologists no longer had any legitimate basis on which they could challenge the genetic evidence demonstrating the close kinship of humans with chimpanzees, no matter how much they might have wished otherwise.

Which is not to say there were no such objections- one palaeoprimatologist stubbornly insisted that “the molecular data do not lend themselves to phylogeny reconstruction,” but rather “morphology would provide a better basis for resolving great ape and human relationships at the present time” (Martin 1986:175). He argued that “within the African ape/human clade there is only one character (namely a spatulate upper lateral incisor) supporting a chimp/human clade, and no evidence for a gorilla/human clade” while in contrast “the shared derived possession of secondarily reduced enamel thickness, in addition to shared specializations relating to knuckle-walking, is convincing evidence for an African ape clade” (ibid 173) - in other words, the traditional picture, congenial to anthropocentrism, separating humans from apes. But despite this scholar’s protests, enamel thickness could no longer be considered a reliable guide to phylogeny- *Ramapithecus* and *Australopithecus* both had thick enamel, yet only the latter was now acknowledged as a human ancestor- and knuckle walking was not generally considered a derived trait. The validity of the genetic data was soon widely accepted by palaeoanthropologists. Reviewing the contemporary fossil and genetic evidence, Pilbeam, former champion of *Ramapithecus* and the separate ancestry of hominids from all extant apes, now conceded that “humans and chimpanzees are probably closest relatives” (1986:301). Perhaps unusually, Pilbeam had taken the demise of his pet hypothesis in good faith, and the whole affair prompted some soul-searching on his part- as his introduction to Reader (1988) clearly expresses.

But although it was now safe from challenges mounted on the basis of fossil evidence, the genetic data was open to challenge on its own turf. Soon after publication the Sibley and Ahlquist results were “subjected to a withering bombardment from Marks and Vincent Sarich of the University of California at Berkeley” who questioned their methods of data analysis and “even charged that

Sibley and Ahlquist had falsified data” (Gibbons 1990:376). Sarich et al declared that no “single event in molecular phylogenetics [has] so captured our attention as their claimed resolution” of the trichotomy (1989:3), explicitly stating that this “attention was captured because it was our ancestry that was being discussed- looked at in the broader scheme of things, there is but a single lineage whose existence is at issue” (ibid). In other words, their critics as good as admitted that it was solely because the Sibley-Ahlquist study challenged anthropocentric conceptions that it was attacked in this manner.

It was Marks, who as we shall see was highly politically motivated, that brought the perceived problems with the Sibley-Ahlquist data to Sarich’s attention. Marks requested the original data in 1986 but Sibley and Ahlquist were unable to make it available in a timely manner, having just moved from their Yale laboratory. He subsequently obtained a small subset of the Sibley-Ahlquist data and found it had been subject to unexplained corrections before publication. As a result of these unstated corrections Marks et al argued that “the Sibley-Ahlquist study does not provide documentation or controls adequate to establish a secure linkage between Pan and Homo to the exclusion of Gorilla” (1988:769). They subsequently reaffirmed to their own satisfaction that “for the time being the human/chimpanzee/gorilla trichotomy remains unresolved using DNA hybridization data” (1989:22), while pointing out that prior to Sibley and Ahlquist’s study “virtually all non-molecular workers continued to strongly support (and still do) the existence of a gorilla/chimpanzee clade.” They now went so far as to call into question all of Sibley and Ahlquist’s work, and the method itself.

Ahlquist later lamented that a “marginal and substandard” subset of their data “found their way into the hands of our antagonists and were publicized without peer review as fraud and bad science. In retrospect, the phrase “bad science” as little more than thinly veiled euphemism for character assassination and a specific political agenda” (1999:858), claiming that “the matter could have been resolved with a civil phone call asking “How did you guys analyze these data, anyway?” (ibid). Molecular biologist Roy Britten, who had originally obtained from Sibley and Ahlquist the data later passed on to Sarich and Marks, stated that the critiques “are not scientific articles, they are weapons with political purposes” (quoted in Lewin

1988b). Summarizing the controversy, Lewin noted that “the very combative and partisan tone with which the challenges have been made has not advanced Sarich and his colleagues' stated concern with scientific integrity” (1988b).

Marks emerged as their most ardent detractor. He wrote to the editor of the *Journal of Molecular Evolution* demanding their studies be retracted, claiming that “to fail to repudiate Sibley and Ahlquist's deceitful presentation to your reviewers of their means of collecting and analysing their data... will be to the severe detriment of the journal, the field of molecular evolution, and to the scientific community in general” (quoted in Lewin 1988b:1598). He would later go so far as to write that Sibley and Ahlquist’s “work needs to be treated like nuclear waste: bury it safely and forget about it for a million years” (1993:69).

Given that Sibley and Ahlquist only wished to demonstrate the power of their method by resolving the trichotomy problem, and had no compelling reason to favour a homo-pan clade, it hardly seems likely that they would intentionally manipulate their data to produce an unexpected and controversial answer that would invite further scrutiny and would be open to later refutation. If they wished to manufacture a result, it would surely be one in accordance with the morphologists’ and general sentiment, a chimpanzee-gorilla clade. They had no axe to grind on this issue, and after the acrimonious reaction to their study soon came to wish they’d left this subject well alone; “I regret the day I ever decided to do anything with the hominoids and get mixed up in all this. It’s been a complete pain” (Sibley quoted in Fellman 1988). But Marks, whose PhD thesis had argued for a chimp-gorilla clade, clearly did. While such a difference of scientific opinion alone would have given him reason to be sceptical of Sibley and Ahlquist, there was much more at stake here- a political commitment which explains the vehemence of his attacks, as we shall see below in his reaction to the great ape project. Marks was still arguing in 1992 that “epistemological difficulties and contradictory sets of molecular genetic data” (883) put the human-chimp clade in question, and deeming “it is highly likely that we have not a single closest relative, but, at the genus level, two equally close ones” (ibid). He subsequently argued that “the distribution of heterochromatin at the tips of the chromosomes of gorillas and chimpanzees suggests a phylogenetic association between those two taxa exclusive of humans... in contrast to some genetic data, but

in harmony with other genetic data and with most anatomical data” (1993). Marks’ objections at that point were not widely acknowledged, but in any case it now appears from more recent research that these structures arose independently in the gorilla and chimpanzee lineages (Ventura et al 2012).

Sibley and Ahlquist answered their critics with a 1990 article reanalysing their data to prove the reality of the human-chimp clade they had originally proposed; “from this reanalysis of the data we conclude that the chimp-human clade is real and that the phylogeny proposed by Sibley and Ahlquist was justified” (Sibley, Comstock and Ahlquist 1990). However, they were quick to point out that subsequent studies had rendered debates about their particular data set rather irrelevant to the broader question of human phylogeny. Caccone and Powell (1989) had repeated Sibley and Ahlquist’s experiment with virtually identical results, while Hayakasa et al (1988) arrived at the same conclusion from analysis of mtDNA, with other studies also supporting the human-chimp clade; “The whole episode was a vindication of the often highly controversial notion of using molecular data to build family trees” (Lewin 1988b:1598). The theme of kinship was explicit in headlines in *Science* reporting the genetic discoveries- “Our chimp cousins get that much closer” (Gibbons 1990), “My close cousin the chimpanzee” (Lewin 1987b). The acknowledgement of close phylogenetic kinship with chimpanzees would soon have political consequences in the acknowledgement of moral kinship, as we will see below.

Jared Diamond argued that our close kinship with chimpanzees as demonstrated by genetics should be reflected in taxonomy at the genus level. “Traditional taxonomy has reinforced our anthropocentric tendencies by claiming to see a fundamental dichotomy between mighty man, standing alone on high, and the lowly apes all together in the abyss of bestiality” (1993). But given that the genetic distance of 1.6% separating humans from pygmy and common chimps is barely double that separating pygmy from common chimps (0.7%) and less than that between two species of gibbons (2.2%), the traditional distinction between apes and humans evidently “misrepresents the facts”. The genetic evidence shows that “humans do not constitute a distinct family, nor even a distinct genus, but belong in the same genus as common and pygmy chimps,” with the name *Homo* taking

priority over *Pan* as the former was coined first. “Thus, there are not one but three species of genus *Homo* on Earth today: the common chimpanzee, *Homo troglodytes*; the pygmy chimpanzee, *Homo paniscus*; and the third chimpanzee or human chimpanzee, *Homo sapiens*. Since the gorilla is only slightly more distinct, it has almost equal right to be considered a fourth species of *Homo*” (ibid). This argument would be central to his popular 1991 book *The Third Chimpanzee*. He was not unaware of the political implications, noting that “at present we make a fundamental distinction between animals (including apes) and humans, and this distinction guides our ethical code and actions”, meaning for example “it is considered acceptable to exhibit caged apes in zoos, but it is not acceptable to do the same with humans.” He mused “I wonder how the public will feel when the identifying label on the chimp cage in the zoo reads “*Homo troglodytes*” (1993).

Morris Goodman celebrated the effect of the growing molecular-biological evidence combined with cladistics in producing phylogenies free of anthropocentric bias; “the old paradigm in its viewpoint on taxonomic classification gave full rein to the metaphysical concept of the *scala naturae*, with all the anthropocentric biases that underlie this concept. The new paradigm calls for strictly genealogical classifications in which taxa represent, as inferred from the best phylogenetic evidence, real clades produced by evolution. Metaphysical concepts and anthropocentric biases have no place in this new paradigm” (1996:281). A host of studies regarding chimpanzee tool use and material culture (McGrew 1992), social organization (Power 1991, de Waal 1995), abstract thinking and language (Savage-Rumbaugh and Lewin 1994), among other topics, soon emerged, with Goodman noting that “the DNA sequence data that demonstrate the very close genetic kinship between humans and chimpanzees have helped stimulate this fresh look at chimpanzees” (1996:281). He also predicted a second paradigm shift “concerned with how we view ourselves. This second paradigm opposes the traditional anthropocentric view that we are a uniquely different animal species and instead affirms our extensive similarities and connectedness to other animals” (ibid). Goodman failed to elaborate, however, on what practically speaking affirming such kinship would entail.

Goodman would later find himself in agreement with Diamond, arguing that genus *Homo* should be enlarged to include chimpanzees. This was the result of a study he co-authored which found that in functionally significant DNA sequences—those that could not be changed without affecting amino acid production, thus excluding “junk” DNA—humans and chimpanzees were 99.4% identical (Wildman et al 2003). This was reported by *New Scientist* magazine with the unequivocal title “Chimps are human, gene study implies” (Hecht 2003). It was clearly a statement with political implications; “Moving chimps into the human genus might help us to realize our very great likeness, and therefore treasure more and treat humanely our closest relative” (Goodman quoted in Pickrell 2003).

5b. The Great Ape Project

The theme of moral kinship was explicitly taken up by the Great Ape Project, an international organization, comprising an unlikely union of scholars, scientists and activists, founded in 1993 to champion the cause of great ape rights. The arguments of the Great Ape Project were put forth in a publication of the same name (Cavalieri and Singer 1993) containing essays from 34 scholars of various backgrounds. Diamond contributed an essay outlining the recent genetic evidence and the case for a revised taxonomy. Richard Dawkins noted that “all the great apes that have ever lived including ourselves, are linked to one another by an unbroken chain of parent-child bonds,” a chain that is not long in evolutionary terms, and moreover “as far as morality is concerned, it should be incidental that the intermediates are dead.” Yet such is the significance of anthropocentrism that “we need only discover a single survivor, say a relict *Australopithecus* in the Budongo Forest, and our precious system of norms and ethics would come crashing about our ears. The boundaries with which we segregate our world would be all shot to pieces. Racism would blur with speciesism in obdurate and vicious confusion. Apartheid, for those that believe in it, would assume a new and perhaps a more urgent import.” In an evolutionary perspective, the essential connection between racism and pithecophobia becomes clear, Dawkins suggests, without explicitly arguing. From this starting point of the revelation of genetic similarities with apes, the book moved

on to other research on ape cognition and behaviour- a case of ontogeny recapitulating phylogeny given that this research was in large part inspired by the genetic revelations.

The Great Ape Project called for “the extension of the community of equals to include all great apes”, defining this as “the moral community within which we accept certain basic moral principles or rights as governing our relations with each other and enforceable at law” (Cavalieri and Singer 1993:4). The rights they argued should be extended to the great apes were the right to life, the protection of individual liberty, and the prohibition of torture. This was not the full spectrum of human rights- for example, apes are not here afforded the right to marry, own property, and so on- but it provided some important basic protections, such that apes could not be killed, detained without due process, or tortured. Apes would legally be neither human, nor animal- i.e. property- but persons of a different kind. Never before had such a collection of prominent scholars argued so strongly in favour of the rights of other species. A startlingly new development, to be sure, but nonetheless still beholden to the underlying continuity of anthropocentric ideology- for of course, their advocacy was focused solely on the tiny handful of great ape species.

It was only the fact that apes are our closest kin that justified their being singled out above all other animals for the recognition of rights, and extending the definition of humanity to partially encompass apes leaves the underlying anthropocentric logic unchallenged. This anthropocentric logic was very clear in some contributions, for example Kortlandt stated his long-standing belief that “the real chasm” between animals and 'humans was between the great apes and the lesser apes, baboons and monkeys, although recent research had persuaded him that “we should perhaps locate the gulf below the baboons” (1993:145). However, some non-scientific contributors were keenly aware of this issue; Sapontzis expressed his concern that the focus on rights for great apes and other nonhuman primates continued anthropocentric bias- “We are called on to recognise that harmful experiments on nonhuman great apes are wrong because these apes are genetically so much like us or because they are so intelligent, again like us. Such calls clearly retain

an anthropocentric view of the world, modifying it only through recognising that we are not an utterly unique life form” (1993:271).

Those scholars who were critical of its anthropocentrism justified the project as separate from calls for universal animal rights- on pragmatic grounds. They hoped it would act as a foot in the door, by setting a precedent; the granting of rights to *any* animals would make rights for animals in general a more achievable goal. This at any rate was the theme of editors Cavalieri and Singer’s closing chapter. They discussed manumission, the act of granting freedom to slaves, as a tool for systemic intervention, stating that “each use invites us to consider the possibility of applying the tool in another situation.” They argued that great apes were a “weak link” in the barrier between human and animal “on which we can concentrate our efforts”, a “grey area where the certainties of human chauvinism begin to fade and an uneasy ambivalence makes recourse to a collective animal manumission possible” (1993:308). The collective manumission of great apes, they believed, would have great “symbolic value as a concrete representation of the first breach in the species barrier” (ibid 311).

A number of the project’s supporters would later change their position on this issue. Cognitive ethologist Bekoff argued in 1997 that “the time has come to expand The Great Ape Project (GAP) to The Great Ape/Animal Project (GA/AP) and to take seriously the moral status and rights of all animals by presupposing that all individuals should be admitted into the Community of Equals” (269). He criticised the project for “narrowminded primatocentrism” and argued that “line drawing into “lower” and “higher” species is a misleading speciesist practice that should be vigorously resisted because not only is line drawing bad biology but also because it can have disastrous consequences for how animals are viewed and treated” (ibid). Francione later wrote “I now see that the entire GAP project was ill-conceived,” believing that such efforts “are problematic because they suggest that a certain species of nonhumans is ‘special’ based on similarity to humans. That does not challenge the speciesist hierarchy- it reinforces it” (2006).

The Great Ape Project would see significant success in ameliorating human treatment of great apes. In 1997, the British Home Secretary announced a policy to no longer grant licenses for research involving great apes, stating “this is a matter of

morality. The cognitive and behavioural characteristics and qualities of these animals mean it is unethical to treat them as expendable for research” (Jack Straw quoted in Cavalieri 2015:28). Thus they were banned from medical research in Britain in 1998, with a number of other Western states instituting similar bans in this period, although the US, by far the greatest offender, did not follow suit. A New Zealand bill for the recognition of great ape personhood was to provide a precedent on which a call for a UN Declaration of Rights for Great Apes would proceed (Anonymous 1999a), but it failed in parliament (Anonymous 1999b). Though New Zealand granted the strongest legal protections to great apes of all states, these were not explicitly recognized as rights. Thus, the Great Ape Project, despite the impact it made, failed to achieve its stated aims over this period, as great ape rights, much less animal rights more broadly, were not granted.

One contributor noted perceptively that the “perception of difference often shifts once moral equality is recognised” (Jamieson 1993:225), just as was observed with post-war universal human rights and the eclipse of scientific racism. There will doubtless be unending attempts to create a perceptual gulf between humans and apes, so long as the latter are regarded as things and not people. To see this we need only return to the aforementioned Jonathan Marks, vehement critic of Sibley and Ahlquist. With his effort to “bury” their data and its conclusions having failed, Marks fell back on arguing for its irrelevancy. This was the thrust of his 2002 book *What it Means to be 98% Chimpanzee*, to which his answer was effectively “nothing”; “The extent to which our DNA resembles an ape’s predicts nothing about our general similarity to apes, much less about any moral or political consequences arising from it” (2002:5). In this view it is not the 98.4% of our DNA that we share with chimpanzees that assumes significance, but rather the 1.6% that differs. Marks would later explicitly call for “a return to traditional taxonomic practice, separating Family Hominidae from a paraphyletic Family Pongidae” (2005:52), not based on genetic data but “theoretical and pragmatic” concerns, and has recently devoted a book to the notion that humans are “ex-apes” in which he states unequivocally that “the idea that we are an ape of some sort... is a simple falsehood that miseducates the public” (Marks 2015:109). Marks’ position here is far from unique; paleoanthropologist John Hawks (2012) also recently denounced the “canard” that humans are apes. But these arguments amount to little more than language games,

favouring a particular interpretation of the vernacular over cladistics. They fail even in their own terms, and could only convince those who have a strong anthropocentric bias against calling humans apes. Phylogenetically, calling humans “ex-apes” makes as much sense as calling us “ex-vertebrates.”

It should come as no surprise that Marks objected to great ape personhood, and vocally so. He lamented that a “molecular factoid” had become “the basis for a push for social legislation and moral reform” (2002:186), and opposed rights for apes due to the “simple fact” that “apes aren’t human” (ibid), a statement as baldly anthropocentric as it is deliberately obtuse. He branded the Great Ape Project “misanthropic” (2007:183) and in a 1997 letter to the New York Times he along with a co-author described it as a “zoological absurdity” with an “ominous undercurrent,” namely that “in their zeal to humanize the apes, activists have begun to draw analogies between humans with disabilities and nonhuman primates” (Marks and Groce 1997:18). They attempted to draw analogies with the eugenics movement and claimed “it is a perverse sense of morality indeed that seeks to blur the boundary between apes and people by dehumanizing those for whom human rights are often the most precarious” (ibid) - a statement which of course presupposes that “people” is coterminous with “humans”.

This text was later expanded into a journal article (Groce and Marks 2000), where they stated with indignant concern that in a 1995 televised debate on great ape rights, one of the participants, Dr Leahy, had referred to children and the mentally disabled as “lesser beings” to which the term human being cannot be applied in a “straightforward sense” (Groce and Marks 2000:821). Yet Leahy was not a proponent of animal rights, nor even an agnostic, but had previously written a book-length argument against animal rights and in favour of human supremacy (Leahy 1991), a fact Groce and Marks failed to cite. Although they did acknowledge that Leahy was arguing *against* ape rights in that debate, they failed to draw the obvious conclusion that someone with such a perception of these groups is hardly likely to hold other animals in much esteem, while on the contrary respect for other animals is more likely to correlate with respect for other humans than a lack thereof. As Cavalieri recently argued, the protagonists of the eugenics movement shared with Marks and Groce “the traditional metaphysical view within which the “animal” is

what lies at the bottom of the perfectionist hierarchy, and the notion of animality is the pole that sheds its negative light on whom ever is to be derogated.” On the other hand, if “one sees the nonhuman great apes in the way the supporters of the Great Ape Project see them, no analogy that might be drawn with them is insulting” (2015:27). Marks’ view “takes for granted exactly what is in question- namely, the relative moral status of humans and nonhumans” and clearly “what is taken for granted is just a form of biological discrimination” (ibid).

Marks’ position on our moral kinship with apes was predictable given his stance on phylogenetic kinship; more surprising was the fact that Diamond, despite calling chimpanzees *Homo troglodytes*, was rather lukewarm on the notion of rights for apes. In his 1993 contribution he stated that “an objective case... can be made that chimps and gorillas qualify for preferred ethical consideration over insects and bacteria” and that “if there is any animal species... for which a total ban on medical experimentation can be justified, that species is surely the chimpanzee”- but did not declare unequivocally that a ban on medical experimentation *was* in fact justified, or even that apes *do* have a moral status greater than bacteria, which great ape personhood would of course entail. He also believed that the objection that “an ethical code for treating humans should not be extended to an “animal”... cannot be lightly dismissed” (1991). It is surely no accident that Diamond made the otherwise inexplicable decision to describe humans as the third species of chimpanzee, rather than describing chimpanzees as a species of human. He in fact subscribed to the same human exceptionalism as Marks, insisting that “humans are unlike all animals” and that “the two percent of genes that differ from those of chimps must have been responsible for all our seemingly unique properties” (ibid). The *New York Times* review of *The Third Chimpanzee* was even titled “Separating the men from the apes” (de Waal 1992)- which is of course the very opposite of what Diamond appeared to be doing at face value, yet accurately reflected the overall thrust of the work. The significance of the human-chimpanzee clade was in fact undercut by another set of genetic data, data that this time did not challenge anthropocentrism but was instead taken to support it, allowing Diamond to claim that for most of human evolution “we have remained little more than glorified chimpanzees,” while an “abrupt change” occurred with the advent of modern humans. These moderns were true humans while their Neanderthal contemporaries “were still just another species of big mammal”

(ibid). The genetic evidence that re-affirmed Diamond's anthropocentrism in the face of the challenge from ape genetics was the discovery of "mitochondrial Eve."

5c. Mitochondrial Eve and Noah's Ark

This study, published in 1987, was conducted by Rebecca Caan and Mark Stoneking, graduate students of biochemist Allan Wilson, the paper's third co-author, whose work with molecular clocks in the late sixties had proved so controversial in contradicting the contemporary anthropocentric phylogeny. Caan had been specifically interested in human diversity, viewing mitochondrial DNA as "a potential tool to break open the question of human variation" (quoted in Gitschier 2010:3). Stoneking on the other hand had no special interest in the subject- "I just wanted to learn about mtDNA and didn't really care what organism I worked with" (quoted in Wilkins 2012). He was ignorant of contemporary debates in human origins, and much like Sibley and Ahlquist was taken by surprise at the attention and hostile reactions to his study. After the politically-charged reaction, Caan complained that "people were doing the same thing with birds and lizards and fish and they weren't taking anywhere near the amount of crap I was taking. I could see it was only because I was talking about humans" (quoted in Gitschier 2010:4).

All of the mitochondrial DNA they analysed- representing the geographical regions of Africa, Asia, Australia, Europe, and New Guinea- was found to "stem from one woman who is postulated to have lived about 200, 000 years ago, probably in Africa" (Caan et al 1987:31), subsequently dubbed "mitochondrial Eve." The paper's authors did not themselves use the term Eve to describe this woman, and in fact disapproved of it as misleading- Wilson favoured the term "lucky mother", which emphasized the role of chance in the survival of mtDNA lineages over time (Wilkins 2012). Nevertheless the study was reported in the news section of *Nature* under the title "Out of the garden of Eden" with the claim that "Eve was alive, well and probably living in Africa around 200,000 years ago" (Wainscoat 1987:13), while a discussion of the research in *Science* was titled "The unmasking of Mitochondrial Eve" (Lewin 1987a). Numerous articles in popular media followed suit, with the cover of *Newsweek* (Jan 11th 1988) depicting a literal African Adam and Eve in the

Garden of Eden to accompany an article titled “The search for Adam and Eve” (Figure 6). The Eve moniker, while perhaps excusable in the initial wave of fervour surrounding the results, proved stubbornly persistent- over a decade later, a popular account of the model by geneticist Stephen Oppenheimer was titled *The Real Eve* (2003), as was a Discovery Channel documentary (2002) for which he acted as consultant.² All of this was more significant than merely popularist spin, for the biblical metaphors in fact fit very well with the anthropocentric pseudo-creationist narrative that was to be built around Caan et al’s results.

² Interestingly enough in this connection, Oppenheimer’s previous book *Eden in the East* (1998), on the “drowned continent” of Sundaland, argues explicitly that “The biblical flood really did occur- at the end of the last Ice Age.”

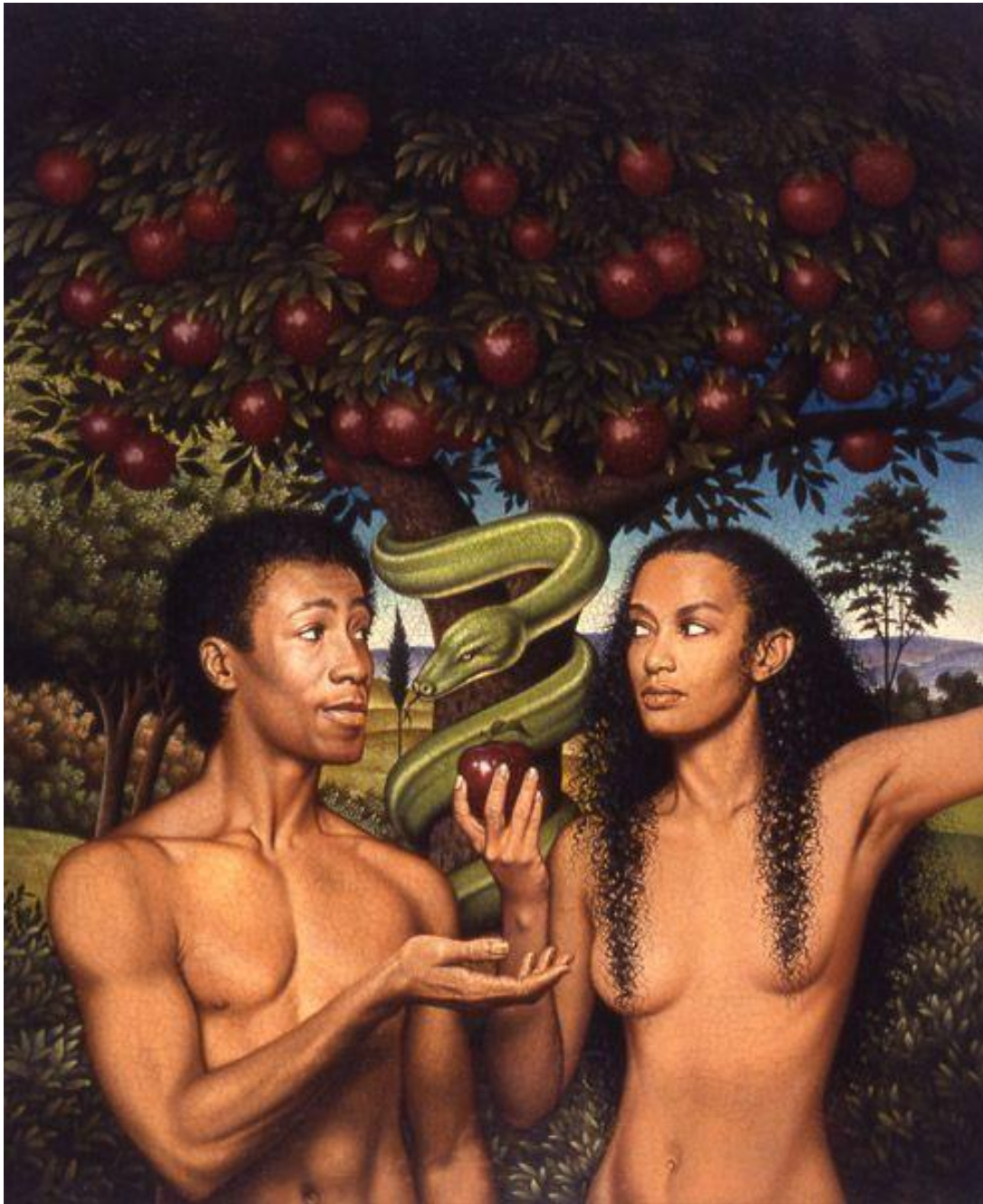


Figure 6 Newsweek 1988 Cover "The Search for Adam and Eve"

Creationism was in fact increasing in influence at this time- earlier in the decade, the 1981 case *McLean v. Arkansas Board of Education* in response to a new state law mandating “balanced treatment for creation-science and evolution-science” in schools had been dubbed “Scopes II” in the media. In the very same year that the Eve study was published, a Supreme Court case in response to a similar Louisiana

law, *Edwards v. Aguillard*, was decided with the ruling that creation science was a form of religion and thus its teaching in schools unconstitutional. But the ruling did not dent the popularity of creationism; according to a 1996 poll of adult Americans conducted by the National Science Board, only 44% agreed with the statement, “Human beings, as we know them today, developed from earlier species of animals” (Scott 1997:263). The polling data demonstrates the percentage of Americans who were “not sure” about evolution tripled from 1985-2005 (Miller et al 2006:765). Over this same period, commentators noted the emergence of a “strange alliance against Darwin... between the forces of the religious right and the academic left” (Cartmill 1998) with the rise of a “secular creationism” (Ehrenreich and McIntosh 1997) intent on setting “humans apart from even our closest animal relatives as the one species that is exempt from the influences of biology... the result is an ideological outlook eerily similar to that of religious creationism. Like their fundamentalist Christian counterparts, the most extreme antibiologists suggest that humans occupy a status utterly different from and clearly "above" that of all other living beings” (ibid).

This secular creationism was in part an understandable yet misplaced rejoinder to the reactionary discourse of sociobiology, an attempt to cease its spread at the human border by stridently reaffirming anthropocentric ideology, instead of striking at its root by dismantling anthropocentrism. This context was crucial to the enthusiastic reception of Eve. The particular scientific narrative of human origins that the genetic data was used to uphold was largely beholden to the “secular creationist” worldview, and while its proponents quickly distanced themselves from fundamentalist Christians misappropriating the study as proof of the literal existence of the biblical Eve, the model’s similarities with traditional notions of special creation certainly counted in its favour.

Caan et al stated that their mtDNA tree and associated time-scale “fits with one view of the fossil record: that the transformation of archaic to anatomically modern forms of *Homo sapiens* occurred first in Africa... and that all present day humans are descendants of that African population” (1997:35), with the relative lack of genetic diversity in non-Africans suggesting archaic *Homo* in Asia “was replaced without much mixing with the invading *Homo sapiens* from Africa” (ibid 36). This

view of modern humans originating recently in a single geographical area and spreading to replace other populations had, with another ill-advised biblical metaphor, been dubbed the “Noah’s Ark” model in a 1976 paper by William Howells. He contrasted this with the opposing model, which he called the “Neanderthal phase” model following Hrdlicka, and also the “candelabra” model, following Coon, which posited a gradual essentially linear evolution of humanity towards modernity throughout the Old World. This view of archaic humans as a single polytypic species had been promoted by Weidenreich and Brace, and was the more widely favoured belief at that time. Howells wrote that the evidence that would settle this dispute was lacking, but following the mtDNA evidence he was inclined to favour Noah’s Ark (Howells 1997).

The contemporary incarnation of the Neanderthal phase model was the Multiregional theory, first outlined by Wolpoff, Wu and Thorne in a 1984 paper. This was a gradualist model “with the primary tenet that humans *are* a single polytypic species and *have been* for a very long time in the past... our species *Homo sapiens* and its main attribute, *humanity*- happened only once, and once on the scene they evolved without a series of speciations and replacements” (Wolpoff and Caspari 1997:34). In fact, they held that no speciation had occurred since the first appearance of *Homo erectus*, which they classified as *H. sapiens*. In its depiction of an inexorable upward striving towards humanity- no mere taxonomic rank but a spiritual achievement- this was still a model clearly beholden to anthropocentric ideology, but its gradualism and wider embrace of different fossil ancestors proved less congenial to the prevailing secular creationist agenda.

Most paleoanthropologists were initially sceptical of the mtDNA evidence, but this was soon to change, with the marshalling of genetic and fossil evidence for the Noah’s Ark model in a 1988 paper by Stringer and Andrews. While working on his PhD in 1974, Stringer had become convinced that Neanderthals were not our ancestors, and that there was little sign of admixture between them and modern humans. By 1982 he had come to believe that Neanderthals were different enough from modern humans that they should not be classified as *Homo sapiens* at all, but as a separate species- *Homo neanderthalensis* rather than *Homo sapiens neanderthalensis*- a conclusion supported by paleoanthropologists Peter Andrews

and Ian Tattersall (Stringer and McKie 1996:75). He summarized his version of the replacement model in a 1984 *Natural History* magazine article, arguing that modern morphology evolved in Africa 200,000-100,000 years ago; “evolutionary events in Africa may have led to the emergence of the Cro-Magnons, whose intrusion into Europe seems to have led to the demise of the Neanderthals” (1984:6). His belief would later be strengthened further by application of the new technique of thermoluminescence dating to Levantine sites, showing that anatomically modern humans were present at Skhul and Qafzeh 40, 000 years before the Neanderthals at Kebara, thus the latter could not be ancestral to the former; “the arithmetic of mankind’s recent evolution had been turned on its head. Neanderthals, far from being our evolutionary fathers and mothers, looked more like palaeontological cousins, and rather recently arrived ones at that” (Stringer and McKie 1996:77). Stringer had thus already firmly decided that multiregionalism was contradicted by fossil evidence, and simply took the genetic data as confirmation. In fact, Caan herself already believed the multiregional hypothesis to be theoretically improbable in the extent of gene-flow it postulated, and contradicted by the existing biochemical studies of human diversity, before her mtDNA studies had borne fruit (Wilkins 2012).

In their 1988 paper Stringer and Andrews defined the derived morphological traits of anatomically modern humans as a gracile skeleton with a voluminous cranium, dentition of reduced size and an orthognathous face. They stated that the first appearance of modern humans “raises problems for the multiregional model” since “present evidence shows that Africa and the adjacent area of the Levant have the earliest known *Homo sapiens* fossils” (1988:1266), suggesting a singular point of origin. Replacement was likely since “although Europe and southwest Asia have the most complete fossil record” for the period when modern derived traits became distributed globally, “there is an absence of Neanderthal- modern *Homo sapiens* transitional fossils in either area” with “little or no continuity of genuine regional features (ibid). In contrast, “the African record is sparser and covers a much greater area, yet “intermediate” fossils have been recognized from sites such as Florisbad (South Africa), Ngaloba (Tanzania), Omo Kibish (Ethiopia), and Djebel Irhoud (Morocco)” (ibid). They concluded that “paleontological data in the middle

Pleistocene do not match with the expectations of the multiregional model, nor with extrapolations of modern genetic data back into the past. Although the recent African origin model does not provide any particular predictions for middle Pleistocene data, growing evidence of an early appearance of *Homo sapiens* during the late Pleistocene in Africa and the Levant, coupled with a late persistence of Neanderthals in western Europe, provide excellent support for it” (ibid 1267).

In an accompanying news article in *Science*, Lewin stated that “without being dogmatic” Stringer and Andrews demonstrated that the collective evidence favours a recent African origin for *Homo sapiens*, “thus crystallizing what is becoming a popular, but by no means universal, view” (1988a:1240). In contrast to the “sentiment of the past several decades that we are exceedingly closely related to [Neanderthals], probably as direct descendants,” it appeared they “contributed little or nothing to modern human populations” (ibid). Thus they could no longer be considered members of our species- the evidence suggested a “greater biological distinctiveness than is implied by the shared subspecific status” (ibid). If kinship with Neanderthals was rejected, with the earliest “anatomically modern humans” it was enthusiastically embraced- Stringer would write of the man from Omo Kibish, the earliest fossil he accepted as *Homo sapiens*, “he is humanity’s kin. He is us, and we are him” (Stringer and McKie 1996:234).

Lewin noted that, in contrast to the molecular clock controversy in the late sixties and seventies, “this time around the geneticists’ contribution is being welcomed by a few, considered cautiously by many, and flatly rejected by almost no one. A distinct improvement” (1988:1241). A greater respect for such evidence undoubtedly played a role in this, but this narrative of scientific progress is largely illusory. This time around the genetic evidence was seen to be telling a story congenial to anthropocentric ideology, confirming human uniqueness and a secular version of special creation, rather than challenging it by demonstrating close kinship with the apes. Politics was the crucial factor.

The proponents of multiregionalism were far from pleased with Stringer and Andrews’ paper, which they believed, with considerable justification, was far from undogmatic, and a critical letter to *Science* soon followed (Wolpoff et al 1988). They objected that “Stringer and Andrews incorrectly characterize the multiregional

hypothesis and make improper attributions to it,” for example in viewing it as essentially similar to Coon’s candelabra model. Wolpoff et al emphasized that Coon’s discredited model of parallel evolution was rejected in every publication on multiregionalism. They also argued that Stringer and Andrews “assume the hypothesis they set out to test, through their initial contentions that the origin of modern humans is “an event” and that modern humans are a new species distinct from earlier “archaic” populations of *Homo sapiens*” (1988:772). They stated “we find no compelling support for the notion that modern humans are a biological species distinct from archaic *H. sapiens*” (ibid) and stressed that fossils widely acknowledged as transitional, such as the Mount Carmel remains, certainly did exist. Multiregionalists did not believe the mtDNA evidence refuted their model. As just a small change to the rate of the molecular clock would affect the dating of Eve quite considerably, Wolpoff considered it too unreliable for such a geologically short time-scale- “Because of the uncertainty, we believe that for the past half a million years or more of human evolution, for all intents and purposes, there is no molecular clock” (Thorne and Wolpoff 1992), and emphasized that “Mitochondrial history is not population history” (ibid). Fossils and artefacts- “a monumental body of evidence” and “a considerably more reliable one” (ibid) supported, so he believed, the multiregional model.

However, the multiregional theory soon became very much a minority position, with the replacement model gaining general favour. Clark Howell stated in 1993 that “the multiregional hypothesis is dead. It is dead because it is unproductive, it is uninteresting, and it is wrong” (quoted in Stringer and McKie 1996:65) and Stringer was soon able to declare triumphantly that “our African exodus, once a heresy, is today's orthodoxy” (ibid 234).

The replacement advocates saw modern human origins as a singular event, just as proponents of special creation had- and when combined with literal depictions of Eve in Eden, it certainly took on such connotations. This was perhaps most apparent in the writings of Tattersall, who advocated a hyper-bushy tree with the belief that there were many more species living at any one time than could be evidenced by bones alone, and a saltational model of speciation. While proponents of punctuated equilibria had always been keen to stress that their model was not

saltational, Tattersall openly embraced saltation. He argued that “the speciation of modern *Homo sapiens* exemplifies the principle of punctuated equilibria, i.e. it is a saltational change” and that “the record clearly indicates that both modern human morphology and modern human cognitive processes appeared rather suddenly, even saltationally” (2002:49). He believed “*H. sapiens* is truly a new influence on the landscape, and is not simply an extrapolation of what went before. And if this is not an example of saltation, I can’t imagine what might be” (2002:58). Tattersall held that in the evolution of anatomy function follows form, and that at speciation junctures certain traits would come together by sheer chance and become adapted to new uses. The supposedly unique power of “symbolic consciousness,” although it flowered significantly later than the appearance of anatomically modern humans, was viewed as the awakening of a latent potentiality present within these singular beings from the beginning- “the potential for such behaviours was born with anatomically modern humanity, [but] their expression had to await the invention of a cultural releasing factor (plausibly, language) some dozens of millennia later” (2002:58).

This account of human origins, though it received widespread attention, was viewed with scepticism by some contemporaries. The *New York Times* review of Tattersall’s 1998 book *Becoming Human* by historian and philosopher of science Robert Richards was critical of his belief that “humanity was achieved in a quantum leap,” noting that “this quantum evolutionary theory seems more a conclusion derived from deep cultural belief than from strong evidence or convincing hypothesis” (Richards 1998), a model motivated by ideology not objective science. He was sceptical of Tattersall’s deployment of the punctuated equilibrium model, observing that “in his hands, that model suggests that no analysis of early hominid development can finally illuminate the dark abyss separating us from even our recent ancestors.” The origin of modern humans was according to Tattersall a “happy accident” that “would have to remain inscrutable” (ibid). He noted “this scenario will not please many evolutionary biologists” (ibid).

Loring Brace, who had been instrumental in championing the Neanderthal phase theory in the sixties, was predictably unimpressed by these development. He described Tattersall’s account of the speciation of modern humans as “a kind of

crypto-creationism” (2002) and observed that he repeatedly referred to modern humans in an Aristotelian manner “as exemplifying a “perfection” that he assumes was lacking in the hominids of antiquity” (ibid). He took an equally dim view of Stringer’s output, blasting his “purported cladistics analysis” which was characterized by “misuse of sampling procedures” and “the complete absence of anything that could be identified with the theoretical underpinnings of evolutionary biology” (1994:474). He viewed Stringer’s approach as proof that “that the spirit of Sir Richard Owen is alive and well at the British Museum [sic] now a full century after his death” (ibid). Brace went so far as to criticise the cladistic approach as a whole as anti-Darwinian and embodying an essentialism characteristic of medieval scholasticism, failing to understand it was in fact far less essentialist than its predecessors. Thus he could with some justification be written off as out of touch with modern science, and his objections that were actually valid ignored. It should be noted that as a theoretical model of evolution, Tattersall’s approach, though it could certainly be criticized as misguided, was not inherently anthropocentric- it only became so when applied to the origin of modern humans. But given that he viewed the origin of modern humans as the greatest and best example of the theory, it is fair to suppose that in his case, theoretical form followed anthropocentric function.

5d. Racial Politics

None of the major champions of the Recent Out of African theory, as far as I am aware, explicitly used it to counter the aims of the Great Ape Project, a topic that was perhaps beyond their purview. But it was tacitly deployed in this manner- as the aforementioned case of Diamond’s *Third Chimpanzee* demonstrates clearly- and unsurprisingly so given the rhetoric of human exceptionalism its champions did explicitly indulge in. A view strongly committed to the uniqueness of the human species, both physically and mentally, with a singular point of origin, and adorned with creationist trappings to boot- a view that we are “Masters of the planet” (Tattersall 2012), “evolutionary superstars” destined for “world domination” (Stringer and McKie 1996)- was certainly an implicit case against arguments for animal rights, and the replacement model must be understood in context as a pitheophobic reaction to the contemporary trichotomy studies and claims for

kinship with the apes. Graves-Brown perceptively noted with regard to the ongoing debate over the Neanderthals that “opponents of animal rights and palaeoanthropologists alike continue a project of damage limitation begun by Archbishop Wilberforce... at the end of the 20th century we still have not accepted that we are just one species among many. Indeed, we still cling to a Linnaean notion of the species as a fixed and bounded entity because this fits with the project of maintaining our distance from the “Other”” (Graves-Brown 1996:981). However, the replacement model *was* very explicitly invoked by its advocates in a related debate about kinship, that concerning human races. This explicit politicization was to escalate the dispute over modern human origins to a veritable propaganda war.

The first shots were fired by Stephen Jay Gould in *Natural History* magazine. Gould unsurprisingly favoured the Noah’s Ark model as it accorded with his own view of punctuated equilibria, in which evolution occurs largely by rapid origin and replacement of species, not by gradual progress within the long history of a species (1988b:20); he advocated the model with “delight” as it “sits so well with my own” (ibid). But he also perceived it to fit very well with his political views, and as in much of his writing he was not shy about proclaiming such; “We are close enough to our African origins to hope for the preservation of unity in both action and artifacts” (Gould 1987:19). The replacement model showed that “at some point, modern *Homo sapiens* split off from an ancestral group and founded our own species. They were us at the beginning, are us now, and shall be us until we blow ourselves up or genetically engineer ourselves out of current existence” (1988a:18). Thus, “Human unity is no idle political slogan or tenet of mushy romanticism... All modern humans form an entity united by physical bonds of descent from a recent African root; we are not merely the current state of a tendency, as the multi-regional model suggests. Our unities are genealogical; we are an object of history” (1988b:20). He declared triumphantly that “this insight is evolution's finest contribution” to human knowledge (ibid). Of course, the vindication of the Noah’s Ark model meant that “we shall have to return to the older view of Neanderthal as a separate species, *H. neanderthalensis*.” Gould saw this as a “vindication of Boules’ primary conclusion,” but was not troubled by any political implications of this point.

The political narrative put forward by Gould was enthusiastically embraced by the advocates of the replacement model. Several years later Stringer published a popular exposition of the recent out of Africa model, borrowing yet another biblical metaphor for the title, *African Exodus* (Stringer and Mckie 1996). The work devoted considerable space to the political implications of the model, and firmly proclaimed the anti-racist notion that “we are all Africans under the skin” (ibid 170). Caan would later state “I tell my students they should all celebrate black history month, since they are all Africans genetically” (quoted in Wilkins 2012). The model- now orthodoxy- proved that “we are so young as a species that we have not had time to differentiate in any meaningful way. It is a heartening idea” (Stringer and McKie 1996:64). Stringer declared “the message from Out of Africa theory is a straightforward one. Our exodus’s time-scale is so brief that only slight differences, if any, in intellect and innate behaviour are likely to have evolved between modern human populations” (ibid 174). In an implicit criticism of multiregional evolution, he quoted Weidenreich’s statement that the Australian bushmen are “less advanced human forms than the white man; that is they have preserved more of the simian stigmata” (ibid 45); the replacement model, of course, ruled out any such possibility.

For his part, Wolpoff was “unprepared for the new level of politics in the Eve controversy we recognized in that issue of *Natural History*... this was the first time we saw our position implicitly placed on the politically incorrect side of the stands. Quite frankly, we were amazed” (Wolpoff and Caspari 1997:53). He noted that “by appealing to the implication that [the replacement model] demonstrated we are all brothers under the skin, the unspoken but implicit charge is that the opposing view somehow shows we are *not* “all brothers under the skin.” In the *Natural History* article Gould, for the first time, placed the debate in the arena of political correctness, and political *incorrectness* was clearly attributed to our side of it” (ibid 54). Wolpoff was to realize “how thoroughly we had inadvertently grasped the tar-baby of racial politics” when he received an admiring phonecall from “an unabashed racist who erroneously believed Multiregional evolution postulated the independent origins of different human races” and stated that he “really appreciated what [Wolpoff] was doing” (ibid 55). Wolpoff was “badly shaken” by the experience as “what the caller was discussing was anathema to our sociopolitical views” (ibid).

The caller had perceived Wolpoff as a “racial realist” brave enough to defy the “PC brigade” and demonstrate the scientific “truth” about race. Yet the racist caller was not entirely to blame for his misunderstanding, Wolpoff stated, as “he could have read in an increasing number of places, from the pages of *Scientific American* to the local paper, that Multiregional evolution is the theory of the parallel origins of the human races... the theory was repeatedly misunderstood as being one of separate origins for different segments of humanity” (ibid 56). Indeed, the 1988 *Newsweek* issue with the Eve cover presented multiregionalism as a “modified candelabra” below Coon’s “candelabra” model- in fact rejected by all- as alternatives to the Noah’s ark theory (**Figure 7**). Thus, Wolpoff realized that “the mischaracterizations of Multiregional evolution we were encountering were more than simply annoying; they could be downright dangerous” (1997:56).

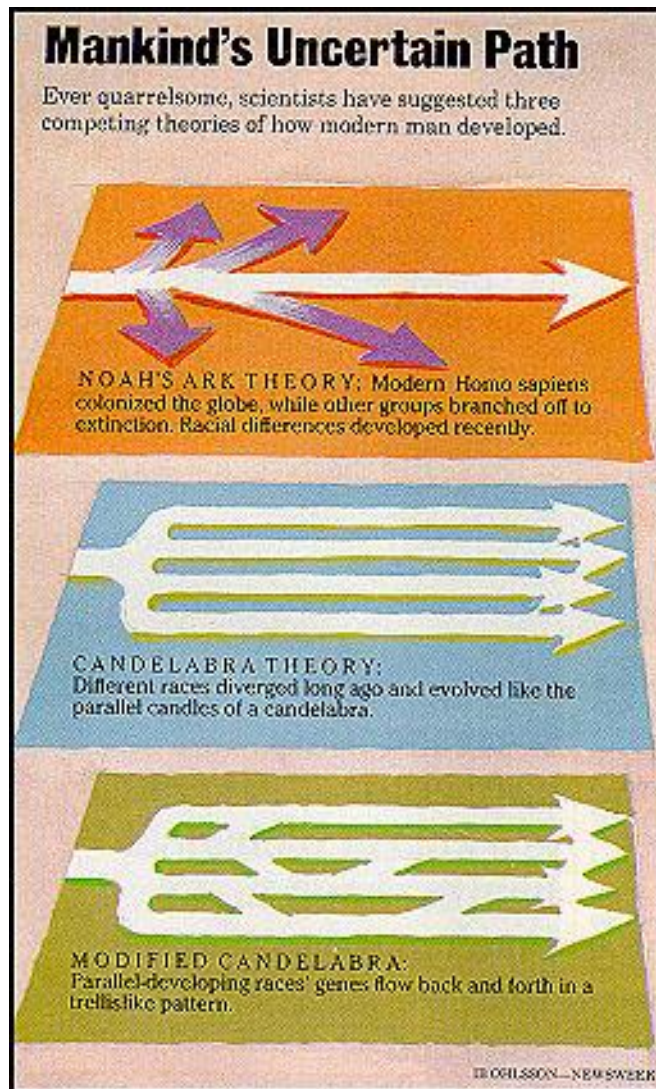


Figure 7 Newsweek 1988 Models of Modern Human Origins

Concerned that the promotion of the Eve model as anti-racist and associated tarring of multi-regional evolution had actually served to make the latter attractive to racists, Wolpoff wrote a popular book on his model, published the year after Stringer's (Wolpoff and Caspari 1997). The book dealt explicitly with the issue of race, which was "inextricably related" to the discourse of modern human origins (ibid 46). Wolpoff admitted that the moral "high ground is widely perceived to be held by the Eve theory" (ibid) but was very keen to stress that his model offered no support for racism, and emphasised that "Multiregional evolution does not mean that modern races are particularly ancient: groups of features, not groups of populations, are ancient according to this model" (ibid). In fact he ventured that multiregional

evolution may hold “the high ground on the political correctness issue because... it implies that the small racial differences humans show must have evolved slowly and therefore are insignificant” (ibid 45-6). Wolpoff saw the kinship of moderns and archaics as supporting rather than undermining the kinship of living races; “I believe we have a long history of people constantly mixing with one another and cooperating with one another and evolving into one great family” (quoted in Tierney 1988).

Wolpoff was also keen to point out some unpleasant political implications of the replacement model that its advocates preferred to overlook. He stated that the model of complete genetic replacement posits a Pleistocene “holocaust” (Wolpoff et al 1988) and dubbed it the “Killer African hypothesis.” He argued that “the spread of humankind and its differentiation into distinct geographic groups that persisted through long periods of time, with evidence of long-lasting contact and co-operation, in many ways is a more satisfying interpretation of human prehistory than a scientific rendering of the story of Cain, based on one population quickly and completely, and most likely violently, replacing all others. This rendering of modern population dispersals is a story of "making war and not love", and if true its implications are not pleasant" (1989:98).

Stringer denounced this “typically abrasive” rhetoric, stating “at no point, of course, had I suggested a violent replacement of Neanderthals by Cro-Magnons” (Stringer and McKie 1996:81). But he didn’t say that the replacement *wasn’t* violent, either, and given the lack of clarity around this part of the model, readers were left to fill in the gaps as they saw fit. Thus, Jared Diamond in *The Third Chimpanzee* (1991) was able to use the claim that modern humans with superior technology exterminated the inferior Neanderthals to argue that genocide was part of human nature, perhaps the least “heartening” notion of all. Comparing this hypothetical past genocide with the historical genocide of the Tasmanians, and other groups, he was able to follow the reactionary sociobiological route of claiming a political and ideological phenomenon as the result of human nature, thus rendering it unavoidable. It is worth noting in this connection that the replacement hypothesis was not well received in China, where the view of regional continuity that the multiregional model offered was preferred. The 2008 discovery of “Xuchang man,” interpreted as a descendent of Peking man and ancestor of the modern Chinese, was hailed as a

welcome challenge to the replacement theory (Reader 2011:229). It is perhaps unsurprising that a model of the recent spread from their ancient homeland of “modern humans who brought their new marvels to an unsuspecting world” (Stringer and McKie 1996:234) would prove problematic given that more recent “marvels” brought by colonial invaders include gunboats and opium.

Loring Brace worried that the characterization of archaic humans as separate and inferior species had racist implications; “Judging from the magnitude of morphological difference now being regarded as sufficient to recognize a specific distinction between Neanderthal and modern human form, there is real reason to suspect that an Australian and an Eskimo would be assigned to different species if representative specimens of each were found in deposits 50,000 years old” (1993:157). Given the regional continuities he believed existed, though the replacement advocates of course denied, he noted “if Neanderthals are specifically distinct from modern Europeans, then the latter have to be specifically distinct from Asians and Australians. And those who evaluate material 2 million or so years in the past might well judge each as deserving of separate generic rank” (ibid). He worried that anthropology was “reverting towards the stance of James Hunt, founder of the Anthropological Society of London, who used his Presidential Address of 1864, “On the Negro's place in nature”, to demonstrate by the use of a crude kind of cladistic procedure that Africans and Europeans should be regarded as distinct species” and emphasized that “even the use of single typological labels to depict what used to be recognized as "racial" categories is counterproductive at best” (ibid).

Despite the widespread association of multiregionalism with racism, it was in fact the replacement theory that was misappropriated in the most influential explicit work of scientific racism of the 1990s, J. Phillippe Rushton's *Race, Evolution and Behavior: A Life History Perspective*. The work was first published in 1995, but Rushton had presented a paper outlining the basics of his model which depended on applying r/K selection theory to human races, back in 1989. Rushton argued that as the first race to emerge with the least challenging climate, Africans were the least K-selected. This meant Eurasians were more “intelligent, altruistic, law-abiding, behaviourally restrained, maturationally delayed, lower in sex drive and longer lived” (ibid). In his argument that race was “more than just skin deep” Rushton

approvingly quoted Sarich's statement that "it is the Out of Africa model, not that of regional continuity, which makes racial differences more functionally significant. It does so because the amount of time involved in the riation process is much smaller, while obviously, the degree of racial differentiation is the same -- large. The shorter the period of time required to produce a given amount of morphological difference, the more selectively important the differences become" (Rushton 1998). Stringer was understandably keen to distance his model from Rushton's racist writings, stating firmly that the replacement theory "provides no rationale" for supposing that Africans are inferior, or that any race is superior (Stringer and Mckie 1996:175). But of course, Wolpoff claimed the same for *his* model. So long as race continues as an axis of oppression, there will be those that seek to spin anything they can seize upon into a justification for this oppression- as a perceptive museum visitor quoted by Scott (2007:94) observed, "if somebody's going to be racist, they're going to be racist even if we were out of Africa only ten years ago." Any model dealing with human ancestry cannot avoid being a political statement, for better or worse.

Just as human morality and society under anthropocentrism has been predicated on separation and superiority from animal kingdom, human equality under the post-war consensus was predicated on a long-standing separation from the ape lineage. While the existence of a few side-branches, notably the robust australopithecines, was admitted, there was generally perceived to be an unbroken linear progression towards modern humanity, so that only a retrospective, temporal *scala naturae* existed. Now the human lineage was seen as just one great ape lineage among several and the family tree of fossil hominids growing increasingly bushy (despite the protests of Marks, Brace etc), this view was untenable. The anthropocentric reaction was to stress more strongly than ever the uniqueness of the modern human and to throw Neanderthals and other archaic contemporaries under the bus, so to speak, to predicate human equality on separation from these beings. Thus the otherwise contradictory fact that the Neanderthals were deemed to be so different from us as to warrant the status of a separate species, at precisely the same time that the nonhuman African apes were shown to be so similar to us as to arguably belong in the same genus; *Homo neanderthalensis* certainly does not sit easily alongside *Homo troglodytes*. Interestingly, the text that first coined the term speciesism, a 1970 pamphlet against animal experimentation by clinical psychologist

Richard Ryder, asked rhetorically whether, if the last surviving Neanderthal was discovered, we would give him a seat at the UN or implant electrodes into his brain (2010:1). The discourse of the replacement advocates would favour the latter. But this anthropocentric reaction was problematic even in its own terms, for it was setting itself up for trouble if the replacement theory turned out not to be entirely correct- by predicating human equality on separation from naturally inferior archaics, any proof that some living people are in fact descended from these archaics would thus pose a challenge to this ideal of human equality.

5e. Palaeogenetics

Wolpoff noted that “Eve has made Neanderthals critical to modern human origins theories by denying them any role in it” (Wolpoff and Caspari 1997:277) since “if it could be shown there was any continuity between Neanderthals and later human populations in Europe, that would be more than sufficient to disprove the Eve theory” (ibid 278). Stringer and Andrews stated back in 1988 that “arguments continue about the extent of gene flow between Homo sapiens and other forms of Homo, but it is possible that these will be settled from more genetic data rather than through the fossil record” (1267). In 1996, it seemed that the argument could soon be resolved decisively with Neanderthal DNA. Stringer and McKie noted the “tantalising” prospect that ancient DNA could be extracted from Neanderthal bones and analysed- “a definitive scientific resolution of the “Neanderthal problem,” independent of any anatomical arguments, may be close at hand” (233). Their hope had been stirred by Svante Pääbo’s pioneering work with ancient DNA (1993).

This prospect was realized just a year later, with the successful extraction of mtDNA from a Neanderthal specimen from Feldhofer Cave in Germany by a research team led by Pääbo (Krings et al 1997). The result of this study was exactly what Stringer had been hoping for- “Sequence comparisons with human mtDNA sequences, as well as phylogenetic analyses, show that the Neandertal sequence falls outside the variation of modern humans. Furthermore, the age of the common ancestor of the Neandertal and modern human mtDNAs is estimated to be four times

greater than that of the common ancestor of human mtDNAs. This suggests that Neandertals went extinct without contributing mtDNA to modern humans” (1997:19). Further studies followed soon after, when Neanderthal mtDNA from Mezmaiskaya Cave in the northern Caucasus and from Vindija Cave in Croatia, both published in 2000, were analysed with similar conclusions (Krings et al 2000, Ovchinnikov et al 2000). But Wolpoff was not convinced. He pointed to the poorly defined stratigraphy and anomalous dating at Mezmaiskaya to argue the infant specimen from which the DNA had been extracted was in fact a modern human and not a Neanderthal, a conclusion that the specimen’s morphology supported, or at least did not refute. Thus Wolpoff saw the specimen’s DNA as providing very clear evidence of continuity between Neanderthals and modern humans (Hawks and Wolpoff 2001).

Wolpoff’s interpretation did not win much favour, but other commentators noted these genetic studies were in fact far from decisive. While their authors suggested the mtDNA differences between Neandertals and living humans reflected separate species status and supported the replacement model, “an alternative interpretation is that Neandertals were a subspecies whose mtDNA became extinct but still contributed some ancestry” (Relethford 2001:390). In fact, whether one regarded Neandertals as a separate species or part of the evolving lineage of humanity affected the interpretive meaning of the mtDNA results. The genetic evidence only supported the replacement model if one presupposed the validity of that model. The assumption, rather than conclusion, of specific distinction between Neandertals and modern humans resulted in a flawed methodology- “comparison of mtDNA of Neandertals with living humans involves comparing samples more than tens of thousands of years apart in age, raising an interesting and fundamental question- how much of the observed mtDNA difference is attributable to phylogenetic differences (if any) and how much is attributable to microevolutionary changes over time? How much difference should we expect in a mtDNA sequence from a very ancient fossil known to be anatomically modern?” (Relethford 2001:391). Shortly after the Neanderthal studies, an extinct mtDNA lineage was identified in an anatomically modern human, the Lake Mungo 3 specimen (Adcock et al 2001), thus demonstrating that the absence of ancient mtDNA in living humans

does not imply replacement. And “if the mtDNA present in a modern human (LM3) can become extinct, then perhaps something similar happened to the mtDNA of Neandertals. If so, then the absence of Neandertal mtDNA in living humans does not reject the possibility of some genetic continuity with modern humans” (Relethford 2001:391).

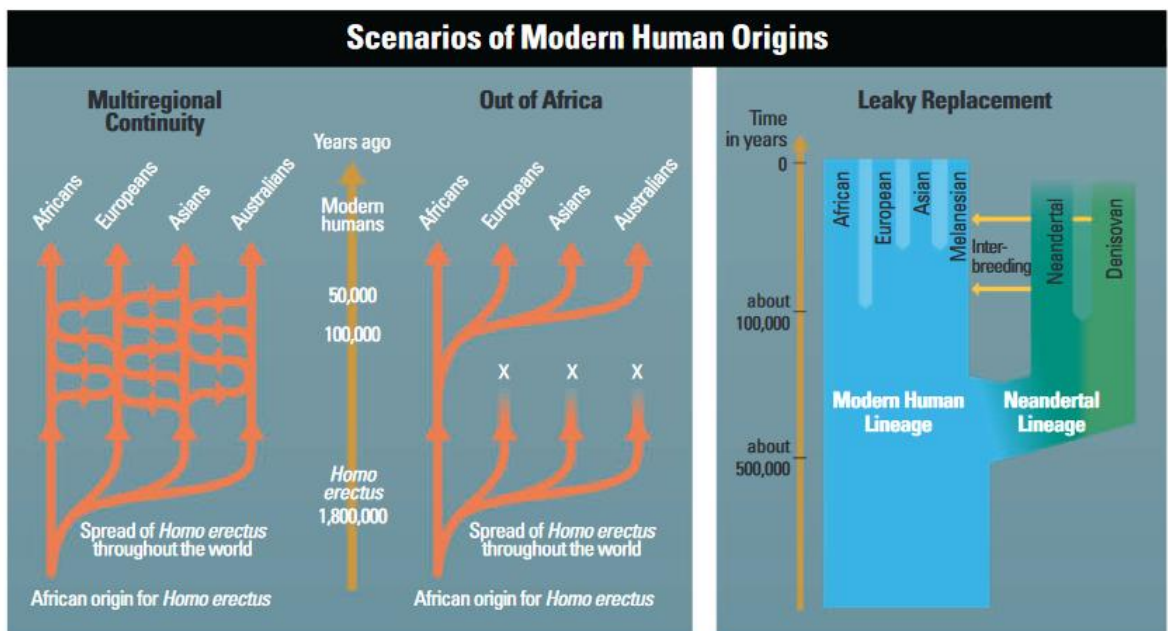
Pääbo would go on to lead the Neanderthal Genome Project commencing in 2006, and was convinced that the results would validate the replacement model and show the Neanderthals played no part in our ancestry. Researcher David Reich later admitted “we started out with a very strong bias against mixture” (quoted in Gibbons 2010). The first draft of the Neanderthal genome was completed in 2009, and initial analysis was reported as showing no trace of Neandethal genes in modern humans, thus supporting the replacement model (Wade 2009). When Pääbo first became aware that Neanderthal DNA was more similar to European than African DNA, he dismissed it as a statistical fluke, and when the link persisted believed it to be a bias in the data. It was only after researchers used different methods in different labs and still found the same result that he finally accepted it- “I feel confident now because three different ways of analyzing the data all come to this conclusion of admixture” (Pääbo quoted in Gibbons 2010). Thus it was clear that evidence suggesting admixture was being held to very different standards than evidence suggesting no admixture. Pääbo had happily promoted the replacement model on the basis of the much flimsier 1997 mtDNA evidence. Anything supporting the anthropocentric consensus developed around the replacement model was accepted more or less uncritically, while any evidence challenging it had to be hyper-scrutinized and every option that could reject this evidence explored before it could finally be begrudgingly accepted.

The thorough analysis eventually showed that 1-4% of the genome of living Eurasians was comprised of Neanderthal DNA. It was thus firm proof that Neanderthals were indeed ancestral to a large proportion of modern humans, very much a minority opinion over the past two decades- the 2010 publication of the results in *Science* stated “The analysis of the Neandertal genome shows that they are likely to have had a role in the genetic ancestry of present-day humans outside of Africa” (Green et al 2010:722). Later that year palaeogenetics would produce further

unanticipated results, with a mysterious archaic human group, the Denisovans, identified from DNA alone (Krause et al 2010). Denisovans were found to have contributed 4-6% of the genome of contemporary Melanesians (Reich et al 2010). Further studies with ancient DNA soon made it clear that the picture of recent human evolution was far more complex than the replacement model had supposed; “several gene flow events occurred among Neanderthals, Denisovans and early modern humans, possibly including gene flow into Denisovans from an unknown archaic group. Thus, interbreeding, albeit of low magnitude, occurred among many hominin groups in the Late Pleistocene” (Prüfer et al 2014:43).

Pääbo noted that, contrary to his expectations, Neanderthals are not in genetic terms extinct, for “they live on in some of us” (quoted in Gibbons 2010:680). Yet he was unwilling to discard his favoured model of human origins in the face of this revelation, instead modifying it only slightly to claim that the “best model” was “replacement with hybridization” or “leaky replacement” (quoted in Gibbons 2011:392). Stringer had to admit that “It’s not a pure Out-of-Africa replacement model- 2% interbreeding is not trivial” and stated that he and Wolpoff “both think we’ve been proved right” (quoted in Gibbons 2011:394). Wolpoff stated that seeing complete replacement falsified twice in one year was beyond his wildest expectations- “It’s hard to explain how good I feel about this. It was a good year” (quoted in Gibbons 2011:393-4).

That both camps would claim victory in this eventuality was a predictable outcome. Relethford observed back in 1995 that one version of the recent out of Africa model which “suggests the possibility of some admixture between “moderns” leaving Africa and “archaics” elsewhere in the world, is similar to some variants of the multiregional model, which also suggest that modern morphology appeared first in Africa, but involved admixture with other Old World populations. The major difference between these views appears to be the extent of admixture, although the exact level is never specified” (Relethford 1995:53). Of course, the reality proved to be exactly at this point where the two model overlapped, and since there was never any quantitative measure to distinguish between the two models in the event that genetic data of this kind became available, Stringer and Wolpoff could *both* claim they were right and their opponents wrong all along. It is often fallaciously claimed that the truth lies somewhere in the middle, but in this case the platitude did indeed turn out to be accurate (**Figure 8**).



Changing views. Two models of modern human origins (*left*) are being challenged by new insights based on ancient DNA (*right*), which suggest some limited interbreeding between modern and archaic populations.

Figure 8 Scenarios of Modern Human Origins (Gibbons 2011)

Gibbons observed that “the new picture most resembles so-called assimilation models, which got relatively little attention over the years” (2011:393),

one proponent of which was Fred Smith. Smith (1985) had earlier favoured local continuity combined with the spread of genes from a single centre of origin as the most likely model for origin of modern humans, and had noted that “if Neandertals are assimilated into in-migrating populations of modern people in Europe, then Neandertals do not go extinct in the classical sense of the word” (Smith et al 2005:7). While he accepted the Noah’s Ark model in so far as “significant genetic change was probably involved in the emergence of modern human anatomical form” and that it was most logical “to view this change as having occurred initially in one region and then to have spread throughout to Old World” he did not “view this spread as ubiquitously resulting from population migration nor do we see local continuity as always playing the very minor role these models assert” (Smith et al 1989:62). While in the replacement model “the extent of the Neandertal genetic input is considered essentially insignificant” the assimilation model held that “genetic exchange was more than “incidental”” (Smith et al 2005). But though he believed the assimilation model fit the evidence best, he did not at that time consider it by any means proven. In a 1989 review he observed, with hindsight rather sensibly, that “each of the models has its own particular strengths and weaknesses, but none unequivocally explains all the available data. Thus, all of us should refrain from offering overly dogmatic or polemical interpretations on detailed aspects of modern human origins that are obviously not justifiable given our present state of knowledge” (Smith et al 1989:62).

With their newly-proven ancestral status, Neanderthals could now be acknowledged as kin, as part of our species. This was perhaps most clearly expressed in a 2010 *New Scientist* editorial titled “Welcome to the family, *Homo sapiens neanderthalensis*.” The piece noted that Pääbo “equivocated” when asked whether Neanderthals belonged in the same species as us, saying only “I would more see them as a form of humans that were a bit more different than people are from each other today, but not that much.” But the author pointed out “it is hard to see why Neanderthals should now be considered as anything other than *Homo sapiens*” and thus “as one of our own.” Other paleoanthropologists were less reluctant than Pääbo to acknowledge the Neanderthals as part of our species; John Hawks stated “They mated with each other. We’ll call them the same species” (quoted in Gibbons

2011:394). On the other hand, Stringer remain opposed to recognizing Neanderthals as part of the human species- “In my view, the evidence that *H. sapiens* interbred with archaic humans does not yet require a merging of these close relatives into a single expanded concept of *H. sapiens*” (2012:34).

In spite of such pronouncements of newfound kinship with Neanderthals, the genetic data was also used for a different purpose- to search for differences that would separate “Them” from “Us” (**Figure 9**). The first publication of the Neanderthal stated that “the Neandertal genome sequences allow us to identify features unique to present-day humans relative to other, now extinct, hominins” and sought to build “a catalog of features unique to the human genome” (Green et al 2010:713). The 2014 genome publication stated “the high-quality Neanderthal genome allows us to establish a definitive list of substitutions that became fixed in modern humans after their separation from the ancestors of Neanderthals and Denisovans” (Prüfer et al 2014:43). This was approached in a clearly anthropocentric manner, with the notion that humans have a kind of genetic charter of dominion, and moreover that this was not shared with supposedly inferior Neanderthals. A news report on the latter study in the *Guardian* was titled “Scientists draw up definitive list of genes that make us human: Genetic changes that distinguish us from Neanderthals could throw light on how humans came to dominate planet” (Sample 2013) and informed us that “scientists are now going through the list to work out which genetic tweaks might have been most important in driving modern humans to become the most dominant living organism on the planet today.” Prüfer, the first author on the study, claimed that mutations specific to modern humans could be responsible for “some of our particular achievements, such as settling all over the planet, or flying aeroplanes” and speculated “maybe we will find something that makes our brains tick better. If something like that exists, it will be on this list” (quoted in Sample 2013). The new data did not result in a break with anthropocentric ideology, it merely provided an opportunity to scrutinize the basis of human superiority with a finer-toothed comb.



SEPARATING THEM FROM US

Some genes that differ between modern humans and Neanderthals

Gene

Significance

RPTN

Encodes the protein reptin, expressed in skin, sweat glands, hair roots, and tongue papilli

TRPM1

Encodes melastatin, a protein that helps maintain skin pigmentation

THADA

Associated with type 2 diabetes in humans; evolutionary changes may have affected energy metabolism

DYRK1A

Found in an area critical for causing Down syndrome

NRG3

Mutations associated with schizophrenia

CADPS2_AUIS2

Mutations implicated in autism

RUNX2 (CERAI)

Causes cleidocranial dysplasia, characterized by delayed closure of cranial sutures, malformed clavicles, bell-shaped rib cage, and dental abnormalities

SPAG17

Protein important for the beating of the sperm flagellum



Figure 9 *Separating Them from Us* (Gibbons 2010)

Annas (2001) observed that while it is true we are “are all Africans under the skin”, it is equally true that “if we decide to search for genetic differences in the .1% of our DNA that is different, we will find them and use them against each other... No matter how great the potential of population genomics to show our interconnections, if it begins by describing our differences it will inevitably produce scientific wedges to hammer into the social cracks that already divide us.” As intimated earlier, the now-proven fact that some modern human populations have inherited a greater percentage of “archaic” genes than others (**Figure 10**), genes that affect phenotypic expression, posed problems for the model of human unity supported by the replacement theory. In fact, in the terms of this model the new data appeared to support Weidenreich’s observation quoted earlier by Stringer that Australian aborigines “have preserved more of the simian stigmata” than the white race (quoted in Stringer and McKie 1996:45). Stringer feared that “those with alternative agendas may try to use these new data to rank modern human populations in terms of supposedly different degrees of modernity. Already I’m reading blogs that speculate about whether some groups are less ‘modern’ than others, and I fear that such discussions endanger the considerable progress promised by palaeogenetic research” (2012:34).

PATCHWORK PLANET

Most people’s genomes contain remnants of archaic DNA from ancient interbreeding³⁻⁵.

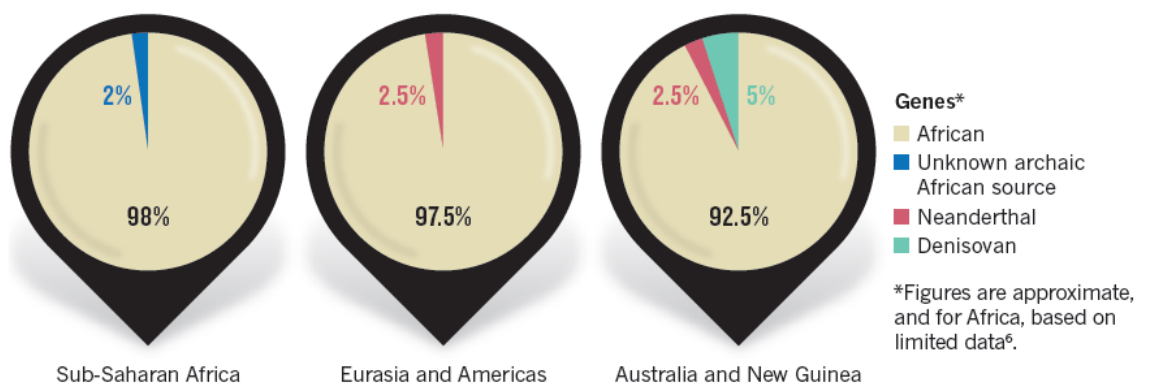


Figure 10 *Extant Human Genetic Heritage* (Stringer 2012)

To this threat, Stringer could only respond by stressing that “what unites us should take precedence over that which distinguishes us from each other” (2012:34). But of course, the unity of “Us” here is dependent upon a “Them” from whom we are different. The matter then boils down to who exactly this “Us” is. For Stringer, it is all living human beings. Yet it could be defined in narrower terms, to exclude certain of these living humans. And of course, it could also be defined more inclusively, to encompass Neanderthals, the other great apes, and/or nonhuman animals more widely. Stringer’s response here is manifestly inadequate- given that he himself defines “archaics” as naturally inferior beings, anyone more closely related to them would indeed be marked by a “simian stigmata.” On the other hand, extending the circle of kinship beyond extant humans would render this idea of a “simian stigmata” effectively meaningless.

5f. Conclusion

The major developments in the phylogeny of human origins over the past few decades were the resolution of the trichotomy problem and the application of similar genetic studies to modern human origins in which Neanderthals and other archaics were first cast out of our ancestry and the human fold, and more recently welcomed back in. While genetic studies such as these are typically viewed as the epitome of objective, unbiased science, it has been demonstrated that the discourse surrounding them, as well as the narratives developed from them, were driven to a large extent by political ideology. Moreover, these eminently modern techniques were used to advance some all-too familiar conclusions, as the underlying anthropocentric continuity is revealed as soon as one scratches the shiny new surface of this science.

The resolution of the trichotomy problem by Sibley and Ahlquist was really more due to chance than anything else. While the discovery was thus not politically-motivated, politics was central to the controversy and acceptance of the results. Though it sparked fierce pitheophobic opposition by Marks and others, it also gave new impetus to research into chimpanzee cognition and behaviour. Scholars were now willing to grant them greater capacities, and indeed personhood, on the basis of

their kinship with us. This also led to scientists advocating for legal rights for apes for the first time. Although ape ancestry was widely acknowledged with the advent of Darwinism- and argued for by Lamarck, Chambers and others before this- it took more than a century to reach this point, a fact that demonstrates more than anything the persistent power of pithecophobia. Yet while there have certainly been positive steps in this direction, such legal rights have yet to be granted, ensuring the persistence of pithecophobia in narratives of human origins as an implicit justification for such exploitation. But even if they were, it is hard to imagine pithecophobia losing its symbolic significance so long as kinship with other animals more broadly is denied. The Great Ape project was certainly a novel development, but it also expressed a deeper continuity in the anthropocentric determination of kinship- only when they were shown to be virtually in the same genus as humans could chimpanzees be acknowledged as kin, and even then only ineffectually.

Whereas in the 19th and early 20th century phylogenies of modern human origins were explicitly created to justify oppressive racial politics, now the simple observation that a phylogenetic model could harbour intellectual space for such racism is enough to throw its legitimacy into question, as we saw with the multi-regional model. Yet again, however, there is continuity despite the change, for exactly the same attitudes of scientific racism and pithecophobia persisted in the characterisation of the Neanderthals and other archaics once they had been removed from our family tree. The political danger of this ideology was not perceived at the time, for these beings are of course no longer around to oppress. However, with the recent revelations of variant levels of archaic ancestry in modern populations, these concerning aspects have once again been brought to the fore. So long as rights are based solely on membership of the human species, if some can be deemed less fully human than others, they can also be deemed to have less entitlement to these rights.

Another significant change is that as a result of the growing “professionalization” of the discipline, popular accounts are by and large the sole source of any explicitly political statements. For example, Gould, who was not even a scholar of human origins, gave the first expression to a political narrative that would dominant human origins discourse for decades in a popular article. This is not really a positive development, for political and other extra-scientific factors certainly

have not lost their influence over the development of human origins discourse, as we have seen. As such they ought to be openly discussed and acknowledged at all levels. The fact that such factors are now generally carefully excised from technical accounts, and only admitted in more candid moments, only makes these accounts less honest and to an extent misleading, perhaps even more dangerous.

Before we move on it is well to consider the bigger picture. A Universal Kinship based on the common descent of all life renders such ultra-fine gradations as species meaningless. In a broader view our kinship is with the pig or the possum no less than the ape or the Australopithecine. By the same token, it reduces the very notion of phylogenetic kinship to absurdity by expanding the circle until it includes bacteria. On the other hand, there is no compulsion for us to acknowledge even the very closest of kinships based on genealogy alone, unless we freely choose to. We are all Haraway's cyborgs. Every being is a Unique, not defined by a singular act of biological creation but by continuous acts of self-creation. Perhaps the only consistent stance to adopt is an anti-phylogeny- a position that neither builds politics upon phylogenies, or phylogenies upon politics, nor does it pretend phylogeny is a mere technical exercise in scientific objectivity, but rather actively works to expose and resist the political assumptions inherent in all phylogenies.

Chapter 6: Human Mind and Animal Instinct: Supreme Reason or Dominant Beast?

6a. Introduction

What we are interested in here is efforts to define humanity/animality through those facets of an organism that cannot be directly observed from mounted skeletons or stuffed specimens (or dissected corpses or vivisected bodies), the evidence of mind and behaviour- which will be treated together here since, as we shall see, the development of the latter concept and its separation from the former was itself a result of anthropocentric ideology with distinct socio-political motivations.

Anthropocentrism depends on a division between the metaphysical essences of humanity and animality, distinguished above all by mind- the human possesses reason, “the power of the mind to think, understand, and form judgements logically” (OED). The irrational beast lacks this quality, and is driven by biological impulses of instinct/passion. Reason enables agency or free will, which enables moral behaviour, and the capacity to transcend nature. The animal is not only amoral but immoral, driven by impulse to violence and carnality, whereas rational humans can suppress this bestial nature, thus making them moral agents and members of the socio-political community. Reason grants subjectivity; the rational human is a moral, political and historical subject, while the irrational animal is an object, a mere resource to be exploited.

There are a variety of concepts which, while subtly different, all refer to essentially the same thing and valorise this metaphysical division between humanity and animality. The term “reason” is somewhat archaic nowadays, but “cognition”- “the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses” (OED)- carries much of the same meaning and is very often used identically. Language was classically viewed as simply the external manifestation of reason, thus identical to it in essence; indeed it is language

that has been the most significant division between humans and other animals in recent centuries. Of course, direct evidence of language is lacking from the archaeological record, which has not prevented a good deal of discussion and speculation. The physical manifestation of reason was *ars*, meaning any expression of skill or craft. The word art was formerly used with a similar meaning, though culture and technology are more common in modern parlance. Culture has two meanings- “the arts and other manifestations of human intellectual achievement regarded collectively”, what we might term “high culture”, and “the ideas, customs, and social behaviour of a particular people or society” (OED). Culture in the first sense is the result of and proof of reason. When culture is used by anthropologists in the second sense, it typically carries much of the weight of the first sense also; this is why animal culture, meeting this technical definition, is typically dismissed by anthropologists and others as not “truly” culture- as, by implication, it is not perceived to meet the first definition.

Art in the more restricted modern sense has been the most esteemed archaeological example of *ars* as culture and the best evidence of reason; indeed the concept of symbolic behaviour holds art and language to be essentially the same phenomenon. Tools, hunting, fire, and clothing, among other things, have been further lines of evidence, though not quite as significant due to poor preservation and/or the fact that they are not unambiguously human in the sense required by a binary. The type of evidence considered is not so important to us here as the conclusions that were drawn from it, what motivated them, and the extent to which they were justified.

Three Conceptual Modes

Modern sociobiologists have often blamed resistance to their studies on the prevailing anthropocentrism of humanistic disciplines, claiming that “sociobiology is a major threat to [their] anthropocentric conceit” (Niedenzu et al 2008). They have lamented, for example, the “general failure of sociologists to understand, much less accept, an evolutionary perspective on human behaviour” i.e. the sociobiological programme, and attributing this to “a general anthropocentric discomfort with

evolutionary thinking”, which was shared with other social scientists (Van den Berghe 1990:173). They typically speak of anthropocentrism as motivated by a kind of pride or vanity, describing it solely terms derived from traditional Christian morality- a political dimension is not perceived or acknowledged.

Thinking in these terms is too simplistic. In fact there are three distinct modes of discourse in which the relationship of mind to notions of humanity and animality can be conceptualized, as shown in **Figure 11-** Rubicon, sociobiology, and metahumanism. The Rubicon approach sees the human as a superior being distinguished by unique mental qualities that separate it from and give it dominance over all other beings, whose lack thereof makes them mere resources for exploitation. Sociobiology here means not simply the neo-Darwinian sociobiology of recent decades but any approach which sees underlying animality as the driving force of human societies and actions. Metahumanism (after Sanbonmatsu 2007) is a humanism that extends beyond the boundaries of the human species to encompass other animals, recognizing subjectivity and agency in them, not only in humans.

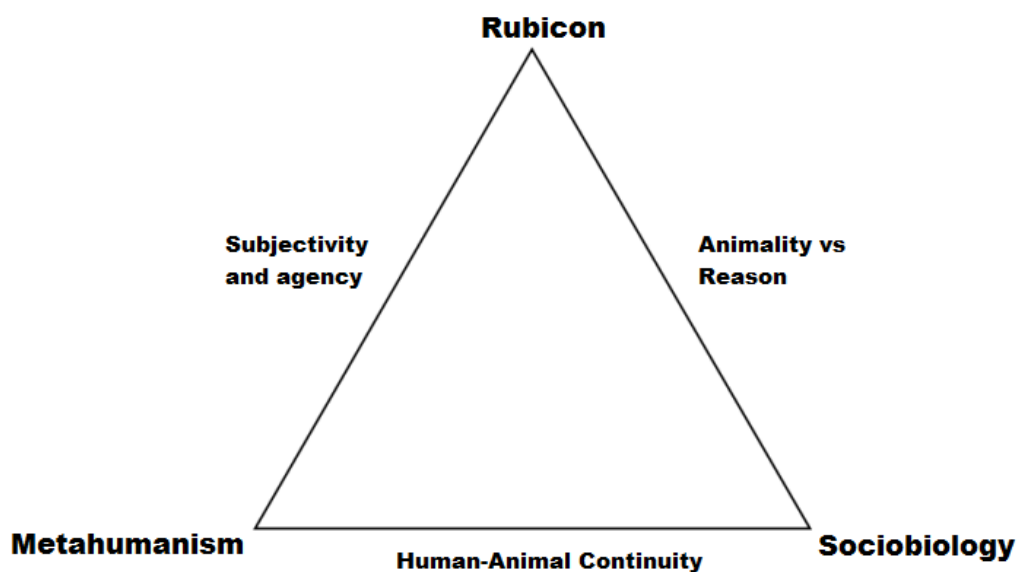


Figure 11 A schema of contrasting approaches to Human-Animal Mind

These three modes are similar to each other in certain key features and starkly different in others. The Rubicon approach and sociobiology both recognize an essential distinction between the force of reason and the animality of instinct and the

passions. For the former, this creates a qualitative split between humans, motivated by reason, and animals, motivated by instinct. For the latter, however, reason is a fragile superstructure, its rule ultimately illusory, and both humans and other animals are driven by instinct. The Rubicon approach and metahumanism both recognize the importance of mental experience and the subjectivity and agency that accompanies it. For metahumanists, this is true in other animals, not only humans, whereas in the Rubicon approach it is only true of humans. Sociobiology and metahumanism both recognize that there is no essential metaphysical distinction between humans and other animals, but rather a continuity of common nature. They differ, however, in their interpretation of what that common nature is. For metahumanism, it is the “humanistic” quality of subjectivity and agency in humans and animals that is most significant, whereas for sociobiologists it is the animality of instincts and passion.

Though it certainly may be so, it should not be expected that any individual scholar will hold any of those modes in “pure” form- one may, for example, expose views that are part-way between the Rubicon and sociobiology. They may also shift between different positions when discussing different topics and beings- for example, adopting a sociobiological approach for lower classes/races, and a Rubicon approach for the more powerful and privileged in society. Part of what makes Darwin’s legacy so complex and contested is that to varying degrees he adopted all three of these modes.

If one judges anthropocentrism according to perceptions of human-animal continuity, the Rubicon mode appears as the only anthropocentric one here described, whereas if one judges by perception of animal mind both the Rubicon and sociobiology appear as anthropocentric. Sociobiology is certainly a threat to the anthropocentric Rubicon position, but that does not mean it is non-anthropocentric- extending the category of animality is not the opposite of anthropocentrism. It can in fact be understood as *more* anthropocentric than the Rubicon approach, as it is a position that “refuses to anthropomorphize people” (after Morgenbesser, quoted in Boldender 2010:159), applying the metaphysical concept of animality and everything that comes with it not just to animals as the Rubicon proponents would have it, but to people as well. It does not eliminate the scientific errors and political repression entwined in the anthropocentric Rubicon approach, rather it doubles down

on them. Two distinct (though intimately connected) political projects can be identified in sociobiological approaches- first is to portray certain groups of humans as being essentially animalistic, to legitimate their oppression as “natural slaves” or equivalent. The second is to anchor the oppressive behaviours of dominant groups in “instinct” to render it natural and immutable. Both serve to legitimate the oppressive social order, thus rendered as a *scala naturae*.

Metahumanism is thus the only mode which is truly non-anthropocentric. It is surely no coincidence, then, that the metahumanistic mode has been by far the least commonly expressed, and that when it does appear it is often in a weak and compromised form. The impact of dominant anthropocentric ideology on the recognition of these modes must be acknowledged- given the unwavering force and prevailing consensus of its rejection, it has often taken only a very tentative attempt to recognise animal subjectivity to appear metahumanistic.

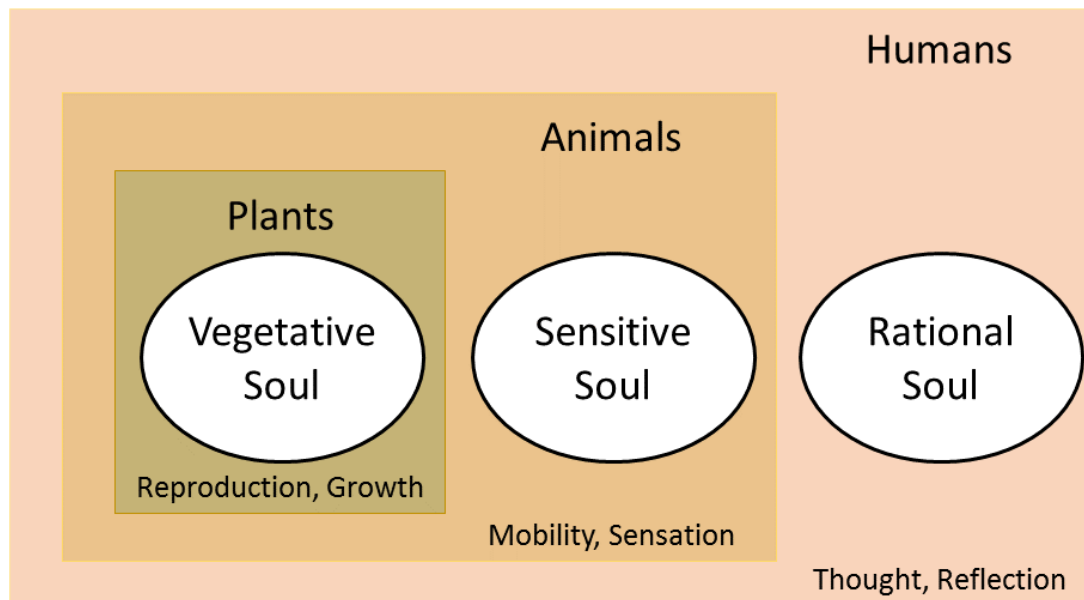
Since the taxonomy presented above is my own formulation and not widely acknowledged, the three modes have been prone to confusion in the literature- Rubicon proponents, for example, have mistaken metahumanistic criticisms for sociobiological ones, and so on.

We shall now proceed to examine the prevalence and development of these three modes, looking at their pre-Darwinian origins before analysing their role in evolutionary discourse. We will consider the extent to which continuity is present in the discourse as well as the extent to which developments are politically motivated.

6b. Pre-Darwinian

The origin of the traditional anthropocentric conception of humanity/animality lies in classical texts. Aristotle in his influential *De Anima* suggested a hierarchical *scala naturae* based on the “powers of soul” possessed by different life-forms, including the nutritive principle of growth, to which plants are limited, the sensitive principle of perception and mobility, which animals possessed, and finally the

rational, enabling thought, which only humans possessed (Lovejoy 1936: 58), thus granting humans a unique status based on the possession of reason (**Figure 12**). For Aristotle Man was indisputably the pinnacle of nature, unique in possession of reason and speech and with a mind close to the divine. Reason was quite literally perceived as a transcendent force enabling communion with the higher powers of the universe. Animals, on the other hand, were only motivated by the baser appetites- “The life of animals, then, may be divided into two acts-procreation and feeding; for on these two acts all their interests and life concentrate” (*History of Animals* VII:1). He speculatively suggested a biological cause for animal inferiority- bipedalism gives humans perfect body proportion, whereas other animals have imbalanced proportion exerting pressure on the heart, the seat of perception and imagination, which rendered thinking impossible. An imbalanced body proportion also explained



why infants crawl and are unintelligent (Gregorić 2005). However, he held that the human intellect was immaterial, able to exist without the body and thus immortal.

Figure 12 Aristotle's hierarchy of souls (Ian Alexander, Wikimedia Commons)

His ranking and its principles had political implications. In his *Politics* he distinguishes between “natural” slaves and legal slaves, arguing that “the rule of the soul over the body, and of the mind and the rational element over the passionate, is natural and expedient” and that where “there is such a difference as that between

soul and body, or between men and animals... the lower sort are by nature slaves, and it is better for them as for all inferiors that they should be under the rule of a master” (Arist.*Pol.I.5*, trans. Jowett 1885). Thus according to this concept of “natural slavery” those with imperfect reason, including some humans and all animals, which only “obey their instincts”, were morally obligated to be slaves. Thus “the use made of slaves and of tame animals is not very different; for both with their bodies minister to the needs of life” (Arist.*Pol.I.5*, trans. Jowett 1885). Indeed contemporary slaves were commonly referred to as *andrapodon*, two-footed animals. However, this discourse was conducted in abstract terms, so while Aristotle held a human lacking reason would be a natural slave, it is unclear where in practice he perceived the division between legal and natural slaves. It is, however, very clear that “Man” was very explicitly a gendered man- women were seen as inferior in reason and thus must be ruled by the men of superior reason- “between the sexes, the male is by nature superior and the female inferior, the male ruler and the female subject” (*Pol. 1.1254b*).

Aristotle had created an ontological Rubicon based on the possession of reason which divided rational humans from animals driven by instinct, and argued that certain humans lacking reason could be placed in the latter category. This was also a political Rubicon, with the exploitation of the irrational naturally justified and morally good.

While Aristotle elaborated on the dominating power of reason, he had relatively little to say on the dangers of the passions. Plato was more emphatic on this subject. In his famous chariot analogy, Plato describes how “the charioteer of the human soul drives a pair” and “one of the horses is noble and of noble breed, but the other quite the opposite in breed and character. Therefore in our case the driving is necessarily difficult and troublesome” (Phaedrus 246b). *Logos*, the commanding force of reason, steers a white horse, *thumos*, the virtuous emotions which are more easily aligned with the command of reason, and a black horse, *epithumia*, the irrational passions and appetitive desires. This unruly latter part was the opposite of reason and must be subjugated by it.

In the *Laws* he also articulated a version of natural law to condemn homosexuality (Pickett 2015), writing that “when male unites with female for procreation the pleasure experienced is held to be due to nature, but contrary to nature when male mates with male or female with female, and that those first guilty of such enormities were impelled by their slavery to pleasure” (636c), and writes of the value of legislation criminalizing homosexual acts, masturbation, and illegitimate procreative sex (838-839d). Where the pleasures do not accord with the supposed dictates of reason, they must be subjugated, and all those “enslaved” by them into immoral acts likewise coercively controlled. While it was by no means a topic that preoccupied him greatly, Plato’s writings here are striking in that specific culturally sanctioned homosexual acts were not only morally unproblematic but even valorised in his society.

Plato connected his internal hierarchy of the soul with an idealized political hierarchy; philosophers, the “guardian” rulers of his utopian *Republic*, were ruled by reason, while the producer classes of farmers, craftsmen etc were dominated by irrational desires and thus belonged at the bottom of the social hierarchy. The interior domination of animality within a being is grounds for its political domination by the more rational. For Plato, “nature herself intimates that it is just for the better to have more than the worse, the more powerful than the weaker; and in many ways she shows, among men as well as among animals, and indeed among whole cities and races, that justice consists in the superior ruling over and having more than the inferior” (*Gorgias*).

Anthropocentrism in the classical tradition reached its most strident and most influential form in Stoic thought. Aristotle's anthropocentric Rubicon was taken up and elaborated upon by the Stoics, who saw animals and humans as categorically different; man/animal was a binary opposition lacking a middle ground. Animals were described as *ta aloga*, “the irrational ones”, and acted according to nature (*apo physeos*) not reason. Animals from the same species would thus always act in a similar manner, possessing an “innate natural cleverness” which allowed them to carry out such tasks as were necessary for their survival without the need for any capacity for learning. In contrast, humans possessed reason and speech- two sides of the same coin since thought

was described as internal reason (*logos endiathetos*) and speech as external reason (*logos prophorikos*). Being the only rational animal (*zoon logikon*) humans had freedom to act and were related to gods (Gilhus 2006: 39). The Stoics used teleological arguments to support a hierarchy of life, holding that the purpose of animal existence was their usefulness to humans; “the idea that animals were created for the sake of man is seldom found in Greece before the Stoics, but it appears frequently in the Hellenist period as a result of Stoic influence” (Gilhus 2006: 40). For example, the Stoic Chrysippus stated that pigs had souls in order to keep pork fresh for humans- “the pig’s soul serves as salt to keep it from putrefaction” (Gilhus 2006:40).

The Stoics also shared Plato’s concern with the dangers of the passions, which they developed in their ideology of natural law. Natural law meant not submitting to bestial passions, but instead using reason to determine what course of behaviour was natural and good- “True law is right reason in agreement with nature,” as Cicero, a later Stoic, phrased it. The Stoics positioned this natural law in opposition to irrational human customs, but in doing so they were merely enshrining a particular conception of nature which aligned with and legitimated their own prejudices. Cicero was “dismissive about sexuality in general, with some harsher remarks towards same-sex pursuits” (Pickett 2015). Dio Chrysostom called homosexual acts “a greater and more illicit form of outrage” against nature than adultery and prostitution, which he condemned in similar terms, (quoted in Hubbard 2003:448). There are numerous illustrative examples attributed to Diogenes the cynic, a Stoic precursor and major influence. For example, of an Olympian victor distracted by a courtesan, he quipped “yonder ram frenzied for battle, how he is held fast by the neck fascinated by a common minx” (Diogenes Laertius 6.61), the animal metaphors clearly expressing the connection between animality and the passions. The misogynistic element is also clear; the influence of the passions was seen as giving women power, thus he compared attractive women to “a deadly honeyed potion” (ibid). Natural law determined there were two discrete and hierarchical sexes, thus “effeminacy” was strongly condemned as unnatural. When “a youth effeminately attired” asked Diogenes a question, “he declined to answer unless he pulled up his robe and showed whether he was man or woman” (Diogenes Laertius 6.46). He stated to another “effeminate” youth “Are you not ashamed... that your own

intention about yourself should be worse than nature's: for nature made you a man, but you are forcing yourself to play the woman." (Diogenes Laertius 6.65). Anatomy is destiny and rigidly determines human relations in a hierarchical manner, and the "nature" thus enshrined is immutable. Thus the Stoics, while strong proponents of the Rubicon, also held ideas which were more sociobiological in nature, seeing instinct as a powerful opposing force to reason within the human soul which necessitated coercive social control and hierarchies.

Anthropocentrism in the classical tradition did not go entirely unchallenged, and we find figures such as Porphyry, Plutarch, and Celsus, who rejected this one-sided devaluation of animals and wrote in defence of their abilities and status as moral subjects, advancing a more metahumanistic position. If human reason was the highest form, it was by no means the only form, and the difference was only in degree, not in kind. This mental continuity meant that unfettered domination of animals was unjust and illegitimate, and that human had rights and duties towards them. For example, Porphyry of Tyre argued that "there is a rational power in animals, and that they are not deprived of prudence", which he saw to be clearly evident in their interactions with other beings and the environment, in their capability for learning and memory, and in the fact that "gregarious animals preserve justice towards each other". The prevailing notion that animals lack reason and are motivated solely by instinct was not a conclusion arrived at by a thorough examination and understanding of animal behaviour, but just the opposite, an *a priori* assertion based in ignorance; "it might be requisite to deprive them of rationality, if their works were not the proper effects of virtue and rational sagacity; but if we do not understand how these works are effected, because we are unable to penetrate into the reasoning which they use, we are not on this account to accuse them of irrationality." He thus concluded that "brutes are rational animals, reason in most of them being indeed imperfect, of which, nevertheless, they are not entirely deprived" and that since "justice pertains to rational beings, as our opponents say, how is it possible not to admit, that we should also act justly towards brutes" (Porphyry trans. Taylor 1823:112). It was often argued that domestic animals had a contract or mutual agreement with humans and thus they deserved special care, although Roman law explicitly denied such a contract existed and granted animals no legal status other than

property. Porphyry stated that “with respect to tame animals... we act with a twofold injustice, because though they are tame, we slay them, and also, because we eat them” (Porphyry trans. Taylor 1823:126). Lucretius also advocated this position, arguing the natural contract meant such animals should be protected and not mistreated, though he did not advocate vegetarianism (Gilhus 2006:24). Killing innocent (i.e. non-dangerous) wild animals was not in the same way a breach of contract, but still an injustice; “they are allotted the same soul that we are, [so] he may justly be considered as impious who does not abstain from acting unjustly towards his kindred” (Porphyry trans. Taylor 1823:125).

Such polemics demonstrate that the matter of the ontological and moral status of animals was not entirely settled, but still a fitting subject for intellectual debate. For example, the Stoic Philo of Alexandria presented an account of a debate between himself and his nephew Alexander. Alexander listed evidence that animals possess both internal and external reason, albeit of an imperfect nature, for example performing animals are capable of learning, and that animals possess a moral sense; thus animals have “virtues of a rational soul”. Philo did not really counter all these points but simply argued from an *a priori* position that animals lacked reason, thus if animals seem to act by reason, it must simply be a wrong impression, because animals always act according to nature (Gilhus 2006:43); “Animals do nothing with foresight as a result of deliberate choice. Although some of their deeds are similar to man’s, they are done without thought” (*On Animals*, 97). Philo’s position expresses clearly the epistemic double standard that has been a constant feature of this subject- animal behaviour and human behaviour are evaluated differently on *a priori* grounds. The conclusion that animals act only on instinct rather than reason was not arrived at after examining their behaviour, but rather it was a foundational and ideologically motivated assertion in light of which their behaviour was subsequently interpreted. It was thus an unfalsifiable circular argument; evidence that animals possess reason must be false, because animals do not possess reason. Philo concluded with the common anthropocentric sophistry that “To elevate animals to the level of the human race and to grant equality to unequals... is to insult those whom nature has endowed with the best part” (*On Animals*, 100).

However, despite these objections, the “prejudice of Stoic anthropocentrism became the dominant voice in the West with regard to animals and their moral status” (Steiner 2010:19), as it was taken up, elaborated, and raised to dogma by the Church Fathers. In the Christian medieval world the status of animals was no longer a topic of debate; inappropriate beliefs became heretical. For example, inquisitors of the Church would order suspected Cathars to kill chickens- if they refused, holding that these creatures too had immortal souls, they would be executed as heretics (Ladurie 1979). Aquinas took up the Aristotelian doctrine of the soul and accompanying political ideology of natural slavery, holding that “dumb animals and plants are devoid of the life of reason whereby to set themselves in motion; they are moved, as it were by another, by a kind of natural impulse, a sign of which is that they are naturally enslaved and accommodated to the uses of others.” (*Sum* II-II, Q 64, A 1, ad. 2). The operation of the uniquely human rational soul, in contrast, “so far exceeds the corporeal nature that it is not even performed by any corporeal organ” and was immortal (Q. 78, Art. 1) The Aristotelian *scala naturae* based on powers of soul became the medieval Great Chain of Being, with the various orders of angels leading up to God being placed above humanity. The highest tiers were devoted to pure reason, spending all their time in contemplation of the divine. The total lack of concern for animals was evident in practice- for example, battery farming methods were practiced on a small-scale long before the modern era, with the usual method of “brawning” pigs in Elizabethan England being to keep them “in so close a room that they cannot turn themselves round about”, and poultry were often fattened in darkness and confinement, and were sometimes blinded or had their legs cut off (Thomas 1983).

The terms of the Stoic anthropocentric Rubicon were no longer up for debate- its view of human and animal mind went unquestioned. There was one subject which was, however, fitting for debate- those beings who could not be clearly classified as either human or animal. These monstrous races, or Plinian races after the Roman author who produced an influential catalogue of them, can be broadly divided into two categories- they were either identified by a striking distortion of the human body, such as headless *blemmiae* with their faces in their chests, or dog-headed cynocephali- likely based on accounts of baboons- or else an aspect of behaviour considered unique to the rational human is removed from an otherwise human being, as

in for example speechless cave-dwelling *Troglodytes*, and men who communicate through gestures instead of speech (Friedman 1981).

There is no intrinsic reason why, when confronted with a dog-headed biped, the most important and interesting question should be whether or not that being ought to be classified as human. Indeed, in the classical traveller's tales, this is not a question that particularly needed to be posed and addressed- they were simply fantastical curiosities. For the Christian scholars, however, firmly committed to the anthropocentric Rubicon, these beings created an ontological crisis.

Augustine's *The City of God* was the first work in which this question is explicitly addressed. Augustine's solution to the problem these strange beings posed was to emphasise the unity of humanity to be of the mind rather than the body; if these beings possessed reason, they were human regardless of their physical appearance. "No faithful Christian" he stated, "should doubt that anyone born anywhere as a man- that is, a rational and mortal being" was a human descendent of Adam. This was true "however extraordinary such a creature may appear to our senses in bodily shape, in colour, or motion, or utterance, or in any natural endowment, or part, or quality." (*De civitate dei* XVI c.8.) This does not mean that he judged the monstrous races to be definitively human, since whether all these beings did in fact possess reason was not clear from the information available about them. Indeed, it seemed some did not; the cynocephali's "dog's head and actual barking prove them to be animals rather than men". Lacking language, the cynocephali must lack reason and thus are not human. But if it could be shown that any of the monstrous races did possess reason, they would unquestionably be human. Augustine's solution, in other words, was to avoid any hint of a metahumanism that would credit non-human/animal beings with mental and behavioural attributes than had been held uniquely human, thus threatening the anthropocentric foundations of contemporary ideology, but rather to preserve the Rubicon by instead extending the definition of humanity to encompass any rational creatures. Given their distant location, the human status of these beings would have only one political consequence, namely that missionaries would have a duty to bring the gospel to them.

The theologian Ratramnus of Corbie in a 9th century letter re-opened the question after receiving supposed information on the cynocephali from Rimbert, a missionary to Scandinavia, where they could allegedly be found, who had asked his opinion on whether “they arose from the line of Adam or possess the souls of animals” (*Letter on the Cynocephali*, trans. Dutton 2004:452). Ratramnus discussed reports that the cynocephali cultivated crops, kept domestic animals, wore clothing, and lived in villages, all of which were evidence of their capacity for morality and *ars*, capacities which require possession of reason, and thus associated the cynocephali “more with human reason than with animal sensibility” and “bear witness in a way that there is a rational soul” in them (ibid). They were also alleged to keep livestock, and he believed this domination of animals was itself a sign of their humanity; “I realize from [my] reading of Genesis that earthly animals have been subjected to humans by heaven” while it has never been believed that animals of one kind could keep other animals and “force them to obey rules and follow regular routines” (Dutton 2004:455). He thus believed that since “Humans are distinguished from animals by reason alone”, and the cynocephali clearly possessed reason, these beings “ought to be deemed humans rather than animals” (ibid).

In contrast, Albertus Magnus would later discuss the human status of pygmies (a race of dwarfs from classical mythology, not the central African peoples known to later anthropologists) and argue against their humanity. While they bore a physical resemblance to humans, they lacked the capacity for moral virtue and *ars*, although they could imitate human skills without mastering them. For example, they could speak but could not carry on a discussion or talk about abstract concepts. They lacked the human capacity for true reason, possessing merely the “shadow of reason” (*umbra rationis*) and thus while they were in a sense a bridge between man and the lower animals, they undoubtedly belonged to the latter class (Thijssen 1995). His negative assessment may in fact have been politically motivated by the increasing prevalence of African slaves in Europe at the time he was writing (Friedman 1981).

The fact that that Ratramnus and Albertus came to opposite conclusions about whether the monstrous races were human should not blind us to the fact that they both followed the framing of the issue laid out by Augustine, which was based on the classical anthropocentric Rubicon.

Augustine was also highly concerned with the dangers of the bestial passions. Sexuality he saw as the worst example, violating the rational control of the human agent and bringing “the blush of shame over the freedom of the human will” (*Anti-Pelagian Writings*: VI). He considered it highly significant that while “the eyes, and lips, and tongue, and hands, and feet, and the bending of back, and neck, and sides, are all placed within our power- to be applied to such operations as are suitable to them” the sexual organs did not follow this pattern- “when it must come to man’s great function of the procreation of children the members which were expressly created for this purpose will not obey the direction of the will, but lust has to be waited for to set these members in motion, as if it had legal right over them, and sometimes it refuses to act when the mind wills, while often it acts against its will!” (ibid). This anxiety over the passions was, as in Stoic philosophy, politically linked to misogynistic and homophobic interpretations of “natural law”.

Perhaps nothing better illustrates the intimate connections in anthropocentric ideology between the weighted dichotomies of humanity vs animality, reason vs passion, and man vs woman than the medieval *exemplum* or morality tale of Phyllis and Aristotle. This short apocryphal narrative recounts how the great philosopher was tricked into becoming a steed for Phyllis, the wife of Alexander the Great. One version of the tale runs like so:

Once upon a time, Aristotle taught Alexander that he should restrain himself from frequently approaching his wife, who was very beautiful, lest he should impede his spirit from seeking the general good. Alexander acquiesced to him. The queen, when she perceived this and was upset, began to draw Aristotle to love her. Many times she crossed paths with him alone, with bare feet and disheveled hair, so that she might entice him.

At last, being enticed, he began to solicit her carnally. She says,

"This I will certainly not do, unless I see a sign of love, lest you be testing me. Therefore, come to my chamber crawling on hand and foot, in order to carry me like a horse. Then I'll know that you aren't deluding me."

When he had consented to that condition, she secretly told the matter to Alexander, who lying in wait apprehended him carrying the queen. When Alexander wished to kill Aristotle, in order to excuse himself, Aristotle says,

"If thus it happened to me, an old man most wise, that I was deceived by a woman, you can see that I taught you well, that it could happen to you, a young man."

Hearing that, the king spared him, and made progress in Aristotle's teachings. (Anonymous)

In this narrative the *scala naturae* is turned on its head, rational man lowered to the status of a beast as passion overcomes reason, and dominated by a woman. Women are presented as a dangerous force who can tempt men into subjugation through lust, a temptation which must be resisted in order to keep them in their proper place as inferior beings. This misogyny is thus clearly connected to the reason vs passion dichotomy, which is itself clearly connected to the distinction between human and animal; in allowing the animality of passion to overcome the uniquely human force of reason, Aristotle is figuratively transformed into an animal himself, an inferior being to be dominated and exploited.

Though all but unknown today, this *exemplum* was a widely popular theme in the high Middle Ages, and images of the famous riding scene are still visible in many gothic churches (Hight 1949). Aristotle is commonly depicted wearing a bridle and Phyllis wielding a whip to further symbolize the coercive violence involved in the domination of the beast (**Figure 13**).



Figure 13 Phyllis rides Aristotle like a beast, by The Master of the Housebook c1485 (Rijksmuseum)

This *exemplum* was also crafted into a narrative poem known as the Lay of Aristote, which was also widely popular; “If the number of surviving manuscripts of a medieval work is seen as crucial to its popularity, the lay of Aristote, with six

manuscripts, appears to have been one of the most successful Old French lays” (Burgess and Brook 2011). In fact, of the thirty-five or so extant lays only one has survived in more manuscripts than *Aristote*.

The *exemplum* was popular at a time when the study and importance of Aristotelian philosophy in the west had reached a peak, and he was regarded not merely as a philosopher but as *the* philosopher above all. In the lay he is described as “the finest clerk in the world” who “knows everything appertaining to learning” and “in the domain of philosophy he is sharper than anyone else” (Burgess and Brook 2011:25). Yet, as he carries Phyllis around the garden on his back like a beast of burden, the wise philosopher has been reduced to a “comic, even a grotesque figure” (Burgess and Brook 2011:33).

Aristotle’s appearance in the *exemplum* is by no means accidental; the moral intended by it is the very same that his character articulates to Alexander at the end of the tale- if even the wisest of men, the paragon of reason and rationality, could so easily be tempted by passion and reduced thereby to an animal state, how much easier then could the rest of humanity so fall. Human reason is a transcendently powerful force, yet its grip is nonetheless all too fragile.

While Aristotle thus served as a warning of how even the most rational could be reduced to animality, the figure in the medieval tradition that served as the strongest example of a being driven by passion into immorality was the ape (that is, tailless monkeys, not as-yet-unknown great apes), which was a *figura diaboli* (Janson 1952), an image of the devil, grotesque and evil. They were seen as especially prone to anger/aggression and unbridled lust. Like anthropocentric ideology in general, this view of the ape was a borrowing and elaboration of classical disdain for these beings- for example, Aelian wrote that older male baboons are lascivious and will attack women and children, while Timotheus claimed that monkeys in general are brutal and licentious. Yet while classical authors sometimes described the ape as hideously ugly and evil, “with the advent of Christianity its reputation sank lower than ever” (Morris and Morris 1966). They were sometimes depicted as the devil’s familiars, sometimes the devil himself was depicted in the form of an ape, and often used to symbolize sinners. Possessing an instinctive capacity for imitation they could thus copy- “ape”- certain aspects of human behaviour, but lacking reason they were

incapable of true learning or understanding. A popular theme (**Figure 14**) was the depiction of apes chained to wooden blocks to prevent them moving around (Janson 1952). This was symbolic of their enslavement to the passions, but at the same time it was a direct representation of their enslavement by humans, since apes and other monkeys were in fact kept restrained in this manner as pets in the homes of the rich (Buquet 2013).

Figure 14 An ape chained to a block c1500 (Musée de Cluny)



With the discovery of the Americas, the discourse on the monstrous races and natural slavery was to be repeated with very strong political motivations, as the rational status of Amerindians was debated in exactly the same terms set out by the likes of Aristotle and Augustine. The suggestion that the Indians might be slaves by nature “was first advanced as a solution to a political dilemma: by what right had the crown of Castille occupied and enslaved the inhabitants of territories to which it could make no

prior claims based on history?” (Pagden 1986:27). Legitimacy was found in the writings of the theologian John Mair, who had argued based on Aristotle that since the Amerindians “lived like beasts” without reason, “the first person to conquer them, justly rules over them because they are natural slaves... it is just that one man should be a slave and another obey, for the quality of leadership is also inherent in the natural master” (quoted in Pagden 1986:39). Spanish jurist Juan de Matienzo stated that the Indians were “participants in reason so as to sense it, but not to possess or follow it. In this they are no different from the animals (although animals do not even sense reason) for they are ruled by their passions”. Evidence of this was in their lack of planning and foresight and in their concern only with the lower appetitive desires; “This may be clearly seen because for them there is no tomorrow and they are content that they have enough to eat and drink for a week” (quoted in Pagden 1986: 42).

Dominican Tomas Ortiz in 1525 provided the Council of the Indies with a description emphasising that the Indians ate human flesh and raw insects and worms, lacked clothing, morals and kindness, had no law or religion, did not exercise humane arts and industries, and were incapable of learning, concluding “the Indians are more stupid than asses and refuse to improve in anything” (Trigger and Washburn 1996:67). They were also perceived to have, as a race, deviated from natural law through widespread practice of homosexuality, further proof of their lack of reason and controlling passions.

However, this assessment had harsh critics. Seeing the enslavement and cruel treatment of the Indians, Antonio de Montesinos, one of the first Dominicans to arrive in the island of Hispaniola, asked in 1511 “Are these not men? Have they not rational souls? Must not you love them as you love yourselves?” (Hernandez 2001). The *Sublimus dei*, a papal bull of 1537, forbid such slavery on the grounds that “the Indians are truly men... capable of understanding the Catholic Faith” and the view that they “should be treated as dumb brutes created for our service...incapable of receiving the Catholic Faith” was stated to be invented by Satan to hinder the spread of the gospel (Trigger and Washburn 1996:66).

The debate reached its height in 1550, when the King of Spain, Charles V, ordered a junta, a group of jurists and theologians, to meet at Valladolid in order to hear the arguments in favour and against the use of force to incorporate the Indians

into Spanish America. Juan Ginés de Sepúlveda justified conquest and evangelization by war, while his opponent Bartolomé de Las Casas was a staunch advocate of peaceful and persuasive conversion (Hernandez 2001). The debate relied exclusively on European secular and religious sources and Indians were completely excluded; moreover both sides argued within the same framework, arguing only over the application of Aristotle and other authorities while accepting the validity in principle of the “natural slavery” concept.

Las Casas had emphasised the Indian's harmonious and civilised communities, and beautiful and intricate languages as evidence of their rationality. He argued whatever crimes the Indians committed were not punishable as no Christian monarch had jurisdiction over unbelievers living outside their territory. He emphasised the essential unity of humankind- since the Indians were rational and civilized human beings, Spaniards had no right to subject them to slavery or war. Sepúlveda's views were outlined in his *Democrates secundus*. He argued that among the Indians passions ruled over reason, and so they were slaves by nature; moreover they had committed crimes that offended nature and needed punishment (Pagden 1986). No records of the actual debate proceedings at Valladolid are known; afterwards both sides claimed victory, but this debate had no direct effect on the treatment of the indigenous populations.

Political philosopher Hobbes used a sociobiological vision of humanity as dominated by bestial impulse to advocate authoritarian control in the form of absolute monarchy. Hobbes described human nature in similar terms to modern sociobiologists, as fundamentally selfish- “all man’s desires are essentially directed towards his own preservation and happiness, and what are apparently unselfish emotions are analysed and explained in terms of this self-regarding tendency” (Drever 1917:4). He referred to humanity in a “state of nature” as *bellum omnium contra omnes*, a war of all against all, characterised by a lack of cultural or mental progress and “continual fear and danger of violent death, and the life of man, solitary, poor, nasty, brutish, and short” (Leviathan XIII:9). In this supposed natural state morality does not exist, only violent conflict; Hobbes summarised his view of bestial human nature as *homo homini lupus*- men are wolves to fellow men. For

society to exist men must thus cede their individual rights to a powerful state which sets laws to regulate social interaction by force. Hobbes explicitly stated that animals were excluded from any kind of “social contract”; “to make covenants with brute beasts is impossible” (quoted in Thomas 1983:21).

A significant break with the Aristotelean tradition was to occur with Descartes. This was not, however, an attempt to correct its anthropocentrism, but rather a position that took anthropocentrism to even greater extremes. Descartes proposed the *bête machine* ideology, which denied not only reason to animals, but any degree of conscious sensation at all- they nothing more than “natural automata” (Descartes and Ariew 2000:297). Animals must lack thought, since they lacked language which was the “only certain sign of thought hidden in a body” (Letter to More, *ibid*). If a bird was taught to speak words it was only by “by making the utterance of this word the expression of one of its passions” dependent on an immediate appetitive need. “Real speech” meant “indicating by word or sign something relating to thought alone and not to natural impulse” (*ibid*). Similarly, “all the things which dogs, horses and monkeys are taught to perform are only expressions of their fear, their hope or their joy; and consequently, they can be performed without any thought” (Letter to Marquess of Newcastle, *ibid*). Any actions of an animal that appeared to require conscious thought, were instead dismissed as the result of natural impulses. The passions clearly did not depend on thought, as in humans they were not always subject to conscious control and “often occur in spite of us” (*ibid*), therefore the presence of passions in animal did not imply a conscious mind. Animals did not even feel pain- -in a letter to Mersenne, Descartes stated that “pain exists only in the understanding”, while in animals “it is external movements alone which occur, and not pain in the strict sense” (Fudge 2006:157).

Descartes admitted he could not disprove the presence of a “very much less perfect kind” of thought behind certain animal’s actions, but relied in the anthropocentric view of animals as an essentially homogenous mass defined by their lack of humanity to claim that there was “no reason to believe it of some animals without

believing it of all, and many of them such as oysters and sponges are too imperfect for this to be credible” (Letter to Marquess of Newcastle). If any animals were automata, they must all be automata.

The Cartesian beast-machine doctrine was summarised by Malebranche- “in animals there is neither intelligence nor souls as ordinarily meant. They eat without pleasure, cry without pain, grow without knowing it; they desire nothing, fear nothing” (Nadler 2000:42). This was an *a priori* axiom immune to contrary observations- “if they act in a manner that demonstrates intelligence, it is because God... made their bodies in such a way that they mechanically avoid what is capable of destroying them” (ibid). The first English defender of Descartes, Sir Kenelm Digby, argued in a 1645 treatise that unlike the human mind “the most cunning actions of animals may be attributed to the movement of atoms in the four concavities of the brain” (Shugg 1968:281).

Descartes himself carried out vivisection, and the beast-machine ideology was intimately connected with the justification of the practice. Descartes claimed his teachings were “not so much cruel to animals as indulgent to mankind... since it absolves them of the suspicion of crime when they eat or kill them” (Descartes and Ariew 2000:297) and stated that his philosophical method would help humans become the lords and masters of nature. The animal machine theory was used to support the increase in vivisection in France; Fontaine recorded of the Cartesians that “they administered beatings to dogs with perfect indifference... they said that the animals were clocks; that the cries they emitted when struck were only the sound of a little spring that had been touched, but that the whole body was without feeling” (Fudge 2006:158).

Buffon was heavily influenced by the Cartesian theory of animal automatism, and its influence can be clearly seen in his accounts of animal behaviours. Of particular note is his descriptions of apes. The orang may have resembled human physically, but mentally there was no resemblance whatsoever- it was the clearest proof of all that human uniqueness was not to be sought in the body but in the mind, a creature that “man cannot look upon, without contemplating himself, and being convinced that his external form is not the most essential part of his nature.” (1797,

IX:110). The problem of classifying the ape was solved by considering not anatomical resemblances to humans, but instead the qualitative mental disparity, showing it to be a mere animal. The ape which many scholars had regarded as “difficult to define, and the nature of which was at least equivocal, and intermediate between that of man and brute animals” was in fact “no other than real brute, wearing externally a human masque, but internally destitute of thought, and every other attribute which constitute the human species” (1797, IX:148-9). Buffon in fact argued it was only “on account of the corporeal resemblance that prejudice has been formed in favour of the great faculties of the ape” (1797, IX:144), for the creature was not intelligent and was in fact “an animal inferior to many others in his relative faculties” (1797, IX:149). Far from being almost human, the ape was “not even first among brutes” (ibid). Humans and apes were simply “two machines, similarly constructed”, but while the human was moved by the power of reason the ape “depends on matter”, a true automaton (1797, IX:146). There was “nothing voluntary in their imitation” of human actions (1797, IX:145). In fact, their actions could not even be called imitation at all, for “Imitation supposes a design of copying; the ape is incapable of forming this design, which requires a train of thoughts and judgement” (1797, IX:146). The humanity of the ape had been judged by the great naturalist according to the standards of the superior human mind, and had been found not merely lacking, but infinitely so.

The 19th century saw an increasing concern for animal welfare along with popular interest in animal mind and emotions. Scientific study, however, was almost entirely Cartesian in approach, focussing on anatomy, physiology and taxonomy to the exclusion of animal behaviour and mind, which was not explored either experimentally or theoretically.

A notable figure who broke away from the anthropocentric Rubicon and advanced a metahumanistic vision of animals was Lewis Henry Morgan. He did not

believe that human mental abilities, although generally superior, were in every facet greater than all other animals, and tentatively attributed a moral sense to animals. He objected to the double standard which interpreted animal behaviours that would be seen as rational agency in humans as involuntary instinct; “In all of his writings on animal psychology, Morgan maintained a consistent view of the common practice of attributing animal behavior to instinct: He thought it demeaned animals, was inconsistent with the evidence about their behavior, and impeded our understanding of their mental abilities” (Johnston 2002:324).

Morgan's earliest publications appeared in the respectable magazine *The Knickerbocker* under the pseudonym Aquarius. One of these articles was a re-appraisal of the mental powers of animals titled “Mind or instinct, an inquiry concerning the manifestation of mind by the lower orders of animals”, published in 1843, before any influence from Darwinism; Morgan was not an evolutionist in the biological sense. Morgan cited anecdotal examples of animal behaviour from various sources, which appeared to demonstrate animal reason, imagination and other “human” capacities. He pointed out the anthropocentric double standard of interpretation- “the manifestations of instinct in the cases cited are exactly analogous to the manifestations of mind, under similar circumstances; and had man exhibited such conduct, we should without hesitation pronounce it the consequence of abstract consideration” (Morgan 1843:418). It would be much more sensible and parsimonious to interpret such cases of animal behaviour in terms of mind than instinct. Morgan observed that the scientists dismissing animal agency as mere instinct, to preserve the anthropocentric Rubicon that denied animal mind, were in fact stretching the term so far that ironically they were elevating it to a virtually supernatural power; “it is asserted that instinct spontaneously impels all animals to the ends they seek; than which nothing can be more irrational. It is endowing them with a principle which leads unerringly to results that man might fail to ascertain by the aid of science. It is in effect endowing them with a principle higher than mind; partaking something of Deity itself” (Morgan 1843:417). Morgan also wrote an unpublished manuscript “Animal Psychology” in 1857. Here he condemned the

Cartesian theory of instinct as an irrational superstition that impeded scientific investigation, “an installation of the supernatural, which silences at once all inquiry into the facts” (Johnston 2002:324), as indeed it had earlier been used by Philo for example.

Beginning in 1861 Morgan began his own investigations into animal lives through the study of beavers, published as *The American Beaver and his Works* (1868). He began by noting the limitations of Cuvier's system of classification by anatomical structure, in its Cartesian rejection of animal mind and behaviour; “It not only rejects the habits and properties of animals as immaterial and transient, but it also leaves out of consideration their mental endowments” (Morgan 1868:v). The beavers lodge was not, Morgan argued, a result of natural instinct, but rather an example of art/culture. He argued that the natural home of the beaver was a humble burrow, and that the lodge was thus not strictly necessary for survival but rather secured their happiness and safety, and developed from the burrow “in the progress of their experience, by natural suggestion” (Morgan 1868:100), just as human architecture developed. He recorded many examples of dams adapted to specific circumstances, such as a series of dams in a gorge, proving the beaver was able to adapt its constructions as circumstance required, rather than simply following an unchanging model. Morgan argued that when a beaver examined his own constructions, “evidently to see whether it is right, and whether anything else is needed, he shows himself capable of holding his thoughts before his beaver mind; in other words, he is conscious of his own mental processes” (Morgan 1868:256) and capable of “complicated process[es] of reasoning” (ibid 263). The beaver was a conscious rational agent, greatly transforming the natural environment through his works, and a progressive historical agent in the truest sense- beaver canals were the result of “progress in knowledge” (ibid 263), an “act of progress from a lower to a higher artificial state of life” (ibid 264).

Although he followed traditional anthropocentrism in claiming that “man stands at the head of the animal kingdom” and the human mind was “separated by a wide

interval from its other possessers”, Morgan claimed that humans did not in fact possess “the sum of the powers of the principle called mind” (ibid 280). His conception of mind was strikingly different from the classical anthropocentric view:

God has revealed a feature in the plan of creation not less wonderful than the original conception of a mental principle. Having called into existence this marvelous principle, and created a series of organic forms. He apportioned it among them all in such measure as to adapt each individual being to the sphere of life in which he was designed to move. The widest possible range for the exercise and development of mind was thus provided. A full comprehension of its powers and capacities must therefore be sought in its varied manifestations by the several species. It is not probable that the whole of its powers are possessed by any species: but rather that in their totality they are to be found among the members of the animal kingdom as a whole. A true system of mental philosophy, therefore, cannot be developed until all the manifestations of this principle are comprehended. (ibid 280)

Mind was not a shining sun blazing gloriously in humanity, with all other beings in shadow and darkness. Rather it was like a jigsaw puzzle, its various pieces scattered among a multitude of incarnations, none possessing the whole, but each making full use of its unique gift. To view the full picture would require assembling all of its various pieces. Thus the study of mind, of society, of history, could not be merely the study of the human, but must encompass animals too.

Morgan did not fail to appreciate the implications of such claims. He condemned the oppression of animals- “we deny them all rights, and ravage their ranks with wanton and unmerciful cruelty” (ibid 283) - and argued that a new scientific appreciation of animal mind was crucial to changing the treatment of other animals. If it were recognized that other animals “possess a thinking, and reasoning, and perhaps an immortal principle, our relations to them will appear to us in a different, and in a better light” (ibid 284). Morgan also acknowledged the existence of human-animal affectionate relationships, noting that domesticated beavers became “very much attached” to their human families (ibid 222).

6c. Darwinian Developments

Darwin was interested in mental evolution and animal mind even at an early stage in the development of his theories. In 1838 he visited Jenny the orang-utan at the London Zoo (**Figure 15**) and found her to be very human-like not only physically, as had long been recognized, but mentally as well. She was “like a child”, who “certainly understood every word” of the zookeepers instructions (Darwin et al 2007). He noted how she observed herself in a mirror and used pieces of straw as tools. He wrote in his notebooks of her “intelligence when spoken to” and affection to those she knew (ibid). It is notable that he describes her with that pronoun in the same paragraph in which he repeatedly refers to a rhinoceros as a mere “it” (Darwin 1838a); perhaps he was unable to assign the rhinoceros a sex, but the casual use of the gendered pronoun for her does accord with his perceiving greater humanity in the orang.

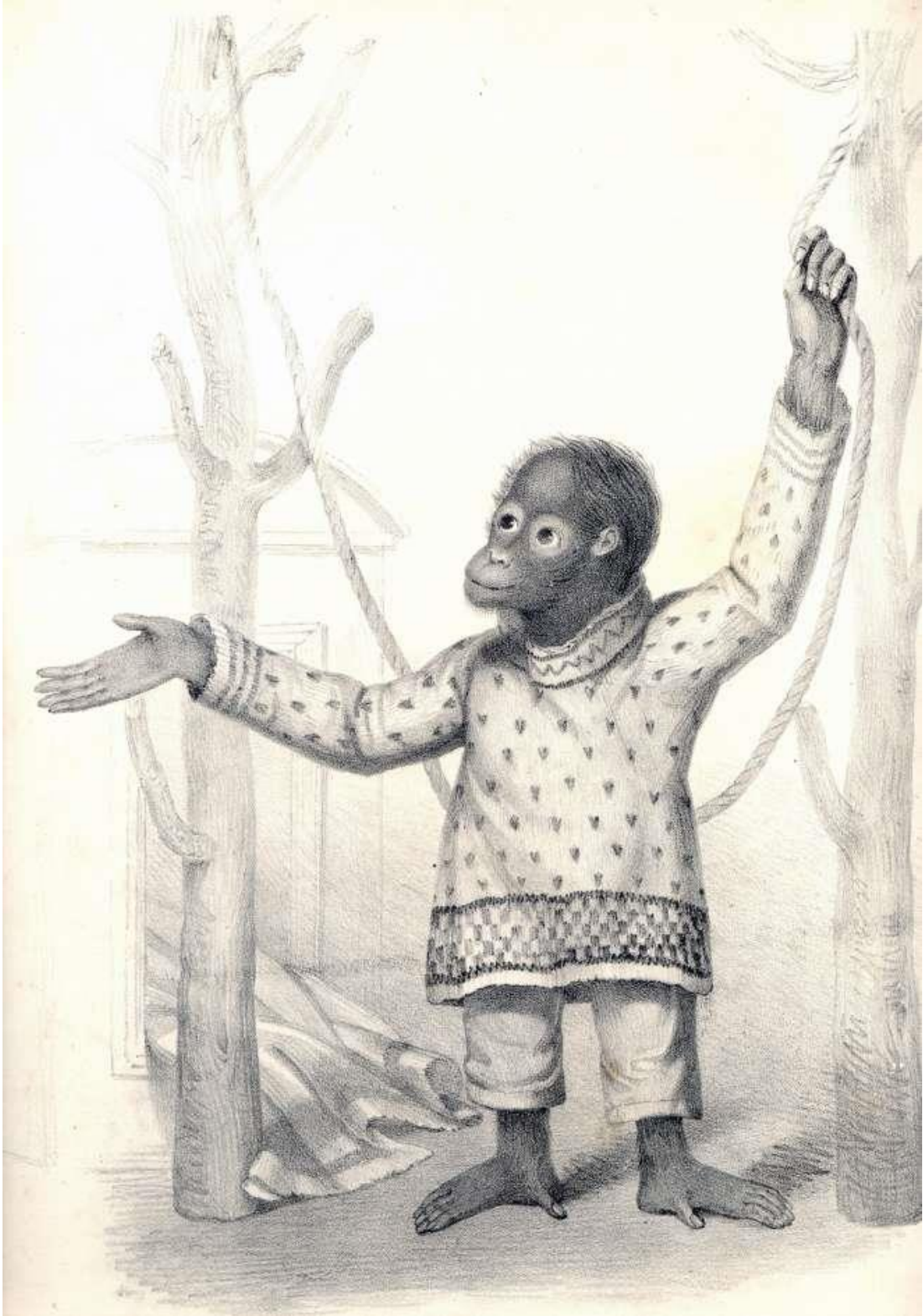


Figure 15 Portrait of Jenny the Orang (Printed by W Clerk, High Holborn, in December 1837)

In *The Descent of Man* (1871) Darwin emphasised that “there is no fundamental difference between man and the higher mammals in their mental faculties” (Darwin 1871:35). The “difference in mind between man and the higher animals” was certainly “one of degree and not of kind” (1871:85). He marshalled a wide variety of accounts of animal behaviour to demonstrate that “the senses and intuitions, the various emotions and faculties, such as love, memory, attention, curiosity, imitation, reason, etc., of which man boasts, may be found in an incipient, or even sometimes in a well-developed condition, in the lower animals” (ibid).

However, he maintained that “that the difference between the mind of the lowest man and that of the highest animal is immense” (1871:85). Though he credited animal minds with much higher powers than his scientific contemporaries, he had not abandoned entirely the notion of an anthropocentric Rubicon. The very highest of apes could “use stones for fighting or for breaking open nuts” yet “the thought of fashioning a stone into a tool was quite beyond his scope” (ibid). They could “make other apes understand by cries some of their perceptions and simpler wants” yet “the notion of expressing definite ideas by definite sounds had never crossed their minds” (ibid). *Ars* and language were beyond their ability, because they were lacking in the capacity for abstract reason. Least of all could they “follow out a train of metaphysical reasoning, or solve a mathematical problem, or reflect on God, or admire a grand natural scene” (ibid). Lacking abstract reason, they lacked the capacity for transcendence of nature- their minds were locked in the baser needs of life in the struggle for existence. Nevertheless, even the higher mental powers he held unique to humans were “merely the incidental results of other highly-advanced intellectual faculties”, not of a different metaphysical nature. Their development he believed was “mainly the result of the continued use of a perfect language” (ibid).

Darwin stated that the moral sense was “the best and highest distinction between man and the lower animals” (1871:85). Even morality, however, was not a metaphysical force, but had developed through the evolutionary process- “the so-called moral sense is aboriginally derived from the social instincts” (Darwin 1871:97). The social instinct of animals were the “the prime principle of man's moral constitution” 1871:85) yet it required “the aid of active intellectual powers” (ibid) to turn instinctive sympathy into true morality. It required the guiding force of human

reason to direct the passions towards a true moral end. While in *Descent* he thus held that morality as guided by reason was unique to humans, he later expressed some doubt as to this Rubicon. When Cobbe published an article in *Quarterly Review* titled “On the consciousness of dogs”, Darwin wrote approvingly to her “It seems to me the best analysis of the mind of an animal which I have ever read” and stated that “since publishing the *Descent of Man* I have got to believe rather more than I did in dog’s having what may be called a conscience” (quoted in Feller 2009:268).

Instinct was thus not solely described by Darwin in the evil terms of the bestial passions, as sympathy, the basis of morality, was itself a form of instinct. This was not a force counter to the struggle for existence, but rather aided in it. The social instincts provided reproductive advantages for a kinship group, and were therefore favoured by natural selection; “Those communities, which included the greatest number of the most sympathetic members,” Darwin argued, “would flourish best, and raise the greatest number of offspring” (1871:130). However, he did by no means avoid the bestial passions framing, either- in his early notebooks he had written “Our descent, then, is the origin of our evil passions!!--The Devil under form of Baboon is our grandfather!” (Darwin 1838b).

Regardless of whether it was moral or immoral, Darwin relied heavily on the concept of instinct for both human and animal behaviour. He was not critical of the anthropocentric use of the concept to explain away complex animal behaviours without needing to admit reason or conscious agency, as Morgan and Wallace were. Darwin showed “no skepticism of accounts of the most elaborate instincts” such as complex nest-building in birds, but was rather “solely concerned in arguing how they could be accounted for by natural selection” (Gross 2010:504). Darwin cited “Mr. Morgan’s excellent account” of the beaver as evidence for his argument on mental continuity in *The Descent of Man* (Darwin 1871:37), but he added revealingly “I cannot, however, avoid thinking that he goes too far in underrating the power of Instinct” (Darwin 1871:46). While the metahumanistic emphasis on the human-like minds of animals made up one pole of his argument for human evolution and human-animal continuity of behaviour, the sociobiological focus on animal-derived instincts still present in humans made up the other. Even human language, that most esteemed of capacities, was “half-art, half-instinct” (1871:85).

The fact that the human mind was not the result of special creation but had developed gradually from the minds of animal ancestors, and that the whole animal kingdom was united in common descent, meant for Darwin that animal mind could no longer be ruled out on an a priori basis, but rather relevant observations of such must be fairly and objectively judged. This applied not only to the more esteemed and cherished animals, like his dogs, but even to the very lowest. Darwin recognized that “it is not rational to presume, prior to inquiry, that the existence of conscious action is unlikely” (Crist 2002:7).

The extent to which he applied this principle is evident in his last book, on *The Formation of Vegetable Mould through the Action of Worms* (1881). While worms had even been cited explicitly by Descartes as the clearest proof that an animal could be a mere automaton, and were near-universally regarded as such, Darwin believed it was fair to ask “how far the worms acted consciously and how much mental power they displayed” (1881:3). He observed that the manner in which worms plugged their burrows was not random, rather they felt and carefully selected the leaves they used, suggesting to Darwin a capacity for judgment based on tactile sense. While the impulse to plug holes was itself “no doubt instinctive”, instinct could not explain how worms handled the leaves, for this behaviour was not so “unvarying or inevitable as true instincts” (1881:93).

If a human used their tactile sense to assess and manipulate an object in the same manner, this behaviour would indisputably be deemed a manifestation of conscious intelligence, and for Darwin there could be no double standard of assessment- “if worms have the power of acquiring some notion, however rude, of the shape of an object and of their burrows, as seems to be the case, they deserve to be called intelligent; for they can act in a manner as would a man under similar conditions” (1881:97). While he recognized that “The comparison here implied between the actions of one of the higher animals and of one so low in the scale as an earth-worm, may appear far-fetched” in attributing to the lowly worm some degree of mental power, he saw “no reason to doubt the justice of the comparison” (1881:24-5). His conclusions on the consciousness of the worm were the opposite of what he had

expected to find- he noted that their intelligence “surprised me more than anything else in regard to worms” (1881:35).

This was no idle remark, for Darwin had also discovered that worms played a crucial part in turning the soil and ensuring its fertility- it was a “marvellous reflection” that the entire topsoil of a field would pass, every few years, through the bodies of worms. Without the humble worm, regarded as a mere pest, agriculture would be impossible; “It may be doubted whether there are many other animals which have played so important a part in the history of the world” (1881:65). His conclusions were met with incredulity, but ultimately the effects of worms on the soil were acknowledged, while the mental power of the worm would see no further investigation. Anthropocentric ideology made it easier to accept that worms could move mountains than that they could possess any degree of awareness.

Darwin actively encouraged investigation into animal minds on the same basis by others as part of the Darwinian evolutionary project. A notable follower was George Romanes, who believed “there must be a psychological, no less than a physiological, continuity extending the length and breadth of the animal kingdom” (Romanes 1882:10). Rejecting the anthropocentric double standard which interpreted the same behaviour in humans and animals very differently and dismissed the mind of the latter on *a priori* grounds, he argued “we have the same right to predicate mind as existing in such an animal that we have to predicate it as existing in any human being other than ourselves” (Romanes 1882:7).

He did not believe there was any qualitative leap in mental evolution; “up to a certain point the psychology of man runs parallel with that of animals; emotions, instincts, and reason all corresponding each to each in the two orders of mind so far as they are common to both; it being, therefore, only an unparalleled growth in certain lines in the psychology of man that the evolutionist has to explain” (Romanes 1885:251). Romanes argued that this unparalleled growth was in the “sign-making faculty”, but this was a gradual evolution, as the ability to employ symbols is present to a lesser degree in other animals.

Even when actions were carried out by instinct this furnished no proof that consciousness was absent from the process. Romanes argued against the notion that instinct was “incompatible with the idea of consciousness”, for “the fact that in any particular case we have not the means of proving the presence of consciousness, is not proof that consciousness is not present” (Romanes 1891:2239). In fact he was careful to distinguish instinct from mere mechanical reflex, defining the former as “reflex action *which is conscious of its own performance*” (ibid).

Lubbock's work was very much in the Darwinian model. He was regarded by his contemporaries as a greater authority on animal behaviour than prehistory- for example, Kropotkin cited Lubbock's studies on ants in his *Mutual Aid*. However, with the rise of behaviourism he was not deemed an appropriate ancestor-figure and his contributions would later be erased. Lubbock was most famous for his work on insects. He believed ants possessed reason, perceiving they possessed all the hallmarks of human culture- “they build houses, they keep domestic animals [i.e. aphids], and they make slaves” (quoted in Clark 1997:160). He also emphasised that while insects cannot speak they did communicate by means of their antennae, and speculated that they were able to feel pain. He outlined his insect studies in *Ants, bees, and wasps* (1882), where he emphasised “My object has been not so much to describe the usual habits of these insects as to test their mental condition and powers of sense” (Lubbock 1882:v). He began his studies with bees (a Punch caricature even depicted him as such, **Figure 16**), but moved to ants as a matter of practical convenience. He described ant societies as “organised communities labouring with the utmost harmony for the common good. The remarkable analogies which, in so many ways, they present to our human societies, render them peculiarly interesting to us, and one cannot but long to know more of their character, how the world appears to them, and to what extent they are conscious and reasonable beings” (Lubbock 1882:94). Lubbock tested reports of attachment and affection in ants, and found that while some ants helped wounded friends others did not, taking this as evidence that there are “individual differences

existing between ants- that there are Priests and Levites, and good Samaritans among them, as among men.” (Lubbock 1882:101).

He was also to write *On the Senses, Instincts and Intelligence of Animals* (1889). The majority of the book concerns his studies on the senses of insects, but the final chapter is rather different, outlining an experiment into canine intelligence. Lubbock was aware that Dr Howe had taught deaf-blind Laura Bridgman to distinguish words, by placing paper labels on objects such as spoons and knives, with the name of the object printed in raised letters. He saw that this “ingenious method... might be adapted to the case of dogs, and I have tried this in a small way with a black poodle named Van” (Lubbock 1889:276). Lubbock began by creating a card labelled “food” and a plain card, rewarding Van with food when he chose the printed card. Van soon learned to distinguish between the two cards. Lubbock then created cards labelled “out”, “tea”, “bone” and “water” in addition to cards with irrelevant words printed on them. Van proved his ability here; “No one who has seen him look down a row of cards and pick up the one he wanted could, I think, doubt that in bringing a card he felt that he is making a request, and that he could not only distinguish one card from another but also associate the word and object” (Lubbock 1889:278). However, Lubbock did not attempt to draw any conclusions from this study, stating that he was presenting his findings in the hope of “inducing others... to carry on similar observations, which I cannot but think must lead to interesting results” (Lubbock 1889:285).

PUNCH'S FANCY PORTRAITS.—No. 97.



SIR JOHN LUBBOCK, M.P., F.R.S.

HOW DO TH THE BANKING BUSY BEE
IMPROVE HIS SHINING HOURS
BY STUDYING ON BANK HOLIDAYS
STRANGE INSECTS AND WILD FLOWERS!

Figure 16 Lubbock caricatured as a bee (Punch August 19, 1882, page 82)

The Darwinian evolutionary model rested on a belief in the “psychic unity of animal, savage and European man” (Clark 1997:172), which united anthropology with the new investigations into prehistoric archaeology and ethology. However, just

as the re-evaluation of animal mind was counter-balanced by a sociobiological focus on instinct as driving human and animal behaviour, the re-evaluation of animals was itself counter-balanced by racism. Lubbock, for example, wrote that given the evidence of ant behaviour he had revealed, “if we deny to them the possession of reason we might almost as well question it in the lower races of Man” (quoted in Clark 1997:160). To question reason in the human species was absolutely unthinkable- to question it solely in the lower races of humanity was not.

The supposedly lowly and animalistic savage mind formed a bridge between human and animal, a model for our prehistoric ancestors demonstrating how mental evolution had been possible. Darwin himself juxtaposed in his early notebooks the behaviour of the “savage, roasting his parent, naked, artless, not improving” with the human-like behaviour of the orang; “Compare the Fuegian & Orang outing, & dare to say the difference so great... let [man] dare to boast of his proud pre-eminence” (quoted in Thomas 2008). The Fuegians he had encountered appeared to him to be living like animals, lacking “human reason, or at least arts consequent on that reason” and their apparent lack of understanding of language put them “on par with monkeys” (ibid).

Psychic unity by no means implied equality, but rather it took the form of a *scala naturae* in which superior powers of reason justified political domination. Lubbock was a staunch supporter of imperialism, attending meetings of the British Empire league. He claimed “our soldiers are everywhere present not as enemies, but as friends and protectors” (1894:152) and that even during the Indian mutiny, with the vicious massacres committed by imperial troops, “Our countrymen behaved like heroes from the highest to the lowest” (1894:159). He spent the last years of his life in strident opposition to land tax/”peoples’ budget”, believing that it has “always been the law of nature and of Providence” that there should be higher and lower classes (1894:45) and that “poverty is seldom honestly come by” (ibid).

Similarly, Romanes argued against women’s rights, claiming that the “average brain-weight of women is about five ounces less than that of men” leading to a “marked inferiority of intellectual power in the former” (1887:383). Women, inferior

in reason, were driven by the passions- “emotions, we find that in woman, as contrasted with man, these are almost always less under control of the will more apt to break away, as it were, from the restraint of reason, and to overwhelm the mental chariot in disaster” (1887:386). Thus it was foolish to allow women to enter into any kind of professional or political rivalry with men, “for which as a class they are neither physically nor mentally fitted” (1887:400). Romanes’ arguments were partly based on those of Darwin himself, who argued that “man has ultimately become superior to woman” (1871:362) on the basis that the former were active agents in the struggle for existence, thus honing their mental powers- “to avoid enemies or to attack them with success, to capture wild animals, and to fashion weapons, requires the aid of the higher mental faculties, namely, observation, reason, invention, or imagination” (1871:361)- while the latter had a merely passive role. Darwin claimed that the “chief distinction in the intellectual powers of the two sexes” can be clearly observed from the fact that men are superior in any art or activity “requiring deep thought, reason, or imagination” (1871:361). In a conversation on Mill’s *Subjection of Women* arguing for equality and suffrage, Darwin told Cobbe that “Mill could learn some things from physical science” (quoted in Mitchell 2004:192). Unlike his sons, Darwin’s daughters were educated at home without any instruction in scientific subjects- a deliberately conventional choice even for the time.

The Darwinians were in 1875 instrumental in drafting a bill for restrictions on vivisection. This was not, however, of their own initiative, for the issue had become a major political controversy. The anti-vivisectionist Frances Cobbe had inspired an imminent bill to the house of lords, and the Darwinians were attempting to counter this threat to their scientific privileges by introducing legislation on their own terms; “Ought something to be done about vivisection- or else these beggars will steal a march on us and upset our apple cart altogether” (Foster 1875). Romanes, for example, unlike Darwin, carried out vivisection in his own home, and even vivisected his pet dog Major (Boddice 2011). He had to be warned by Darwin not to speak of vivisection on visiting him, lest he upset the family.

Lubbock advised Darwin on the drafting of the bill, though he did not introduce it to the commons. In a speech to parliament on the bill on 9th August 1876, he defended the practice of vivisection, stating that he was “anxious as far as possible to adopt a course which may tend to diminish suffering” yet cautioned against reliance on “our natural feeling for mercy” (HC Deb 09 August 1876 vol 231 cc896). He claimed that the anti-vivisectionists case was unfounded- “not a single case of wanton cruelty has been established” (HC Deb 09 August 1876 vol 231 cc898). The actions of rational scientists ought to be above scrutiny. Darwin praised Lubbock’s speech as “quite excellent- admirable” (1876).

Darwin himself gave testimony to parliament on the issue, stating he was “fully convinced that physiology can progress only by the aid of experiments on living animals” and that overly-restrictive legislation would be “a very great evil” (1875). While frivolous painful experiment “deserve[ed] detestation and abhorrence”, the destruction of animal life as such was simply not an issue- “It is unintelligible to me how anybody could object to such experiments” (ibid).

Henry Salt, the first to advocate *Animals' Rights* (1892), complained of the hypocrisy of the evolutionary scientist who “in order to rake together a moral defence for his doings, condescends to take shelter under the same plea as the theologian, and having got rid of the anthropocentric fallacy in the realm of science avails himself of it in the realm of ethics: a progressive in one branch of thought, he is still a medievalist in another” (Salt in Hendrick and Hendrick 1989:51).

When Darwin stated on the issue “I have all my life been a strong advocate for animals, and have done what I could in my writings to enforce this duty” (Darwin 1881:10), the statement was thus a cynical one. But it was not entirely without merit, either, for he was certainly sympathetic towards animals and had, for example, published with Emma Darwin a pamphlet condemning the use of gin traps for the great pain they caused- “It is scarcely possible to exaggerate the suffering thus endured from fear, from acute pain, maddened by thirst, and by vain attempts to escape”- asking how “such cruelty can have been permitted to continue in these days of civilisation” (1863). The use of these traps was tied to the rapid extension of game-preserving in the middle of the century by the landed classes, with predators

targeted to allow the game birds to swell in numbers to provide more for the shooting. If one cared for animal rights the only solution would be to condemn this wanton slaughter simply for the sake of more “sporting” slaughter. Yet the goal of Darwin’s campaign was merely for the development of a more advanced trap to kill the animals humanely. Animal suffering ought to be taken into account, but they were still very much inferior beings to be exploited and killed without compunction for human ends.

The Darwinian model thus contained elements of all three modes. It was metahumanistic in arguing that animals did indeed have minds and, at least in the case of Darwin himself, suggesting sympathy towards them. However, it still preserved an anthropocentric Rubicon deeming animals inferior beings lacking the higher powers of reason, and without political rights. It was also sociobiological in arguing for the important role of instinct in humans, and deeming various human classes inferior for their comparative lack of reason against the animal passions. Thus, while it clearly represented a step away from classical anthropocentrism, it was nonetheless still heavily influenced by the concepts and framing of this tradition, as well as the political project of legitimating with this ideology the superiority of white male upper-class Europeans over all other humans and animals.

What is striking is the degree to which the metahumanistic thread of Darwinism was ignored by the two figures who played the greatest role both in popularising the concept of Darwinian evolution, and in applying it to human origins- namely Huxley and Haeckel. Both were strong advocates of both an anthropocentric Rubicon and a sociobiological approach, but cared little for the subject of animal minds.

6d. Huxley

Huxley believed the issue of human origins and our relationship to the animal kingdom, of *Man's Place in Nature*, was of supreme importance, "The question of questions for mankind- the problem which underlies all others, and is more deeply interesting than any other" (1863:53). In his scientific investigation of the subject he claimed pure scientific objectivity- it was necessary to "disconnect our thinking selves from the mask of humanity" (1863:63) and adopt an attitude "happily free from all real, or imaginary, personal interest in the results of the inquiry" (1863:64). Despite such claims, he was highly influenced by anthropocentric ideology and political concerns.

Huxley demonstrated that, anatomically, the quadruman/bimana division was not tenable. Humans must be classed with apes. This was, contra Owen, as true of the brain as of the skeleton. Huxley stressed the "impossibility of erecting any cerebral barrier" between humans and apes (1888:90). He in fact believed that the "greatest leap anywhere made by Nature in her brain work" was the appearance of the corpus callosum in the placental mammals (1863:88), and even among Simian brains the greatest difference was not with humans, but between monkeys and lemurs. If other animal species had evolved, there was simply "no rational ground for doubting" that humans had originated through the gradual modification of an ape-like ancestor (1863:98).

Yet, he still held firmly to a classically-derived anthropocentric Rubicon. Not only were humans indisputably the "crown and summit of the animal creation" (1863:98), but their supernal mind made them effectively a different class of being altogether- humans were "the only consciously intelligent denizen of this world" (ibid). The common belief that the "power of knowledge- the conscience of good and evil- the pitiful tenderness of human affections, raise us out of all real fellowship with the brutes" (1863:101-2) had no scientific bearing on the facts of human origins, but it was certainly true of humanity's place in the world today. Huxley stated "no one is more strongly convinced than I am of the vastness of the gulf between civilized man and the brutes; or is more certain that whether from them or

not, he is assuredly not of them” (ibid). Man was the “great Alps and Andes of the living world”, approaching the clouds of heaven (ibid).

Far from diminishing the uniquely superior status of the human mind, Huxley believed that the origin of humanity from the “lowly stock” of the animal kingdom was in fact “the best evidence of the splendour of his capacities” (ibid). The unique human faculties of reason and language allowed humanity to approach divinity, transforming us into a transcendent form of life:

Our reverence for the nobility of manhood will not be lessened by the knowledge, that Man is, in substance and in structure, one with the brutes; for, he alone possesses the marvellous endowment of intelligible and rational speech, whereby, in the secular period of his existence, he has slowly accumulated and organized the experience which is almost wholly lost with the cessation of every individual life in other animals; so that now he stands raised upon it as on a mountain top, far above the level of his humble fellows, and transfigured from his grosser nature by reflecting, here and there, a ray from the infinite source of truth.

Indeed, for Huxley animal consciousness was of a qualitatively different nature from that of humans. He argued in classical anthropocentric terms that from the absence of language “they can have no trains of thought, but only trains of feelings” (1874:237). Lacking external reason, they must be lacking in internal reason and thus true mind, thus an anthropocentric Rubicon was valid. Huxley held that the “possession of articulate speech is the grand distinctive character of man” (1863:111) and its development was the sole causative power he proposed to explain human mental and cultural evolution and the resulting “great gulf” between humans and apes.

The development of language in the human race was not, he believed, the result of any “original difference of cerebral quality, or quantity” between human ancestors and their ape relatives (ibid). Just as the “great gulf” between an accurate watch and a stopped watch need not imply a “great structural hiatus” between the two devices, but could be down to something as simple as “A hair in the balance-wheel, a little rust on a pinion, a bend in a tooth of the escapement, a something so slight that only the practised eye of the watchmaker can discover it”, so by the same token “some

equally inconspicuous structural difference may have been the primary cause of the immeasurable and practically infinite divergence of the Human from the Simian Stirps” (1863:111).

The remains of fossil ancestors, should they be found, would provide evidence bearing on this issue. Huxley studied a cast of the original Neanderthal skullcap with the intent of discovering whether it could be shown to “fill up or diminish, to any appreciable extent, the structural interval which exists between Man and the man-like Apes” (1863:134). This relic, he argued, had distinctively “ape-like characters, stamping it as the most pithecoïd of human crania yet discovered” (1863:147). Yet, he judged it was not in a class of its own, but rather was not far removed from the “lowest” of contemporary crania, those of certain Australians; “A small additional amount of flattening and lengthening, with a corresponding increase of the supraciliary ridge, would convert the Australian brain case into a form identical with that of the aberrant fossil” (1863:146). In its estimated cranial capacity too, he believed it was equal to Hottentot skulls, and the possession of a brain comparable in size to living humans would suggest that “the pithecoïd tendencies, indicated by this skull, did not extend deep into the organization” (1863:147). Therefore, “though truly the most pithecoïd of known human skulls” the Neanderthal cranium was no more than “the extreme term of a series leading gradually from it to the highest and best developed of human crania” (1863:149).

The same conclusion could be drawn from the most ancient prehistoric artefacts, the “flint axes and flint knives and bone-skewers” that were in their form much the same as “those fabricated by the lowest savages at the present day” (ibid). These living savages were living fossils who in their culture supposedly had “remained the same from the time of the Mammoth” to the present day (ibid) and thus were a close analogy for the Neanderthal.

Thus, Huxley judged that “in no sense” could the Neanderthal be regarded as a “being intermediate between Men and Apes” (ibid). It was, essentially, a human of a very low savage type, but a human none the less and not a “missing link”. The sought after remains of “an Ape more anthropoid, or a Man more pithecoïd, than any yet known” would have to be sought “in still older strata” (ibid).

After further and more complete Neanderthal remains had emerged from Spy, Huxley revised his earlier position, judging that Neanderthals were indeed “appreciably nearer” the apes, although “the approximation is but slight” (1890a:323). He saw no reason, however, to disavow Neanderthal ancestry or a gradualist account of evolution- while there was certainly “an abysmal difference” between the Neanderthal remains and the white Europeans of the present day, the rate of evolutionary progress would “probably be almost imperceptible” (ibid). The genus *Homo*, he argued, must have been present in the Pliocene or Miocene era, but he suggested there would, at least at present, be no way to tell from fossils whether or not such a creature had crossed the Rubicon to human reason by the development of language; “I do not know by what osteological peculiarities it could be determined whether the pliocene, or miocene, man was sufficiently sapient to speak or not; and whether, or not, he answered to the definition "rational animal" in any higher sense than a dog or an ape does” (ibid).

In Huxley’s accounts of apes, there is no impression of mind or behaviour in any way human-like, in contrast to Darwin’s writings. They may have resembled humans physically, but that was as far as the resemblance went. To the extent they are credited with any temperament at all it is closer to that of the *figura diaboli*. Huxley cites an account of a captive orang as being “a very wild beast” and violent and “wicked to the last degree”, and that though intelligent “the faculties of the Orang have been estimated too highly” (1863). Huxley describes orangs as “capable of great viciousness and violence” (ibid). He cites accounts of gorillas as “exceedingly ferocious, and always offensive in their habits.... objects of terror to the natives” and “presenting an aspect of indescribable ferocity” (ibid).

Huxley’s account of animal behaviour was close to Cartesianism. In an 1874 essay on animal automatism he examined Descartes’ theories, raising again the question of whether “brutes are other than a superior race of marionettes, which eat without pleasure, cry without pain, desire nothing, know nothing, and only simulate intelligence as a bee simulates a mathematician” (1874:218). One may have expected a Darwinian to confidently reject this epitome of anthropocentric ideology, yet Huxley’s view of Descartes hypothesis was in fact a favourable one- in fact he

argued that “modern research has brought to light a great multitude of facts, which not only show that Descartes' view is defensible, but render it far more defensible than it was in his day” and that had Descartes been familiar with the results of modern science they would have “furnished him with far more powerful arguments than he possessed in favour of his view of the automatism of brutes” (1874:219). Huxley refers to vivisection experiments carried out on frogs, in which after parts of the brain were removed the animals were still able to perform reflex actions. In fact an earlier version of his automatism essay was titled “Has a Frog a Soul?” (1870b). Huxley argued that the behaviour of a frog involves such simple adaptations to its environment that it was indeed valid to conceive of the amphibian as a mere unconscious reflex-machine- “the machinery which is competent to do so much without the intervention of consciousness, might well do all” (1874:226). He cites no studies or evidence of frog behaviour to support such a speculation- his assessment is based simply on *a priori* assumptions about its lowly nature. Huxley also refers to a reported case of a man with a brain injury who entered abnormal states where he was able to walk around, eat and drink and so on whilst being apparently unconscious and insensible to pain. Far from his actions being a conscious act of will, “accompanied by the ordinary states of consciousness, the appropriate train of ideas” the man seemed to be “a senseless mechanism worked by molecular changes in his nervous system” (1874:236). If humans could in a state of unconsciousness “perform, mechanically, actions as complicated and as seemingly rational as those of any animals” then it was reasonable to suppose that animals were indeed merely unconscious machines as Descartes had held.

Nevertheless, though he thus claimed the Cartesian position could not be “positively refuted”, Huxley stated he was in fact “not disposed to accept it” (ibid). The mitigating factor was Darwinian evolution with its demonstration of human-animal continuity. He held that the “doctrine of continuity” was too well established for the Cartesian view that consciousness as a whole first appeared *ex nihilo* in humans without any preceding lower form to be tenable; “very strong arguments would be needed to prove that such complex phenomena as those of consciousness, first make their appearance in man” (ibid). Huxley stated that the “lower animals possess, though less developed” that part of the brain which was “the organ of

consciousness in man”, and according to the general rule that “function and organ are proportional” they must therefore have a consciousness which “foreshadows our own” (1874:237), albeit one based on sensation and appetite rather than thought. His objection to Descartes here appears to be based on a general abstract principle of evolutionary development, not on any actual studies of animal behaviour of the kind described previously, which suggested a rather higher estimate of animal consciousness than Huxley here admits.

Though Huxley believed Descartes was incorrect in holding animals to be unconscious machines, he did not believe he was “wrong in regarding them as automata” as they could well be “more or less conscious, sensitive, automata” (1874:238). This view of animals as conscious automata was the “best expression of the facts at present known” (1874:238). He saw “no evidence” that their states of consciousness could “cause those molecular changes which give rise to muscular motion” (1874:240), citing again the example of the frog which goes about “quite as well without consciousness, and consequently without volition” as it would with it— an example which, as we pointed out, was in no way demonstrated on an evidential basis, but was rather a very large assumption that only a predisposition to Cartesianism would permit. As far as animal consciousness was concerned, Huxley claimed that “Their volitions do not enter into the chain of causation of their actions at all” (1874:241). One might naturally ask, if consciousness is such an ethereal phenomenon, why it would have evolved at all— but Huxley does not raise such a question.

The animal soul, then, is for Huxley not quite so low as Descartes posited, as it possesses some degree of consciousness and is not totally insensate, yet it is still lower than the classical Aristotelean view, for it is lacking even more completely in any element of agency and will. Having thus argued for such a lowly status for animals, Huxley could have been content with the anthropocentric Rubicon he had just fortified. Yet, he was unable to resist tentative steps towards a sociobiological position that, so to speak, refuses to anthropomorphise humans. He stated “It seems to me that in men, as in brutes, there is no proof that any state of consciousness is the cause of change in the motion of the matter of the organism” and thus that “We too are conscious automata”, though he refused to speak on the “logical consequences”

of such a doctrine (1874:244). Having followed flawed anthropocentric reasoning to defend a doctrine intended to deny human-animal continuity, ultimately the inescapable fact of that continuity meant, ironically, that there was no objection he could raise to stop this very same doctrine being applied to humans, too. The *a priori* categorical distinction between humans and animals had meant that, if they acted alike, it must be a false impression, and that the animal actions must have a mechanical basis- yet, if this hypothesis was thus deemed sufficient to explain complex animal behaviour, could it not then explain the same behaviour in humans? Anthropocentric ideology made it easier to achieve consistency by applying anthropocentric conceptions of animal souls to humans, than to reject them in animals.

Huxley stated that in the issue of animal consciousness it was “well to err on the right side” for the reverse could have “terrible practical consequences to domestic animals”, nevertheless such animals are bound to “pay their toll for living, and suffer what is needful for the general good” (1874:237). Indeed, the publication of his discourse on Cartesianism at this time was motivated by political concerns, as it appeared at the height of the vivisection controversy. Huxley confessed to a “strong personal dislike” of experiments which involved “severe prolonged suffering to the more sensitive among the higher animals” (1890b) and avoided such methods in his own research. He always anaesthetized the frogs used in his own experiments and demonstrations (Desmond 1997:75). Nevertheless, he was by no means opposed to vivisection, by rather was highly critical and dismissive of the anti-vivisectionists. Once again claiming a detached scientific objectivity, he claimed it was necessary to put “natural sympathy aside” and to “try and get at the rights and wrongs of the business from a higher point of view” than mere “emotional sentiment” (1890b).

To painless experiments he had no objection at all, and those who did he dismissed as “sentimental hypocrites” (1890b). Animals thus had no right to life, and the human right of exploitation was unlimited. Though painful experiments of the kind he disliked carried a “heavy moral responsibility” as the “wanton infliction of pain on man or beast is a crime” he nevertheless held that “the criminality lies in the wantonness and not in the act of inflicting pain *per se*” (ibid). Thus Huxley was thus reliant upon the old anthropocentric arguments against animal cruelty that first

gained currency a century or so prior, according to which it was not the effects of cruel actions on the animal victims that needed to be condemned, but rather the brutalizing effect of such cruelty on the human soul- expressed, for example, in Hogarth's *Four Stages of Cruelty*, in which childhood cruelty to animals leads inexorably to the adult murder of humans. Animal cruelty was bad not because it harmed animals, but because it brought out the animality in the human soul.

Huxley scorned “the blind opponents of properly conducted physiological experimentation” (Huxley and Huxley 1900:255), contemptuously describing Cobbe as a “foolish fat scullion” and the anti-vivisectionists as “her fanatical following” (quoted in Lightman 1997:130). They were a danger to science- Huxley stated that the supposed notion that scientific knowledge should “stand still” rather than “dogs and rabbits should be made uncomfortable” made him “sick” (quoted in Desmond 1997:76). While Huxley had claimed scientific objectivity for his own position, the anti-vivisectionists were depicted as foolishly irrational and driven by emotion over reason. Defending the rights of animals could not be admitted as a rational position based on scientific evidence of animal mind and human-animal continuity, rather it had to be dismissed as the error of inferior minds, and fundamentally antagonistic to scientific reason. Animal advocates were themselves closer to animality than the men of science.

Huxley's stance caused controversy at an 1875 meeting of the Metaphysical Society in which Lord Arthur Russell presented a pro-vivisection paper entitled “The Rights of Man over the Lower Animals” (Catlett 1983), arguing from a Darwinian perspective that “the life of animals, for food or for knowledge... is the birthright of man in his struggle for existence” (quoted in Desmond 1997:79). Huxley could not be present at the meeting, but wrote to Knowles “I should have liked to do my little towards backing Lord Arthur up” as it was “most refreshing to read his fair & manly statement after being wearied by the venomous sentim[ent]ality & inhuman tenderness” of the anti-vivisectionists, who he dubbed “members of the Society for the infliction of cruelty on Man” as they were according to Huxley “ready to let disease torture hecatombs of men as long as poodles are happy” (1875). He facetiously attributed the couplet “Let Art & Science, Men & Women die, But let no tear suffuse a lap dog's eye!” to the anti-vivisectionist *Spectator*. Knowles read this

letter at the meeting, sending Hutton, editor of the *Spectator*, into a “white rage” (Catlett 1983). Notably, the Catholic Mivart, not only one of the most influential critics of evolution, but on bad terms with Huxley personally, nevertheless rose to say “how much & how far he agreed” with the letter (quoted in Desmond 1997:79) - his anthropocentric belief in the “rights of man over the lower animals” apparently sufficient to overcome these other prejudices.

It is no coincidence that Huxley described Lord Arthur’s pro-vivisection paper as a “manly statement” while the mostly female anti-vivisectionists were deemed irrational and emotional. Darwin himself had explained that women “from the tenderness of their hearts and from their profound ignorance” were thus the “most vehement opponents” of vivisection (quoted in Lightman 1997:130). Huxley similarly believed that “Women are by nature more excitable than men- prone to be swept by tides of emotion” (1865:71). Women were seen as a threat to an exclusive male profession, and this was true not only of the vivisection issue. While Huxley was in favour of women’s education and emancipation, this was only within certain limits. He claimed that there were no just grounds on which “a career which is open to the weakest and most foolish of the male sex should be forcibly closed to women of vigour and capacity” (1874). Of course, rational science was supposedly out of reach of “foolish” men. Thus he opposed permitting women entry to the Ethnological society despite an 1868 petition by Eliza Lynn Linton (Lightman 1997). For Huxley women were amateurs suitable for the classroom but not professional scientific forums, fit to receive the gospel of science but not participate in its making.

Huxley’s extension to women of their right to legal and political emancipation “was offered on the understanding that they would not be able to overcome their biological limitations and compete with men on equal terms” (Lightman 1997:126). Women’s place was not the very lowly one of the contemporary age, but neither was it “that to which some of them aspire” (1865:73). He used Darwinian language to describe women’s inferiority in sociobiological terms. The “most Darwinian of theorists will not venture to propound the doctrine” that women’s natural inferiority would be overcome by even the best of educations (1865:74). Men were naturally superior not only physically but mentally also; “The big chests, the massive brains,

the vigorous muscles and stout frames of the best men will carry the day, whenever it is worth their while to contest the prizes of life with the best women (1865:73-4). Thus, even if women were granted political emancipation “Nature's old salique law will not be repealed, and no change of dynasty will be effected” (ibid).

Huxley's sociobiological emphasis on natural inequality was not confined to the relations between men and women. In his 1890 essay *On The Natural Inequality of Men* he set science against the “new radicalism”. Henry George's *Progress and Poverty* gained widespread support at the time leading to demands for land reform. Huxley could see no “more damner nonsense” than Georgism (quoted in Desmond 1997:192). He was similarly hostile to the socialist movement as a whole, as well as the Salvation Army which he perceived as a kind of socialist revolutionary paramilitary “with barracks in every town” who were plotting “the establishment of a sort of Methodist Jacobin club with vigilance committees, under the name of “Salvation Army Corps” scattered all over the country. Decent men would not be able to call their souls their own if the plot succeeded” (quoted in Desmond 1997:203).

Huxley claimed spuriously that all these movements were manifestations of “Rousseuism”, based on the belief that in the state of nature man was “a very excellent creature indeed” (1890). Huxley set out to demonstrate from the basis of supposed rational scientific objectivity- “politics is as susceptible of treatment by scientific method as any other field of natural knowledge”- that their “political lantern” was in fact “a mere corpse candle” that would “plunge those who follow it in the deepest of anarchic bogs” (ibid).

While “Rousseuism” distinguished between natural and political inequality, for Huxley they were “intimately connected, in such a manner that the latter is essentially a consequence of the former” (ibid). As soon as “the mental and moral qualities begin to manifest themselves” among children, he alleged, some become “more powerful” than the rest and “make themselves obeyed” owing to the “wide inequality” in these innate faculties. Thus a group of children become a “political body” with “rights of property” and “practical distinctions of rank and power” (ibid) as a “necessary consequence of the inequality of natural faculty” (ibid). In adulthood

the political inequality only widens, and those men with superior reason will naturally dominate those with inferior reason; “the witless man will be poverty-stricken in ideas, the clever man will be a capitalist in that same commodity, which in the long run buys all other commodities... proclaim human equality as loudly as you like, Witless will serve his brother” (ibid). Human equality is nothing more than “a dream” because “the inequality of individual ownership” is not the result of political control but a natural hierarchy based on the faculty of reason. Aristotle’s natural slaves have become for Huxley the natural proletariat, their political domination justified by their inferior reason.

The portrayal of the lower classes in terms of animality to justify their political domination was a common tactic of the time. For example, in 1866, as the Reform League were advocating for manhood suffrage, the M.P. Lowe contemptuously dismissed the working class as “impulsive, unreflecting, violent people” (Maccoby 2001:90); driven by bestial passions, they merited no voice in government, they must instead be ruled over by rational superiors. In fact, the first exposition of the culture concept, by Matthew Arnold in 1867-8 (Arnold 1875) was articulated in response to the Hyde Park railings affair of that year, in which demonstrators for suffrage had broken through the railings in the face of a police blockade to assemble inside. The spread of culture, not in the prevailing sense of elite markers of distinction, but in Arnold’s definition as broad intellectual interests with the goal of social improvement (Logan 2017), was necessary to preserve the status quo in the face of the “Hyde Park anarchy- mongering” (1875:133). Culture was necessary for “the growth and predominance of our humanity proper, as distinguished from our animality” (1875:12), and for “the subduing of the great obvious faults of our animality” (1875:29).

In visual arts the lower classes were as a rule depicted in more or less exaggerated terms as possessing brutish physiognomies clearly signalling their inferior reason and bestial nature. This was particularly exaggerated in the case of the Irish (Curtis 1996), who were often shown as physically ape-like *figura diaboli* possessed with bestial aggression (eg **Figure 17**). The same tactic was used to justify Jim Crow laws in the U.S., and with the white supremacist horror of miscegenation the danger of the sexual instincts was especially played up. An illustrative

contemporary description refers to the “black brute” as a “monstrous beast, crazed with lust. His ferocity is almost demoniacal. A mad bull or tiger could scarcely be more brutal” (Winston 1901:108-109). This *figura diaboli* is described as “lurking in the dark” and the sight of him causes white women to “shudder with nameless horror” (ibid).

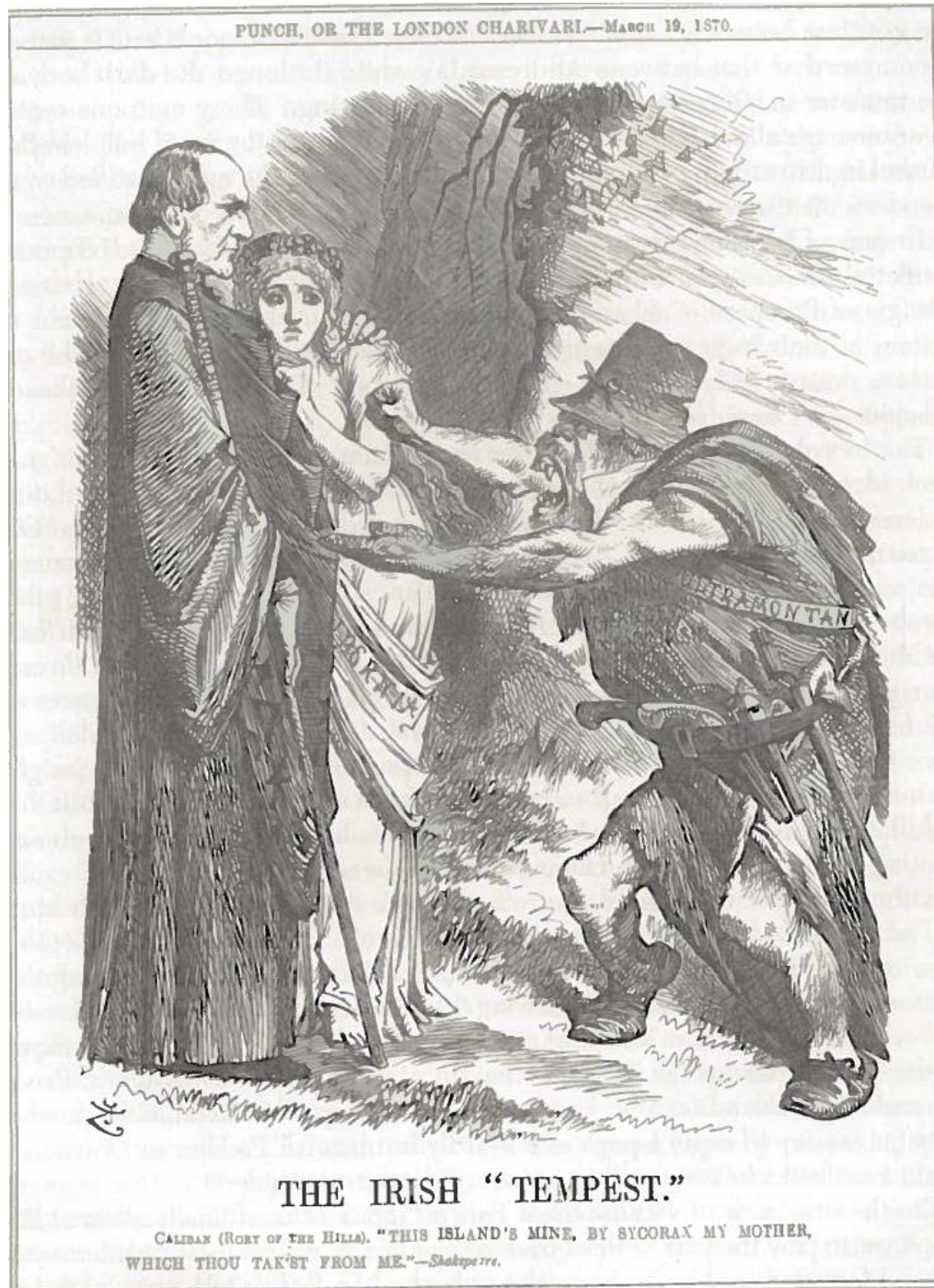


Figure 17 Fenian depicted as a bestial ape threatening white womanhood and human civilization (reproduced from Curtis 1996)

Huxley gave the sociobiological theme of human animality one of its most influential expressions in his 1888 essay *The Struggle for Existence in Human Society*, the themes of which were repeated in his 1893 Romanes lecture *Evolution and Ethics*. He drew explicitly on Hobbes' sociobiological account of human nature in the service of absolute monarchy, and also on contemporary depictions of nature as red in tooth and claw, stating that "the animal world is on about the same level as a gladiator's show. The creatures are fairly well treated, and set to fight—whereby the strongest, the swiftest, and the cunningest live to fight another day. The spectator has no need to turn his thumbs down, as no quarter is given" (Huxley 1888:199). Among primitive men, the "weakest and stupidest went to the wall", while the "toughest and shrewdest" survived; "Life was a continual free fight, and beyond the limited and temporary relations of the family, the Hobbesian war of each against all was the normal state of existence" (1888:204). The human species, just like all animal species, merely "splashed and floundered amid the general stream of evolution, keeping its head above water as it best might" (ibid). Society and civilization allowed humanity to transcend this state and establish morals and laws to curb the struggle for existence- "The course shaped by the ethical man- the member of society or citizen- necessarily runs counter to that which the non-ethical man- the primitive savage, or man as a mere member of the animal kingdom- tends to adopt" (Huxley 1893:202).

Humans had been successful in the struggle for existence mostly by the animal qualities of brute force and destructiveness- "For his successful progress, throughout the savage state, man has been largely indebted to those qualities which he shares with the ape and the tiger" (1893). These animal passions are in civilized society defects, not assets, yet civilized man has not prevented their "unwelcome intrusion" (1893:52). Human nature was a constant threat to morality; the ethical efforts of civilized man to "escape from his place in the animal kingdom" had in fact barely modified the "deep-seated organic impulses which impel the natural man to follow his non-moral course" (Huxley 1893:205). Indeed, the bestial passions were our greatest enemy- "the cosmos works through the lower nature of man, not for righteousness, but against it" (1893).

When humans fall into poverty, they revert to animality-“The animal man, finding that the ethical man has landed him in such a slough, resumes his ancient sovereignty” (1888:215). So long as “the natural man increases and multiplies without restraint”, society would be doomed to destruction by the “brute struggle for existence” which would ensue (1888:212). Nature would “demand her human sacrifices” (1888:209). Huxley could only advocate philanthropy and education in response to this bleak future, which he stressed were not a cure but merely a temporary response to “an imminent crisis” (1888:235). He suggested that ultimately “much may be done to change the nature of man himself. The intelligence which has converted the brother of the wolf into the faithful guardian of the flock ought to be able to do something towards curbing the instincts of savagery in civilized men” (1893:85).

Though Huxley did not here advocate eugenics, such a vision of multiplying, animalistic lower classes inevitably tended towards such political ends. For example, H.G. Wells, who had studied under Huxley in what he called “the most educational year of my life” (Wells 1934) argued for the necessity to “check the procreation of base and servile types, of fear-driven and cowardly souls, of all that is mean and ugly and bestial in the souls, bodies or habits of men” (1901:299). For the “swarms of black, and brown, and dirty-white, and yellow people” and all those “contemptible and silly creatures... born of unrestrained lusts, and increasing and multiplying through sheer incontinence and stupidity”, there must be “little pity and less benevolence” (1901:299). Life would have to be “a privilege and a responsibility, not a sort of night refuge for base spirits out of the void” (ibid).

The *Oxford Magazine* praised Huxley’s “masculine vigour” and claimed a “more exquisitely finished academic discourse was never placed before any audience in any language” (1893). Yet others objected to Huxley’s gladiatorial view of evolution. When Kropotkin wrote *Mutual Aid* in response to what he argued was “a very incorrect representation of the facts of Nature, as one sees them in the bush and in the forest” (Kropotkin 1902:xiv), giving a great many example of cooperation in both humans and animals, Huxley declined to acknowledge the critique, despite his friend Knowles (founder and editor of the nineteenth century) pressing him to answer Kropotkin in print (1888).

6e. Haeckel

Of all the questions relating to evolutionary theory, Haeckel held there was “none of such importance as the application of this doctrine to Man himself” (1876:263). Haeckel explicitly positioned his evolutionary theory against “the anthropocentric conception of the universe- the vain delusion that Man is the centre of terrestrial nature, and that its whole aim is merely to serve him”, which he claimed was “overthrown by the application... of the theory of descent to man” just as the geocentric conception of the universe was overthrown by Copernicus (1876:264). In conceptualising anthropocentrism in such simplistic and supposedly apolitical terms as scientific error resulting from vanity, he followed the same line as the modern sociobiologists. In fact, even according to his own inadequate definition of anthropocentrism Haeckel fell rather short, as the traditional anthropocentric Rubicon is very clear in his writings. Haeckel presented his evolutionary approach as a decisive, paradigm-shifting break with all that had gone before, yet as we shall see it was highly indebted to classical anthropocentrism, presenting more continuity than change. And while Haeckel claimed to approach the subject of human origins with “the necessary impartiality and objectivity” (1876:265), there was little enough of either in his approach.

The narrative of evolution, for Haeckel, was in classical anthropocentric terms one of human mental superiority and dominance over other beings, the “glorious triumph of the human mind over its lower animal ancestral stages” and the “greatest triumph of humanity over the whole of the rest of Nature” (1876:362). This “triumph” could be attributed to the classical Rubicon of language. Animals possessed various forms of communication, involving gestures, touch, and cries, for expressing their desires, but these were not an “articulate” language of “words or ideas” (1876:301). True language was dependent on the faculty of abstraction unique to the rational mind. Thus, language that “by abstraction changes sounds into words” belonged “exclusively to man” (*ibid*). The development of language with its

“ennobling and transforming influence upon the mental life of Man” was thus “the most important process which distinguishes Man from his animal ancestors” (1876:301).

Haeckel called the missing link between ape and human the *Alali*, “speechless men” or alternatively *Pithecanthropi*, “ape-like men” (1876:271). The *Alali* possessed the physical form of humanity without the uniquely human rational mind- they were creatures whose “body was indeed formed exactly like that of Man in all essential characteristics” (1876:300) but who did not possess the “real and chief characteristic of man, namely, the articulate human language of words, the corresponding development of a higher consciousness, and the formation of ideas” (1876:293). They had distinguished themselves from the anthropoid apes by “becoming completely habituated to an upright walk” (1876:293), thus turning their ape-like hands into human-like hands and feet. Yet the origin of articulate language was a Rubicon they had yet to cross- this was “only a later, and the most important stage in the process of the development of Man” (1876:300).

The development of language “went hand-in-hand with the development of its organs, namely, the higher differentiation of the larynx and the brain” (1876:294) and acted as the spark that would set off the development of the uniquely human rational mind. The origin of articulate speech “first caused the most important progress in the mental activity and the perfection of the brain connected with it” (ibid), external and internal reason developing in tandem. Haeckel stated that it was this process “which above all others helped to create the deep chasm between man and animal” (1876:301). Haeckel stated in classical anthropocentric terms that it was “the fuller development of the mind that makes civilization possible, that raise[d] man so much above the other animals, even his nearest animal relatives” (1904:390). Thus, as opposed to bodily evolution, the development of language- in the classical sense of external reason- was “the second and the more important part of human development” (ibid).

Haeckel stated that, as philologists have not been able to trace the various languages of humanity back to a single primeval language, “we must assume a polyphyletic origin of language, and in accordance with this a polyphyletic transition

from speechless Ape-like Men to Genuine Men” (1876:294). The polyphyletic nature of human languages was “the *certain proof*” that speechless ape-men must have “preceded men possessing speech” (1876:293), or in other words that the human form evolved before the capacity for speech, not vice versa. Thus, in the separate species of Pithecanthropi, “language developed freely and independently of the others” (1876:302) and this faculty “originated after the divergence of the primeval species of men into different species” (1876:327).

Haeckel believed the phylogeny of humanity contained two branches, the woolly-haired branch (Ulotrichi) and the straight-haired branch (Lissotrichi); the latter contained the white races and was “more capable of development” (1876:329). The Papuans and Australians respectively were the lowest living forms of these branches. On the question of monogenesis vs polygenesis, Haeckel held both positions to be accurate, depending upon whether anatomical or mental development was considered- “in a *wide sense*, the monophyletic opinion is the right one... in a *narrower sense*, on the other hand, the polyphyletic opinion would probably be right, inasmuch as the different primeval languages have developed quite independently of one another” (1876:303). Thus, if the origin of articulate language was considered “the real and principal act of humanification” (1876:303), and Haeckel as we have seen believed that it was, then it may rightly be claimed that “the different races of men had originated, independently of one another, by different branches of primaeval, speechless men directly springing from apes” and forming different languages, even though further down the phylogenetic tree these Pithecanthropi were ultimately derived from “a common primeval stock” (1876:304). Thus, though Haeckel drew extremely wide anatomical, physiological and phylogenetic distinctions between human races, still it was ultimately psychology, not biology, that permitted him to cleave the widest gulf between them and most firmly reject common ancestry and continuity. The separate racial branches may have evolved their human form from the same ape ancestors, but language as the true Rubicon between man and beast was not crossed by them together- it was crossed separately.

Though no fossil remains of the hypothetical speechless ape-men were yet known, Haeckel stated that the “extraordinary resemblance” between the “lowest woolly

haired men” and the highest anthropoid apes meant it required “but a slight stretch of the imagination to conceive an intermediate form connecting the two” which would resemble the *Pithecanthropi* (1876:326). This creature as envisioned by Haeckel had all the traditional physical hallmarks of animality- dark skin, thick hair covering the body, long arms and short legs with a “walk but half erect” (1876:297).

The 1894 *Pithecanthropus erectus* “Java Man” discovered by Dubois and named after Haeckel’s speculative human ancestor was, Haeckel proudly announced, “indeed, the long-searched-for 'missing link,' for which, in 1866, I myself had proposed the hypothetical genus *Pithecanthropus*, species *Alalus*” (1898). Fossils, Haeckel stated, were “the true historical 'medals of creation,'” (ibid). The discovery of this fossil evidence was, however, little more than a “told you so” moment for Haeckel, as it had no real impact upon his theories.

In the few cases Haeckel gestures towards animal subjectivity, it is merely as a rhetorical device to advance his evolutionary arguments. The examples he gives- “the fidelity and devotion of the dog, the maternal love of the lioness, conjugal devotion of love-birds”- are not from scientific observation, but rather generic platitudes that could just as well have come from a medieval bestiary- he even states in words exactly fitting of that tradition that they “may serve as examples to many men” (1876:364). When he states that “if these virtues are to be called “instincts”, then they deserve the same name in mankind” (ibid), it is certainly not in the context of a critique of the anthropocentric concept of instinct as Morgan had advanced, but rather an attempt to demonstrate human-animal continuity of a sociobiological kind, in which human behaviours are rooted in animal instincts. Haeckel cited Darwin as proving that the “moral foundations of society” had their “oldest prehistoric source... in the social instincts of animals”, arguing that the “ethical instinct” was “an inheritance derived from our animal ancestors” and was present “among the herds of Apes and other social Mammals” as well as “among the hordes of the least advanced savages” (1892).

Haeckel stated that it was “still not infrequently the custom to deny absolutely to the lower animals reason” but an “unprejudiced comparison” showed this to be

wrong (1892). Haeckel was far from unprejudiced, however, as even here he attributes such animal reason as he acknowledges more to the effects of humans than to animals themselves, arguing that the progressive development of human civilization had left “some trace on the soul of our highest domestic animals also” (ibid). Thus, dogs and horses by “constant association with man, and the steady influence of his training” had gradually “developed in their brain higher associations of ideas and a more perfect judgment” (ibid). Human training had “become instinct” (ibid) in an example of Lamarckian evolution. Haeckel’s version of animal reason, then, was, even taking the most charitable interpretation, no more than *umbra rationis*. The highest animals were capable of no more than aping humans without true understanding. Animals and primitive humans alike lacked “that higher degree of consciousness and of reason, which strives after a knowledge of the surrounding world” (ibid). Thus, Haeckel held that “if we must speak of “reason” in connection with pithecoïd primitive man, it can only be in the same sense as that in which we use the expression with reference to those other most highly developed Mammals” (Haeckel 1892), in other words as an inferior form of reason, not the rational mind of the true human.

When Haeckel states that “*between the most highly developed animal souls, and the lowest developed human souls, there exists only a small quantitative, but no qualitative difference*” and that “this difference is much less than the difference between the lowest and the highest human souls” (1876:362) his intention is in no way to elevate animals and challenge human superiority, but rather to condemn certain classes of humanity to animality. The lowest living savages had “barely risen above the lowest stage of transition from man-like apes to ape-like men, a stage which, the progenitors of the higher human species had already passed through thousands of years ago” (1876:364). They were “unreasoning brute-like men” (1876:366) who had scarcely crossed the Rubicon of language and reason. Haeckel stated that if one was to compare the “most ape-like men” with both “highly developed animals” such as apes and dogs on the one hand, and “highly developed men” such as Aristotle and Lamarck, with the intention of drawing a sharp boundary, it would have “to be drawn between the most highly developed and civilized man on the one hand, and the rudest savages on the other, and the latter have to be classed

with the animals” (1876:365). The anthropocentric Rubicon still stands as firmly as ever, it merely contains a smaller subset of humanity, as some humans were indeed to be judged as animal.

Haeckel advocated an intellectual and political programme along the same lines as modern sociobiologists. He believed that the widespread acceptance of evolutionary theory would be truly epoch-making- “Future centuries will celebrate our age, which was occupied with laying the foundations of the Doctrine of Descent, as the new era in which began a period of human development, rich in blessings” (1876:369). It would “bear immensely rich fruits which have no equal in the whole history of the civilization of mankind” (1876:367). After the complete reform of biology would come the “still more important and fruitful reform of Anthropology. From this new theory of man there will be developed a new philosophy” which would be unlike the “airy systems of metaphysical speculation hitherto prevalent”, which Haeckel dismissed as “the one-sided and defective teaching, the inner untruth and the external tinsel, of our present state of civilization” (ibid). What was necessary was a “complete and honest return to Nature and to natural relations” which would only become possible when “man sees and understands his true "place in nature”” and would “no longer consider himself an exception to natural laws, but begin to seek for what is lawful in his own actions and thoughts, and endeavour to lead a life according to natural laws” (1876:368). Humans would thereafter organize society “not according to the laws of distant centuries, but according to the rational principles deduced from knowledge of nature” (ibid). What Haeckel was advocating was thus explicitly a version of the Stoic natural law as (in Cicero’s words) “right reason in accordance with nature”, and he believed that only his evolutionary theory with its sociobiological view of instinct, hierarchies, and human-animal continuity could provide the key to this “right reason” and allow politics to be based not on superstition and tradition but on natural law; “Politics, morals, and the principles of justice, which are still drawn from all possible sources, will have to be formed in accordance with natural laws only” (ibid).

Haeckel called his scientific and political vision the “Monistic Philosophy” and described it as “The simple religion of Nature, which grows from a true knowledge of Her, and of Her inexhaustible store of revelations” (ibid). The spread of Monism would mean the “victory of free inquiry over the despotism of authority” represented by “blind belief in the vague secrets and mythical revelations of a sacerdotal caste” (ibid). Indeed, anti-clericalism and freethought were the most prominent political aspects of Monism. Haeckel became “a personification of opposition to the dominance of Catholic belief” and his “evolutionary biology served less as a purely biological theory and more as an argument against the established power of the clergy. Haeckel became an authority to be deployed against traditional authority and vested interests” (Briedbach 2006:197). Outside Germany he was highly influential among Italian positivists who sought a liberal secular Italian state. At a dinner he himself had initiated for the First Congress of Free Thinkers at the Imperial Baths in Rome, he was officially proclaimed antipope (Briedbach 2006:200). A German immigrant in Brazil wrote to Haeckel that “You are admired here, Professor, as the messiah of a new Enlightenment” (Koseritz quoted in Briedbach 2006:200). At this point Haeckel had “certainly moved away from being just a scientist” (ibid).

This was, however, the only respect in which Haeckel’s Monism could be interpreted as in any way progressive or anti-authoritarian. Despite talk of human-animal continuity, on the subject of animal rights or even welfare, there was a resounding silence. And on the subject of human rights, it was viciously reactionary.

Haeckel first advocated eugenics through a classical precedent- he praised ancient Spartans for laws subjecting all newly-born children to “careful examination and selection” and ensuring that those who were “weak, sickly, or affected with any bodily infirmity were killed” and that thus only “perfectly healthy and strong children were allowed to live, and they alone afterwards propagated the race” (1876:170), allowing the perfection of the race to improve with every generation. It was eugenics that gave their Spartans their legendary bravery, vigour and “mental energy and capacity” (1904:118).

Haeckel argued it was only a “traditional dogma” of the sanctity of human life that held that such “useless” beings, their life “injurious to them and the race”

(1876:173)- which would in the subsequent Nazi ideology influenced by Haeckel be called *Lebensunwertes Leben*, “life unworthy of life”- should be allowed to live, because killing them could not “rationally be classed as murder” when it was a “practice of advantage both to the infants destroyed and to the community” and it was “clear that the new-born infant... has no reason or consciousness” (Haeckel 1904:20).

Haeckel complained that when he first raised these points in the 1868 German edition of *History of Creation*, “there was a storm of pious indignation in the religious journals, as always happens when pure reason ventures to oppose the current prejudices and traditional beliefs” (1904:118). But natural law, guided by reason in the form of evolutionary theory, would have to prevail. It was simply “better and more rational” to kill “cripples, deaf-mutes, idiots, etc.” at birth (1904:119). Indeed, Haeckel considered the “deaf and dumb, cretins or microcephali” to be the closest living analogues to the Alali (1876:295) - they were more animal than human. Schallmayer, founding father of the German eugenics movement, was a member of Haeckel’s Monist League and credited him with the teaching that “knowledge of the doctrine of evolution should and must be employed in a practical way, and that above all the very least which we aim for is the improvement of our racial, social, and cultural conditions” (quoted in Gasman 2004).

Haeckel’s eugenic advocacy extended further than infants- he argued that “huge private and public expenditure could be spared” if incurable lunatics were given “a dose of some painless and rapid poison” (1904:118). He also advocated execution of “incorrigible and degraded criminals” as not only just but also “a benefit to the better portion of mankind” in making their “struggle for life” easier (1876:174). Criminal tendencies were not merely an individual expression of bestial nature, they were hereditary defects. Thus killing these criminals would set in practice an “advantageous artificial process of selection... since the possibility of transmitting their injurious qualities by inheritance would be taken from those degenerate outcasts” (ibid). Haeckel likened this to “destroying luxuriant weeds, for the prosperity of a well cultivated garden” (ibid).

Haeckel's writings not only laid the foundations of German eugenics, they were also used to justify colonialism and genocide on the basis of racial superiority. Haeckel wrote on the "value of life" of different racial groups, positioning himself as more racist than prevailing contemporary racism in stating that "Though the great differences in the mental life and the civilization of the higher and lower races are generally known, they are, as a rule, undervalued, and so the value of life at the different levels is falsely estimated" (1904:390). The "lower" races were portrayed by Haeckel in the terms of natural slavery, as lacking in or inferior in reason. The "fuller development of the mind that makes civilization possible" and raised "man so much above the other animals" was "peculiar to the higher races, and is found only in a very imperfect form or not at all among the lower" (ibid). He compared the "lower" human races to bacteria and parasites- if they ever prevailed over higher organisms it was not by virtue of superiority but merely through a destructive capacity for causing injury. Given that these "lower races" were "psychologically nearer to the mammals (apes or dogs) than to civilized Europeans; we must, therefore, assign a totally different value to their lives" (ibid).

He compared the "realistic" racial theory of European nations with large colonies in the tropics with the "idealistic notions" prevailing among Germans "forced by our metaphysicians into the system of their abstract ideal-man" which did not "tally at all with the facts" (ibid). He argued that these metaphysicians had erred in employing "the introspective method" which made "their own highly developed mind - a scientifically trained reason - the starting-point of their inquiry, and regard[ing] this as representative of the human mind in general" (ibid). In other words, he was essentially attacking them on a methodological basis for anthropomorphizing other humans. Because the "lower" races were more animal than human, their behaviour must be interpreted differently- according to the traditional anthropocentric double-standard- not in terms of subjectivity and mind, but in terms of instinct and biological impulse.

Haeckel's racial theory was positioned as another manifestation of natural law, using superior reason to divine the true facts of nature in contrast to irrational and misguided beliefs and traditions, as was his Monism generally. With the application of his evolutionary theory with its accurate "knowledge of the low psychic life of the

natives” Haeckel believed that many “practical mistakes that have been made in the recently acquired German colonies” would have been avoided (ibid). Colonialism must be based on treating the colonized as animals in the truest anthropocentric sense of the word.

Haeckel stated that “The gulf between this thoughtful mind of civilized man and the thoughtless animal soul of the savage is enormous - greater than the gulf that separates the latter from the soul of the dog” (1904:390). His ranking of the “value of life” placed the “lowest and oldest” savages, including for example the Andaman islanders and Bushmen, at the bottom. They were anatomically “nearest to the ape” (1904:391) and almost entirely lacking in culture, wandering naked without homes, only sheltering like animals in forests and caverns and “partly on trees” like the apes. Haeckel stated that the “value of the life of these lower savages is like that of the anthropoid apes, or very little higher” and that all careful observations of their “bodily structure and psychic life” prove this (1904:392). Lacking reason, they are driven only by appetite, just as are the apes- “Their only interests are food and reproduction, in the same simple form in which we find these among the anthropoid apes” (ibid). They are in the state of primitive man- “Our own ancestors were probably much the same ten thousand or more years ago” (ibid). The “middle savages” above them, who had only rudimentary tools and clothing and lived in rock caverns and shelters with “no social organization”, among whom he counted for example Australians and Tasmanians, Hottentots and Fuegians, were “very little superior” (1904:393).

These peoples at the “lowest stage of human mental development” were deficient in “that chief characteristic of genuine man”, language, which “has with them remained at the lowest stage of development, and hence also their formation of ideas has remained at a low stage” (1876:364). They were, in classical terms, inferior in both external and internal reason. Haeckel stated that these peoples lacked words for even basic concepts like colour, despite possessing words for individual colours, and could not count beyond 4- thus “even the most simple abstractions are wanting” as was “the faculty of appreciating number” deficient, clear evidence of their lack of the abstract thought characteristic of rational minds (ibid).

“Primitive men”, both ancient and modern, could thus not be said to possess any “knowledge of nature” (Haeckel 1892). In contrast, the German racial branch of Haeckel’s day were “laying the foundation for a new period of higher mental development in the recognition and completion of the theory of descent” (1876:332). Since Haeckel’s Monism represented the most perfect knowledge of humanity and natural law- ““Know thyself!” is the cry of the Theory of Development” (1876:368) - it was the most superior manifestation of human rationality and culture yet to manifest on this earth. Gaining “true knowledge of the most general laws of nature” was quite clearly the “highest triumph of the human mind” (ibid). Thus, Haeckel claimed that “The recognition of the theory of development and the monistic philosophy based upon it, forms the best criterion for the degree of man’s mental development” (1876:332). On this basis his “high German” racial branch could be classed as the very highest value.

Since he had personally played such a pivotal role in expounding the new evolutionary theory, it followed that Haeckel’s rational mind must be among the most superior of them all, and thus studying its formation would be of immense value to science; after his death his friend the Jena anatomist Friedrich Maurer dissected Haeckel’s brain and published a monograph on it. The collection of the Anatomisches Institut at the University of Jena has a cast of Haeckel’s brain in silver- “The esteem for genius could scarcely be made more tangible. The brain in silver enshrined the genius that made Haeckel as a person so valuable” (Briedbach 2006:297).

In the first decade of the twentieth century, as Haeckel was still expounding his Monism, the first genocide of the century was to take place at the hands of those influenced by his vicious social Darwinism. In the very same year that Haeckel had written that the “value of the life” of savages was “like that of the anthropoid apes, or very little higher” (1904:392) the German Empire was commencing a merciless war of racial extermination against the Herero and Namaqua peoples- as “Hottentots” classed by Haeckel as “middle savages”- of Southern Africa (Olusoga and Erichsen 2010).

Haeckel had nothing to say on the value of animal life- its value, indeed, meriting no consideration whatsoever. He is implicitly working from the anthropocentric category of animality as immeasurable inferiority, lacking subjectivity either mental or moral. Kant's major error, he argues, was in failing to account for the "thoughtless animal soul of the savage" (1904:390); Kant "would have avoided many of the defects his critical philosophy... if he had made a thorough and comparative study of the lower soul of the savage" (1904:390). On Kant's dismissive devaluation of animal mind and subjectivity according to traditional anthropocentric ideology, Haeckel has no objection to raise. The understanding is that this was good and correct- the category of animality is not to be challenged, it is on the contrary to be extended to encompass a certain subset of humanity. Thus, when he says the value of life of "lower savages" is akin to anthropoid apes, it is not at all with the recent sympathetic perception of these beings, but rather of apes as the *figura diaboli*, the epitome of bestial nature that can be killed and exterminated with impunity. One picture, for example, shows Haeckel posing next to a stuffed Gorilla at his Phyletics Museum in Jena- he had no objection to the killing of such beings if rational humans could profit by it, in this case as taxidermic specimens for display (**Figure 18**). Haeckel cited approvingly an English traveller who stated "I consider the negro to be a lower species of man, and cannot make up my mind to look upon him as "a man and a brother" for the gorilla would then also have to be admitted into the family" (1876:365). This would on the face of it be a rather self-defeating claim to include in a book dedicated to expounding the ape origins of humanity, but of course phylogeny had nothing to do with it- it was not the ape of comparative anatomy that could on no condition be admitted to the human family, but rather the ape of the anthropocentric imagination, the *figura diaboli* driven by the baser passions, the shadow of the rational human.

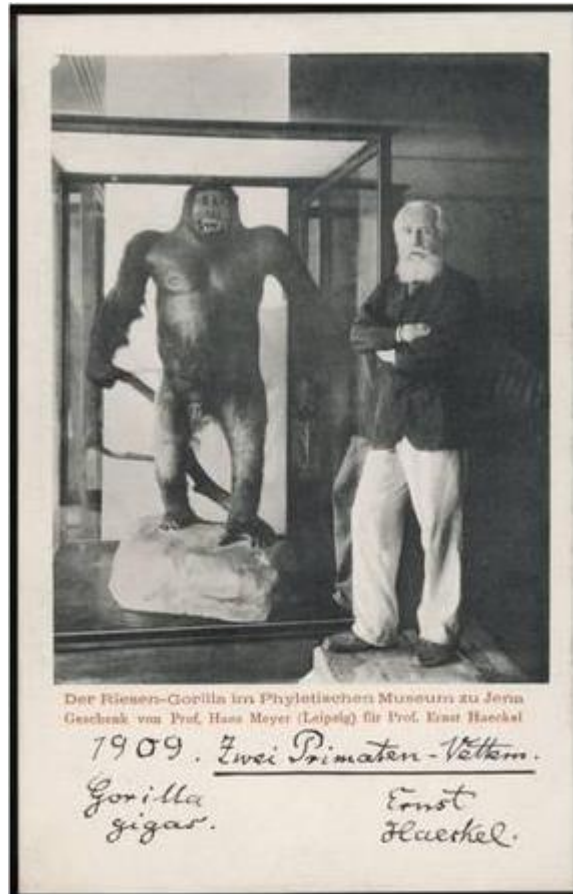


Figure 18 Haeckel with stuffed Gorilla (Phyletisches Museum, Jena)

Haeckel's attacks on religion and dismissal of animal subjectivity can be seen as two sides of the same oppressive coin, for both were necessary to his eugenic and racial politics: it was necessary that purely religious traditional anthropocentric ideas about the sanctity of human life should be rejected, and at the same time human-animal continuity could not be taken as granting moral subjectivity to animals. For if animals had the right to life, then humans- no matter how "lowly" they were perceived- must, as animals, also. Animality must remain a category of abjection into which certain "inferior" humans could be classed to thus deprive them of rights and justify their oppression and extermination. Haeckel was critical of "anthropocentrism" only in so far as this allowed him to eject certain people from the category of humanity based on their perceived animality and lack of reason. To challenge the anthropocentric conception of animality and animal behaviour would undermine the entire foundation of this political enterprise. People like Haeckel were still eminently secure on the other side of the anthropocentric Rubicon, at the top of

the *scala naturae*- his ideology was in no way intended to challenge their power and privilege, rather it was concerned with legitimating and extending it.

What made the arguments of Huxley, Haeckel et al on the “natural inequality of man”, on the mental differences between classes, genders, and races, any different from their arguments about animals? The former certainly seem far more egregious errors to most- though, sadly not all- scholars of our day. Yet, in their epistemic nature they are akin. All were statements based not on evidence- and certainly not on sufficient evidence to justify them- but were rather ideologically motivated by prejudice to justify political hierarchies. Moreover, they are derived from the same ontology, all rooted in the same classical anthropocentric notions of humanity vs animality and reason v instinct.

Scholars concerned with human equality would quite rightly expose the political nature and epistemic bankruptcy of these theories of mental differences between classes, genders, and races. Yet the very same thing that was immediately identified as falsehood in one case, went unchallenged when it agreed with the critics’ own prejudices. Being just as firmly committed to anthropocentrism they would let the very same offences pass by when it came to animals, and fail to challenge the underlying assumptions behind the whole ideological edifice.

6f. Wallace

As Wallace’s view of apes has been discussed previously, there is no need to reiterate here except to say that as far as he was concerned they were mere animals, and not even animals any closer allied to humans than the rest of the animal kingdom. They had merely animal habits, not a mind akin to humans. Indeed, the

image that appeared as the frontispiece to his Malay Archipelago (**Figure 19**) showed a violent, aggressive orang in the tradition of the *figura diaboli*, which differed in no substantive way from sensationalized popular depictions of the orang and other apes accompanying, for example, Poe's 1841 *The Murders in the Rue Morgue* (**Figure 20**).

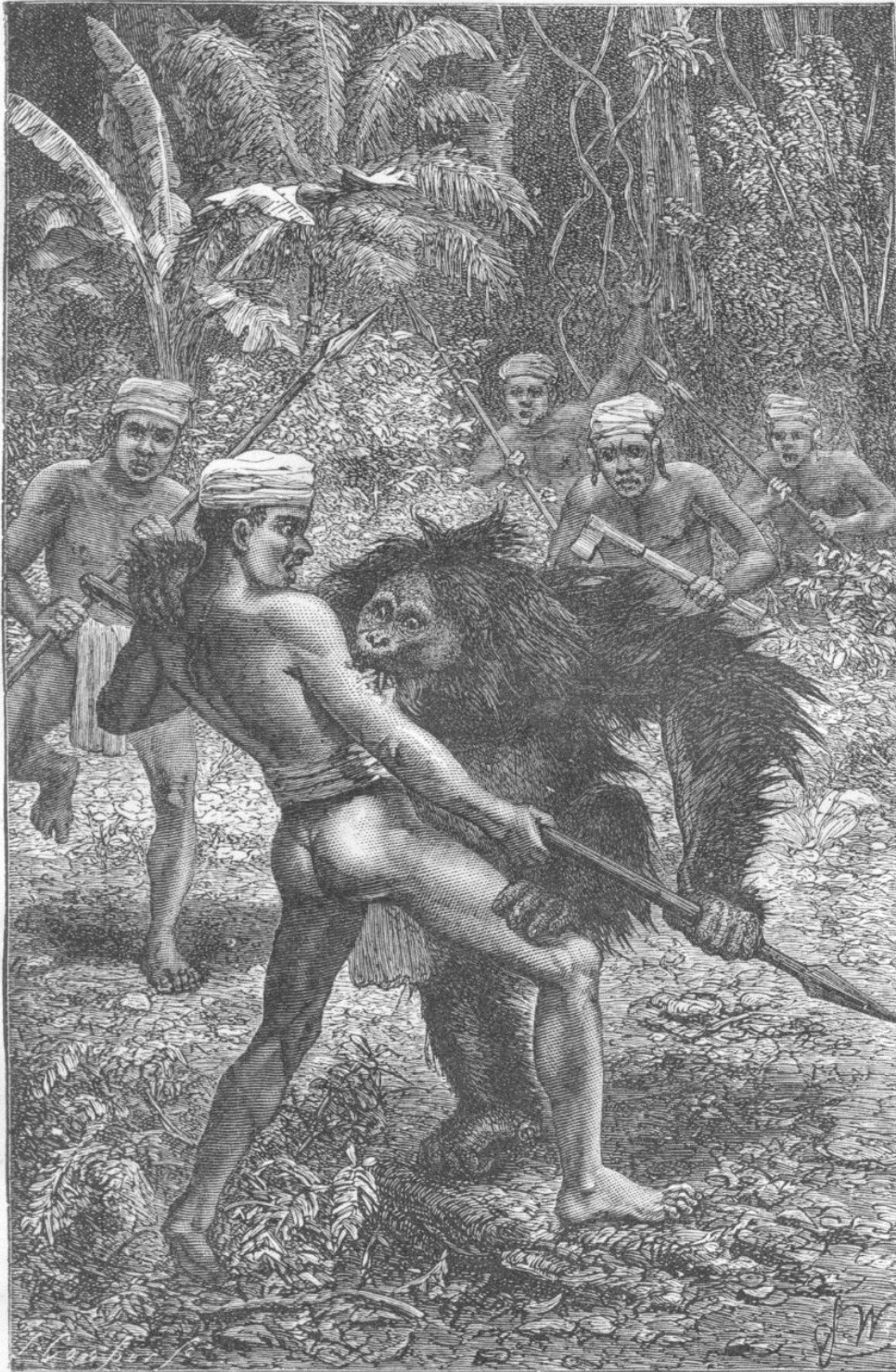


Figure 19 Frontispiece to The Malay Archipelago (Wallace 1869)



Figure 20 Illustration for The Murders in the Rue Morgue (Daniel Urrabieta Vierge, 1870)

However, Wallace was, like Morgan, critical of prevailing notions that even complex animal behaviours could be explained by innate instinct, which he saw as unsupported by evidence. His first comments on instinct can be found in his Malay notebook, where he questioned whether “a single case be shown of an animal performing any complex act no part of which has ever been seen performed? Or without having seen the result” (quoted in Gross 2010: 502). Wallace believed that “much of the supposed instinct of the lower animals can be explained by initiation and observation, and the peculiar organisation which necessitates certain movements, and renders certain actions pleasurable” (1872). Animals were not automata but motivated by pleasure and capable of learning. The commonly held notions that birds and bees, for example, constructed their nests and hives by “blind instinct” were “assertions of matters of fact, which, strange to say, have never been proved to be facts at all (1870:204), but rather were thought to be “so self-evident that they may be taken for granted” (ibid). Nobody had ever investigated by experiment, for example, whether birds could in fact build their nests without having ever seen another nest before. Since “in a scientific inquiry, a point which can be proved should not be assumed, and a totally unknown power should not be brought in to explain facts, when known powers may be sufficient” Wallace stated “I decline to accept the theory of instinct in any case where all other possible modes of explanation have not been exhausted” (ibid). Rather than assuming *a priori* that a behaviour was instinctive unless proven otherwise, Wallace held that we should not posit the existence of innate instincts for behaviours which can readily be explained through other mental faculties common to humans and other animals.

Wallace held that “even in their mental faculties and emotions the lower animals have much in common with ourselves” (1893). However, his belief that supposed instincts such as bird nest-building were instead the result of “those lower reasoning and imitative powers which animals are universally admitted to possess” (1870 [1895]:118) indicates that the supposed gap between human and animal mind was nonetheless a great one. Animals have at most *umbra rationis*, the ability to learn and imitate without the true rational thought that was the preserve of humans.

Somewhat later Wallace attended meetings of Salt’s Humanitarian League, where he argued “nothing but total abolition will meet the case of vivisection”

(1905), and that vegetarianism was “essential to a higher social and moral state of society” (1900b). Thus, he went much further in advocacy for animals than Darwin ever had. Nevertheless, his argument against vivisection was based on its “brutalizing and immoral effects” and the “callousness” it produced, which was true whether or not animals suffered as much as humans (quoted in Preece 2003:281). This was simply a re-iteration of the old anthropocentric objections to animal cruelty, that it was to be condemned because it produced cruelty in the human soul which would lead inevitably to further evils, and not simply because animals were harmed.

In fact, it appears that Wallace’s major political concern in criticizing theories of instinct in animals was in fact their application to humans by other Darwinians. Wallace noted that “Many of the upholders of the instinctive theory maintain, that man has instincts exactly of the same nature as those of animals, but more or less liable to be obscured by his reasoning powers” (1870:206), and his objections to complex innate instinct in animals were raised in the context of arguing against the existence of such instincts in humans. He firmly denied that humans possessed any innate instincts of a complex nature- “Does man have instincts? No. he may perform some simple operations without teaching but never compound [ones]” (quoted in Gross 2010).

Wallace posited a qualitative distinction between animal evolution, driven by the whims of natural selection, and human evolution, which in the most important ways had transcended it by virtue of superior mind; he stated that “brutes are modified in a great variety of ways by “Natural Selection”, but that in none of these particular ways can man be modified, because of the superiority of his intellect” (Letter to Darwin, 1864b). When environmental changes occur, he argued that animals must evolve physical adaptations or else die out, while man adapts “by means of his intellect alone; which enables him with an unchanged body still to keep in harmony with the changing universe” (1864a). Superior mind and culture had granted humans the unique power of transcending nature, while all other animals were presumed unable to- “man, by the mere capacity of clothing himself, and making weapons and tools, has taken away from nature that power of changing the external form and structure which she exercises over all other animals” (ibid).

The rational human mind was, for Wallace, as for the classical anthropocentrists, a divine power of transcendent metaphysical nature; “Man is a duality, consisting of an organized spiritual form evolved coincidentally with and permeating the physical body” (quoted in Gross 2010:500). In *The Limits of Natural Selection as Applied to Man* (1870) he argued that the supernal human mind could not have been developed through the evolutionary process, but was rather specially created.

Wallace argued from the commonly accepted position that the “lowest” savages, such as the Andaman islanders, Australians, Tasmanians and Fuegians had failed to transcend nature through the use of superior reason, but were rather living essentially as animals. They “pass their lives so as to require the exercise of few faculties not possessed in an equal degree by many animals” (1870:342), their existence limited to “satisfying of the cravings of appetite in the simplest and easiest way” (ibid). Their languages “contain no words for abstract conceptions”, they had no foresight beyond the simplest necessities, and demonstrated an “inability to combine, or to compare, or to reason on any general subject that does not immediately appeal to his sense” (ibid). In fact, if the savage developed the higher powers of reason they would “be useless or even hurtful to him” as they would “interfere with the supremacy of those perceptive and animal faculties on which his very existence often depends, in the severe struggle he has to carry on against nature and his fellow-man” (1870:341)

There were no thoughts or idea to raise the savage above the ape- they appeared to fall on the animal side of the Rubicon. Yet, this was a misleading impression. Even the lowest savages were not innately inferior, because they were able in certain circumstances, and with education, to demonstrate the higher mental powers of civilized humanity; “the rudiments of all these powers and feelings undoubtedly exist in him, since one or other of them frequently manifest themselves in exceptional cases, or when some special circumstances call them forth” (1870:341). The superior mental powers of reason thus must be “always latent” in the savages (1870:343), requiring only training and the right environment to develop them. The savages possess “a brain capable, if cultivated and developed, of performing work of a kind and degree far beyond what he ever requires it to do”, a brain that gives the savage “faculties which he never requires to use” (ibid).

What was true of the living savages was even more so of our prehistoric ancestors, “whose sole weapons were rudely chipped flints” and who were “lower than any existing race”, yet the fossil evidence showed to have had brains “fully as capacious as those of the average of the lower savage races” (1870:343). Indeed, the first traces of a high artistic feeling unique to the superior human mind are “clearly visible in the rude drawings of the palæolithic men who were the contemporaries in France of the Reindeer and the Mammoth” (ibid).

The brain of savage and prehistoric humans was therefore “an organ that seems prepared in advance, only to be fully utilized as he progresses in civilization” (ibid). Natural selection was incapable of such future preparation, it was only capable of transforming species in accordance with immediate wants; “Natural Selection could only have endowed savage man with a brain a little superior to that of an ape, whereas he actually possesses one very little inferior to that of a philosopher” (1870:356). The savage and prehistoric brain therefore appeared to “prove the existence of some power, distinct from that which has guided the development of the lower animals through their ever-varying forms of being” (ibid). Wallace argued for an explicit anthropocentric teleology, according to which the “ultimate aim and outcome of all organized existence” was “intellectual, ever-advancing, spiritual man” (1870:360) and “a superior intelligence” had intervened in the evolutionary process to guided his development in “a definite direction, and for a special purpose” (1870:359). Evolution was fitting for mindless animals, but the supernal human mind could only have been specially created.

It has often been claimed that Wallace’s growing interest in spiritualism led him to change his views, but this seems little more than an attempt to portray him as “unobjective” as opposed to the “objective” Darwinian scholars. While the supposed evidence of communication by disembodied spirits certainly strengthened his beliefs about the special creation of the human mind, there is nothing to support the notion that these beliefs represented any kind of reversal of his previous views, as he never previously claimed that natural selection could fully explain the origin of the uniquely superior human mind (Smith 1998). Rather, it seems the issue of race was the most significant factor separating him from the other Darwinians. For Darwin and his followers, and even more so for Haeckel, the lowest savages were innately

inferior subhumans much closer to the apes than were civilized humans. Wallace, partly as a result of his encounters with so-called savages on his travels, had a much higher estimation of their mental capacities and culture.

He noted, for example, that Papuans “have all a decided love for the fine arts, and spend their leisure time in executing works whose good taste and elegance would often be admired in our schools of design” (1869b:324-5). Yet he stated “they live in the most miserable, crazy and filthy hovels... if these people are not savages, where shall we find any?” (ibid). If “savages” could not only produce art, but do so almost on a par with the civilized people of the west, the Darwinian models that held them to be a kind of animalistic being and a window onto our prehistoric past were certainly not correct. Far from lacking reason, savages were in fact “quite as intelligent and as capable of benefiting by a good education as are average Europeans” (1865). Wallace noted a letter from a “Basuto named Pelem” which was “written in clearer and better English than are the average letters that appear in our own local newspapers” thus a clear proof of “what a marvellous extent education has spread among these people, and how high are their natural capacities” (ibid).

In his avoidance of the sociobiological positions common to the Darwinians on human instincts and the innate inferiority of savages, but with a low estimation of animal minds, Wallace ended up enshrining the anthropocentric Rubicon as firmly as ever, even resorting to supernatural agency as an explanatory force for human origins.

6g. Eclipse of Darwinism

The period covering the late 19th and early 20th centuries has been referred to as the “eclipse of Darwinism”, for in this period the mechanism of natural selection fell out of favour and a variety of other evolutionary mechanisms of Lamarckian and teleological nature were advanced. Of more relevance to our concerns is the fact that the Darwinian scientific projects of investigating animal minds and searching for “missing links” to demonstrate human-animal continuity also fell out of favour, and the former at least was not restored with the Modern Synthesis.

In the High Victorian era, a whole range of establishment figures, including Queen Victoria herself, had voiced their opposition to vivisection. After parliament passed legislation imposing certain restrictions on the practice, such opposition among the powerful began to fade. By the end of the century it was mostly confined to radicals and lower class groups, and thus lost respectability as a moral and political position. A key event that dealt further damage to the already weakened cause was the 1894 announcement of the diphtheria antitoxin by Roux and Martin, its development a direct consequence of experiments on living animals. The antitoxin reduced mortality from diphtheria from around 40% to 10% (Turner 1980:115). The proponents of vivisection could at last point to material benefits for human lives that immediately resonated with the wider population, rather than an elitist and intangible notion of scientific progress. As concern for vivisection faded, the Cartesian view of animals was swiftly to grow to unquestioned dominance within science.

Influenced by Romanes’ studies yet critical of what he saw as his over-liberal anthropomorphism, Lloyd Morgan sought to ground the study of animal behaviour on a sounder scientific basis³. In 1894 he developed his first formulation of what would become known as “Morgan’s Canon”- “In no case may we interpret an action

³ Certainly, many of Romanes’ anecdotal reports would not be credible today, though the oft-repeated notion that he presented them uncritically or was any more credulous in this regard than Darwin is not correct

as the outcome of the exercise of a higher psychical faculty, if it can be interpreted as the outcome of the exercise of one which stands lower in the psychological scale” (Morgan 1894:53), subsequently re-worded as “In no case is an animal activity to be interpreted in terms of higher psychological processes if it can be fairly interpreted in terms of processes which stand lower in the scale of psychological evolution and development.” (Morgan 1903:59).

Morgan was by no means opposed to the concept of animal mind and in fact regarded anthropomorphism as a fundamental necessity in understanding animal behaviour; the question was not *whether* to employ anthropomorphism but rather *how far* anthropomorphism was appropriate in any particular case. In the original context in which it was proposed, “Far from prohibiting the psychological description of animal activities, the canon was intended to provide a framework for a psychological approach to animals”, an attempt to put anthropomorphism based on introspection on a secure scientific footing (Costall 1998:18). While the Canon was later universally regarded as a special case of the law of parsimony, Morgan himself did not intend or view it as such. On the contrary, he cited Occam’s razor as one possible *objection* to his canon- “A second objection is, that by adopting the principle in question, we may be shutting our eyes to the simplest explanation of the phenomena. Is it not simpler to explain the higher activities of animals as the direct outcome of reason or intellectual thought, than to explain them as the complex results of mere intelligence or practical sense experience?” (Morgan 1894:54).

However, Morgan’s attempts to better understand animal mind were soon misapplied for the very opposite purpose, to justify an extreme Cartesian approach in the form of behaviourism. John B. Watson, the founder of behaviourism, argued that all animal behaviour, no matter how complex or human-like, could be explained in mechanistic terms as stimulus-response. Since, citing Morgan’s Canon- but in fact contrary to what Morgan himself had claimed- such an explanation would be *ipso facto* the simplest, it must always be preferred over any explanation invoking conscious agency. Indeed, the behaviourists often required a great deal of intellectual gymnastics to produce an explanation in terms of “lower-level psychological processes”, when it would have been far more parsimonious to explain the behaviour as a result of “higher-level psychological processes”.

Morgan's Canon was turned into a justification for the classical anthropocentric double standard which interpreted human and animal behaviour differently on *a priori* grounds, and the behaviourist distortion of Morgan was so influential that to this day he is typically misrepresented as a precursor of behaviourism. Animals were seen as merely reflex machines, as Descartes had posited. Watson described the purpose of his research as being "To predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction" (Watson 1930:11). They saw anthropomorphism not as a necessary tool of scientific investigations of animal behaviour, but rather as a fundamentally unscientific heresy to be purged, and any non-Cartesian account of animal behaviour as guilty of this sin. Criticism of "anthropomorphism", rather than an earnest desire to avoid inappropriately projecting certain "human" values onto the behaviour of other species and thus inhibiting our understanding of them, became instead a dogma that was effectively designed to inhibit understanding of animal behaviour.

The double standard fundamental to behaviourism made evidence of animal minds impossible to recognise even where it was immediately obvious; in ape studies and doubtless beyond this resulted in "an absurd polarization where, in their practical dealings with the animals, the researchers found that they just had to treat the chimpanzees as conscious beings with definite intentions, emotions, and temperaments. In their scientific reports, however, they scrupulously eliminated all trace of such psychological terms" (Costall 1998:14). Behaviourism was thus a total inversion of Darwin's original programme; it was impossible to demonstrate human-animal continuity since the *a priori* rejection of animal mind meant behaviourists could only reiterate human/animal cognitive difference, even in the face of their own observations to the contrary.

Strictly speaking, the behaviourists did not, as Descartes had, firmly deny animal consciousness. They simply held that at most animals were as Huxley had argued, "conscious automata". As Laplace had said of the deity, the behaviourists held that consciousness was a hypothesis they had no need of. If animal consciousness existed in any form, it simply had no causal effect and could not be investigated. The theoretical and practical distinction between the view of animals as conscious

automata and the view of animals as unconscious automata was, for the behaviourists, nil.

The behaviourists' Cartesian view of animals acted as a self-serving justification for the painful and gratuitous experiments they conducted. Watson's early experiments involving removing the eyes and other organs of sense from living rats in a maze- this research was cited as evidence by anti-vivisectionists to the second Royal Commission on Vivisection (Graham 1907). There was initially public controversy over the "needless cruelty of these experiments, unjustified by relevance to any medical problem" (Boakes 1984:147). The qualitative distinction they held between human and animal ironically served to undermine the contemporary justifications for vivisection- not only did Watson make no claim that this experiment would have any benefit or relevance to humans, he "specifically rejected the idea that a person placed in such a situation would learn in the same way" (ibid).

Just as Huxley could not avoid the conclusion that humans, too, may be conscious automata, it was perhaps inevitable that behaviourism's tenets would sooner or later be applied to human behaviour, beginning with the controversial "Little Albert" experiment (Watson and Rayner 1920) - designed to demonstrate classical conditioning in a human infant, it was claimed the child was conditioned to fear a white rat. B.F. Skinner's "radical behaviourist" accounts of human behaviour would later become very widely read. Once intentionality and subjectivity had been removed from human behaviour, to speak of politics or morality was almost meaningless. For Skinner there was no meaningful distinction to be drawn between a slave driver who "induces a slave to work by whipping him when he stops" and the slave who "reinforces the slave driver's behaviour in using the whip" (1971:33).

Those beholden to an anthropocentric *a priori* dichotomy between human and animal behaviour that dismissed evidence of animal reason as a false impression and insisted animal actions must be explained on a mechanical basis, once again found that once such a hypothesis was deemed sufficient to explain complex animal behaviour, it could just as well explain the most cherished human behaviours, too. And once they had followed anthropocentric logic so far, it was easier for these

Cartesian scientists to posit that humans were mere automata than that animals had subjectivity and agency. Human-animal continuity was based not on animal humanity, but on human animality. Skinner summarized the developments thusly- “Darwin, insisting upon the continuity of mind, attributed mental faculties to some subhuman species. Lloyd Morgan, with his law of parsimony, dispensed with them there in a reasonably successful attempt to account for characteristic animal behavior without them. Watson used the same technique to account for human behavior and to reestablish Darwin's desired continuity without hypothesizing mind anywhere” (Skinner 1938:4).

Skinner’s “radical behaviourism” gained more notoriety than real influence, and even the specific behaviourist account of animal behaviour, which also rejected innate instincts, later be superseded by studies which gave instinct a greater role. The behaviourist’s supposedly objective and scientifically necessary rejection of animal mind and consciousness did, however, put an end to the Darwinian-influenced studies of animal mind and any scholarship based on human-animal mentality continuity, and were taken as enshrining a firm anthropocentric Rubicon. Darwin and his follower’s work on animal mind became distinctly unfashionable; as one psychologist put it, “There has been a marked and necessary scientific reaction against the mentalistic extravagances of earlier writing on animal behaviour. There is little justification and less explanatory value in ascribing man's elaborate conscious processes to animals, and discussing emotions in such terms would be futile” (Hebb 1946:88). It would be the better part of a century before the scientific rejection of animal mind would be challenged in any significant way, and it continues to a lesser extent to this day.

An even more enduring influence is on the concept of behaviour itself. Lloyd Morgan was the first scholar to refer to the study of “animal behaviour”. When Morgan was writing, the term was and had been mostly used in the sense of “the way in which one acts or conducts oneself, especially towards others” (OED), in a rather moralistic sense confined to humans. The term did not have the mechanistic connotations it would subsequently develop; the concept of behaviour was not originally employed to diminish animals, rather the reverse- the concept of behaviour became diminished by its association with animals. The behaviourists who succeeded Morgan deployed the concept as a way of describing what animals do without invoking “unobservable mental

states”); in other words, in purely Cartesian terms. As a result of this the term took on connotations as being something mechanistic- “the way in which an animal or person acts in response to a particular situation or stimulus” (OED) - rather than mentalistic. Having gained this meaning from its Cartesian application to animals, the term was increasingly applied in the same sense to humans also, particularly in the post-war era. At this point in time it formed a conceptual foundation for, and way to attract funding for, both the New Physical Anthropology and the New Archaeology. As Haraway explained⁴, “The National Science Foundation began modestly, but shortly was the major funder for individual researchers and university-based projects in biology and somewhat later in anthropology. “Behavioural science” came under the rubric of natural science, where it was suspect if its practitioners had too much to say in the way of social criticism. “Social sciences” seemed to have an onomatopoeic relationship to socialism, and they got less of the largess and under more strictly policed ideological terms” (1989:120). The concept of behaviour served a useful purpose with regards to cold war politics, and a useful scientific purpose in supposedly allowing analysis and studies of beings and their actions without invoking such “unscientific” concepts as subjectivity and mind. In palaeoanthropology it was particularly cherished- the study of “hominid behaviour” could proceed without needing to credit these beings with the supposedly uniquely human powers of subjectivity and agency.

The fact that the behaviour concept in science originated as an anthropocentric Cartesian description of animals in contrast with the human mind, before broadening into a mechanistic account of both human and animal behaviour explains how Binford’s “New Archaeology” could reject mentalistic explanations as unscientific “paleo-psychology” (Binford 1965) and define culture in purely mechanistic terms as “the extra-somatic means of adaptation for the human organism” (Binford 1962:218) without him or apparently anyone else noticing the glaring contradiction here. For if culture is no longer defined by the rational human mind, then even accepting the most extreme Cartesian view of animals, its restriction to “the human organism” would be entirely unjustified. Binford and his ilk combined the classical anthropocentric Rubicon with a concept of human behaviour derived from anthropocentric accounts of animals to create a position that was no longer even internally coherent. It is hardly surprising that animal subjectivity was not even on the radar, when it was presumed that even the actions of

⁴ Although she made no mention of the origins of the concept outlined above, which adds valuable context

that most superior of beings could be adequately explained without any consideration of their conscious awareness.

The effective destruction of the nascent scientific study of animal mind by the rule of a strict Cartesianism was paralleled in the study of fossil ancestors. The Darwinian emphasis on missing links to bridge the gap between human and ape was replaced by the “shadow man” paradigm (Hammond 1988) which relegated all known fossil humans to brutish side-branches far removed from our still undiscovered true line of ancestry, a pure bloodline of noble stock in the image of classical statuary, untainted by miscegenation and corrupting animality as far back as its proponents would permit themselves to imagine. This “Presapiens hypothesis” that anatomist Arthur Keith had begun to articulate at the turn of the century was cemented by Boule’s brutish reconstruction of the *La Chapelle-aux-Saints* Neanderthal in his monograph on the remains published from 1911-13 (Boule 1913). But as influential as the phylogenetic developments undoubtedly were, it was the discourse of mind that was to prove most decisive. The recently discovered cave art was taken as a stunning confirmation of the unbridgeable chasm between modern humans and archaics, the Cro-Magnons imagined as artists in their sacred grottos channelling the Muses, while the Neanderthals lived a nasty, brutish, and short existence driven by animal instincts. The same anthropocentric arguments that had been used for centuries against apes swiftly became applied to Neanderthals and other archaics- however closely they might approach humanity in their physical resemblance, they lacked that divine essence of humanity, the mind, and thus were as true as beast as any other.

This passage from Henry Fairfield Osborn’s *Men of the Old Stone Age*, a hugely influential work in synthesizing and popularizing the discourse of human evolution, sums up nicely the prevailing scientific attitudes:

The chief source of the change which swept over western Europe lay in the brain power of the Crô-Magnons, as seen not only in the large size of the brain as a whole but principally in the almost modern forehead and forebrain. It was a race which had evolved in Asia and which was in no way connected by any ancestral links with the Neanderthals; a race with a brain capable of ideas, of reasoning, of imagination,

and more highly endowed with artistic sense and ability than any uncivilized race which has ever been discovered. No trace of artistic instinct whatever has been found among the Neanderthals... After prolonged study of the works of the Crô-Magnons one cannot avoid the conclusions that their capacity was nearly if not quite as high as our own; that they were capable of advanced education; that they had a strongly developed æsthetic as well as a religious sense. (1915:274)

As we shall see, this passage not only encapsulated the scientific position at the turn of the century, but in all its essential features is effectively identical with that of recent decades, and indeed with only very minor adjustments could well have been written in 1995, or even 2015. Osborn deemed these noble artists worthy of being credited with his thanks in his acknowledgements- “It is a unique pleasure to express my indebtedness to the Upper Palæolithic artists of the now extinct Crô-Magnon race, from whose work I have sought to portray so far as possible the mammalian and human life of the Old Stone Age” (1915:x). These people were not mere objects of study, but creators in their own right, intellectual ancestors, the giants upon whose shoulders he stood. Unsurprisingly, he did not likewise credit the Neanderthals, or any of these other mammal species, for the debt he owed to them. He could not perceive them as creative beings, only forces of nature- one may as well thank the glaciers.

Such was the difference between human and Neanderthal that Lubbock’s old terminology was viewed as no longer relevant. Elliot Smith in 1916 coined the terms Neanthropic and Paleanthropic to separate the Cro-Magnons and their modern human descendants up to the present from the “repellent and unattractive Neanderthal”, a figure so lowly and monstrous that it along with its bestial kin was no longer worthy of inclusion in the human story, scientific terminology needing to be updated to enshrine the distinction. The former’s “high-domed and well filled brain” stood in contrast to latter’s “mere brute-strength” and enabled the birth of human culture. “The great cultural break in western Europe” lay between the Lower and Upper Paleolithic, with the divine birth of “the new spirit of man”, which “ought surely to be regarded as the greatest event in (human) history”; indeed, the very

beginning of human history as a rational agent, in contrast to the mere biological evolution that came before (Elliot Smith 1924).

Elliot Smith's neologisms ultimately failed to gain lasting traction against the already firmly established terminology, but the division they represented was widely accepted. They were by no means idiosyncratic, but perfectly aligned with prevailing attitudes, and an identical division had in fact already been proposed as early as 1913 by Gloucester museum curator A.G. Thacker. He argued the Palaeolithic had now been rendered an obsolete term and wished to replace it with the Protolithic and Deutolithic ages (named based on analogy with now-outdated divisions of the Paleozoic era), for "the gap which separates the Mousterian from the Aurignacian is more profound than any break which occurs in all the succeeding ages from the Aurignacian to the Twentieth century" (Thacker 1915). This was true both in biological and cultural terms. The difference between true man, the large-brained artists, and those "unfamiliar creatures" that preceded them, for whom even ethnographic analogy with the "lowest living races no longer affords a very safe guide" was in effect the Rubicon between man and beast; no wonder the "brutish Mousterian were exterminated by the higher type" (ibid).

This discourse soon found popular expression in works such as G.K. Chesterton's book of Christian apologetics, *Everlasting Man* (1925) - unlike the scholarly accounts, still well-read even to this day. In contrast to Well's popular *Outline of History* (1920) which depicted a gradual evolutionary transition from animal to human, in which "humanity merely fades away into nature", Chesterton sought to produce an outline without "rub(bing) out the lines" (1925:257). The lesson to be learned from the painted caves was "the simple truth that man does differ from the brutes in kind and not degree", that "something of division and disproportion has appeared; and it is unique. Art is the signature of man" (1925:28). Man was no mere animal but a divine being; "Man is the microcosm; man is the measure of all things; man is the image of God. These are the only real lessons to be learnt in the cave" (ibid). A vicious circle had been created: the conservative Catholicism of the deans of prehistory Breuil and Boule led them to produce a

certain kind of anthropocentric discourse, which in turn was taken as the “scientific fact” supporting popular apologetics for the very same politico-religious ideology.

As part of his own popularizing mission, Osborn had murals produced at the American Museum of Natural History which contrasted the brutish Neanderthals eking out a bare existence in the state of nature with the noble Cro-Magnons depicted like renaissance artists in their studios. The AMNH, which had played such an important role in “restoring the correct history of the evolution of man” was seen as the “ideal setting” for the second and third international eugenics congresses (*A decade of progress* 1934:509) and the Hall of the Age of Man was opened for visitors to the newly opened eugenics exhibit- thus “the Museum's permanent exhibits on man's evolution were closely articulated with the current Eugenics Exhibit on man's present trends in race and capacities” (ibid). The anthropocentric discourse of human origins had an essential role in combatting the perceived “menace of the under-man” (Stoddard 1922), those “millions of people who are acting as dragnets or sheet-anchors on the progress of the ship of state” (Osborn 1934:32). The archaeological Rubicon proved perfectly compatible with the most vicious form of socio-biology, and was almost inseparable from eugenic and racial science throughout the earlier twentieth century.

One notable scholar who adopted the Paleoanthropic/Neoanthropic nomenclature was Vere Gordon Childe (eg 1928). Childe’s writings, which became “archaeological canon between the 1930s and early 1960s” (Fagan 2001), clearly illustrate the impact of the contemporary Rubicon approach. In his 1936 work *Man Makes Himself* Childe begins by distancing himself from sociobiology in the form of “the Fascist philosophy, expounded most openly by Herr Hitler and his academic supporters, but sometimes masquerading as eugenics in Britain and America” which “identified progress with a biological evolution no less mystically conceived” than religious dogmas (1936:1-2). In contrast with this politically motivated and thus highly biased and scientifically flawed approach, Childe aimed to view the subject of

human prehistory from an “impersonal scientific standpoint” which will produce results “entirely independent of any religious, ethical, or social bias” (ibid 2).

In the chapters on evolution with which he sets out his vision, the essential distinction between the human, a subject possessing creative agency and freedom to transcend nature, and the animal, a mere object bound to the whims of nature, is constantly emphasized and repeated. While both organic evolution and cultural change are essentially adaptations to the environment (ibid 20) the distinction between the two is drawn in stark terms- there is a qualitative difference between the natural history of animals’ passive adaptation and human history of active creation (ibid 15). Man makes himself, animals do not.

Animal behaviour is determined by instincts, “automatic responses” over which there is no conscious control. These are not learned but “inherited in precisely the same way as the creature’s physical form” (ibid 21). The transmission of the collective experience of a species through hereditary instincts is a “slow and wasteful process” since it is rooted in organic evolution (ibid 29). Compared to the transcendent force of human culture, there is no essential distinction to be made between a brainless jellyfish and a mammoth, which merely has a more “complex web of paths” between sensory and motor nerves.

Animals appear in this narrative as mere resources to be exploited in human cultural development- “the wild sheep is fitted for survival in a cold mountain climate by its heavy coat of hair and down. Men can adapt themselves to life in the same environment by making coats out of sheeps’ skin or of wool” (ibid 15) and were free to “choose beef steaks instead of mammoth steaks” (21) when climate warmed.

Cultural transmission is a qualitatively different and superior process to instinctual evolution; “Man’s social heritage is not transmitted in the germ-cells from which he springs, but in a tradition which he begins to acquire only after he has emerged from his mother’s womb” (ibid 16). This grants agency and creative freedom, such that “changes in culture and tradition can be initiated, controlled, or delayed by the conscious and deliberative choice of their human authors and

executors” (ibid 16-7). Human cultural developments are “not the accidental mutation of the germ-plasm” but an intentional creative force, a “new synthesis of the accumulated experience to which the inventor is heir by tradition only” (17), and humans can “lay them aside and don them at will” (16).

Changes in human culture “take the place of the physical modifications and mutations by which new species arise among the animals” (ibid 9). Thus, “in human history, clothing, tools, weapons, and traditions have taken the place of fur, claws, tusks and instincts in the quest for food and shelter” (ibid 16). As a consequence and proof of this qualitative shift, human biology has changed very little and the earliest known *Homo sapiens*, the Cro-Magnons, are virtually indistinguishable from modern humans; “since the time when skeletons of *Homo sapiens* first appear in the geological record... man’s bodily evolution has come virtually to a standstill” since “progress in culture has, indeed, taken the place of further organic evolution in the human family” (ibid 33).

Childe argues that the classical Rubicon of language was key to initiating and enabling this qualitative shift between human and animal. Cultural transmission by language “constitutes the last vital difference between organic evolution and human progress” (ibid 29). Language played a pivotal role in allowing instruction by “precept”, which can transmit a far greater range of experience than imitation, and permitted “the experiences of the whole group [to] be pooled” (29). He claims that even “very early attempts at men” like *pithecanthropus* “could “speak”” (ibid 27), but their brains and vocal muscles were very limited in contrast to *Homo sapiens*, who could utter a far greater variety of sounds.

Childe also recapitulated the classical tradition in viewing language and reason as effectively two sides of the same coin. He argued that “the capacity for what is termed “abstract thinking”- which in classical anthropocentric style he holds to be “a prerogative of the human species”- “depends largely upon language” (ibid 31). Naming things allows them to be isolated from a specific environmental context and generalized, thus “to name a thing at all is an act of abstraction” (ibid).

Childe had thus placed the study of human prehistory on a completely different theoretical and ontological basis from that of animals, in similar anthropocentric

terms to the classical Rubicon. In doing so he repudiated sociobiological approaches, but he also foreclosed any possibility of metahumanism. Gone is any trace of the Darwinian project of investigating animal minds and seeing continuity.

Despite his claims of pure disinterested scientific objectivity, Childe was in fact very strongly influenced by radical politics. He was a socialist since his undergraduate days at Oxford, who had campaigned against the First World War and joined the IWW. On the basis of his political views and activism he was prevented from working in academia in Australia and later legally barred from entering the United States. However, it was not the anarchist communism of Kropotkin or humanitarian socialism of Salt that he was influenced by, rather it was the orthodox Marxism of Soviet archaeology. Indeed, he had first visited the Soviet Union in 1935, only a year before *Man Makes Himself* was first published. Childe identified with Marx's theories "both emotionally and intellectually" (Trigger 1980), and was the first western archaeologist to apply a Marxist analysis.

Childe stressed that Marx's "realist conception of history is gaining acceptance in academic circles remote from the party passions inflamed by other aspects of Marxism" (1936:6), and certainly his work contained little of very explicit political Marxist themes like class struggle, which no doubt enabled its widespread influence. Nonetheless it could hardly be deemed apolitical, not least in its implicit endorsement of animal oppression, which "not only goes untheorized in Marxist thought, but is *untheorizable* within that paradigm", based as it is on an ontology which "acknowledges only one modality of consciousness, human consciousness, hence only one dimension of existence as such" (Sanbonmatsu 2005). Insofar as animals appear in Marxist history, it is merely as "part of the stagecraft, the fond or background upon which the solitary figure of the human subject stands out" (ibid). To the extent that Marxists "see" animals at all in their theoretical work, it is not as subjects or beings but as "material appurtenances of an abstract, hypostatized conception of "Nature"" (ibid). Childe's work corresponds perfectly to this pattern.

Complaining in a 1938 letter that "to the average communist and anti-communist alike... Marxism means a set of dogmas" (quoted in Gathercole 1995), Childe would

later deviate from the Soviet orthodoxy after increasingly reading Marx's works and developing his own interpretations and applications (Trigger 2002). He would, however, have found nothing to change his view of animals in Marx's work. Stalinist orthodoxy and practice certainly diverged widely from Marx in many respects, but in the case of anthropocentrism it was only in degree, certainly not in kind. Marx himself never questioned the "ontological discontinuity between humans and animals, nor the necessity or justice of unending human domination of other animals" (Sanbonmatsu 2005). Communism meant human freedom and emancipation from capitalist exploitation, but "nothing in Marx's writings remotely suggests that scientific and economic exploitation of animals would abate under communism" (ibid). Animals as part of nature would continue to constitute resources for free, creative appropriation by humans into what Marx called the "inorganic body" of humanity (Benton 1990), just as in the same terms Childe depicts humans fashioning the skins of animals as no different from crafting wooden spears. Marx was disdainful of contemporary animal welfare proponents, and while the remarks made along these lines were really criticisms of bourgeois hypocrisy and reformist tendencies rather than of concern for animal welfare per se (Gunderson 2011), the fact that they were not balanced with any positive remarks on the subject is telling.

It is ironic, then, that the Marxist materialist conception of prehistory, which Childe saw himself as working in and extending, was very heavily based on Lewis Henry Morgan's writing. Marx had begun reading *Ancient Society* in 1881, and had planned to write his own book based on it but his death in 1883 prevented that. He left extensive notes on the work, and also on Lubbock's *The Origin of Civilization*, which were later published as *Ethnological notebooks* (Marx 1972). Based on Morgan's work and these notes, Engels completed a book of his own, which he described as "the execution of a bequest", the *Origin of the Family, Private Property and the State* (1884) which was foundational to the Soviet archaeology that impressed Childe. Engels described Morgan's book as "one of the few epoch-making works of our time" since he perceived that "Morgan in his own way had discovered afresh in America the materialistic conception of history discovered by Marx" which had led him "in the main points, to the same conclusions as Marx" (1884). He quoted

approvingly Morgan's criticisms of private property and progressive belief that "democracy in government, brotherhood in society, equality in rights and privileges, and universal education, foreshadow the next higher plane of society" (ibid). He was, however, unfamiliar with Morgan's work on animal mind and culture, which in their metahumanistic tendencies diverged from the Marxist Rubicon, which was firmly in the anthropocentric tradition.

The "eclipse of Darwinism" was to end before the middle of the century with the Modern Synthesis, which restored natural selection as the primary driving force of evolution. The "shadow man" paradigm in palaeoanthropology fell out of fashion, and the hunt for "missing links" resumed. But the rejection of animal mind was lasting. Animal psychology was to remain stuck in the blind alley of behaviourism, and if at least some paleoanthropologists- in parallel with the rejection of scientific racism- were now more generous in granting humanity to the newly acknowledged ancestors, it was still in the terms of the classical Rubicon. The metahumanist project tentatively and imperfectly set in motion by Darwin had been nipped in the bud.

Chapter 7: Human Mind and Animal Instinct: Man the Symboler

7a. Cognitive ethology and Symbolic thought

The unquestioned dominance of behaviourist and instinctive models of animal lives was finally broken in the last quarter of the 20th century. Beginning with his 1976 *The Question of Animal Awareness*, followed by works with titles such as *Animal Thinking* (1984) and *Animal Minds* (1992), Donald Griffin argued that animals possessed conscious subjectivity and that animals' minds could and should be the subject of scientific study, a field he named "cognitive ethology". In its obituary, *The New York Times* credited Griffin as "the only reason that animal thinking was given consideration at all" (Yoon 2003). Having discovered in 1944 that bats navigate by echolocation, he was highly esteemed as a rigorous scientist.

Griffin expressed his opposition to the dogmatic behaviourist double standard in no uncertain terms, arguing that the prevailing paradigm had "inhibited investigation of animals' thoughts and feelings" (1984:vii) by deeming these subjects not only unscientific but fitting to be "ridiculed, and treated with open hostility" (ibid). He cited an example of a lead article being rejected from *Science* for suggesting monkeys may be thoughtful in their approach to complex problems. Scholars had been "thoroughly brainwashed by the vehement rejection of suggestive evidence of animal thinking" (1984:vii) and those whose observations strayed into such "forbidden territory" risked being "ostracized from the scientific community" (1984:viii). The behaviourist approach was not the paragon of scientific objectivity that it claimed to be, but quite the opposite, it was a doctrine that inhibited our understanding of reality by forcing conformity to its particular model- the "ultimate argument against behaviourism is simply that it seeks to prohibit *a priori* the employment of psychological explanations that may, in fact, be true" (Fodor quoted in Griffin 1984:ix). It was simply anti-intellectual and unscientific to deny any subject an objective and experimental inquiry (Gross 2005). Of course, the problems

with the behaviourist approach were even greater than Griffin claimed- we have already seen how it was rooted in an anthropocentric double standard that misinterpreted Morgan's Canon, its supposed intellectual foundation, in a fundamental way.

Griffin presented a wide compendium of experimental and observational evidence that greatly enhanced the scientific case for animal consciousness and awareness, including studies of tool construction and use, planning, deception, cooperative hunting, and intentionality. He also argued for symbolic communication in animals, discussing at length the evidence pertaining to vervet monkey calls as well as the honeybee waggle dance which he saw as "incontrovertible evidence that bees employ a flexible and symbolic communication system" (1984:185). The bees were not unconscious reflex machines but rather "expressing simple thought" (1992:194).

There was, however, one area where he was uncharacteristically reticent- the political implications of such research. Griffin stated his unwillingness to draw "fundamental moral judgements, which can be helpfully informed by scientific understanding, but which fall outside the proper scope of purely scientific analyses" (1992:251). However, it was reported that his work's "natural connection to movements like animal rights advocacy has made some scientists wary" (Yoon 2003). Indeed, the rise of cognitive ethology occurred virtually in tandem with the modern incarnation of the animal rights movement. An important landmark was the 1971 work *Animals, Men, and Morals* which covered a range of issues including factory farming and vivisection. The editors argued that "Once the full force of moral assessment has been made explicit there can be no rational excuse left for killing animals, be they killed for food, science, or sheer personal indulgence" (Godlovitch et al 1971:7), and concluded "we require now to extend the great principles of liberty, equality and fraternity over the lives of animals. Let animal slavery join human slavery in the graveyard of the past" (Godlovitch et al 1971:238). Singer (1973) described the book as a manifesto for an Animal Liberation movement, and subsequently wrote his own book (*Animal Liberation*, 1975) which

brought the subject to much wider attention⁵. Once animals could no longer be dismissed out of hand as political subjects, their mental subjectivity could no longer be dismissed out of hand by scientists, and vice versa. Of course, cognitive ethology was deemed politically motivated and thus lacking in scientific objectivity by critics due to its coherence with animal rights, despite the fact that its proponents did not acknowledge such a connection, while behaviourists, even when they made explicit statements against animal rights, were (un)surprisingly still presented as paragons of disinterested science.

Griffin's cognitive ethology was at first met with "harsh and angry criticism", with one critic calling his works "the satanic verses of animal cognition", while others suggested he was "slipping into premature senility" (Gross 2005)- anyone arguing for animal reason must be themselves inferior in reason. It was easier for scientists to accept that bats could "see" and navigate by soundwaves than that they had a mind, just as it was easier to suppose humble worms could move mountains than that they had any form of consciousness. Nevertheless, his works inspired further research, including that of Seyfarth on alarm calls and deception in vervet monkeys and Pepperberg with Alex the parrot who was able to answer cognitive questions in English. Eventually the subject gained wider acceptance. By 1994, a reviewer could write that "even to utter the words "animal mind" used to be a mortal sin for anyone in the behavioural sciences. Nowadays, however, people even title books with the words" (Byrne 1994:62).

Griffin stressed that he used the word "cognitive" in "a literal sense to refer to conscious thought and knowledge" not according to "a recent tendency to restrict the term to information processing" (1984:vi). He considered this latter usage did a "grave disservice by fostering the belief that even human thinking consists only of information processing" (ibid). Nevertheless it was clear that while many had accepted animal cognition in the restricted sense of information processing, they still considered animal consciousness "impossible to detect, since whatever the animal does might be done unconsciously" (Griffin 1992:viii). Their fundamental view of

⁵ Though Singer himself never argued that animals had a right to life, only that their pain must be accounted for on a utilitarian basis.

animals had not changed- they were now regarded as no more than a “better class of automaton” with “reasonably complex software” (Byrne 1994:65).

Griffin suggested the “reluctance to move ahead from cognition to consciousness may well be a lingering residue of behaviourism” and deemed it a “self-inflicted paralysis of inquiry, an obsolete hindrance of scientific investigation” (ibid). He argued against the idea that language was necessary for thinking, citing the significance of for example pictorial thinking, and stressed that “many scholars have abandoned the formerly widespread belief that human language is essential for conscious thinking” (1992:240). A later revised edition of his *Animal Minds* was pointedly subtitled “beyond cognition to consciousness”.

Post-war palaeoanthropology had drawn the boundaries of human behaviour comparatively wide, seeing a gradual evolution of human-like capacities starting from the earliest members of our lineage. However, a number of important studies in the early 80s revealed that many of the much-vaunted “human-like” capacities of the early hominids were based on exceedingly shaky ground. Brain’s 1981 *The Hunters or the Hunted?* re-examined cave taphonomy to suggest that the australopithecines had not been mighty hunters dominating all animal life, as Dart and others had supposed, but rather had themselves been prey for carnivores. Man the Hunter, with all the anthropocentric and patriarchal values he carried, had been reduced to the indignity of “Man the Scavenger” (Lewin 1984b). His “home-bases”, too, now appeared nothing more than an archaeological chimera (Potts 1984). A *Science* review expressed the new picture in stark terms with its title “The earliest “humans” were more like apes” (Lewin 1987c).

The apes too, had become far more human. In 1982 *Ramapithecus*, who supposedly already showed the first signs of human-like anatomy and culture as distinct from the apes and pushed the phylogenetic split between human and ape back to at least 15 MYA, was thoroughly debunked. The DNA evidence, as explained previously, soon resolved the “trichotomy problem” to place chimpanzees as more closely related to humans than gorillas. This was followed by studies

showing evidence of chimpanzee tool use and material culture (McGrew 1992), social organization (Power 1991, de Waal 1995), abstract thinking and language (Savage-Rumbaugh and Lewin 1994) and even a little later a chimpanzee archaeological record (Mercader et al 2002, 2007). Advocacy for basic rights for the great apes by respected scholars also emerged in the form of the Great Ape Project (Cavalieri and Singer 1993). There was no longer any Rubicon that could be convincingly drawn between the “cultured chimpanzee” (McGrew 2004) and the pithecoïd early hominids who were “essentially bipedal chimpanzees” (Klein 2000:18).

Palaeoanthropology was faced with a two-fold crisis. Not only had its current anthropocentric foundations been torn asunder, but the very validity and value of the classically-derived anthropocentric Rubicon was in the wider culture being implicitly and explicitly challenged with the tandem growth of cognitive ethology in science and the animal rights movement in politics.

In *Animal Minds* Griffin cited a debate between two neurophysiologists. The first held that “in the biological world only human beings are endowed with a self-consciousness, and with a cultural creativity, and they are distinguished completely from animals by the ability to think logically, creatively, and imaginatively and to communicate these thoughts in every medium of cultural expression” (Eccles quoted in Griffin 1992:240). The second argued that animals too had “feelings, desires, purposes, thoughts, consciousness, rights- the same rights to life and to the absence of pain that we accord to humans” (Wade Savage quoted in Griffin 1992:240).

It was the former position that was to dominate within palaeoanthropology in the wake of this crisis. Humanity was to become restricted very narrowly to the modern human according to these qualitatively superior mental capacities, which were conceptualized in effectively binary terms. A new, far more exclusive, Rubicon was drawn, and its very exclusivity meant that defining and defending it was of greater importance than ever.

The kind of re-appraisals of old evidence that had rejected many of the conclusions about the earliest hominids were now applied to even our closest relatives, who were found supposedly lacking. Binford argued that “regular, moderate-to-large mammal hunting appears simultaneously with the foreshadowing changes appearing just prior to the appearance of fully modern man” and therefore “systematic hunting of moderate to large animals appears to be a part of our modern condition, not its cause” (Binford 1985:321). Hunting had not been a fundamental part of the evolution of modern humans as had been believed, but rather it was a behaviour that only the superior modern human was capable of. Moreover, “the organization of tool manufacture and use in the Oldowan and Acheulian periods was essentially the same” (Binford 1987[1989]:435). The lifestyle of the later “archaics” was not “greatly different from that of their much earlier ancestors at Olduvai Gorge” (Binford 1985:317). Thus, the gap between archaics and modern humans was not one of degree as had been supposed, but a qualitative distinction- they were “creatures very different from ourselves” (Binford 1985:322). Different, of course, meaning animal, inferior- they had fallen on the wrong side of the anthropocentric Rubicon.

It had already been suggested in 1982 that the Middle/Upper Palaeolithic transition witnessed a whole range of significant changes including increase in population aggregations, long-distance trade, worked bone, broader subsistence base and so on that marked a “total restructuring of social relations across the Middle/Upper Paleolithic boundary” (White 1982:176). Most significantly, the supposedly proven lack of personal ornaments, as well as a greater “stylistic component” to lithic artefacts, were connected to a qualitative change involving symbolism communicating identity (*ibid*). An influential 1987 review by Chase and Dibble concluded that there was “no evidence” for Middle Paleolithic symbolism- or more accurately, that all the evidence could be explained away to their satisfaction. What the Neanderthals possessed was thus not true human culture, but something of a qualitatively different, lower nature, a mere “paleoculture” (1987:285).

It was argued that this transition saw a “creative explosion” witnessing the origins of art and religion, and that the Cro-Magnons marked not merely the emergence of a new species, but a “new kind of evolution” (Pfeiffer 1982:13). Our early ancestry was now minimised- the crossing of the “fuzzy borderline” between ape and human “made no great splash” and was followed by “almost-empty eons” when “biology was in control, the old-style organic evolution... which still dominates the development of all but the human species. Our ancestors were locked to their genes, in the grip of heredity” (ibid). The Upper Palaeolithic, on the other hand, marked “The great release, the breaking away which is our uniqueness”, and this qualitative leap happened in the “blink of an eyelid” on an evolutionary scale. Humans had become historical agents, no longer mere animals driven by genetics. The picture is the same as that presented by Childe, an evolutionary framing of the classical anthropocentric Rubicon. The Middle/Upper Paleolithic transition was no longer a simple transition. It was a veritable revolution. And not just any old evolution, but the most significant of them all- the origin of the supernal human mind and thus of humanity proper. A “Human revolution” (Mellars and Stringer 1989).

The more this qualitative distinction was assumed, the more Neanderthals’ behaviour was interpreted according to the least charitable and most sceptical view, which only served to reinforce the distinction. For example, Gargett re-evaluated previous reports to argue there was “no physical evidence for burial in the archaeological record of the Middle Paleolithic” (1989a:177). This was not a scientifically objective analysis as he claimed, but was clearly informed by a low view of Neanderthals he had already assumed from other, equally value-laden, analyses of the archaeological record- he stated that “the removal of mortuary ritual from the behavioural repertoire of Neandertal may make the observed disconformity in material culture at the Middle/Upper Paleolithic boundary a little easier to understand” (ibid). Removing “the necessity of accounting for sophisticated spiritual behaviour among Neandertals” would make it “easier in the long run to explain human cultural evolution” (1989a:177). In other words, the evidence was being selected to fit a pre-existing assumption that Neanderthals lacked a fully human mind, which was itself based on evidence selected to conform to an *a priori* anthropocentric Rubicon.

The implications of this study were summarized in a *Nature* review- “if Neanderthals did ritually bury their dead, they had at least one type of spiritually motivated behaviour that allies them with modern humans rather than animals. If they did not, then perhaps they should be regarded as little more than technically skilled chimpanzees” (Diamond 1989:344). The view that the Neanderthals possessed “the mind of a modern man locked in the body of an archaic creature” (Constable 1973) was now totally reversed- they had an ape-like mind locked in a human-like body.

It was pointed out that Gargett’s hyper-critical approach to Neanderthal burials was overstating the Middle/Upper Palaeolithic contrast by failing to subject burials from the latter era to the same scrutiny- “Quite a number of Late Palaeolithic “burials” might need to be rejected as such or treated more cautiously as a result of more critical analysis” (Louwe Kooijmans 1989:322). Gargett was unperturbed, responding simply “so be it” (1989b:329). A clear double standard was at play- the burden of proof lay on archaeologists to “demonstrate the reality of burial and ritual among Neandertals” (1989a:177), but Upper Palaeolithic burials could simply be assumed. As modern humans they possessed a fully human mind, while Neanderthals, supposedly, did not.

Solecki objected to “Gargett’s proposal to deny the Neanderthals... any human feelings for their dead” and complained that a number of “key reports” from Shanidar had “evidently not been consulted” (1989:324), but with the widespread rejection of the “humanity of Neanderthal man” (1972) he had proposed, he was soon to be mocked as a “stone age flower power evangelist” (Stringer and McKie 1998:72). While some archaeologists cautioned against the tendency to “assume the primitiveness of the earlier archaeological record, rather than to test it for complexity” (Gowlett 1984:168) to give a picture of Neanderthals as “stomach-fed and brain-dead” (Gamble 1999:xx), the pendulum had swung firmly against Neanderthal humanity. It was claimed “safer to assume primitiveness than derivedness unless there’s proof to the contrary” (Tattersall quoted in Procotor 2003). Of course, the notion that the various mental capacities now denied to the Neanderthals were indeed derived, in the sense of adaptations unique to the human

lineage, and not features shared with other animals, was itself an unsubstantiated assumption, and an assumption for which there was certainly proof to the contrary.

Symbolism emerged as the key to the supposed “human revolution” or “great leap forward”. It was, however, rather obviously nothing more than a modern gloss on the old anthropocentric Rubicon- symbolic thought or abstract thinking, as internal reason, was seen as synonymous with language, external reason, which was necessary for art, both in the modern sense of visual art and the archaic sense of *ars*, various skills and crafts the Neanderthals were assumed to be lacking in as they required symbolic thought. Checklists of “behavioural modernity” were produced which were almost interchangeable with the classical *ars*- painting, sculpture, bodily ornamentation, sewn clothing, sophisticated tools etc. The “behavioural modernity” resulting from symbolic thought allowed “anatomically modern humans” to colonize the globe and replace the cognitively inferior archaics, becoming “Masters of the Planet” (Tattersall 2012). Modern humans had “an advantage, not in hunting tools or muscle power, and not in overall brain size, but in ornamentation in the form of paint and jewelry. Our ancestors were exploring forms of symbolic expression, while there is little evidence that the Neanderthals had taken this step” (Papagianni and Morse 2013:106). This symbolic behaviour and the cognitive superiority it implies gave them “a key competitive advantage over groups that had not made the leap” (ibid 120). It was simply brains over brawn. Unlike the symbolic humans, Neanderthals supposedly showed “no qualitative break with the past” in their behaviour, merely doing the same as their ancestors had, with a slight improvement in skill- “they were like their ancestors, only more so. We are not. We are symbolic” (Tattersall 2012:177). Lacking evidence of symbolism, they must have been incapable of language and thus on the animal side of the Rubicon- “all human ancestors without language should be considered as apes, closer to chimpanzees than to humans” (Davidson and Noble 1990). They were the Alali, the Pithecanthropi.

Various essentially similar theories of mind would be put forward to explain the “symbolic revolution.” The linguist Bickerton (1992) connected African Eve with a qualitative leap in language development. He cited the archaeological concept of “behavioural modernity” as evidence that protolanguage can turn into true language without an intervening stage; “the most forceful evidence in this respect is the fossil

record... only with the emergence of our own species did there appear bladed tools, cave paintings, stone figurines, moon calendars, and a rich variety of other artifacts. This sudden enrichment of the paleontological record did not coincide with any dramatic enlargement of the human brain” nor with subsistence changes (Bickerton 1992:172). He claimed “if language emerged suddenly, the most likely causative factor would have been some change in the internal organization of the brain that had resulted from a single genetic mutation” and that “the progeny of this individual spread throughout the then-inhabited world and superseded previous hominid populations in all parts of it”, the triumph of reason (Bickerton 1992:174).

Klein described the complex of novel traits appearing abruptly 50-40 KYA as implying the “fully modern cognitive and communicative abilities, or more succinctly, the fully modern capacity for Culture” (1995:167). He also posited that a genetic mutation led to a change in the internal organisation of the brain allowing language and symbolism; “the shift to a fully modern behavioral mode and the geographic expansion of modern humans were [both] coproducts of a selectively advantageous genetic mutation” (Klein 2000:17-8).

This “light-switch” model no longer saw the appearance of language and reason as the outcome of gradually unfolding evolutionary processes- these processes were seen as necessary but not sufficient, simply laying the groundwork. The sudden appearance of language allowing the quantum leap from subhuman to true human is essentially miraculous, the suggestion of a single genetic mutation changing the brain’s software constituting no less a *deus ex machina* than an alien monolith⁶. While earlier authors had often given the same impression, it now took the form of an explicit argument. As one critic put it “no analysis of early hominid development can finally illuminate the dark abyss separating us from even our recent ancestors. Chance accumulation of just the right traits to allow emergence of symbolic consciousness and an improbable gene mutation that instantaneously activates the whole -- such happy accidents would have to remain inscrutable” (Richards 1998). This view was effectively a version of special creation- the sudden appearance of the

⁶ In fact, Arthur C Clarke had been inspired by a line from Ardrey- “we know that but for a gift from the stars, but for the accidental collision of ray and gene, intelligence would have perished on some forgotten African field”- and considered using his phrase “A Gift from the Stars” as the title of the film that would become *2001*.

supernal human mind, qualitatively distinct from all other animals and ancestors, could not be explained in the usual evolutionary terms, just as Wallace had argued earlier.

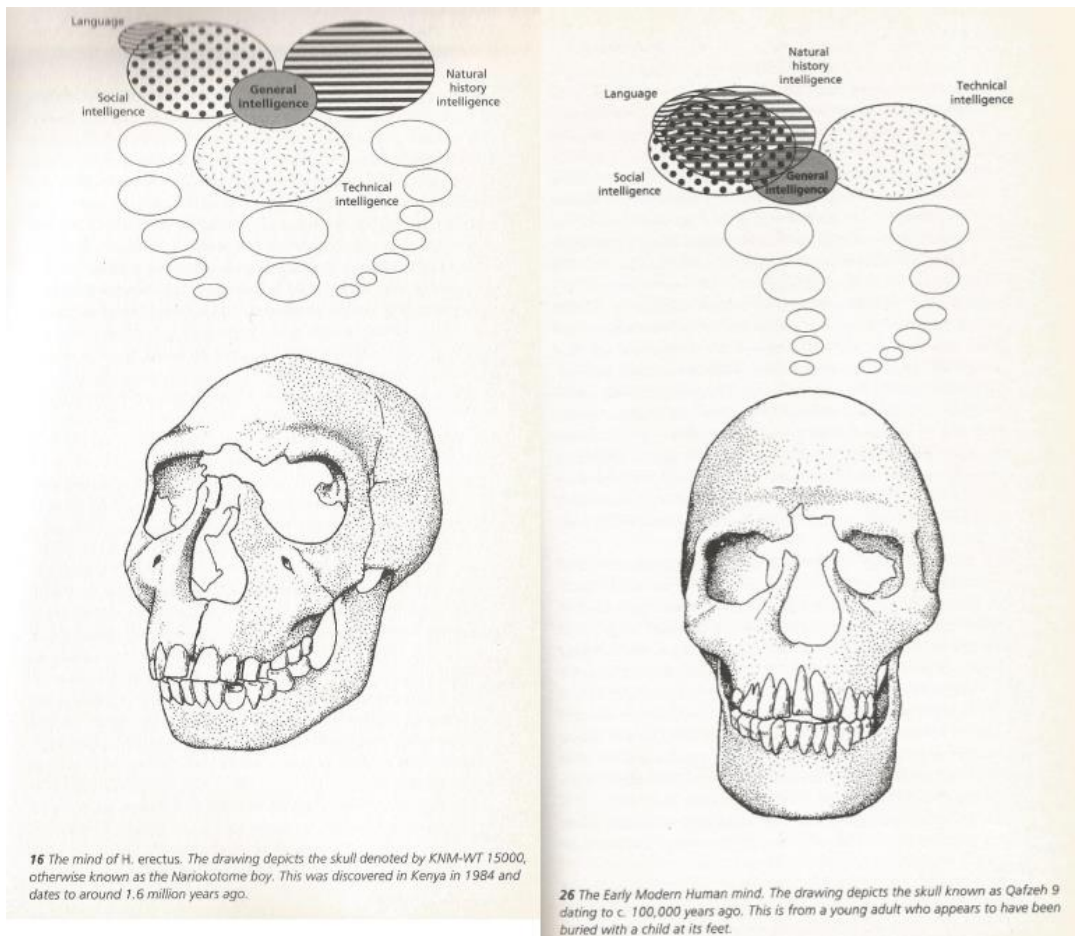
It is, for example, remarkable that Stephen Jay Gould, despite having exposed in detail the faulty science and ideological basis of arguments for human mental inequality (1981), and in a book devoted to arguing against an anthropocentric teleological view of the evolutionary process, could conclude that “We must assume that consciousness would not have evolved on our planet if a cosmic catastrophe had not claimed the dinosaurs as victims” (1989:381). And it ought to be even more remarkable that this was *not* considered remarkable. All the multifarious forms of subjectivity that have lived and died on this earth are as nothing here, literally unrecognizable as consciousness.

And indeed, when Gould speaks of consciousness as uniquely human, he means only one kind of human; “only *Homo sapiens* shows direct evidence for the kind of abstract reasoning, including numerical and aesthetic modes, that we identify as distinctively human” (1989:320). *Homo sapiens* created ice age paintings, sculptures and calendar-sticks, while Neanderthals “knew nothing” of art and mathematics (1989:320). Thus, “let the tiny twig of *Homo sapiens* expire in Africa” (1989:321) and there is nothing to suggest that Neanderthals or any other being could have “taken up the torch” (1989:319).

In arguing against anthropocentric teleology, Gould merely substitutes an alternative, and no less anthropocentric, vision of evolution in which the appearance of the unique modern human mind is the “big bang” of consciousness and subjectivity itself, as cosmically transformative in nature as the origin of life or the universe itself, an effectively miraculous event with no prior antecedent at which we can only marvel with religious awe- “O brave- and improbable- new world, that has such people in it!” (1989:321).

Perhaps the most detailed explanation for the “symbolic revolution” was that of Mithen (1996), who outlined at great length the special nature of the modern human mind and its differences from other hominids, positing that early *Homo* had a “Swiss-army knife” mentality, their intelligence being compartmentalised into

separate domains for “social intelligence”, “general intelligence”, “natural history intelligence”, and “technical intelligence” (**Figure 21**). With *erectus* a domain of “linguistic intelligence” was born which was a little larger in Neanderthals, representing a limited range of utterances too simple to be called language. All these beings “lacked a vital ingredient of the modern mind: cognitive fluidity” (Mithen 1996:154). Cognitive fluidity allowed abilities from different domains to be combined, creating true consciousness and producing art, religion, bone artefacts,



personal adornment and so on, even a sense of humour. All of this was enabled by the appearance of true language, which allowed all of these domains to be combined, producing fully conscious reasoning beings. Mithen later connected the development of language with music (2005), and thus denied that Neanderthals were able to produce musical instruments.

Figure 21 Neanderthal vs modern human mind as conceived by Mithen (1996)

The archaics, lacking cognitive fluidity, were supposedly capable of conscious thought only in the domain of social (Machiavellian) intelligence. Mithen describes the Neanderthal mind as possessing “fleeting, ephemeral consciousness about their own knowledge and thoughts concerning toolmaking and foraging. There was no introspection” (Mithen 1996:167). Neanderthals in this view resemble the Stoic view of animals. According to Mithen, the fundamental difference in mind leaves us unable to imagine what it was like to be a Neanderthal- true empathy is not possible. Tattersall painted a similar picture:

It is just not possible for a symbolically thinking modern human to project him- or herself into the mind of any creature that did not think that way—no matter how large-brained or closely related to us it might have been. The cognitive gulf is just too great. At our current stage of understanding we simply cannot know how Neanderthals subjectively experienced the world and communicated that experience to each other. (2012)

This is in fact virtually identical to the behaviourist objection to the study of animal mind- an *a priori* qualitative difference based on the classical anthropocentric Rubicon is taken for granted, which is then used to rule out investigation into other minds and subjectivities, viewing anthropomorphism not as an essential scientific tool but as a fundamentally unscientific sin. It is not surprising that Mithen did not cite any of the studies from cognitive ethology that would have refuted his model. He was not, however, ignorant of their existence, for he cited *The New Anthropomorphism*⁷ (Kennedy 1992), a work by a behaviourist scientist who, as may be guessed, attempted to dismiss the new cognitive ethology as guilty of this sin. Mithen took from this work the idea that “people are prone to compulsive anthropomorphizing because the idea that animals are conscious and have purpose appears to be built into us by nature and nurture” (Mithen 1996:298-99). For the Cartesian, it is easier to posit that humans have some kind of highly specific instinct for belief in animal minds than it is to judge the scientific evidence for animal consciousness on its own merits.

⁷ A work which is now thoroughly refuted, eg Klopfer 2005

The light-switch model was fundamentally circular in nature. Bickerton the linguist believed the archaeological record was the “most forceful evidence” for language appearing by a quantum leap, while Mithen set out to explain the “creative explosion” by his theory of the uniquely superior human mind. Yet, the very interpretation of the archaeological record as demonstrating a creative explosion or qualitative leap linked to modern humans, that scholars advanced theories of a uniquely superior human mind to explain, was already based on unexamined assumptions about the cognitive superiority of modern humans. It was all a self-sustaining discourse based on the old classical Rubicon and stubbornly advanced in the face of contemporary challenges to that Rubicon. Some advocates went so far as to state openly that the light-switch model was *a priori* the only valid game in town; it was “illegitimate to suggest that the non-cultural becomes cultural through the addition to individuals, piece by piece, of a capacity for culture” since this capacity is only conceivable as a Rubicon (Noble and Davidson 1994:224).

An alternative to the “light-switch” model somewhat later emerged. This gradualist model, expressed by McBrearty and Brooks (2000), cited the increasingly older evidence of “behavioural modernity” being discovered in South Africa. It was argued that modern human anatomical and behavioural features accrued step-wise and intermittently rather than effectively overnight due to a genetic mutation. “Behavioural modernity” was characterised by the unique capacities of the modern human mind- listed as abstract thinking, symbolic behaviour, planning depth, and behavioural/economic/technological innovativeness- and the archaeological signatures of these capacities, such as art, ritual, worked bone and organic material, blade technology and so on. Here they were in broad agreement with the proponents of the “light-switch” model; the modern human mind, with its symbolic/abstract thought, is qualitatively different from all other minds that have ever existed, save for our immediate ancestors (and in the light-switch model, even our immediate ancestors), and this difference can be easily perceived from the archaeological evidence. The first incarnation of divine Reason was essentially identical to every subsequent incarnation- “the earliest homo sapiens probably had the cognitive capacity to invent sputnik” (McBrearty quoted in Wilford 2002).

Indeed the similarities of these models outweigh their differences- there is a superior uniquely human mind defined essentially by reason, and it has only ever resided in anatomically modern humans. After its appearance, its superiority ensured that any further subhuman contribution to our ancestry was non-existent or at most negligible. The differences of timing and process between the “light-switch” and the gradualist “slow revolution” were not of fundamental importance, since they posited the same outcome with the same underlying concepts.

There was also an alternative scenario to both the gradualist and light-switch versions of the human revolution- “the traits that define behavioral modernity are not peculiar to our species and arose over a long period among different human types, including Neandertals” (d’Errico 2003:189). This was very much a minority position and was hardly taken seriously, held only by “a few dissenters” (Papagianni and Morse 2013:157).

7b. Archaics Reappraised

The picture of the Neanderthals as beings lacking the uniquely superior human mind, thus closer or akin to mindless animals, that was such a key part of the “man the symboler” mythos is now crumbling under the weight of contradictory evidence. It is evident that Neanderthals made symbolic use of marine shells and mineral pigments; “The Iberian finds show that European Neandertals were no different from coeval Africans in this regard, countering genetic/cognitive explanations for the emergence of symbolism and strengthening demographic/social ones” (Zilhão et al 2010:1023). The use of red ochre by Neanderthals is now dated to at least 200-250KYA, the same time range as the earliest African evidence (Roebroeks et al 2012). Evidence showed that Neanderthals treated raptor bones in a non-subsistence manner, removing their claws. Since these were all from eagles, among the rarest birds in the environment, any utilitarian explanation was unlikely. They were more likely a means of symbolic expression, presumed to be ornaments (Morin and Laroulandie 2012). Similar evidence from wing-bones suggested symbolic use of

feathers (Peresani et al 2011). The symbolic use of raptor and corvid feathers and claws by Neanderthals is now confirmed to have been a spatially and temporally widespread phenomena, “providing clear evidence that Neanderthal cognitive capacities were comparable to those of Modern Humans” (Finlayson et al 2012). Dating of cave art at El Castillo showed a red disc to be at least 41,000 years old, making it the earliest dated example of European cave art; “it cannot be ruled out that the earliest paintings were symbolic expressions of the Neandertals” (Pike et al 2012:1413). The recent discovery of a Mousterian “hashtag” engraving at Gorham’s Cave in Gibraltar “demonstrates the capacity of the Neanderthals for abstract thought and expression through the use of geometric forms” (Rodríguez-Vidal et al 2014:13301).

The field now appears to be on the cusp of recognising Neanderthals as possessing a fully human mind- we are introduced to “Neanderthal Man the Symboller” (**Figure 22**). A recent National Geographic article (Walters 2015) presents the familiar narrative that “the greatest innovation in the history of humankind was... the invention of symbolic expression by the first artists” (ibid 33). However, it significantly also stated that the record for Neanderthal symbolic behaviour “may be faint, but it is discernible” (ibid 56)- citing deliberate burial, the use of feathers for ornamentation, the recently discovered Gibraltar engraving and the red disc painted at El Castillo- so “perhaps they, not us, were the first cave artists” (ibid 57).



Figure 22 Neanderthal with personal ornamentation (Mauro Cutrona)

Even the strongest proponents of the human revolution are softening and subtly altering their argument to accommodate greater abilities for Neanderthals, without fundamentally changing it. For example, in contrast to the formerly prevalent idea that Neanderthals were essentially mute, Stringer now states “I’m sure they had speech and language” but relegates it to “a language for the here and now, a more practical language for survival” that was incapable of expressing “complicated things” like “the kind of hypothetical reasoning that leads to modern inventions” (Quoted in Shreeve 2014). The Neanderthals possessed merely the shadow of reason,

incapable of the abstract reasoning that is the unique preserve of the modern human, thus incapable of true cultural achievement.

As of 2018, even Stringer has been forced to accept Neanderthal art. Yet he has found one last straw to grasp at, seeking refuge in a spurious hierarchical division between abstract and representational art- with its own heavily loaded intellectual history there is not space to unpack here- to save the uniqueness of the superior modern human. Stringer accepted that the dating of cave paintings of various animals, linear signs, geometric shapes, hand stencils, and handprints from three different sites in Spain to older than 64,000 years (Hoffmann et al 2018) “seems to remove any doubts” (Stringer quoted in Rincon 2018) that Neanderthals were capable of symbolic expression. However, he argued that the superiority of modern humans could still be supported by the lack of Neanderthal representational or figurative art- following entirely unsubstantiated claims that the animals were added later by modern humans on top of Neanderthal art. After all, “there must be something that’s different about modern humans” (Stringer quoted in Jones 2018) - anthropocentric ideology demands it.

Those who had supported the formerly minority position that Neanderthals were not inferior in mind were quick to celebrate. Bahn claimed the view that they were “brutish savages, little better than animals” was now confined to “a rump of blinkered scholars” who has fortunately become a “dwindling minority” as “almost all objective scholars now fully accept Neanderthal art” (Quoted in Than 2012). It was a simple matter of scientific objectivity- rational scholars would accept the evidence, while those who did not were slaves to an outdated model.

Yet, to view the recent and important archaeological findings in support of the re-valuation of Neanderthals in the simple terms of scientific progress would be misleading. After all, it can hardly be coincidental that, just as the human revolution model became hegemonic after the “African Eve” mtDNA study was believed to have expelled Neanderthals from our ancestry, the revaluation of Neanderthal mental capacities has followed in the wake of the 2010 Neanderthal genome sequencing demonstrating the presence of Neanderthal genes in modern populations- or that those most opposed to Neanderthal cognitive equality have also sought to play down such interbreeding.

The evidence, from an objective standpoint, did not suggest or support the mental inferiority of the Neanderthals in the first place. As Villa and Roebroeks have demonstrated, there was simply “no data in support of the supposed technological, social and cognitive inferiority of Neandertals compared to their AMH contemporaries” (Villa and Roebroeks 2014:7). Rather, the difference was a manufactured one, a result of deep-seated bias leading to a double standard in interpretation; “archaeologists’ characterizations of Neandertals as cognitively inferior to modern humans have created an interpretive framework within which subtle biological differences between Neandertals and modern humans tend to be overinterpreted” (Villa and Roebroeks 2014:7). According to this double standard, “the position on either side of the Middle/Upper Palaeolithic boundary greatly determines the scientific treatment that finds receive: the inferred level of “humanity” of the hominid involved forms the basis of behavioural reconstruction. Similar finds are interpreted differently” (Roebroeks and Corbey 2001:67). Thus, “The “Moderns” are capable until proven incapable, whereas the “Ancients” can be summarized as incapable, until proven capable” (Roebroeks and Corbey 2001:72). Villa and Roebroeks (2014) dubbed this the “modern human superiority complex”.

In support of this double standard, the neglect of “taphonomic logic” (Bednarik 1994) allows absence of evidence to pass for evidence of absence. If we take taphonomic factors into account, it is entirely invalid to hold the oldest surviving art to be the first art ever created, as it is a virtual certainty that older art was produced that has not survived or been described⁸. One would need to demonstrate that the creation of older examples was impossible- and this is where cognitive difference is brought in. In other words, in order for the absence of older art to count as a real prehistoric phenomena rather than an artefact of preservation, such a cognitive difference must already be demonstrated. In fact, the absence of older art was adduced as the strongest evidence of this cognitive difference (a circularity previously noted for the light switch model). The real epistemological issue here is

⁸ In global perspective, Pleistocene art of any kind is extremely rare; it is only exceptional circumstances of preservation that have allowed the cave paintings of western Europe to survive until the present day. This highlights the Eurocentric nature of the symbolic revolution model, which is no longer tenable. For example, cave art dating to 40KYA has recently been found at Sulawesi, Indonesia (Aubert et al 2014).

this cognitive difference, not taphonomy itself which is merely misused in the service of the former.

A good example of this implicit bias is a piece of conventional wisdom that because bone needles are only known from later modern humans sites, the Neanderthals did not possess tailored clothing (eg Papagianni and Morse 2013:150). In a recent National Geographic interview (May 2014) Stringer cited the use of needles to produce tailored clothing as an example of a small but significant behavioural difference allowing modern human to replace Neanderthals, arguing that Villa and Roebroeks' (2014) demonstration of the lack of evidence for behavioural difference "isn't necessarily the whole story". His use of this line of evidence here seems to be based solely on the fact that needles were not included in the numerous lines of evidence that Villa and Roebroeks debunked in their study. Certainly, it is easily demonstrated this line of evidence is no stronger than anything that they did cover. The creation of bone tools had been held as one clear example of behavioural modernity unique to modern humans, but it is now evident that the oldest known bone tools in Europe were made by Neanderthals. These were lissoir tools used to work hides to produce leather, which surely must have been sewn in some way (Soressi et al 2013). But this evidence is hardly necessary to see the dubious nature of positing that firstly, the absence of bone needles discovered and assigned to Neanderthals means that Neanderthals never produced bone needles, indeed were incapable of doing so, and secondly that a lack of one specific artefact type, the bone needle, suggests a lack of tailored clothing- there are clearly other means to the same end. A study modelling Neanderthal energetics concluded "Even during the benign Eem period, Neanderthals faced a considerable heat loss problem. Wearing tailored clothes or some similar measure was necessary for survival. An animal skin across the shoulder would not have sufficed to survive even average cold winter temperatures and body cooling by convection caused by wind. Clothes and particularly footwear had to be sewn together tightly in order to prevent intrusion of water or snow" (Sørensen 2009). It should be noted that the production of tailored clothing was classically considered an *ars*, thus requiring a rational human mind. Thus, savages and monstrous races were typically depicted naked or wearing animal hides rather than tailored clothing in classical and medieval depictions, emphasising

their animality, and this iconographic tradition was continued in the portrayal of human ancestors such as Neanderthals (Moser 1998).

Villa and Roebroeks (2014) cited an article by Pearce, Stringer and Dunbar (2013) as an example of the “modern human superiority complex” which interprets subtle biological differences as demonstrating cognitive inferiority, according to methods indistinguishable from the craniology of scientific racism. Neanderthals had larger eye sockets than modern humans; this difference in orbital volume was argued to demonstrate that Neanderthals had larger visual cortexes thus leaving less neural tissue for other brain functions. The absolute endocranial volumes of the Neanderthal skulls analysed were no smaller than modern humans, but the “standardised endocranial volumes” fell below the average for modern humans. The small difference the authors effectively manufactured here was then taken as proof that Neanderthals were cognitively less capable than modern humans, innately incapable of achieving an equally high degree of social complexity thus doomed to extinction when faced with a changing environment and a species with “superior social cognition” (Pearce et al 2013). Those with inferior reason are naturally subjugated by their mental superiors.

While Villa and Roebroeks perform an admirable service in exposing the flawed epistemic basis behind archaeological interpretations of Neanderthal behaviour over the last few decades, their discussion of the “modern human superiority complex” is lacking in context. The impression one gains is that it is merely an isolated case of archaeological folly. Of course, after everything we have examined previously we should be well placed to expose it for what it really is- just one manifestation of the anthropocentric double standard that has pervaded virtually all scholarly investigation since the classical era. The long-standing prejudice against Neanderthals is rooted in classical anthropocentric ideology that set up a hierarchical dichotomy between humanity and animality, reason and instinct. As such the double standard according to which evidence of the archaics’ mental ability has been evaluated is analogous and intimately connected to the double standard according to which animal mind has been conceptualized, as well as the minds of women, non-white races, working classes, and indeed anyone else deemed inferior on an *a priori* basis to justify their political domination. Without a wider understanding of

anthropocentric ideology, we cannot fully understand the recent change in the field. For while the “modern human superiority complex” is still alive and well, it is certainly losing the unquestioned sway it once held over the field. That does not mean, however, that anthropocentric ideology is in any way diminishing.

The recent re-evaluation of Neanderthal mind was thus not a case of unexpected discoveries narrowing the difference between Neanderthals and modern humans. Rather, now that Neanderthals have been, so to speak, “welcomed to the human family”, scholars have been primed to recognize what should have been obvious all along. New evidence did not overturn the old paradigm, but rather the overturning of the old paradigm is what enabled the new evidence to be recognized and widely accepted. Once the phylogenetic gap between Neanderthals and modern humans had narrowed, the double standard as applied to the former began to be questioned. It was the very recognition of Neanderthals humanity that allowed the evidence of their human mind to be acknowledged. And herein lies the key point- the increasing recognition of Neanderthal subjectivity and symbolism is in no way a break with the anthropocentric tradition, but rather a clear case of continuity. If, as is increasingly the case, they are not dismissed by the double standard of “the modern human superiority complex” it is not because of any epistemic changes within the field. It is rather because they now fall on the human side of the Rubicon. The reappraisal of Neanderthals is in no sense metahumanist- it is not extending subjectivity beyond the boundaries of the human, but rather extending subjectivity to fill the newly enlarged boundaries of the human.

This comes across very clearly in Zilhão’s suggestions that Neanderthals were a “European racial variant of *Homo sapiens*, not a distinct species” and that the evidence “argues for a middle Paleolithic revolution, not an upper Paleolithic revolution” (Quoted in Than 2012). The combined effect of these claims is simply an extension of the much-vaunted symbolic Rubicon a little further beyond the exceedingly narrow temporal and biological confines it has until very recently been restricted to. The underlying ontological and epistemic assumptions of the anthropocentric tradition remain unchanged.

An even more recent threat to the mental and behavioural uniqueness and superiority of modern humans has appeared in the form of *Homo naledi*. The National Geographic announcement drew a stark picture of this being's inhumanity; "A large brain is the *sine qua non* of humanness, the hallmark of a species that had evolved to live by its wits. These were not human beings. These were pinheads, with some humanlike body parts" (Shreeve 2015:45). Yet these beings had apparently been deliberately depositing their dead in an example of funerary caching (**Figure 23**). It was "provocative" that such a lowly creature could have exhibited "human cultural practices" (Hawks quoted in Osborne 2017). Naledi was "an animal" (Berger quoted in Shreeve 2015:55) yet it demonstrated behaviour perceived to be unique to modern humans, and perhaps Neanderthals. In being "an animal that appears to have had the cognitive ability to recognize its separation from nature"



(ibid) it was a contradiction in anthropocentric terms.

Figure 23 Homo naledi funerary activity (National Geographic October 2015)

It was possible, indeed, that Middle Stone Age tools found in the region had been the work of this being, not modern humans; "Without extraordinary evidence, we

cannot uncritically accept that such a broadly defined archaeological tradition was the exclusive product of a single population across Africa” (Berger et al 2017). If this was so it could even be possible that it was not modern humans but these “pinheads” who were “the innovators of some of these critical technological and behavioral breakthroughs in the archaeological record of Africa” (Berger quoted in Osborne 2017).

But such claims were met with some scepticism. And so we return once again to old anthropocentric double standard- if the evidence suggests supposedly “human” mental capacities in the less-than-human, the evidence must be incorrect, as these capacities are a priori uniquely human. Thus, if the evidence showed intentional funerary deposition, the evidence must simply be wrong. Stringer suggested that “further exploration will reveal other, closer, entrances or sinkholes which were temporarily open, through which the remains could have been introduced by accidental or natural processes” (quoted in Sample 2017). Richard Leakey was more blunt- “There has to be another entrance... [Berger] just hasn’t found it yet” (quoted in Shreeve 2015). Indeed, it was not long before the evidence was indeed challenged on these grounds, and the possibility of another entrance suggested (Val 2016). However, such a possibility, whatever merit it may have had (and it seems to be rather little) was moot since even if there were another entrance the selectivity of the assemblage among other factors indicated it would have had to conform to the same restrictive criteria (Dirks et al 2016).

There was, however, one alternative line of argument available. If the force of evidence showed the accumulation of naledi remains to be the result of subjectivity and agency, this could be admitted without granting such capacities to the naledi themselves; “it is plausible that early modern humans killed them and stashed them in the cave as part of a ritual” (Marean quoted in Gibbons 2015). These inferior beings would be natural fuel for the symbolic wonders of the modern human mind. One only needs to imagine under what conditions it could be proposed, without any supporting evidence, that an intentional accumulation of modern human remains had in fact been killed and stashed by other beings in their ritual behaviour.

Of course, it should not be supposed that Berger et al are paragons of positivist objectivity or that they have deconstructed anthropocentrism- it is already well

enough understood that a discoverer may make “extraordinary claims” of the kind that others with no stake of personal prestige in the matter may shrink from. And their published claims are in fact rather modest, and still beholden to anthropocentric ideology. While the discoverers stated it was “unwise to adopt any prior assumptions about [naledi’s] behavioral repertoire” (Dirks et al 2016:4), in reality they did exactly that. They stated it was “appropriate to adopt a null hypothesis” that the remains entered the chambers “without intentional hominin mediation” (Berger et al 2017), but that the evidence rejected this null hypothesis. It is of course not scientific objectivity that demands intent be ruled out beyond reasonable doubt, rather than preponderance of evidence. It is, rather, the old anthropocentric double standard that demands as much.

Moreover, they were careful not to challenge the cherished symbolic Rubicon. Though based on the possibility that naledi manufactured MSA toolkits, they did not “rule out” symbolic abilities, they stated there was “no information about whether H. naledi was a symbolic species” (Berger et al 2017). They argued that the deposition of bodies may have been motivated purely by practical needs such as the removal of decaying bodies from habitation areas or prevention of scavenger activity, thus “symbolic cognition is not likely to have been necessary” for such behaviour (ibid). In other words, that it was cultural behaviour only in the inferior descriptive sense that animals are now begrudgingly acknowledged to demonstrate culture, an adaptive response to the baser needs of life in the struggle for existence, and not the superior transcendent force of that supposedly uniquely human power, symbolic culture. Here we see again the so-called parsimonious behaviourist dogma that if the actions of a non-human can be explained without mind, that explanation must automatically be preferred. Interpretations of behaviour are made from anthropocentric *a priori* assumptions about the mental nature of a being, rather than evidence of behaviour being used to draw interpretations about the mind of a being. It is assumed that the deposition was not “symbolic” because it is assumed naledi was incapable of “symbolic cognition”, while the bones of modern humans in such circumstances would be immediately claimed as “ritual” even if the behaviour demonstrably served a practical purpose also.

The influence of cognitive ethology can be seen here as both opponents and proponents of naledi funerary caching acknowledged grieving in at least certain “higher” mammals. Yet they still followed classical anthropocentrism in holding such behaviour to be of a “lower” kind, merely a result of the passions, while funerary ritual was of a “higher” kind, the unique preserve of the symbolic human mind in which rationality rules over the passions.

This chapter has omitted discussion of sociobiological theories in recent decades. This paradigm is far from extinct, indeed there are some very obvious examples within human origins discourse, such as the *Demonic Males* of Wrangham and Peterson (1996), which draws a picture of the ape as *figura diaboli* worthy of du Chaillu, with the familiar reactionary implications for human politics and gender.

However, with the rise of liberation movements any scientific arguments against human equality can no longer pass unchallenged, and in general explicitly sociobiological works have been reduced to a relatively fringe position. The most prominent and notorious cases have already been subject to extensive critical analysis (eg Rose and Rose 2010, Rose and Kamin 1984, McKinnon 2005). It is notable that the vast majority of such critiques serve not simply to defend human equality but to defend the anthropocentric human-animal binary. They are aimed at reinforcing the Rubicon, for their central thesis is not that the sociobiologists err in offering up a grossly diminished and thoroughly unobjective picture of animal life, but rather that they err in extending this picture to humans.

However, while the polemics and cottage industries of its adherents draw heavy fire, scholars do slip into the sociobiological mode more often than might be supposed, even where it might seem incongruous, allowing sociobiological positions into their work under the radar. For example, in their discussion of race as skin-deep, Stringer and McKie (1996:181) approvingly quote Diamond (1991)- “the traits we traditionally use [for classifying human races] are ones subject to sexual selection... racial classification did not come from science but from the bodies’ signals for differentiating attractive from unattractive partners”. A theory of racial differences tentatively suggested by Darwin in an era of anti-miscegenation laws, in which

people of colour were routinely caricatured as repulsively ugly, is thus resurrected uncritically.

Their focus on sexual selection also leads them to cite approvingly some of the reactionary theories of evolutionary psychologists, the kind that say far more about the psychology of their authors than about anything evolutionary. For example, we are told that “a woman’s attractiveness, according to men is rated according to her appearance- the more voluptuous the better... clear skin, full lips, good muscle tone- all signal one thing, that the woman is fertile, and is capable of bearing those children that a man instinctively desires” (1996:206). On the other hand, “a woman seeks generosity, maturity and social status... age is not particularly important because a man can father children in his forties, fifties, sixties and beyond” and “provide resources to keep the family secure and healthy” (ibid). They concede “this pattern is affected by the society in which we live, but only slightly” (ibid). This picture of human evolution- in which women are very explicitly bodies and men agents- is not far removed from sexist “Mars and Venus” stereotypes, to say nothing of its cisheteronormativity.

It may seem surprising to see such views endorsed in a work very explicitly devoted to a scientific demonstration of racial equality and the common kinship of humanity, but as we have made clear, the distinction between the sociobiological and Rubicon approaches is not as fundamental as commonly supposed, for they are simply two sides of the same anthropocentric coin. The division between humanity and animality was not forged in the service of equality, but to legitimate the exploitation of those relegated to the wrong side of it.

7c. Human Mind and Animal Instinct: Conclusion

Classical anthropocentrism drew a strict dichotomy between the superior human mind, possessing reason, language and free will and thus capable of morality and arts, and the inferior animal who was lacking on all accounts and motivated simply by natural instincts. Such impulses were also posited within the human soul, and those

inferior in reason were controlled by them. This ontology was not based on evidence, but *a priori* assumptions, which were simply reasserted more forcefully whenever contradictory evidence of animal mind was brought up. Moreover, it was no idle philosophy but a political ideology that served to legitimate the dominion of the ruling classes, and justify the exploitation of both other animals and other classes of humanity. The human status of any being could- and, indeed, must- be judged by whether it possessed the divine faculties of the human mind, and their productions. The concepts and framing of anthropocentric ideology are so dominant even today that they are often assumed to be natural- however, they developed in a specific time and place for a specific purpose. Through its incorporation into Church doctrine, this ideology was to dominate science and culture to the time of Darwin.

Darwin adopted a metahumanistic approach, re-appraising animal mind instead of rejecting it *a priori*, and seeing mental continuity with humans, and encouraged other such as Romanes and Lubbock to pursue investigations into animal mind. He saw the study of animal mind as essential to the study of human origins. Nevertheless, he was still beholden to classical anthropocentric ideology, not abandoning the importance of an anthropocentric Rubicon, while also pursuing sociobiological approaches that saw humans as driven by instinct, especially oppressed groups who were claimed to be inferior in reason to justify their oppression. Despite affirming the common descent of all life, in the recognition of animal mind Darwin and his acolytes did not go as far as Morgan, or even various classical scholars, had from a pre-evolutionary tradition.

Huxley and Haeckel, who played the greatest role both in popularizing evolution and in demonstrating the fact of human evolution and writing foundational texts in the discourse of human origins, had little interest in the re-appraisal of animal mind initiated by Darwin. Instead, they relied on a firm anthropocentric Rubicon, as well as strongly advocating sociobiological positions that “animalized” the “lower” orders of humanity. Rejecting the sociobiological positions common to the Darwinians on human instincts and the innate inferiority of savages, yet accepting the anthropocentric view of animals, Wallace was only able to enshrine the anthropocentric Rubicon as firmly as ever, through advocating a version a special creation.

The Darwinian investigation into animal mind would be cut short with the rise of behaviourism in the early 20th century, which adopted a Cartesian attitude partly as a justification for vivisection. Human origins discourse would continue with an even firmer anthropocentric Rubicon, rejecting the human mind of fossil ancestors, and a heavy sociobiological focus on eugenics.

Later, the conclusions that Darwin, Huxley, Haeckel and their numerous successors had drawn about the mental inferiority and inherent animality of “lower” classes, races, genders and so on would be widely rejected as bad science, motivated not by evidence but by political prejudice. The same scepticism, however, was not applied to their equally prejudiced and unsupported conclusions on animal minds, which persisted unchanged or in even stronger Cartesian form in the service of an anthropocentric Rubicon, for the rising political concern for human equality was not matched by any concern for animals. The anthropocentric ideology based on assumed hierarchies of mental powers and faculties between different classes of being which had underpinned not only their conclusions about animals, but other humans too, was allowed to persist unchallenged.

With the rise of cognitive ethology, the long repose of scientific acknowledgement of animal mind finally came to an end. However, there was no happy reunion between the discourse on animal minds and that on human origins. The prime tendency of the latter was and is to only begrudgingly accept whatever animal capacities it is no longer tenable to deny, while minimising their relevance. The growing “humanization” of animals represented by cognitive ethology and evidence on ape behaviours and phylogeny was a threat to the cherished anthropocentric Rubicon of human origins discourse, and was seen as politically suspect because of coherence with growing animal rights discourse. Thus the response was to construct a new Rubicon by “animalizing” all our other ancestors to glorify by contrast the supernal mind of the fully modern human. This was not based on objective examination of the evidence, but on an *a priori* assumption of a lack of abstract thought in archaics that precisely mirrored the double standard that had for so long been applied to the study of animal behaviour. Both were manifestations of the same anthropocentric ideology. In its almost total denial of mental continuity, this symbolic revolution model had to disavow all explanations based on

evolutionary processes, and was in effect little different from the doctrine of special creation.

Though recent development in palaeoanthropology have led to the supposedly inferior capacities of archaic humans being re-appraised, the underlying anthropocentric ideology and “Man the Symboler” mythos has remained effectively unchanged. The continuity of classical anthropocentrism has persisted to this day.

Chapter 8: Case Study

8a. Introduction

There is a great deal more material that could fruitfully be subjected to the kind of historical analysis we have thus far been engaged in. However, rather than pursue this further here it is perhaps more useful to give some brief indication of how we might begin to move beyond anthropocentrism and actually apply a metahumanistic multi-species approach to the field before we close. Through discourse analysis we can take a fresh look at a particular set of intellectual tracks, but the ultimate aim of the exercise is to forge new ones.

As we have seen, kinship and mind have been the traditional ideological bastions to disqualify certain beings from certain modes of study. Yet, once we dismantle them, we will find there are other criteria to consider in our choice of subjects. We may acknowledge a distant kinship with a worm, we may even admit it a spark of reason, but the scale and environment it inhabits separate it from us by a long way. If the worm can be said to inhabit a world of meaning, it is nonetheless a world very far removed from our own.

This does not apply only to “lower” organisms. So far we have given the most attention to the nonhuman great apes, for they have played by far the greatest role in the discourse of human origins. This is a distinction based more in anthropocentric myth than the nature of the evidence, however. They have earned far more attention based on physical similarities to humans than they would merit on other criteria, even in contexts where these physical similarities ought to be of no relevance. Of course, ape ancestry is certainly of great significance, but in terms of the kind of beings our more recent ancestors interacted with their part in the drama is virtually nil.

In this chapter we will consider the role of hyenas, which make quite a contrast with the role of the apes outlined above. Despite playing a prominent role in human prehistory and the ecology of the recent geological past they have been to a large

extent passed over in the discourse. This has been so not only in comparison to apes, but to other large carnivores as well. They may not be appreciated as thinking, feeling subjects but the figure of the cave lion, cave bear, and dire wolf have at least attained a semi-mythical status, while the cave hyena is virtually unknown outside of specialist works. Their overlooked and maligned status, and their similarities of various kinds to human ancestors despite the physical differences, make them a fitting choice for our analysis.

To move from the anthropocentric to a metahumanist approach involves a reorientation of perspective. This is perhaps easier to represent in visual form. The prevailing traditional anthropocentric approach is structured like so (**Figure 24**):

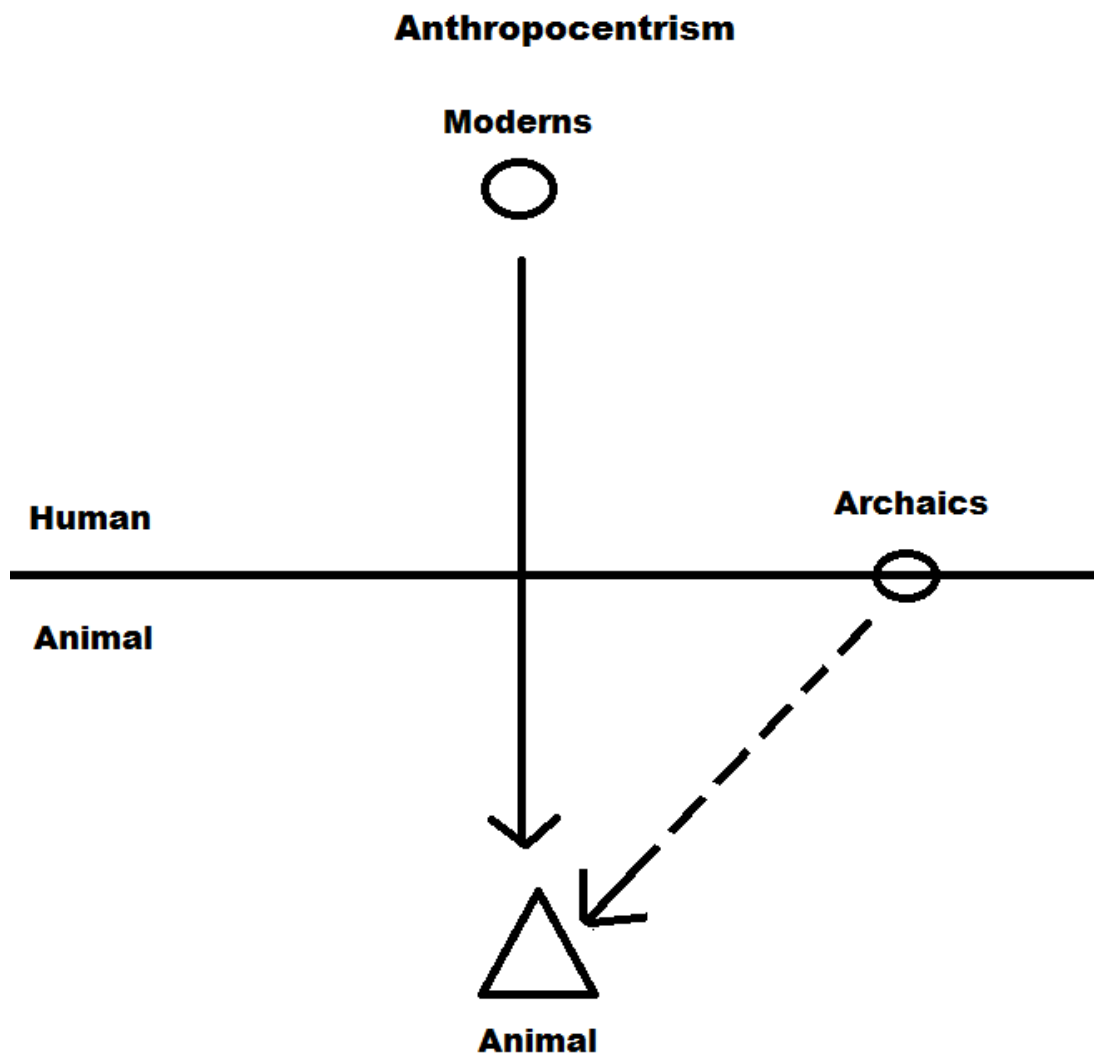


Figure 24 The Anthropocentric approach

This whole schema is structured around the human-animal divide. The perceptions of prehistoric “modern” humans are seen to share a fundamental underlying similarity with those of our own, being based in a uniquely human mind which is essentially the same wherever it may be found. They may be thinking differently about animals, but the important thing is that they are *thinking*, creatively appropriating their environment through symbolic thought. This fundamentally human mind is supposedly not shared with archaics, and thus one cannot use one’s own thoughts and feelings as a sound basis for understanding them in the same way as for modern humans. The exact position of archaics in this schema will vary depending on the author, some regarding them as closer to the human side than others, but overall they are seen to have a liminal status, neither fully one or the other. They may be granted a lesser kind of subjectivity, their perceptions perhaps worthy of at least some attention. But these perceptions are rooted in the here and now of day to day survival instincts, in the base material world and not a higher plane of creativity and art. As for animals, they have no subjectivity, no mind worth accounting for. They are driven by bestial instincts, automata at the whims of nature, and thus are all effectively interchangeable. Now compare this with the schema we wish to substitute (**Figure 25**):

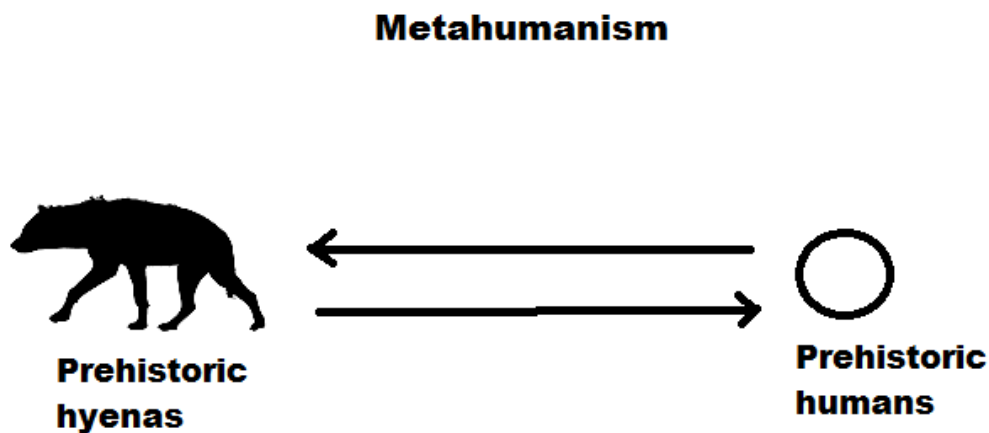


Figure 25 The Metahumanist approach

This schema no longer presupposes a human-animal divide as a fundamental structuring principle. Archaics and moderns are here included together, with no strict division based on differing levels of humanity. This is not to suggest that there are no differences between populations worth acknowledging, but rather that the existence and relevance of such differences must be soundly demonstrated and not taken for granted or greatly exaggerated based on presumed human status. It should not be supposed that closer anatomical and genetic similarities will trump all other factors and grant us a window into their minds that is lacking in the case of the archaics, or conversely that anatomical and genetic differences mean an unbridgeable gulf when it comes to understanding other minds. It is fair to assume that archaics and moderns could have understood and empathised far more readily with one another than we can with either.

The other difference to note is that “animal” can no longer be taken as a coherent category. These beings share nothing with each other that is not also shared with humans, besides a shared history of anthropocentric defamation. We must avoid “the animal” as a generalized, loaded and devalued category, and instead look at specific nonhuman beings, giving due consideration to their particular and historically contingent lifeways. All beings have a subjectivity and agency which this category denies, but the particular manifestation this takes will be different in every case and must be appreciated in its own terms. Simply by speaking of “human-animal interactions” as if each case shared some essential feature we are already invoking an ontological distinction that is not given by an objective reality and not shared by prehistoric subjects. Not only do hyenas have their own perceptions of humans to take into account, but in the opposite direction the perceptions of prehistoric humans must be approached without presupposing they were filtered through the western ideological tradition of anthropocentrism that we have all drunk deeply of.

While this diagram appears more simplified, metahumanism in fact introduces more complexity than anthropocentrism, as there are more factors that need to be

understood and considered. We must now consider not only the perspective and agency of all subjects but also their perceptions of each other and the relations between them.

8b. Perceiving Hyenas

Without wishing to embark on another extended historical analysis, it must be noted that the poor treatment of hyenas in human origins discourse assuredly owes much to long-standing western prejudices against them. Aristotle discussed their habits of scavenging carrion, attacking humans, and disturbing graves, all traits that in anthropocentric classical thought marked them as especially bestial and lowly, and were repeated by other writers, Pliny describing them as the only beast that dug up graves in search of corpses (Glickman 1995). In the medieval era their reputation as cowardly, ugly corpse-defilers sank even further, and the depiction of hyenas breaking into tombs and devouring corpses became a common theme (eg **Figure 26**). In the tortured metaphors of medieval bestiaries they also became linked with another despised and supposedly less-than-human group, as their alleged ability to change sex from male to female was likened to the Jews who supposedly switched from worship of the true God to idolatry (Strickland 2007:209). While this association was later forgotten the poor reputation of the hyena was not, and despite contact between colonial hunters and living hyenas it proved immune to contradictory evidence. When hyenas were found feeding from a carcass it was always assumed the prey had originally been killed by lions even if there were none nearby, and if hyenas were witnessed killing prey or fighting lions it was dismissed as exceptional (Glickman 1995:508). The persistence of this reputation is notable not only in popular but even in scientific works of the 20th century- for example, Walker's authoritative *Mammals of the World* states that the spotted hyena has a "cowardly" nature (Walker et al., 1968, V. 11, p. 1265).



Figure 26 Hyena desecrating corpse, from the Aberdeen bestiary (University of Aberdeen)

This low esteem was no less apparent in the study of specifically prehistoric hyenas, as is evident in William Buckland's work on the Kirkdale hyena den. The remains he examined supposedly showed the hyenas' bestial nature as "rapacious, ravenous, and murderous cannibals" and "brought as evidence against a man, would be quite sufficient to convict and even hang him" (Gordon 1894:54). The charge was rather ironic given that Buckland himself was reputedly not above indulging in a spot of cannibalism, for one anecdote has him devouring the mummified heart of Louis XIV (Hare 1900:385). In any case, Buckland was plotting a murder of his own. Seeking a hyena skull to compare with the fossil remains he ordered a young hyena to be sent to him from South Africa, to be "slain for the sake of science"

(Gordon 1894:57). No evidence needed to be brought against the hyena- a man was entitled to a trial, but a beast could be killed with impunity.

The picture of the hyena drawn by Buckland has remained remarkably persistent in human origins discourse to this day, even where hyenas were perceived to dominate over our ancestors. For example, Boaz and Ciochon determined that the supposed cave home of Peking man was in fact the home of the extinct hyena *Pachycrocuta*, and the erectus clan were not mighty hunters but were themselves food for hyenas (2001). While erectus suffered a very sharp demotion from human status, there was no concomitant reevaluation of the hyena, which remained as bestial as ever, if not more so, now dubbed the “brute of Dragon Bone Hill” (Boaz and Ciochon 2004). Despite positioning erectus as more animal than human, the authors still regard it as a cut above these beasts whose dominance stems from brute force alone. While weaker, erectus still possessed a spark of reason and culture, and the authors posit a scenario in which these supposedly unique traits would have allowed them to gain the upper hand, if only temporarily; “perhaps using fire to keep the carnivore at bay, (they) could have quickly sliced off slithers of meat” from the hyenas’ feast (Boaz and Ciochon 2001). The image (**Figure 27**) accompanying their article in *Natural History* appears not far removed from the medieval bestiaries, the hyenas depicted as savage creatures devoid of empathy or intellect, who appear as ready to turn on one another as upon their prey. This kind of iconography is presumably not a conscious decision based on evidence, but rather created unreflectingly. Revealingly, a guide on artistic reconstruction of fossil hyenas (Werdelin and Lindsten 1991) focuses solely on anatomical reconstruction, and has nothing to say on their behaviour.



Figure 27 Hyenas consuming erectus (from Boaz and Ciochon 2001)

The contrast that has been drawn between the lowly bestial hyena and noble humanity could hardly be starker. Yet the evidence of hyena evolution actually presents a number of strong parallels with narratives of human evolution. These ought to be rather obvious, yet the anthropocentric viewpoint renders them all but invisible. Even the distant ancestry of hyenas mimics the familiar starting point of human origin stories, with an arboreal civet-like ancestor coming down from the trees to adopt a terrestrial existence. But this story is never told in the same grandiose way, or even really framed as a narrative at all- nobody portrays this descent as the first step of a hero's journey. I'm by no means suggesting that it should be, but this framing is in its essential features no more or less accurate. Neither ancestor was possessed with a divine spark that set them above their peers on the first leg of a grand journey of ascension to a higher plane. Nor were they automata at the whims of nature, but rather with their own agency constructing their niches, modifying their environment, and shaping their evolution.

The main protagonists of interest however are the spotted hyenas (*Crocuta crocuta*). In contrast to the other, mostly solitary hyenas species, *Crocuta* live in groups that may exceed 100 animals, many of whom are unrelated to one another, in which they cooperate in hunting and in defending their food and territory, and may even communally rear their young (King 2013). They are able to recognize relationships between other individuals, not merely their own. To support their complex social system they have developed a “substantial vocal repertoire” to carry a broad range of messages during social interaction (Mathevon et al 2010) - or in other words a language, though it has been relatively little studied. But hyenas also have another kind of language, communicating through chemical secretions with extensive information coded into them. Not only does each individual have a unique chemical profile which changes over time, but multiple individuals will rub over a single scent mark to signal clan relationships (Slobodchikoff 2012:217). Viewing olfactory communication as inferior to vocalization is yet another manifestation of anthropocentrism, not merely in the naive sense that we are intimately familiar with the former and far less so with the latter, but also because the sense of smell has been from the classical tradition onwards regarded as the lowest and associated much more closely with animality (Hamilakis 2014). The *umwelt* of the hyena must be imagined as greatly different to the human, with effectively a whole other dimension of meaning and experience that is lacking from our own. It is a good example of a trait whose significance would be missed by a naive anthropomorphism which fails to appreciate the unique experience of other beings as it interprets everything in human terms. A metahumanist approach must avoid this in favour of a critical anthropomorphism which appreciates the subjectivity of other beings that anthropocentrism denies without treating this subjectivity as being exactly like that of our own.

It has in fact been suggested that there was a convergent evolution of intelligence and social behaviour between spotted hyenas and primates (Holekamp et al 2007) and that *Crocuta* may be a good analogy for understanding human evolution, noting that in comparison to related species, and similarly to humans, they show reduced sexual dimorphism, increased reproductive investment, high population density, fission-fusion dynamics and endurance hunting of big game in open habitats (Smith

et al 2012). But such comparisons have been little developed even from the anthropocentric standpoint.

Several aspects of *Crocota*'s history are notable in this connection. First is the vast expansion of its geographic range. From the mid-Pleistocene *Crocota crocuta* was dispersed throughout an immense range covering most of the Old World where it replaced the larger *Pachycrocota* and remained the dominant hyenid until into the Holocene (Kurten 1968), and even today is the most successful carnivore in sub-saharan Africa to which its range is now confined. The appearance of *Crocota* in Europe at c.0.8 Ma has been dubbed the *Crocota crocuta* event for its significance in signalling the appearance of modern fauna on the continent (Martínez-Navarro 2010:13). For example, *Crocota* appears at Atapuerca at 0.78 Ma (Garcia and Arsuaga 2001). Of course, species can expand their ranges for a whole host of reasons, many of which are more or less unrelated to any of the major themes in human evolution. But in the case of *Crocota* this expansion seems to have been underpinned by the very same factors that were crucial to the much-vaunted human dispersals, those related to the development of a complex society. The appearance of *Crocota* in Europe roughly coincides with the appearance of heidelbergensis, but it was *Crocota* and not humans that seems to have been by a distance the more numerous and successful species of the Pleistocene. Yet while human dispersals are viewed as world-historic events, that of *Crocota* is relegated to a mere "faunal turnover". It needs to be analysed with the same focus on the agency of the protagonists that is given to prehistoric humans- or indeed with a greater focus on such than the sociobiologist and behaviourist-leaning scientists grant to our ancestors.

The other noteworthy theme is brain development. A recent study of the endocranial morphology of the large extinct bone-cracker *Pliocrocota* (Vinuesa et al 2015) showed it to be less encephalized than *Crocota* with lesser development of the frontal brain, comparable to the extant striped and brown hyenas which are mostly solitary without the complex societies of *Crocota*. It has been suggested that *Crocota* was able to outcompete the other large hyena species throughout its range and drive them to extinction (Kurten 1988), and this finding gives weight to the suggestion that its enhanced cognitive abilities and social behaviour was key to this replacement- a

theme all too familiar from narratives of human evolution. Of course, this does not mean that the extinct hyenas didn't have their own kind of subjectivity, just as *Sinanthropus* did. But it does make the *Crocuta*-human parallel stronger.

However, a later study comparing modern spotted hyena skulls with Pleistocene *Crocuta* from Europe and Asia showed a lesser development of the anterior brain in the latter which was taken to show that “anterior brain development of *C. crocuta* is a derived and recently-acquired trait” and that “extinct species of *Crocuta* displayed less-developed social abilities and/or a more restricted adaptability to new environments compared to the former” (Vinuesa et al 2016), with their behaviour potentially being more similar to striped and brown hyenas than spotted hyenas.

However, knowing the legacy of scientific racism we ought to be sceptical of such studies which all too often turn molehills into mountains. Paleogenetics indicate that the cave hyena is “the Eurasian representative of the Pleistocene spotted hyena rather than a distinct species” (Bon et al 2012). Comparing representatives of different populations of the same species which show significant variation in body size is very different from comparisons between distinct genera. Cave hyenas were not simply larger than their modern counterparts, those living in glacial periods were significantly larger than those from interglacials (Klein and Scott 1989). With this in mind it is interesting to note that the smaller size of the frontal brain in the cave hyenas was only of a relative nature- in absolute size they were comparable to the extant spotted hyena. Or at least very broadly appeared to be, given there was a sample size of only 3 Pleistocene skulls which showed a very considerable variation between them. With the smaller body size of the modern hyena we could as well suppose this region was not proportionally enlarged, but rather could not be proportionally dwarfed without detracting from cognitive and social skills. It is notable that this study did not actually take into account any behavioural evidence which suggests, for example, that cave hyena societies were birthing and communally raising cubs in a similar manner to modern *Crocuta* (Diedrich 2011a), suggesting no significant cognitive disparity.

In any case, this discussion raises an important point. Scholars investigating the interactions between prehistoric humans and cave hyenas have used the modern spotted hyena as a model for behaviour. While modern spotted hyenas are indeed the

best model we have for the cave hyena, the comparison has been applied in a very direct way that would be clearly inappropriate for ethnographic analogies, doubtless owing to the anthropocentric view that animals are driven by instincts which are the same for every member of the species while humans as possessors of culture are uniquely variable.

For example, in their analyses of human-hyena interaction/competition, White and Pettitt (2011) and Dusseldorp (2013) note that the nocturnality of hyenas means there would be little direct competition between them and humans, which may have been important to their co-existence in allowing them to exploit different niches not spatially but temporally. All extant hyenas are reported to be primarily nocturnal, but *Crocuta* shows a more flexible activity pattern than the others, often active during daylight hours including midday (Kolowski et al 2007). For example, in the Maasai Mara they are not only active at noon when even diurnal animals typically rest due to the heat but are able to hunt successfully (Rainy and Rainy 1989), turning the lethargy of prey and competitors to their advantage. Given that *Crocuta* in the tropics, where nocturnality is a good adaptation to avoid heat stress, already shows flexibility in daily patterns of activity it is reasonable to assume an even greater divergence from nocturnality in cave hyenas living in different environments. Studies of nocturnal mice show that they become diurnal under the influence of cold temperatures, an adaptive response to make the most of daytime warmth while resting in a buffered environment during the colder night and thus reducing energy expenditure (van der Vinne et al 2014). Cave hyenas, which followed Bergmann's rule in increasing body size to adapt to colder temperatures (Klein and Scott 1989) may thus very well have modified their activity patterns accordingly too. At the higher latitudes of Eurasia we would also expect seasonal variation to be a potential influence on activity patterns. The nocturnality of cave hyenas is therefore not something that can be assumed based on direct analogy with their modern counterparts, as there is plenty to suggest it may have been rather different.

Food storage is another area of difference. White and Pettitt (2011:51) note that the modern hyenas are known to cache meat in mud, and these caches could have been a useful resource for Neanderthals to exploit. While this does happen from time to time modern hyenas are not known to store food frequently or to any significant

extent (Kruuk 1972) so this occasional practice would presumably not have constituted a resource of any great importance to prehistoric humans. However, the evidence indicates that cave hyenas were storing food to a much greater extent than such simple analogy would suggest. The presence of cave assemblages with large amounts of hyena prey remains but an absence of hyena cub remains suggests that these were food storage sites where prey was deposited and concealed from other predators, to be consumed later (Diedrich 2011a:259). This is likely due to an abundance of caves suitable for storage sites and a colder climate favouring preservation compared to the environment of the modern *Crocota*. Caves were perfect storage rooms with similar low and cold-humid temperatures, optimal to keep flesh and bones fresh for a couple of days (2011a:260). Such food storage caves could indeed have been a significant resource for prehistoric humans, if they could gain access. By the same token, hyenas would have been attracted to human cave refuse, able to consume bone that the humans could not. While there was undoubtedly competition for cave sites, in some area hyenas and humans coexisted and chose different cave sites, for example in the Neander Valley the Teufelskammer cave was occupied as a hyena den while humans used the Kleine Feldhof cave only 100m away (Diedrich 2014).

Another area of consideration is the threat posed to humans by *Crocota*, with the assumption being that it was rather minimal. The notion of humans as uniquely gifted culture-bearers able to dominate their environment is undoubtedly influential here; “Neanderthals- with the benefit of cooperative action, weapons and fire- must certainly have been able to cope with these carnivores” (White and Pettitt 2011:51). Another ancient dogma, that of hyenas as cowards easily dominated by even other beasts, also shares the blame. However, the evidence certainly suggests that cave hyenas were able to hold their own against larger carnivores; a high proportion of lion bones from Pleistocene Europe show hyena damage, and cave hyenas seem to have been their main antagonists. While scavenging is certainly a factor, it is likely that those from hyena living spaces- their cave dens and open air sites (as opposed to food storage caves) - can be attributed to direct conflict (Diedrich 2011b). Cave hyenas certainly appear to have been no pushover but rather formidable opponents.

Modern hyenas do prey on humans, but usually target easy prey on an opportunistic basis- children, the elderly, the sick or the sleeping. It is documented that a predator's size determines its prey size range (Radloff and Toit 2004), and with their larger size cave hyenas could surely tackle larger prey than their modern counterparts. Those modern hyenas which have distinguished themselves as dedicated man-eaters have tended to be very large individuals; a pair who killed 27 people in Malawi in 1962 were weighed at 72 and 77 kg (Kruuk 2002). The typical weight range for Serengeti hyenas is 40.5-63.9 kg (Kruuk 1972). One mean estimate for cave hyenas puts them at 102 kg (Meloro et al 2007) - clearly well into this man-eating range. There is certainly plenty of evidence of hyenas eating humans from the Pleistocene record, but as for them actually killing or attacking living humans there is nothing conclusive (Daujeard et al 2016). Given the difficulty of establishing such a thing this is not necessarily surprising however, so while we are unable to substantiate this notion, the possibility cannot be dismissed either.

The subject of hyenas eating humans is by far the most interesting to unpack. We have already referenced the controversy around Neanderthal burial- its presence supposedly indicating symbolic thought and a fully human status. In fact the intact Neanderthal burials (Shanidar, La Ferrassie etc) mostly occur at sites where there is no hyena damage to bones and no overlap with hyena occupation (Diedrich 2014). Partial skeletons with missing bones and bone damage can be attributed to cycling between hyena and human occupation, with hyenas moving into caves after humans had moved out and exhuming the burials there (ibid). A large number of Neanderthal remains show evidence of hyena damage, and some are found in hyena dens that show no other trace of human occupation. Scavenging of corpses by hyenas must have been common.

Hyena scavenging has often been advanced as an alternative explanation for bone damage attributed to potentially cannibalistic defleshing, and indeed there is no doubt that many supposed cases of the latter are indeed actually misidentified hyena damage. But there has been an underlying assumption that while defleshing is interesting, scavenging is not. That is, the former lends itself to theories of shamanism, cannibalism, ancestral spirits and generally a whole host of ritual practices and beliefs, because it is attributable to human agency, while animal

scavenging is simply an ecological process about which nothing more needs to be said. The long-standing western taboo and revulsion of corpse consumption by animals, a notable theme in the Iliad, is also to blame. If prehistoric human corpses were devoured by animals it must signify their own animality- indicating either a lack of concern for the dead, or an inability to protect them due to insufficiently developed reason and culture.

Yet excarnation and scavenging by carnivores has been a very widespread mortuary practice, documented both ethnographically and historically. There is indeed archaeological evidence of funerary excarnation by carnivores from later prehistory in Britain; in the earlier Neolithic a significant proportion of human remains from all contexts shows canid-scavenging marks, indicating excarnation was part of intentional mortuary sequences (Smith 2006). No archaeologist would now assume that these practices indicated a lack of concern for the dead, rather than an expression of concern. And there is no reason to assume otherwise for the Paleolithic either. There are even multiple ethnographically documented cases from Africa of leaving corpses out to be consumed by hyenas as a widespread mortuary practice, notably among the Kalenjin of Kenya.

The near-absence of such practices today is a recent, historically contingent phenomenon, the result of western beliefs and taboos being forcefully imposed globally- the Elgonji Kalenjin abandoned their traditional hyena-based mortuary practice in favour of Christian burial due to colonial orders in the late 1920s (Burleson 2005:161). Again we see humanity defined based on modern western beliefs- symbolic thought as the hallmark of humanity leading to funerary rituals and religious belief in souls and the afterlife, implicitly and indeed explicitly taken to entail “thou shalt not allow corpses to be consumed by carnivores”. When indeed contravening that commandment may in reality be a perfect expression of these rituals and beliefs.

It could be that the hyenas were able to scavenge remains quite against the will of Neanderthals. But the question of intentionality is not a straightforward one. Neanderthals may not have deliberately encouraged hyena scavenging but hyenas had a will of their own that imposed itself upon human society, and if no serious effort

was made to stop such scavenging then it must be regarded as an accepted part of mortuary practice, and would have been imbued with social and emotional meaning.

If the consumption of corpses was viewed as a desecration as it has been in the west, one would expect prehistoric humans to take whatever reasonable measures they could to prevent it. It would have been a difficult task to dig graves deeper, enough to stop hyena exhumation, with the tools available and frozen soil conditions, so a failure to do so may be understandable. But the graves could have been provided with stronger rock coverage, and most significantly Neanderthals never buried deeper in larger cave systems, which would have prevented hyena access since they are poor climbers and nearly absent in those parts (Diedrich 2014). So it would appear Neanderthals were not making serious efforts to deter hyenas where possible, which implies it was an accepted part of mortuary practice.

Excarnation has often been described in western terms as an ecologically-minded “return to nature”, a “natural recycling process” (Diedrich 2014), but this bears little resemblance to ethnographically documented beliefs about the practice (Hertz 1960). Of course prehistoric humans would not have shared the anthropocentric vision of nature as something humanity- but not hyenas- was separate from and above. Indeed, far from a mere natural process it seems likely that the agency of the hyena would have been as central in belief as it was in fact, though quite likely in a fantastically embellished form. We can certainly see this in ethnographic cases of hyena funerary consumption, where hyenas are “soul eaters” associated with death and sorcery (Werness 2006:234). For example the Kalenjin had a saying that “the soul finds its way to immortality through the hyena’s intestinal tract” (Goldschmidt quoted in Burleson 2005:161). Hyenas had bellies “full of ancestral spirits” (ibid).

It should be noted that shallow graves in frozen soil make for the perfect conditions under which corpses would “return” from the ground even without being disturbed, typically perceived to have done so under their own agency, as known from Russian folklore (Barber 1990). Even in the historic west, the desecration of corpses by animals was a far less disturbing and terrifying prospect than the threat posed by these malicious revenants. For prehistoric humans, the troubling scenario may have been not that hyenas would eat the dead but that they would fail to do so, leaving the soul unable to reach the afterlife and liable to attack the living, possibly

given dramatic emphasis by the very literal return of the corpse from the ground. For the Nandi Kalenjin the soul could only travel to the spirit land through the agency of hyenas; not only was the corpse laid out for hyenas to consume, but their failure to do so provoked great concern for a soul which did not travel to the spirit land was a great danger to the living. If a body lay uneaten for more than four days it required further ritual intervention in the form of sacrifices undertaken to encourage the hyenas to consume it (Ucko 1969:270). Thus the corpse was not simply abandoned to hyenas, it was actively monitored to ensure its consumption and if they were not interested they had to be persuaded.

While there is certainly evidence that at least some Neanderthal burials were exhumed by hyenas, for many hyena-damaged remains we can have no clear idea of where they came from. It is perfectly conceivable that they were never buried at all but rather left out for the hyenas to take, as in the case of the Kalenjin. There certainly was not one mortuary practice shared by all Neanderthals, for mortuary practices can vary greatly even within single societies let alone over great stretches of time and space. At many Neanderthal sites only burials of foetuses and children are known; this is interesting since the Nandi Kalenjin only buried infants and elders, with corpses of adults left out to be consumed by hyenas. The death of infants, not yet fully-formed personalities, is of far less concern in social terms than the death of adults, and their souls are typically not believed to pose the same kind of danger. There may have been no perceived need to encourage their consumption by hyenas.

Cannibalism and scavenging may even have taken place together within the same context. At Marillac teeth partially digested by hyenas have recently been identified as belong to Neanderthals, interpreted as “cannibal leftovers” since other human remains from the site show evidence of butchery by stone tools (Maurielle et al 2017, Garalda et al 2014). Interestingly, the Elgoni Kalenjin contrasted their hyena-based mortuary practices with that of neighbouring groups who defleshed and consumed human remains and left the bones to be cleared up by hyenas (Burlison 2005:161). Like many cannibalistic stories this may very likely be a pure fiction, told to colonial figures for political reasons. Whether or not it contains a grain of truth it

certainly makes a plausible parallel- even in a case like this hyena consumption may have been an accepted part of the mortuary process.

It has been argued that the western low reputation of the hyena is also widespread in essentially similar form in Africa- “African and Western attitudes have converged on a negative vision of hyenas” (Glickman 1995:526). But the comparison may be on a merely superficial level. The Durkheimian tradition of Robert Hertz, who first brought attention to rites of excarnation from an anthropological perspective, stressed the “ambiguity of the sacred”, that is to say its ability to inspire strongly negative emotions of horror, fear, dread, and disgust. The dark side of the sacred is no less the sacred; it is not the profane. The negative beliefs about the hyena in the west reduce it to a profane beast; those of many African societies elevate it to a sacred being. The hyena is associated with liminality, funerary rites and initiation rituals, sorcery, and above all else with death, soul eaters and haunters of the burial ground. If the image of the hyena is a negative one it is nonetheless possessed of a power and respect entirely lacking from the western canon. And more positive beliefs about the hyena can fit comfortably alongside the negative; the Tabwa associated the hyena with sorcery and witchcraft, but also credited it with bringing the sun’s warmth, as did the Dogon (Werness 2006:234).

It seems by no means arbitrary that the societies in contact with living hyenas should view them through the lens of the sacred, while those to whom the hyena is a mere abstraction regard them as merely profane. Here lies the difference between abstract top-down codes of belief, which we have been conned by anthropocentric ideology into believing constitute the essence of our being, and imaginative embellishments based on real-life encounters with hyenas and their behaviour along with intimate personal experiences and emotions. The western image of the hyena was a symbolic appropriation of the animal from a highly anthropocentric position and intent, the hyena of the bestiaries both medieval and modern just an abstract stand in for human concerns and foibles. The symbolism of certain African groups in real contact with hyenas- and potentially even more so that of Palaeolithic people- was of a fundamentally different kind, shaped by the agency of the beings themselves. Hyenas are associated with the symbolism of death because they are

associated with its reality, and this gives them power because death is perhaps the most socially significant and emotionally charged facet of existence.

With this in mind the distinction between archaic and modern may have been of far less importance than typically assumed when it comes to perceptions of hyenas. It seems hyenas were attracted to the bodies of moderns just as well as archaics. The third oldest modern bone from Britain, a humerus from Eel Point, was found in what appeared to have been a hyena den with possible gnaw marks present on it, and was most likely another hyena meal (Schulting et al 2005). The fact that buried human remains are commonly found in Siberian habitation sites after the local extinction of the hyena in the Holocene suggests that hyena consumption is the cause of the near-absence of human remains in the Pleistocene (Turner II et al 2013). If hyenas were eating the dead of both moderns and archaics- and perhaps responsible for some of these deaths in the first place- we can assume that both would associate the hyena with death.

If we turn from bones to artefacts that prehistoric people made directly depicting hyenas, we are met with a paucity of examples, for hyenas are very rare in ice age art (Kurten 1968). In cave art there are at the very most only four known depictions (Spassov and Stoytchev 2004) (**Fig 28**)- the Chauvet hyena, identified as such by its discoverers, a depiction from Lascaux that seems closer to a hyena than any other being, and two other possible depictions so sketchy that to my mind they really cannot be convincingly identified as anything at all. The explanation these authors offer for this near-absence draws on the long-standing beliefs about hyenas in the west; they have “the unpleasant exterior of a scavenger”- hyenas are ugly- they were “not a serious enemy or rival like cave lions and bears”- hyenas are cowardly- and were generally not an impressive or important animal (Spassov and Stoytchev 2004:164).

To suppose that the painters merely overlooked a species of large mammal that was not only common but assuredly had a powerful presence in their lives and deaths is to my mind simply not credible. The near-absence of hyenas in the corpus can only be because they were intentionally omitted. Why so? If we take into account prehistoric humans’ likely perceptions of hyenas based not on an abstract and arbitrary symbolic code but on their actual interactions with these beings, we might

tentatively suggest an answer. To be sure, the meaning of the cave art is a vexed question, and one we thankfully do not need to address here. We need only make a single assumption- that whatever was going on there was not related to rituals around death. Certainly there is no clear evidence from the caves to suggest that it had any connection to that domain. More than simply unrelated to death, it may indeed have been a space in which its presence was most unwelcome, a detrimental, polluting power. This would fit very well with the perceptions of hyenas we have suggested. Hyenas were not overlooked but rather deliberately omitted, and not as profane subjects but as sacred and perhaps dangerous ones. They were not unworthy, but rather inappropriate for that domain. The status of hyenas in African art makes for an interesting analogy, given the beliefs we have noted above- only one whole depiction of a hyena is known from pre-modern African art, but hyena masks worn by dancers in ritual, most notably at funerals, have been a prominent tradition (Glickman 1995).

Having offered this answer to the question of why there are not more hyena depictions, we are instead faced with the question of why there should be any at all. It is interesting then that there is not a single straightforward hyena depiction in the cave art. The Chauvet example (**Fig 28**) comes closest but even that has a profile very similar to that of a cave bear, and indeed it has been suggested that the artist originally intended to depict that being before changing their mind (Spassov and Stoytchev 2004:162). There is also the fact that despite being a social species this individual is isolated and unique, not grouped with others of its kind as the lions are. The Lascaux example (**Fig 28**) is certainly not a realistic depiction of a hyena, its exceedingly long neck at the very least an exaggerated stylized interpretation of hyena behaviour, if the entire thing is not some manner of fantastical hybrid. The “creeping hyena” spearthrower of La Madeleine (**Fig 29**) is perhaps the best depiction we have, but is of course from a different context.

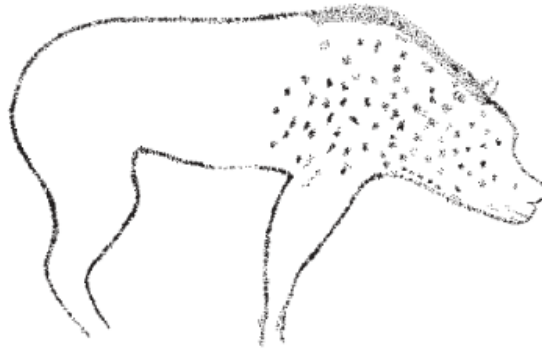


Fig. 1. Chauvet Cave, Valon-Pont d'Arc, Ardèche, France. Upper Palaeolithic /Magdalenian/ rock painting in red of a cave hyaena (*Crocuta spelaea spelaea*); the only undoubted image of this animal up till now, with punctuated skin pattern, artistic style IV after A. Leroi-Gourhan. *Source:* Drawn from a photograph by J.-M. Chauvet et al., 1995, p. 26, fig. 23. *Area code:* E-I. [44]



Fig. 2. Lascaux Cave, Dordogne, France. Upper Palaeolithic /Late Solutrenian/ rock painting in black of a cave hyaena (*Crocuta spelaea spelaea*), artistic style III after A. Leroi-Gourhan. *Source:* Drawn from a photograph by B. Delluc, G. Delluc, 1989, p. 47, fig. 42. *Area code:* E-I. [402]

Figure 28 Hyenas in cave art (from Spassov and Stoytchev 2004)



Figure 29 Creeping hyena spearthrower from La Madeleine (Klaus D. Peter, Wiehl, Germany)

In taking on exaggerated attributes or features of other animals, these may not be hyenas at all but some different kind of being with very different attributes and symbolic connotations which thus evaded the proscriptions against death. There is also the possibility that they may be representations of a hyena without being representations of the Hyena. That is to say they were individuals, hyenas who had distinguished themselves in some way to the artist. Those who have observed hyenas have certainly found this to be the case. Goodall for example discovered that spotted hyenas were “second only to chimpanzees in fascination” due to their “highly individualistic” personalities (quoted in Kemper 2008). Here it is appropriate to note that the story of Buckland’s hyena had a happy ending- or relatively so at any rate. The young hyena he had shipped over for slaughter was “a pretty tame little beast, a great favourite with the sailors who had christened him “Billy”” (Gordon 1894:57). A Mr Cross of Exeter change menagerie acted as agent and undertook the delivery of Billy, who “by his good temper and playful manners, quite won the heart of Mr. Cross, who begged hard for his life” (ibid). Buckland relented on the condition that another hyena skull could be found as a replacement, and Mr Cross managed to locate one. The hyena was grudgingly spared by the man of science when he transcended the Hyena, that loaded abstraction, and formed relationships with humans as an individual.

Of course, Billy was a tame hyena, allowing his keepers to pet him, and not a wild one. But something approaching this may not have been beyond the bounds of possibility in prehistory. White and Pettitt (2011:87) suggested that humans and hyenas “were engaged in a potentially mutually beneficial relationship focussed on the co-exploitation of resources” through scavenging from abandoned kills and food caches left by each other. We can also add to this, through the consumption of dead human bodies. But could this mutually beneficial relationship ever have extended into humans forming “reciprocal, affectionate relationships with hyenas” (Glickman 1995:524) as known from modern times, most notably in Hadar where tamed hyenas are common (Baynes-Rock 2015)? It is certainly an intriguing possibility. Much of the discourse on the earliest domestication of the dog may well be applicable to hyenas also. Of course, hyenas could also have distinguished themselves as individuals in ways that were other than benign. We have already made mention of notorious man-eaters. Fear is not incompatible with respect.

8c. Conclusion

Once we look at specific nonhuman beings we find that not only must we take into account the legacy of anthropocentrism, but also specific beliefs particular to that being, in this case some very negative prejudices which have influenced the discourse up to the present. More importantly, we must appreciate their own unique features. The history of *Crocota* shows strong parallels with that of our own ancestors, but we must be willing to acknowledge hyenas as subjects in their own right, with their own societies, on an ontological level playing field with humans, to even begin to appreciate these parallels and their significance. Similarly, we must not merely discard the legacy of western perceptions but actively unlearn its prejudices and biases if we wish to understand prehistoric perceptions and interactions with hyenas. These were not influenced by anthropocentric ideology, not by abstractions in which hyenas were mere symbolic pawns to be shuffled around at will, or an interchangeable cog in a mechanical “nature”. Rather, they were forged in their real-life encounters with these active, sentient beings- formidable competitors, perhaps sometime allies, and above all “soul eaters”.

Of course these are not intended as firm conclusions, but rather indications of the kind of directions we can move in and possibilities we can explore once we start to move beyond anthropocentrism, and adopt an approach that takes seriously the subjectivity and agency of all beings human or otherwise. The evolutionary history of *Crocuta* and their societies- including the activities of cave hyenas both in comparison to modern spotted hyenas and between different periods and regions- is certainly worthy of further research given its parallels with human evolution and its value in understanding human-hyena interactions in the Pleistocene, which is also a subject meriting further investigation, especially the relationship between hyena scavenging and mortuary practice.

Chapter 9: Final Conclusion

9a Concluding Statement

We have examined the history and nature of concepts and interpretations of phylogeny and mind in human origins discourse and revealed that, far from being paragons of objective modern science, they have been highly driven by anthropocentric ideology. There is a great deal of continuity in concepts and framing from classical anthropocentric to the most recent publications in human origins research. This continuity is, however, more than simply the dead weight of old conceptual baggage- it has maintained its currency by subtly adapting to suit the political conditions in each respective era through which it persisted. This is not to imply that phylogeny and mind are the *only* parts of human origins discourse where anthropocentrism has left its mark- other subjects, for example anatomical and physiognomic interpretation, or the discourses of hunting and cannibalism, would be equally revealing.

In our first section, we saw how even such a supposedly objective and unbiased scientific study as phylogeny has been politically motivated and dominated by anthropocentric tradition. This is no less true of the supposedly “hard” science of DNA analysis as it is of earlier investigations. Those who most stridently disclaim any such influences and claim strict objectivity have often been the worst culprits of them all. All phylogenies should be constructed and considered critically, with an understanding of their prevailing use as an anthropocentric *scala naturae* and chart of moral kinship. The underlying anthropocentric ideology must be challenged, not uncritically- or indeed precritically- accepted.

While the nobler intentions of those who sought to defend human unity by means of anthropocentric phylogenies are certainly understandable, it must be remembered that the *scala naturae* was in no sense conceived to protect any beings from oppression, but rather to legitimate the right of those at the top to oppress those below- it has served that purpose in relation to “lower” humans far more than the

comparatively recent emphasis on human unity, and it still serves that purpose in relation to other animals today.

The evolutionists were all forced to acknowledge that, whether they favoured monogenesis or polygenesis, these were ultimately now only relative terms. If one narrows in far enough, all is polygenetic, while if one takes a broad enough view there is only monogenesis. Humanity is certainly monogenetic in the terms of the traditional debate, but not quite so strongly as the Eve model held it to be, given the variant levels of “archaic” admixture in certain groups. And even the tiniest of division can and have been made to appear phenomenal where there is motivation for doing so- in a significant sense, phylogenetic kinship is more a matter of focus and emphasis than anything else.

The same is true even if one rejects the anthropocentric *scala naturae*. All life is mostly likely derived from a common origin, and the terms of phylogeny alone provide no intrinsic guide on where the boundaries of kinship should be drawn. Even the idea that a single boundary could be drawn anywhere cannot be assumed. The personhood of cephalopods, very far removed from vertebrates in the tree of life, is being increasingly acknowledged, while our closest non-vertebrate relatives are tunicates who absorb their own brains and resemble the sponge more than any other form of life.

A Universal Kinship based on the common descent of all life renders such ultra-fine gradations as species meaningless. In a broader view our kinship is with the pig or the possum no less than the ape or the Australopithecine. By the same token, it reduces the very notion of phylogenetic kinship to absurdity by expanding the circle until it includes bacteria. On the other hand, there is no compulsion for us to acknowledge even the very closest of kinships based on genealogy alone, unless we freely choose to. We are all Haraway’s cyborgs. Every being is a Unique, not defined by a singular act of biological creation but by continuous acts of self-creation. Perhaps the only consistent stance to adopt is an anti-phylogeny- a position that neither builds politics upon phylogenies, or phylogenies upon politics, nor does it pretend phylogeny is a mere technical exercise in scientific objectivity, but rather

actively works to expose and resist the political assumptions inherent in all phylogenies.

All assessments of phylogenetic kinship have been implicitly- and often explicitly- entwined with assumptions about mind. In the study of mind, anthropocentric ideology runs even deeper, and equally unacknowledged. When Huxley denounced the “corpse candle” of his opponents, he and the other Darwinians had unwittingly been following that of anthropocentric ideology, misdirected by its sallow light to their own watery grave. While Darwin and others have been metahumanistic in their appraisal of animal mind, it cannot be said that any have been metahumanist in a true sense of fully acknowledging animal subjectivity and agency, and rejecting a false dichotomy between human reason and animal passion. It is only because the bar has been set so low by classical anthropocentrism and its subsequent manifestations that granting animals certain powers- that by any fair standard ought never to have been denied to them in the first place- could at all appear as such.

The entire edifice rests on the classical hierarchical distinction between human reason and animal passion, fundamentally unchanged despite whatever modern coat of paint may be applied- and it is typically a thin one at that. This *a priori* distinction between different classes of being and their supposedly essentially different minds is fundamentally unscientific, leading to a double standard by which the very same evidence is interpreted differently according to which class of being it is attributed to. This flawed science is then asserted as justification for the very double standard that created it, in an endless cycle. It is apparent that:

“Within scientific discourse, a dichotomy between two ways of knowing, involvement versus detachment, has become entrenched - one which, in turn, underpins a stark division between two kinds of objects of knowledge. On the one hand, there are certain people, who can safely be treated by scientists as "one of us." On the other hand, there are animals (and also, perhaps, non-civilized adults and children), who, scientifically speaking, are to be known solely at a distance, exclusively as strangers. In effect, a methodological double-standard has become

established that reinforces the very distinction it pretends to clarify. The unilateral application of Morgan's canon... solely in relation to animals begs, rather than answers, the question of the mental discontinuity, or otherwise, of animals and humans. This crucial point, somewhat lost on modern psychologists, did not entirely escape the notice of Morgan's contemporaries: Skepticism of this kind is logically bound to deny evidence of mind, not only in the case of lower animals, but also in that of the higher, and even in that of men other than the skeptic himself" (Costall 1998:25)

It is clear that the evidence necessary to overturn such a framework can by its very nature never be produced from within. New evidence of a being's capacities will only be produced after an externally-driven reclassification in its status such that it moves to the other side of the double standard- when Neanderthals were perceived as bestial side-branches, there was no accepted evidence of their symbolic capacities, but once they were acknowledged as human ancestors, the evidence came thick and fast. To have any chance at scientific objectivity, we must reject the fundamental *a priori* assertions on which this framework rests, which means rejecting the false dichotomy between human and animal mind.

The argument that consciousness in non-humans can be studied on a scientific basis has now been made to the satisfaction of all but a few prejudiced "doubters", but ultimately it is besides the point, for we happily accept the study of human subjectivity regardless of whether or not it can be deemed scientific. It is readily apparent that "Science has colonised the discussions about animals" (Mills quoted in Jeffreys 2013).

After all, the humanities have never passively accepted scientific theories on human nature, and those that relate to oppressed groups whom there is clear political incentive for portraying as innately inferior are quite rightly viewed with extreme suspicion. Yet these same critical faculties have been nowhere to be found when it comes to scientific pronouncements on animals, which logically ought to be challenged on the very same basis. In fact, it is frequently the statements most favourable to animals that are met with most scepticism from these quarters.

The general response to sociobiological arguments has been to firmly stress an anthropocentric Rubicon and deny their relevance to humans. However, both sociobiology and its anthropocentric critique are untenable positions, failing to do justice to the facts or the subjects of their discourse. A better approach would be to “challenge the kind of thinking that relegates all other species to this lowly level of bestiality, while simultaneously elevating ourselves” (Birke 1994). The sociobiologists are not wrong because they commit a category error by applying a model that correctly describes animals to humans, where the model no longer fits. They are wrong because their model is based on anthropocentric ideology and can only explain animal behaviour in those very limited, objectifying terms. Only by rejecting anthropocentric ideology can sociobiology be put to rest.

The extent to which ideology has led to the utmost denial of alternate subjectivities in the face of all evidence to the contrary cannot be overstated. Truly, science has in this regard set no limit on infinite error. The subjectivities of other humans have been and still are ignored in favour of self-serving fantasies about them rooted in the dominant culture, even where their members are demanding through the very means of rational written discourse for them to be acknowledged; if such a refusal to listen is possible even under these terms, how much greater indeed it will be where to listen requires a greater sensitivity. Knowing this history, any claims for other beings lacking certain supposedly uniquely human capacities must be received with the utmost skepticism. We must give the benefit of the doubt to the animals- *in dubio pro bestia* (Corbey 2005:1999).

While our main focus has been on the prejudiced denial of mind to animals, and certain classes of human, on the basis of a politically motivated anthropocentric double standard, this is of course only one side of the story. By defining humanity solely by those increasingly narrow intellectual qualities that all other animals are supposed to lack, we are effacing the most vital aspects of our being. The qualities that are thus valorised are clearly a very limited and misleading conceptualization of human existence, and the picture of the human produced by the continuing reliance on anthropocentric ideology is, ultimately, exceptionally *inhuman*. What matters is not whether a being grieves or cares for their dead companions. Rather, what matters is that they have a certain set of beliefs or representations pertaining to the abstract concept of death. If we believe humans to be angels rather than apes, we must recall that such

angels do nothing but contemplate the Eternal, unmoved by other desires, unburdened by living bodies, by pleasures and pains and attachments. The cult of reason was forged by ascetics, and in our continuing reverence, we recreate ourselves in their image. Bell describes the logic of anthropocentrism as an auto-vivisection, an act of symbolic violence- “one must cut into one’s own being in order to remove or place to one side those features of oneself that are incidental and held in common with the rest of the “natural world”, the “meat” of one’s being, in order to find that tissue which is essential to the human” (2011:166).

Metahumanism entails a “two-sided” freedom (Sanbonmatsu 2007:117), not only the liberation of animals but the liberation of ourselves as animals, restoring the significance of the sensual dimension of existence and embodiment. There is a clear affinity with more recent archaeological projects on the significance of the body and senses in prehistory, but these have for the most part been beholden to a naive anthropocentrism that views only modern humans as subjects.

Human origins will always be a trivially anthropocentric field of study, given its focus on the human species. The disproportionate attention and interest in the origins of our own species is perfectly understandable and not inherently problematic. It is undeniable however, that the field is and has always been deeply rooted and invested in the tradition of anthropocentrism as metaphysic and ideology, and that the way it is positioned in wider society also owes much to the continuing influence and political importance of this tradition. With few exceptions, human origins discourse up to the present has been primarily a narrative of how we as humans have escaped our animal origins, an endless litany of praise for human superiority- or else a story of how we have failed to do so, and are eternally damned by the beast within. It is a story that is both scientifically flawed and politically detrimental. But we have the potential to tell an alternative story, without the assumption that there is anything to escape from- a story of interconnectedness between humans and other beings, not separation.

9b. Future Research

This has not been a complete history of the field, and there are many gaps that could be filled. The significant changes that occurred during the post-war era would be just as amenable to this kind of historical discourse analysis. The development of sociobiological discourse is a topic we have not given our full attention here, but is certainly ripe for study as many of the key figures and their relevance to human evolutionary discourse and politics have been all but forgotten. The same could be said for their favoured subject- the significance of apes in science has received a considerable amount of analysis including in this very work, but the baboon, which was of equal if not greater importance to early sociobiologists, and also interacted with human ancestors, has been neglected. The related subjects of hunting, meat consumption, and cannibalism have only been touched upon here but an extended historical analysis is I believe greatly necessary to shed light on current studies and their foci and framing. Physiognomy is another topic that is worthy of investigation in more detail.

Moving away from historical and conceptual studies to apply a metahumanistic approach to the archaeological record, the potential of hyenas as a subject for further research has already been remarked upon, but they are by no means the only beings that merit attention. Elephants would be another good choice, given their iconic status in human evolution, the plentiful evidence of interaction, and the long-standing discourse on their intelligence. Domestication would be a fine subject to examine through this lens, though aside from the dog this would mostly be of relevance to later prehistory. The beaver perhaps deserves an honourable mention, given its role as a keystone species in the environment, undoubted importance in historical cultures, and its appraisal by Morgan. This list is by no means exhaustive, and while some are clearly better candidates than others there is doubtless something interesting and worthwhile to say about every nonhuman being that humans have ever encountered.

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