

is our species' unconditionally selfless, genuinely altruistic, universally loving instinctive self or 'soul', the 'voice' or expression of which is our moral 'conscience'. Before concluding this section, it is important to note that this love-indoctrination process involved an *indoctrination* or training in unconditional selflessness, not an *understanding* of it. The search for knowledge still had to take place, which is why the human-condition-producing clash between our instincts and conscious intellect occurred. (The process by which love-indoctrination liberated consciousness will be introduced in ch. 5:8, and fully explained in ch. 7).

Chapter 5:5 Fossil evidence confirming the love-indoctrination process

³⁹⁶ Although the fossil record has been slow to yield evidence of our ape ancestors who lived during humanity's infancy (which, as will be explained in chapters 8:2 and 8:3, lasted from some 12 to 4 million years ago), the very recent discoveries of fossils belonging to our direct ancestors from this period are now confirming the love-indoctrination process. These recently unearthed ancestors are: *Sahelanthropus tchadensis* (who lived some 7 million years ago and is thought to be the first representative of the human line after we diverged from humans' and chimpanzees' last common ancestor); *Orrorin tugenensis* (who lived some 6 million years ago); and the two varieties of *Ardipithecus*: *kadabba* (who lived some 5.6 million years ago), and *ramidus* (who lived some 4.4 million years ago). Incidentally, *Sahelanthropus* means 'Sahel man' (Sahel is an area near the Sahara); *Orrorin tugenensis* means 'original man whose fossils were found in the Tugen region in Kenya'; while *Ardipithecus* means 'ground ape', with *kadabba* meaning 'oldest ancestor', and *ramidus* meaning 'root' or basal family ancestor.

³⁹⁷ It is worth emphasising that these fossils have all been found *very* recently. *Sahelanthropus* was only discovered in 2002 (in the form of a skull) and decisively identified as a human ancestor in April 2013, while fragments of a skull, jaw and thigh bone belonging to *Orrorin* were first unearthed in 2001. Although fragments of *Ardipithecus* were first discovered by a team led by the anthropologist Tim White in 1992, and their excavation of a largely intact skeleton (which was nicknamed 'Ardi') began in 1994, the remains of the skeleton—1 of only 6 reasonably complete skeletons of early humans older than 1 million years—were in such poor condition that it took until 2009 (over 15 years of analysis) for reports to be published. With studies on all of these recently discovered ancestors now becoming available, including the series of 2009 *Ardipithecus* reports, which the journal *Science* deemed 'Breakthrough of the Year', it is exciting to see that confirming evidence of the love-indoctrination process that led to the establishment of our extraordinary unconditionally selfless moral instincts is slowly but surely emerging.

³⁹⁸ So, how does this new evidence confirm the love-indoctrination process? How, for instance, does it affect our understanding of the emergence of bipedalism, the first key factor in developing unconditionally selfless moral instincts?

³⁹⁹ As I just mentioned, when I first put forward the nurturing, 'love-indoctrination' explanation for such instincts in 1983, I said, contrary to prevailing views, that it meant bipedalism must have developed early in this nurturing of love process and, it follows, early in our ancestors' history, and, indeed, that is what these fossil discoveries now show.

Scientists can infer whether a species was bipedal by several methods, including the position of the foramen magnum (the opening at the base of the skull through which the spinal cord enters), because in species that stand upright the opening appears toward the centre of the skull rather than at the rear. Using information such as this, the current scientific thinking is that bipedalism arose at least as early as *Sahelanthropus*, with anthropologists now reporting that **‘Bipedalism is one of very few human characteristics that appears to have evolved at the base of the hominin clade [species more closely related to modern humans than to any other living species]. Recent fossil discoveries have apparently pushed back the origin of the hominin clade into the late Miocene, to 6 to 7 million years ago (Ma). The oldest known potential hominin [human line] fossils [are] attributed to *Sahelanthropus tchadensis*’** (Brian G. Richmond & William L. Jungers, ‘*Orrorin tugenensis* Femoral Morphology and the Evolution of Hominin Bipedalism’, *Science*, 2008, Vol.319, No.5870).

⁴⁰⁰ Fossils belonging to the slightly more recent *Orrorin* provide further proof of this bipedalism. In addition to the evidence revealed by the fragments of its skull, the analysis of *Orrorin*’s femur (thigh bone) has allowed scientists to conclude that **‘*O. tugenensis* is a basal hominin adapted to bipedalism’** (ibid), and **‘that *Orrorin* was a habitual biped as shown by a suite of features in the proximal femur’** (Martin Pickford et al., ‘Bipedalism in *Orrorin tugenensis* revealed by its femora’, *Comptes Rendus Palevol*, 2002, Vol.1, No.4).

⁴⁰¹ Fossils of *Ardipithecus*, and particularly *Ar. ramidus*, confirm that bipedalism was well established by 4.4 million years ago, with studies of ‘Ardi’ (the relatively intact skeleton) leading the prominent anthropologist C. Owen Lovejoy to conclude that **‘*Ar. ramidus* was fully capable of bipedality and had evolved a substantially modified pelvis and foot with which to walk upright’** (‘Reexamining Human Origins in Light of *Ardipithecus ramidus*’, *Science*, 2009, Vol.326, No.5949). Furthermore, Lovejoy confirmed the long history of bipedalism that preceded *Ar. ramidus* when he said that *Ar. ramidus* **‘has been bipedal for a very long time’** (Ann Gibbons, ‘A New Kind of Ancestor: *Ardipithecus* Unveiled’, *Science*, 2009, Vol.326, No.5949).

⁴⁰² The second requirement for love-indoctrination to occur is the existence of ideal nursery conditions, namely an environment that provides uninterrupted access to food, shelter and territory. You would perhaps expect such conditions would be found in humid forests and woodlands, where food is plentiful and trees provide shelter and refuge from predators, but the scientific community’s traditional view has been that the factor in our ancestral history that propelled our ancestor’s development beyond that of the other apes was their movement onto the savannah. However, in light of the fossil evidence that has emerged in the last decade or so—and in the 30 years since I first proposed the nurturing, love-indoctrination explanation—the scientific community now widely accepts that this separation of our human ancestors from other primates occurred while our ancestors lived in forests and woodlands, the sort of environment I identified as being required for the love-indoctrination process to begin.

⁴⁰³ Scientists are now able to reconstruct the habitats of *Sahelanthropus*, *Orrorin* and *Ardipithecus* based on their physical characteristics, the information provided by the fossils of other animals and plants found accompanying them, as well as climate data. While *Sahelanthropus* fossils are so limited they don’t provide the information needed to confirm that they were adapted to climbing trees and thus lived in forests or woodlands, reconstructions of their environment have narrowed *Sahelanthropus*’ habitat to **‘a mosaic of environments from gallery forest at the edge of a lake area to a dominance of large savannah and**

grassland' (Patrick Vignaud et al., 'Geology and palaeontology of the Upper Miocene Toros-Menalla hominid locality, Chad', *Nature*, 2002, Vol.418, No.6894). As we move forward in time to *Orrorin* some 6 million years ago, its skeletal structure shows tree climbing adaptations, which clearly point to them living in an arboreal habitat. Further, associated animal and plant fossils have allowed scientists to infer that **'Orrorin tugenensis may have evolved in well wooded to forested conditions margining lakes and streams with open country-side in the vicinity'** (Soizic Le Fur et al., 'The mammal assemblage of the hominid site TM266 (Late Miocene, Chad Basin): ecological structure and paleoenvironmental implications', *Naturewissenschaften*, 2009, Vol.96, No.5); and that **'the surroundings of the site were probably open woodland, while the presence of several specimens of colobus monkeys indicate that there were denser stands of trees in the vicinity, possibly fringing the lake margin and streams that drained into the lake'** (Martin Pickford & Brigitte Senut, 'The geological and faunal context of Late Miocene hominid remains from Lukeino, Kenya', *Comptes Rendus de l'Academie des Sciences—Series IIA—Earth and Planetary Science*, 2001, Vol.332, No.2). Forest and woodlands continued to be the preferred habitat of *Ar. ramidus* some 4.4 million years ago, as indicated by its retention of tree climbing features such as a pelvis that supported large climbing muscles, flexible wrists that allowed walking on all fours along the top of branches, and an opposable big toe that allowed it to grasp the branches with its feet: **'Ar. ramidus preferred a woodland-to-forest habitat rather than open grasslands'** (Tim D. White et al., 'Ardipithecus ramidus and the Paleobiology of Early Hominids', *Science*, 2009, Vol.326, No.5949). In fact, the wealth of surrounding evidence from the *Ar. ramidus* fossil site in Ethiopia allowed the paleoanthropologist Andrew Hill to remark that **'There's so much good data here that people aren't going to be able to question whether early hominins were living in woodlands'** (Ann Gibbons, 'Habitat for Humanity', *Science*, 2009, Vol.326, No.5949), and fellow researcher Giday WoldeGabriel to state that *Ar. ramidus* lived **'in an environment that was humid and cooler than it is today, containing habitats ranging from woodland to forest patches'** (Giday WoldeGabriel et al., 'The Geological, Isotopic, Botanical, Invertebrate, and Lower Vertebrate Surroundings of *Ardipithecus ramidus*', *Science*, 2009, Vol.326, No.5949). Indeed, this **'good data'** associated with the 'Ardi' dig has meant that paleobiologists have been able to reconstruct *Ar. ramidus*' habitat to an extraordinary level of detail: **'Ardi lived on an ancient floodplain covered in sylvan woodlands, climbing among hackberry, fig, and palm trees, and coexisting with monkeys, kudu antelopes, and peafowl'** (Ann Gibbons, 'Breakthrough Of The Year: *Ardipithecus ramidus*', *Science*, 2009, Vol.326, No.5960) while **'doves and parrots flew overhead'** (Ann Gibbons, 'Habitat for Humanity', *Science*, 2009, Vol.326, No.5949). Combine this environment with our knowledge of *Ar. ramidus*' diet, which indicates **'Ar. ramidus was a generalized omnivore and frugivore [fruit eater]'** (Gen Suwa et al., 'Paleobiological Implications of the *Ardipithecus ramidus* Dentition', *Science*, 2009, Vol.326, No.5949), and our knowledge of existing ape behaviour, which indicates *Ar. ramidus* **'almost certainly slept and fed in trees'** (Craig Stanford, 'Chimpanzees and the Behavior of *Ardipithecus ramidus*', *Annual Review of Anthropology*, 2012, Vol.41), and a picture begins to emerge of the ideal nursery conditions that enabled love-indoctrination to develop.

⁴⁰⁴ These ideal nursery conditions also refute the long-held nurturing-avoiding theory, espoused by E.O. Wilson amongst others, that upright walking supposedly developed when our ancestors moved out onto the savannah: **'Ar. ramidus did not live in the open savanna that was once envisioned to be the predominant habitat of the earliest hominids'** (Giday WoldeGabriel et al., 'The Geological, Isotopic, Botanical, Invertebrate, and Lower Vertebrate Surroundings of *Ardipithecus ramidus*', *Science*, 2009, Vol.326, No.5949). In fact, the evidence that bipedality developed in **'forest or wooded environments'** is now so conclusive that Hill was able to assert that **'Savannas had nothing to do with upright**

walking' (Ann Gibbons, 'Habitat for Humanity', *Science*, 2009, Vol.326, No.5949). Yes, because the development of bipedality is closely associated with the love-indoctrination process it had to have occurred while our ancestors were inhabiting ideal nursery conditions, which clearly suggested an arboreal environment—as I maintained when I originally put forward the love-indoctrination process in 1983.

⁴⁰⁵ These recent fossil discoveries also confirm the third requirement for love-indoctrination to occur: the presence and influence of more maternal mothers. Scientists are able to deduce a remarkable amount of information about the social behaviour of our ancestors from their fossils, and, as a result of this evidence, are now beginning to acknowledge that they exhibited low levels of aggression toward one another, and that females were not only not dominated by males, but dictated mate choice by choosing to reproduce with non-aggressive, cooperative males—hallmarks you would expect of a society highly focused on maternal nurturing of their infants.

⁴⁰⁶ The first striking evidence provided by the fossil record to support these deductions is that these early humans had small canine teeth: **'male canine size and prominence were dramatically reduced by ~6 to 4.4 Ma'** (Gen Suwa et al., 'Paleobiological Implications of the *Ardipithecus ramidus* Dentition', *Science*, 2009, Vol.326, No.5949). This is relevant because **'canines function as weapons in interindividual aggression in most anthropoid species'** (ibid), particularly in aggressive male-to-male sexual competition for mating opportunities, and so canines **'inform aspects of social structure and behavior'** (ibid), with small canines indicating minimal levels of social aggression. This connection is well established, with primatologists saying, **'It has long been evident that body and canine size are good indicators of the intensity of male-male competition'** (Peter M. Kappeler & Carel P. van Schaik, *Sexual Selection in Primates: New and Comparative Perspectives*, 2004, p.5 of 284).

⁴⁰⁷ Furthermore, comparisons of canine size in *Ar. ramidus* with current apes indicate that *Ar. ramidus* males **'retained virtually no anatomical correlates of male-to-male conflict'** (C. Owen Lovejoy, 'Reexamining Human Origins in Light of *Ardipithecus ramidus*', *Science*, 2009, Vol.326, No.5949), a situation that would apply to our earlier ancestors *Sahelanthropus* and *Orrorin* since they too had small canines. Given that the reality of the animal kingdom involves fierce competition between sexually reproducing individuals seeking to reproduce their genes, this reduction in aggressive male competition for mating opportunities is an *extremely* significant anomaly, as Lovejoy recognises: **'Loss of the projecting canine raises other vexing questions because this tooth is so fundamental to reproductive success in higher primates. What could cause males to forfeit their ability to aggressively compete with other males?'** (ibid). Traditional attempts to answer this 'vexing' question have argued either that large canine teeth were made redundant when humans adopted hand-held weapons—the so-called 'weapons replacement' hypothesis; or that large, overlapping canines made eating certain foods difficult and were therefore selected against; or that large canines had to make way for the large grinding teeth of the robust australopithecines. However, the fossil record now shows that canines were reduced well before the emergence of the australopithecines; and as mentioned, it also shows that **'*Ar. ramidus* was a generalized omnivore and frugivore [fruit eater]'** like baboons and many other species of current primates who *have* retained their large canines. And with regard to weapon use rendering large canines redundant, the fossil record now shows that our ancestors developed small canines at least as early as *Sahelanthropus*, millions of years before any fossil evidence of weapon or tool use—and even if those ancestors brandished weapons such as branches or bones that would

not leave ‘evidence’, the argument still fails to explain why having weapons *and* large canines would not be an advantage in any contest. A 1992 paper articulated the confusion that has surrounded the evolution of human canine reduction, stating that **‘the issue of human canine evolution has continued to be controversial and apparently intractable’** (Leonard O. Greenfield, ‘Origin of the human canine: A new solution to an old enigma’, *American Journal of Physical Anthropology*, 1992, Vol.35, No.S15). And the new discoveries have only increased this confusion. But as we can now see, the answer to the ‘vexing’ and ‘apparently intractable’ question of **‘what could cause males to forfeit their ability to aggressively compete with other males’** is the love-indoctrination process. As will be explained below, conscious self-selection of integrativeness—especially the female sexual or mate selection of less competitive, less aggressive, more integrative males—developed to assist, speed up and help maintain love-indoctrination’s development of integration. Indeed, male competition for mating opportunities is so **‘fundamental to reproductive success’** that only active sexual selection against it can account for its reduction, as is made clear in this quote: **‘Canine reduction did not result from a relaxation of selection pressure for large canines, but rather a positive selection against them’** (Arthur Klages, ‘Sahelanthropus tchadensis: An Examination of its Hominin Affinities and Possible Phylogenetic Placement’, *Totem: The University of Western Ontario Journal of Anthropology*, 2008, Vol.16, No.1). Indeed, it is now so apparent that canine reduction could only be caused by **‘a positive selection against them’** that the importance of sexual selection is now being recognised by leading anthropologists such as Lovejoy, Gen Suwa, Berhane Asfaw, Tim White and others, who write, **‘In modern monkeys and apes, the upper canine is important in male agonistic [aggressive] behavior, so its subdued shape in early hominids and *Ar. ramidus* suggests that sexual selection played a primary role in canine reduction. Thus, fundamental reproductive and social behavioral changes probably occurred in hominids long before they had enlarged brains and began to use stone tools’** (Gen Suwa et al., ‘Paleobiological Implications of the *Ardipithecus ramidus* Dentition’, *Science*, 2009, Vol.326, No.5949).

⁴⁰⁸ As these authors make clear, the reduction in canine size was such a remarkable achievement that it required **‘fundamental reproductive and social behavioral changes’** in which **‘sexual selection played a primary role’**. These scientists are describing a society that switched from being patriarchal—dominated by male sexual selection with males aggressively competing for mating opportunities—to matriarchal, dictated by female sexual selection where females choose mates that are less aggressive. However, what these scientists don’t explain is the *only* mechanism that could allow such a switch: love-indoctrination. This remarkable reversal where females are empowered, and males **‘forfeit their ability to aggressively compete with other males’**, is discussed in more detail in chapter 6; however, it is sufficient to emphasise at this point that the fossil record is increasingly providing compelling evidence that female sexual selection was occurring very early in human history, at least as early as *Sahelanthropus* some 7 million years ago, and that it **‘emerged in concert with habituation to bipedality’** (C. Owen Lovejoy, ‘Reexamining Human Origins in Light of *Ardipithecus ramidus*’, *Science*, 2009, Vol.326, No.5949), which again is in accord with love-indoctrination, all of which I first predicted in 1983.

⁴⁰⁹ Another significant factor revealed by the fossil record is the difference in the size between males and females, including their canines, a phenomena known as sexual size dimorphism. Since **‘sexual size dimorphism is generally associated with sexual selection via agonistic male competition in nonhuman primates...if a species showed very strong size dimorphism, it probably was characterized by intense male mate competition’** (J. Michael Plavcan, ‘Sexual Size Dimorphism, Canine Dimorphism, and Male-Male Competition in Primates’, *Human Nature*, 2012, Vol.23, No.1). Conversely, scientists

recognise that a low level of sexual size dimorphism is an indicator of a society in which males do not aggressively compete for mating opportunities. As mentioned, the fossil records of our human ancestors show that **‘There is no evidence of substantial canine dimorphism in earlier hominins, including *Sahelanthropus*, *Ardipithecus*, and *Australopithecus anamensis*, or later hominins’** (ibid). In addition to this low level of canine dimorphism, *Ar. ramidus* exhibited low levels of body size dimorphism, which, in terms of behaviour, **‘were probably the anatomical correlates of comparatively weak amounts of male-male competition, perhaps associated with...a tendency for male-female codominance as seen in *P. paniscus* [bonobos]’** (Gen Suwa et al., ‘Paleobiological Implications of the *Ardipithecus ramidus* Dentition’, *Science*, 2009, Vol.326, No.5949). As will be described shortly, the prevailing view about bonobos is that rather than having achieved **‘male-female codominance’**, they have, in fact, gone further and achieved female dominance, a matriarchy.

⁴¹⁰ So the three requirements of the love-indoctrination process of bipedality, ideal nursery conditions and selection for more maternal mothers are now being dramatically confirmed by the fossil record. (Indeed, the more we are learning about our distant forebears, the more the nurturing explanation for our species cooperative and loving past is being confirmed. For example, a 2019 report says that **‘finds suggest for the first time the existence of a long-lasting mother infant bond in *Australopithecus africanus*. This makes us rethink the social organizations among our earliest ancestors’** (‘Australopithecus Mothers Breastfed Their Infants for Year after Birth’, *Sci-News*, 17 Jul. 2019.) However, as I mentioned earlier and will elaborate on shortly, the problem with this nurturing, true explanation, and why its early permutations were dismissed by the scientific establishment, is that it has been an unbearably confronting, exposing truth for our present human-condition-afflicted human race that has been so unable to adequately nurture our infants to the extent our instincts expect. This new evidence has left those scientists who continue to deny the importance of nurturing in our development in a predicament in which they are forced to ask the right questions even though they are **‘vexing’**, but refuse to acknowledge the truthful answer, because until the human condition was explained nurturing was an off-limits subject. The following passage from Lovejoy exemplifies this predicament: **‘Why did early hominids become the only primate to completely eliminate the sectorial canine complex [large projecting canines that are continuously sharpened against a lower molar]? Why did they become bipedal, a form of locomotion with virtually no measurable mechanical advantage?... These are now among the ultimate questions of human evolution’** (‘Reexamining Human Origins in Light of *Ardipithecus ramidus*’, *Science*, 2009, Vol.326, No.5949). (Note, the above quote from 2009 also contained the question **‘Why did body-size dimorphism increase in their likely descendants?’**, but that has been omitted here because Lovejoy has since found that body-size dimorphism in *Ardipithecus* descendants is far less than previously thought, with **‘relatively stable size patterns observed between *Ardipithecus* and *Australopithecus*’** (Philip Reno & C. Owen Lovejoy, ‘From Lucy to Kadanuumuu: balanced analyses of *Australopithecus afarensis* assemblages confirm only moderate skeletal dimorphism’, *PeerJ*, 2015, 3:e925).) Lovejoy further reduced these **‘ultimate questions’** to this one, final sentence that admits the reality of a cooperative past: **‘Even our species-defining cooperative mutualism can now be seen to extend well beyond the deepest Pliocene [well beyond 5.3 million years ago]’** (ibid). Yes, as stated at the outset of this chapter, the great outstanding mystery for biologists has been how could the cold, selfish, competitive, gene-based natural selection process have possibly created such warm, unconditionally selfless, cooperative, loving instincts in us humans? But to answer that question of questions required the explanation of the human condition that would finally

make sense of *why* we haven't been able to adequately nurture our infants—because with that compassionate insight it at last becomes psychologically safe to admit that nurturing is what made us human, thus allowing these ‘ultimate questions of human evolution’ to be answered.

Chapter 5:6 **Bonobos provide living evidence of the love-indoctrination process**

⁴¹¹ While these recent fossil discoveries are providing exciting confirmation that our ape ancestors completed the development of the love-indoctrination process, of the living primate species, only *Pan paniscus*, the **bonobos** (or pygmy chimpanzees as they were once called because of their comparatively gracile bodies), have not only developed love-indoctrination, they appear to have come close to completing the love-indoctrination process to become a fully integrated Specie Individual; they are certainly by far the most cooperative/harmonious/gentle/loving/integrated of the non-human primates. It follows then that although there is no suggestion that bonobos or chimpanzees are a living human ancestor, comparisons have been made between bonobos and our ancestors. For instance, the physical anthropologist Adrienne Zihlman first proposed in 1978 **‘that, among living species, the pygmy chimpanzee (*P. paniscus*) offers us the best prototype of the prehomimid ancestor’** (Adrienne L. Zihlman et al., ‘Pygmy chimpanzee as a possible prototype for the common ancestor of humans, chimpanzees and gorillas’, *Nature*, 1978, Vol.275, No.5682), using the then earliest known human ancestor, *Australopithecus*, to compare the two species’ physical characteristics, including their bipedality, canine teeth and lack of sexual size dimorphism. In 1996 Zihlman refined her assessment to include similarities with the (at the time) newly discovered *Ardipithecus*. In a further example, the primatologist Frans de Waal has noted the extraordinary similarity between *Ardipithecus* and the bonobo, saying, **‘The bonobo’s body proportions—its long legs and narrow shoulders—seem to perfectly fit the descriptions of Ardi, as do its relatively small canines’** (*The Bonobo and the Atheist*, 2013, p.61 of 289). (Note, although the bonobo male **‘possesses smaller canines than any other [male] hominoid [apes and their ancestors]’** (J. Michael Plavcan et al., ‘Competition, coalitions and canine size in primates’, *Journal of Human Evolution*, 1995, Vol.28, No.3), which, as explained in par. 406 above, is in itself a marker of low levels of aggression between males and thus a sign the love-indoctrination process is well underway in bonobo society, their canines do feature a sharp cutting edge that is absent in *Ardipithecus*, which suggests competitive fighting hasn’t been completely eliminated within bonobo society and that the process is not as advanced in bonobos as it was in *Ardipithecus*.) So bonobos (who, along with their chimpanzee cousins, share 98.7 percent of their DNA with humans) are physiologically extremely similar to our fossil ancestors, but beyond the physical similarities, some scientists are suggesting bonobo behaviour also corresponds with that of our ancestors. In addition to the view expressed above by Gen Suwa, that, like bonobos, *Ardipithecus* were not male dominated, Zihlman has suggested that **‘the *Pan paniscus* model offers another way to view the social life of early hominids, given their sociability, lack of male dominance and the female-centric features of their society’** (‘Reconstructions reconsidered: chimpanzee models and human evolution’, *Great Ape Societies*, eds William C. McGrew et al., 1996, p.301 of 352).

⁴¹² So given the exceptionally cooperatively behaved, matriarchal bonobo species has developed the love-indoctrination process, we should expect that they provide living evidence of the three elements previously identified as being required for that process to occur: bipedalism, ideal nursery conditions, and selection for more maternal mothers.