HUMAN EVOLUTION AND THE IMAGE OF GOD

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INTRODUCTION

In the speech he sought to read into the court record following the verdict in the Scopes "Monkey" Trial of 1925, creationist champion and trial prosecutor William Jennings Bryan restated Charles Darwin's arguments for human evolution set out in the 1874 edition of *The Descent of Man*, and proceeded to challenge them. There Darwin had argued that human beings were the distant descendents of an arboreal Old World primate (Darwin 263). Bryan noted, with some scorn, that Darwin also gave "some fanciful reasons for believing that man is more likely to have descended from the chimpanzee rather than the gorilla" (Bryan 326). He went on to condemn Darwin's argument. And he was not alone. So many people said then, and still say, that they cannot accept the notion that they are descended from apes or monkeys.

I have learned to patiently keep on explaining that neither Darwin nor any other scientist studying human evolution has ever asserted that humans are descended from apes. What all have said is that the hominids, which include our species *Homo sapiens*, and the other primates, to which the family of the great apes belong, diverged from a common ancestor millions of years ago.

That part Bryan and a lot of other people have gotten wrong. Furthermore, it turns out that Darwin's hypothesis was right on the issue of relationship. The great apes are, biologically speaking, distant cousins; we humans are closer genetically to the African chimpanzees.

Nevertheless, these distinctions do little to allay the visceral feelings evoked by the thought of human descent from primates. I've sometimes described it to my students as the "King Kong" effect. In the 1933 film by that name, the sight of that giant ape climbing New York's tallest building with a beautiful blond in one hand, and snapping at harassing airplanes as he grips the building with the other, sought to stir deep, fearful emotions about primates. In a similar way the sight of trained chimpanzees performing silly tricks at their handler's behest may evoke an amused contempt. Surely we humans, who are made in the image of God, cannot be the descendents of, or related to, these dirty, disgusting, and fearsome creatures.

Many Christians reject the notion of human evolution on purely biblical and theological grounds. They assert that the Bible's creation accounts in Genesis 1 and 2 are historical fact, and interpret them to mean that God separately created each species. Especially, God created a first couple, Adam and Eve, superior to all other forms of life in that they bear the divine "image and likeness." So, human evolution raises serious issues of faith for many Christians about the historicity of Adam and the claim that humans bear the image of God. To address these issues, I divide this essay into two parts. In the first I survey briefly the empirical evidence for human evolution from the primate lineage, based upon physical anthropology, genetics, and radioactive dating. In the second I reflect upon the implications of these scientific discoveries for theology and biblical interpretation. Can an evolving humanity be said to bear the image of God? I'll argue that it can.

Part I: HUMAN EVOLUTION

The Descent of Man

When Charles Darwin published the first edition of *The Descent of Man* in 1871, he already had an expectantly waiting audience. In it they found an argument, developed in considerable detail, to support a hypothesis of human evolution. Darwin used examples from comparative anatomy to make his case. He also argued that human emotions and moral sense had also evolved (Darwin 305). In the 130 years since, paleontologists, geneticists, and physical and cultural anthropologists have amassed a much greater collection of physical evidence that has made the case for human evolution a much more compelling one. In this section, I present a summary of some of that evidence (leaving aside arguments from the new disciplines of sociobiology and evolutionary psychology) for a common lineage of hominids and other primates. Then I shall review current views about hominid evolution.

The Primates

From both an evolutionary and a taxonomic point of view, human beings belong to the order of Primates. This order includes, among others, old world monkeys, chimpanzees, gorillas, orangutans, gibbons, and new world monkeys. Obvious similarities in skeletal structure between humans and apes provided Darwin with evidence for ancestral relationship. Humans and other primates also share such traits as nails instead of claws, prehensile hands, opposable thumbs, erect postures, increased reliance on vision, identical number of teeth (in apes and humans), relatively large and complex brains, lengthened periods of maturation, and habitation in year-round social groups containing members of both sexes (Poirier and McKee 47-48).

In the late 20th century, advances in genetic research have provided direct evidence for genealogical relationships and have bolstered the evidence based on anatomical similarities.

While varying models of the primate family tree exist, there is a pretty firm consensus now that human beings are genetically most closely related to chimpanzees, then to gorillas, then to other primates (Poirier and McKee 50).

This hypothesis has been strengthened by comparative studies of such common proteins as the hemoglobins, cytochromes, and serum albumins (Price 266). For example, the *cytochrome-c* molecule in humans and chimpanzees "contains the same 104 amino acids in exactly the same sequence" (Ayala 35). Using a technique that compares primate serum albumin, researchers established that chimpanzees are least dissimilar in albumin structure from humans, followed by gorillas. In fact, the analyses of many of these proteins yield the same results: human and chimpanzee proteins are 99% identical in structure (Price, 266-268). These and many other kinds of comparisons at the molecular level are so conclusive "as to justify, on the basis of molecular structure alone, status as sibling species" (Price, 269).

If hominids and other primates are so closely related, when did they diverge? Using DNA analysis scientists have provided varying results. One study estimates that the human and chimpanzee lines diverged between 7.7 and 6.3 million years ago (mya), and that the gorillas split off earlier, approximately 8-10 mya. As its own lineage developed, the family of *Hominidae*, to which the genus *Homo* and our species *Homo sapiens* belong, developed traits that have set its members apart from other primates. These include adaptations of the skeleto-muscular system to allow straight-knee bipedalism, loss of opposability in the big toe, increased cranial height and capacity, and dental changes leading to reduced projection of the face. And humans have developed, as no other primate has, the abilities of language, abstract and symbolic thought, culture and technology, the ability to think about the past and plan for the future, to think about the differences between what is and what ought to be (Poirier and McKee 53-54), and to communicate experiences of transcendence.

Hominid Evolution: Early and Now Extinct Genera

It has been easier to establish the similarities and differences between humans and other primates than it has to establish the lineages and relationships between the various, now extinct hominids and modern human beings.

Over the past eighty years more and more fossils of previously unknown hominids have been unearthed, particularly in Africa but also in Asia and Europe. Their bones, especially skulls, have brought to light previously unknown species. Anthropology, radioactive dating techniques and genetic analyses have succeeded in providing hypothetical timelines for the emergence and extinction of our hominid ancestors. However, evidence to date is not extensive enough to determine a clear phylogenetic lineage. A family tree cannot yet be drawn.

Nevertheless, by the end of the twentieth century anthropologists have looked over the numerous fossils of the family *Hominidae* gathered since the 1920s and grouped them into three genera (pl. of genus). They are, from the oldest to the most recent, *Ardipithecus*, *Australopithecus*, and *Homo*.

Ardipithecus: Nearly six million years ago, a creature already exhibiting features of bipedalism inhabited the forests of what is now the continent of Africa. *Ardipithecus* has yielded fossils of its earliest species, *A. ramidus kadabba*, that have been dated between 5.3 and 5.8 mya. Many of its features are anatomically similar to those of the great apes; "in other features, though, …the fossils resemble later hominids" Given its numerous chimp-like features, this genus appears to have emerged early on the hominid lineage at a time close to that of the common hominid-chimpanzee ancestor (Leakey and Walker 19). .

Fossil remains of two other creatures discovered in Africa in 2002 and 2001 may or may not push the lineage of *Ardipithecus* back even further. The oldest, named *Sahelanthropus tchadensis*, discovered in the part of Africa known as the Sahel, has been dated back to 7 mya, even closer to the point of divergence. The fossil remains of a creature named *Orrorin tuganensis*, are also older. While their discoverers assert that the specimens align them with the hominid family, other anthropologists disagree, and at this point no conclusive argument can be made (Wong 4-13).

Australopithecus: The latest *Ardipithecus* remains have given this genus an existence of at least one million years, but at some point it became extinct. A new one emerged about 4 mya, and dozens of individuals and hundreds of fossils discovered in eastern and southern Africa, reliably dated using potassium-argon dating techniques, bring the lifetime of

this genus, *Australopithecus*, up to about 1.8 mya. The most famous find, the female "Lucy" lived some 3.5 mya (Johanson and Edey); her relatively complete skeletal remains show that she walked fully erect, and that while she displays some ape-like features her many distinctly hominid features place her in the latter lineage (Leakey and Walker 15). Australopithecines in general were of smaller stature and possessed smaller skulls and braincases than members of the genus *Homo*. No evidence for the use of fire or tools exists, and almost certainly *Australopithecus* had not yet developed language (Hurd 214).

Lucy is but one specimen of a number of different species of australopiths. Her discoverer named her species *A. afarensis*, but an even earlier species, *A. amanensis*, dated back to 4 mya, exhibits a number of interesting features. Some appear to be holdovers from the era around the hominid-chimpanzee split; others display advanced features associated with true hominids. A later, so-called "robust," group of australopiths have been given the name *Paranthropus*, as they exhibit features that bring them closer to their relatives of the genus *Homo*. They include remains that have been dated from about 3 mya to about 1.8 mya (Tattersall, 2003, 23).

The Genus Homo

The study of hominid evolution is in a state of flux as the twenty-first century begins. Many more skeletal remains of the genus *Homo* have been found than of the earlier pithecines, and sites have been discovered with remains of campfires, meals, and burials. Anthropologists have not yet reached a consensus regarding the classification of certain specimens, or of their relationships, although the notion of a linear descent has been largely abandoned, and there is general agreement that the biological lineage that led to modern humans has been marked, like those of other animal species, by diversity.

We modern humans are but one of several twigs on the hominid branch, and there appears to have been a long period during which several species were contemporaries, perhaps living in proximity and competing with one another.

This is most evidently the case with *Homo sapiens* and *Homo neanderthalensis*.

While clear links have not been established, fossil remains argue for the emergence of new hominids in "a strong unbroken sequence" from *Australopithecus* to *Homo erectus* to *Homo sapiens*. They include, in gradual stages over several million years, "(1) reduction in the size of canine teeth, (2) development of a larger braincase and a more complexly organized brain, (3) reduction in the maxilla (facial area), (4) increase in body size, and (5) decrease in size difference between males and females." "Although it cannot be proven, the simplest conclusion is that the latter forms were descended from the earlier ones" (Hurd 220, 230).

There is also general agreement that the first members of our genus were living in Africa about 2.5 mya. Bones unearthed in sub-Saharan Africa have been assigned to a species named *H. habilis*. Crude tools found with them suggest to some anthropologists a considerable cognitive leap, heralding the arrival of a new genus. A contemporary eastern-African *H. ergaster* made an appearance probably around 1.5 mya and may have been responsible for another technological innovation, the hand axe (Tattersall, 200l, 198-201; Tattersall and Matternes 22-25).

Some of the first specimens of a new arrival, *Homo erectus*, were first found in Asia, and originally referred to as "Peking man" and "Java man." Their body size approaches modern humans, although their average cranial capacity of about 1000cc is smaller than the 1400cc average of the modern human. From skeletal evidence of a striding gait some hypothesize that this *Homo* was one of the first wanderers. *H. erectus* appears in the fossil record from about 1.8 mya to about 200,000 years ago. Anthropologists disagree whether the species arose in Africa and migrated to Europe and the Far East, or whether their homeland was located somewhere in the latter regions (Hurd 220; Tattersall, 2001, 203; Tattersall, 2003, 42-43).

A hominid species named H. *heidelbergensis*, found in Africa but named from later specimens found in Europe, appeared about 600,000 years ago. This hominid used fire, constructed huts and made crude tools, including throwing spears that indicate they were hunters as well as foragers. Several anthropologists speculate that *H. heidelbergensis* was the common ancestor of *H. neanderthalensis* and *H. sapiens* (Tattersall, 2003, 26)

None of our now extinct ancestors has engendered so much fascination as the Neanderthals, thanks to the many remains which allow a more detailed reconstruction of their history. The earliest fossils, found mostly in Europe but a few also in Africa and Asia, indicate that the Neanderthals appeared about 200,000 years ago. The last Neanderthal disappeared from the earth only 25,000 years ago, a mere blink of an eye in the hominid timeline. Their skeletal remains show many similarities with modern humans, but there are enough differences in the forms of the skull and other features to argue for a separate species. Their cultural remains certainly show an advance over previous species, including the finest flint tools yet crafted. They also practiced inhumation (Tattersall, 2001, 204-205; Wong, 29-30).

Yet anatomically modern humans, *H. sapiens*, who appear on the scene around 130,000 to 120,000 years ago (though some anthropologist argue for an even earlier 180,000 years ago), show many cultural differences that reveal superiority in thinking and making artifacts, as well as many anatomical features that differ from their Neanderthal contemporaries. Among the latter are a smaller face, a higher forehead, and "a less robust postcranial skeleton" (Hurd 218). There is also

clearer evidence that these humans possessed language, and a much greater capacity for symbolic representation. Artifacts dating back to 40,000 years ago show far more variety and sophistication in materials and workmanship. Our early *H. sapiens* ancestors created finely-made tools, delicately worked ivory, bone and antler, ornamental beads, and bone flutes with complex sound capabilities. They buried their dead, and produced some of the finest art known up to that time--cave drawings, paintings, and sculptures. The human family we are members of had arrived (Tattersall, 2001, 205).

There is another question that engages anthropologists: has *H. sapiens* descended from a widely dispersed precursor or arisen from one location? The majority of anthropologists favor the "Out of Africa" theory. Calling attention to the evolutionary fact that new species populations tend to emerge in one area and then spread out over a wider geographical range, its proponents argue that modern humans began in Africa and from there spread into the Near East, Asia, and Europe. These wandering populations replaced Neanderthal and remaining *H. erectus* populations (Tattersall, 2003, 38-45). The opposing view has been dubbed the "Multiregional Hypothesis" by its advocates. Modern humans, they argue, descended from already wide-spread *H. erectus* populations. Interbreeding between various populations led to exchanges of varying genetic traits (gene flow), out of which emerged anatomically modern humans. Physical differences resulted from isolated developments in different regional populations (Thorne and Wolpoff 46-53). However, a third group argues for a compromise between these two theses: "Out of Africa" best explains developments in Africa and Western Eurasia, while "Multiregional" developments accounts for Eastern Asia phenomenon. Whatever the truth, all of the evidence from fossil and DNA studies indicates a strong biological unity of modern humans. We humans truly are all related.

To keep this survey brief, I have had to leave out a number of details that would have provided more evidence for human evolution. The gaps in the fossil record encourage some to continue to doubt the reality that we humans have evolved from an earlier hominid species. Yet, the large number of fossils of obviously different species makes it clear that we are not the only hominid forms that have appeared in history. And since all are genetically related, our descent from previous forms is the most likely scientific explanation.

Part II: THEOLOGICAL IMPLICATIONS OF HUMAN EVOLUTION

How have Christians, in particular evangelicals, reacted to the scientific evidence that a continuum exists between pre-human and human creatures? If one believes that the creation is a kind of "Book of Nature," a metaphor that theologians for centuries have used, then all of the data from fossil, genetic, and radioactive dating studies that support the conclusion that we humans have evolved from an earlier hominid species cannot simply be dismissed out of hand. But if the Christian believer takes this evidence seriously, then what is she or he to make of the biblical stories and references that appear to depict a separate creation by God of a first man and woman? And how is one to understand that human beings are created "in the image and likeness of God," in the light of human evolution? Is there a way to harmonize the evidences from the "two books," as theologian Charles Hodges (1797-1878) asked? Is there a way to reconcile the place of Adam in Scripture and theology with the fossil and DNA evidence that our biologically united modern human species emerged on the scene between 100,000 and 200,000 years ago? Evangelicals have responded in various ways. For the rest of this essay, I'll briefly outline a few positions, and then conclude with theological reflections I share with many other Christians about the meaning of *imago Dei*, "the image of God" in humanity.

Conflict:

Young earth creationists (YECs) believe that the Bible is infallible and inerrant in all areas of knowledge (see essay III), and that the creation stories in Genesis 1-3 present scientific and historical truth about origins, including human origins. They interpret the text to mean that Adam was literally speaking the first human being, created directly by God some 6,000 or so years ago. Since the Bible is "the word of God," its statements, they assert, must be superior to any conclusions of science. Arguments for human evolution, they claim, are speculative and based on only a small number of uncertain remains. Creationist J. Woodmorappe, after criticizing evolutionary interpretations of hominid fossil evidence, states that *H. ergaster, erectus, heidelbergensis* and *neanderthalensis* are all racial variants of modern man, descended from Adam and Eve and representing the separations that took place after the tower of Babel incident (Woodmorappe 13).

Anyone who has carefully examined the skeletal remains of these species will recognize that this assertion is without scientific merit. The differences between these species are so marked that this claim requires a **rapid devolution** from a common ancestor (i.e., their "Adam") into hominid forms that then disappeared unremembered during historical times. The mind boggles at such a defiance of reason and common sense. But this argument, specious as it is, does exemplify the Conflict approach to science and faith: YECs absolutely reject any evolutionary interpretation of empirical data that contradicts their literalistic interpretation of the Bible. I'll examine their methodology in a later essay.

Concordance:

Many evangelicals accept the evidence for an ancient earth and for hominid precursors to *H. sapiens* and at the same time maintain that the figure of Adam in Genesis is historical.

These concordists, using anthropological evidence, recognize that the writer of Genesis 2-4 has described the family of Adam as cultivators of domesticated plants and herders of animals; as well as metalworkers who made utensils and musical instruments. The biblical record, they say, describes human cultural developments in the ancient Near East that do not go back more than 10,000 years ago, the beginning of the Neolithic Age. Dick Fischer argues that Adam lived between 4,000 and 5,000 years before Christ, at the point when the Neolithic Age was merging into the Bronze Age, around 3500 BC (Fischer 1). Others disagree with this chronology, since cities (see Gen. 4) first appear ca. 9,000 BC.

If Gen. 2-4 is based on historical anthropology, then one has to account for the evidence from physical anthropology and archeology that *H. sapiens* appeared prior to 100,000 years ago. The concordists attempt to do so. Fischer, for example, asserts that one can hold to the view that God separately created Adam and Eve, but that their descendents intermarried with an indigenous population of "pre-Adamites" (e.g., Cain's wife), thus merging with the long line of *H. sapiens* and its hominid ancestors. Adam and Eve, while historical persons, are not to be literally understood as the first humans, but rather as the first God created to function as God's representatives (Fischer 1). They were the first to bear the "image of God." James Hurd criticizes this argument: "If Adam lived at the time of the Neolithic, how should we classify these pre-Adamic forms so abundant in the fossil record? If they walked like humans, worked like humans, and worshipped like humans, were they not human? Did they not have 'godness' [i.e., the 'image of God']"? (Hurd 224-225).

I would add, what sense does it make for God to separately create two humans who have the same DNA and basic protein molecules, and are similar in every other way to all humans who descended from those who appeared more than 100,000 years ago?

Other scenarios have Adam and Eve appearing as early as 40,000 years ago, a time during which archeologists note a cultural explosion: the presence of more sophisticated stone tools, cave art, and ritual burials. Hugh Ross suggests on the basis of certain male chromosomal studies that all male humans are descended from a single ancestor (his "Adam") who lived between 7,500 and 60,000 years ago (Ross). Pushing the chronology back, however, does not eliminate the objections stated above, and such an "Adam" would not fit the description of the Neolithic farmer and his family depicted in Gen. 2-4.

***Imago Dei*: the Image of God**

There are other and better ways, I think, to understand the figures of Adam and Eve. One is to apply the principle of **accommodation** (described in essay III) the Holy Spirit inspired the writer of Genesis 2-4 to depict the origin of humankind in a way that was comprehensible to the people of his time.

Another interpretation has been adopted by many Christians, including some evangelicals: the figures of Adam and Eve are to be taken as representative theological symbols of humanity in its origins and not as the literal, historical first man and woman (Collins 482-488; Hyers 149).

Understood in this sense, Adam and Eve in Gen. 2-4 are identified with the unnamed figures of man and woman referred to in the separate account of creation given in Genesis 1--the male and female who bear the image of God. This interpretation allows one to frame a different and more fundamental question: how does one understand *theologically* the meaning of *imago Dei* in an evolving humanity?

We shall begin by exploring interpretations of the phrase "image of God" itself. Historically, Christian theology has provided a number of interpretations: the "image" refers to the divine gifts of love and compassion, or intellectual and moral reasoning and imagination, or creativity, or free choice. In this essay, however, I shall focus on the formative biblical texts that have provided the foundation for subsequent theological reflection. Most Protestant and Roman Catholic thinkers agree on their meaning.

In Genesis, the "image of God" is connected with two fundamental notions, **relationship** and **stewardship**. The first refers to the relationship or communion between man and woman (and by extension within the whole human family) and the relationship between humanity and God.

To display the divine image is to be in the kind of loving and harmonious relationship depicted in the chapters 1 and 2 of Genesis between God, the man and the woman, and between God and the whole creation.

Stewardship extends the notion of relationship for human beings to the rest of creation: humans are given dominion and entrusted to care for, that is, to serve (Gen. 2:7), the earth. Human beings are to image God by treating each other and the rest of creation in the way God intends the creation to be treated—with love and care (Miller, 1993; Finlay 20-21; *Communion and Stewardship*, I, chap. 1.7-10). As Malcolm Jeeves states: "the meaning of 'the image of God' is thus to be found in the human vocation, given and enabled by God to relate to God as God's partner in covenant, to join in companionship with the human family, and in relationship to the whole cosmos in ways that reflect the covenant love of God" (14, 26). Love and compassion, the very traits that can be said to be literally true of God, are the very traits that

humanity is to mirror in its relationship to the creation. (I shall explore the implications of this teaching for Christians' obligation to care for the earth in a later essay.)

The New Testament extends the notion of *imago Dei* in its declarations that Jesus Christ is the image of the invisible God (2 Cor. 4:4; Col. 1:15; Heb. 1:3). In the saving work of Christ, humanity is offered the gift of grace that enables the believer to work into the image of Christ through the power of the Holy Spirit: to be "conformed to Christ," as St. Paul put it (Rom. 8:29; 2 Cor. 3:18). The divine image given in creation and disfigured through sin can be realized to its fullest by living into the image of Christ, for Christ became human in order to display in its wholeness the image of God, and restore it to all of humanity. Through Christ Jesus, in whom the fullness of God dwells, the believer may finally realize the fullness of communion with God, with one another in the Body of Christ, and with all of creation (*Communion and Stewardship*, I, chap. 1.11-12).

If this is the biblical understanding of what it means to be created in "the image of God," then does it require a separate creation for human beings, that is, for *H. sapiens*, to be made in this image? Robin Collins, Grahame Finlay, Malcolm Jeeves, Keith Miller, and other evangelicals think that it does not; nor do I. As Finlay wrote, "That God created human beings (Gen. 1:27; Ps. 100:3) does not imply instantaneous action. God's creation of humanity encompasses past primate history, the present, and whatever is to come. The sweep of human evolution illustrates how God's work of creation is a continuing relationship of dependence between the world and God, a continuing act of God's will, an eternal covenant relationship" (Finlay 16-17). And accepting the notion of an evolving human species can still leave a place for the figure of Adam as a historical reference, as Robin Collins argues. He suggests that "Adam" can be seen as representing in a symbolic way the "father" of the "first group of evolving hominids who gained moral and spiritual awareness" (Collins 486; without, I would suggest, insisting that one locate this awareness in a specific population, time and place).

Genesis itself implies that humanity and all the other living beings are made of the same stuff and given the same breath of life (Gen. 2:7, 9, 19, cf. Eccl. 3:19-21; Miller 1993), and modern science has shown that we share the same DNA and other molecules with virtually all living things (Finlay).

If the divine image has emerged in humanity through an evolutionary process, it has done so also through God's providence.

It does not denigrate either God or humanity to hold that God's creative evolutionary processes brought humanity to a point where it would be capable of expressing those qualities that both Scripture and theology have associated with the "image of God."

(Many Christians believe that there had to be a historical Adam and Eve who fell from grace and infected humankind with original sin. Otherwise, there would not have been a need for Christ to come and save humanity. I shall address this issue in a later essay.)

Concluding scientific postscript

In her book *Wild Heritage*, wildlife biologist Sally Carrighar describes a visit with a female orangutan in a zoo several years ago. They sat and studied each other for some time. After a while, Carrighar began to think about how all the beauty of life and of creatures like herself and this ape could be destroyed in a nuclear exchange. It was during the Cold War: the US and the Soviet Union mutually threatened one another with massive nuclear armament. Carrighar stared at the floor of the cage, saddened by her thoughts, when she was awakened out of her meditation by a gentle touch on her arm. She looked up and into the compassionate gaze of the orangutan, who, seeing her distress and sadness, reached out to comfort her. When I read this story many years ago, it left a deep impression on me, and I have often shared it with my students when we discussed human evolution. This moment and many others between such gentle primates and humans who have lived among them have convinced me that we share with them more than anatomical, genetic, and molecular connections. I believe that we also share capacities for affection and compassion. Stories like these give the lie to the false images we hold about other primates--of dangerous, sexually threatening, clownish and dirty creatures that we shrink from seeing as our relatives. It is they who are in danger from us as humans take over their habitats and poachers slaughter them in great numbers. If there is an image problem here, it is in our failure to see other primates as they really are—our cousins in creation—and reveal to them the image of God by entering into a relationship of care and compassion.

Further reading

Ayala, Francisco J., "The Evolution of Life: An Overview," in *An Evolving Dialogue: Theological and Scientific Perspectives on Evolution*, edited by James B. Miller. Harrodsburg, PA: Trinity Press International, 2003, p. 9-52.

Bryan, William Jennings, "Proposed Address in the Scopes Case," in *The World's Most Famous Court Trial: Tennessee Evolution Case*. Cincinnati, OH: National Book Company, 1925, p. 320-339.

Carrighar, Sally, *Wild Heritage*. New York: Ballantine Books, 1971.

Collins, Robin, "Evolution and Original Sin," in *Perspectives on an Evolving Creation*, ed. by Keith B. Miller. Grand Rapids, MI: Eerdmans, 2003, p. 469-501.

Darwin, Charles, *The Descent of Man*, in *Darwin*, selected and edited by Philip Appleman. Norton Critical Edition. New York: W. W. Norton, 1970.

Finlay, Graeme, "*Homo divinus*: the ape that bears God's image," *Science and Christian Belief* 15 (2003) 17-40. (website)

Fischer, Dick, "In Search of the Historical Adam: Part I," *Perspectives on Science and Christian Faith* 45 (1993) 45ff. (website)

Hurd, James, "Hominids in the Garden?" in *Perspectives on an Evolving Creation*, p. 208-233.

Hyers, Conrad, *The Meaning of Creation: Genesis and Modern Science*. Atlanta: John Knox, 1984.

International Theological Commission, *Communion and Stewardship: Human Persons Created in the Image of God*. Vatican City, 2002. (website)

Jeeves, Malcolm, "Changing portraits of human nature,' *Science and Christian Belief* 14 (2002) 3-32. (website)

Johanson, Donald and Maitland Edey, *Lucy: the Beginnings of Humankind*. New York: Simon & Shuster, reissue edition, 1990.

Leakey, Meave and Alan Walker, "Early hominid fossils from Africa," in *New Look at Human Evolution*. Scientific American Special Edition, 2003, p. 14-19.

Miller, Keith B., "Theological Implications of an Evolving Creation," *Perspectives on Science and Christian Faith* 45 (1993) 150-160. (website)

Poirier, Frank E., and Jeffrey K. McKee, *Understanding Human Evolution*, 4th ed. NJ: Prentice Hall, 1998.

Price, Peter, *Biological Evolution*. Forth Worth, TX: Saunders College Publishing, 1995.

Ross, Hugh, "Searching for Adam Update," *Reasons to Believe* (website)

Tattersall, Ian, "Human Evolution: An Overview," in *An Evolving Dialogue*, p. 197-209.

Tattersall, Ian, "Once we were not alone," in *New Look at Human Evolution*, p. 22-27,

Tattersall, Ian, "Out of Africa Again…and Again?" in *New Look at Human Evolution*, p.38-45.

Thorne, Alan G. and Milford H. Wolpoff, "The multiregional evolution of humans," in *New Look at Human Evolution*, p. 46-53

Wong, Kate, "Who Were the Neanderthals?" in *New Look at Human Evolution*, p. 28-37.

Woodmorappe, John, "The non transitions in 'human evolution'—on evolutionists' terms," *Creation ex nihilo Technical Journal* 13 (1999, 2) 10-12. (website)