

Evolutionary biologists are convinced that humans are descendants of ape-like creatures. In spite of a number of disputes over theories of ape-human lineages, paleoanthropologists concur. Christian response to these assertions has been varied. Some Christian organizations agree with the scientific community about the origin of humans but maintain that at some time in

# The search for Adam's ancestors

by  
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the past human beings acquired an immortal soul, moral sense, and/or the ability to reason. Others, including Seventh-day Adventists, accept the Genesis account as the record of a historical event.

Where did Adam come from? Was he fashioned from the dust of the ground by an intelligent Creator, or did he descend from an ape-like creature? We know what the Bible says. Does the "book of nature" agree?

## Determining what is human

Although some pet owners might argue the point, traits such as esthetics and moral sense, free choice, and complex speech set humans apart from animals.<sup>1</sup> Extinct human-like skeletons cannot provide us with this type of information. Since scientists are not able to talk to the organisms that are alleged to be our ancestors to determine just how human they were, researchers rely on structural features of the fossil bones and genetic information in modern apes and humans.

Modern humans are distinguished by several skull features. Three notable

characteristics can be easily recognized: (1) At the front of the lower jaw, modern humans have a part of the jaw bone that protrudes to form the chin. (2) The angle of the face is very flat because modern humans lack a muzzle and have a non-receding forehead. (3) The upper portion of the skull in modern humans is wider than the base of the skull. Determining whether a fossil skeleton is a modern human does not appear to be too difficult.

## The hominids

Hominid is the name given to the bipedal primates, including all of the species in the genera *Australopithecus* and *Homo*. The australopithecines include the genus *Australopithecus* and, for some researchers, *Paranthropus*. The hominines refer to the members of the genus *Homo*.

The australopithecines are divided into two groups, based on body type: (1) The gracile, small-boned, more fragile ape-like forms include *A. ramidus* (the most recent australopithecine find, currently proposed as the fossil closest to the "missing link" or common ancestor of apes and humans); *A. afarensis* (a "community" of fossils has been found; one 40 per cent complete skeleton is popularly known as "Lucy"); and *A. africanus* (the "Taung Child," named for the locality near which it was found).

(2) The robust ape-like forms include *A. aethiopicus* (a skeleton with some distinct traits found in *A. afarensis*, known as "Black Skull"), *A. robustus*, and *A. boisei*. Some researchers place all of the robust forms in the genus *Paranthropus*.<sup>2</sup>

The genus *Homo*, to which humans belong, has a number of species assigned to it: *H. habilis* (fragmentary material of a small species found near stone tools, known as "Handy Man"); *H. rudolfensis* (gracile skull and bone material notably larger than *H. habilis*, even though it was formerly assigned to that species); *H. erectus* (more than 200 fossil individuals popularly referred to as erectines, including Java Man and Peking Man); *H. ergaster* (skull and bone material formerly assigned to the erectines and now distinguished by lower jaw and tooth structure as a separate species, known as "Turkana Boy"); *H. heidelbergensis* ("Rhodesian Man", an archaic *H. sapiens* previously identified

as an erectine, sometimes listed as *H. sapiens heidelbergensis*, a subspecies of *H. sapiens*; the species has a larger cranial capacity than the erectines); *H. neanderthalensis* (a robust species commonly pictured as a "Cave Man", skeletal remains frequently display evidence of trauma, sometimes listed as *H. sapiens neanderthalensis*); and finally, *Homo sapiens* or *Homo sapiens sapiens* (modern humans).<sup>3</sup>

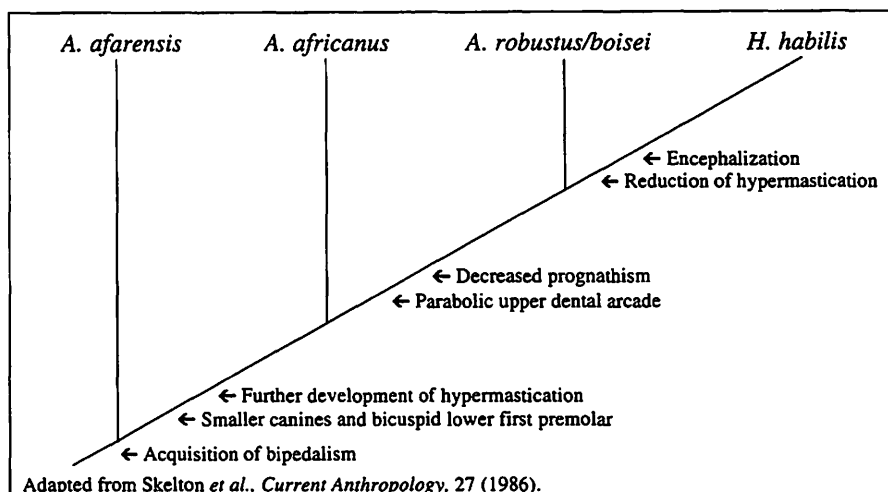
### Research approaches

In the search for human origins, three major groups of scientists—paleoanthropologists, evolutionary phylogeneticists, and molecular anthropologists—approach the problem from three very different perspectives. Paleoanthropologists focus on physical features of the hominid skeletons and on tool use. Evolutionary phylogeneticists describe the similarities or relatedness of organisms. Molecular anthropologists emphasize protein and DNA similarities among the hominids.

#### Some hominid physical features.

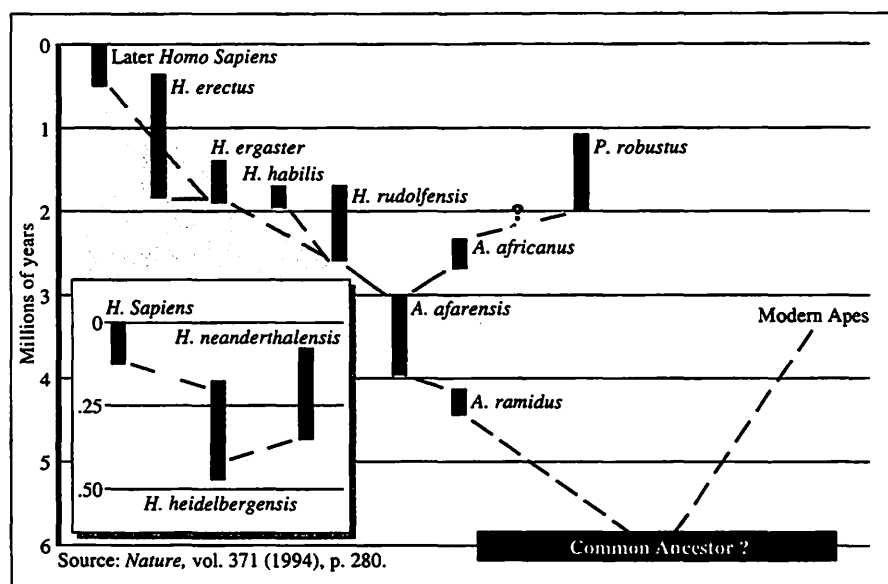
Paleoanthropologists are scientists who study exclusively human origins. In comparisons of skeletal structures or morphological traits in the hominids, they believe they have found several hominine and ape-like features in these fossils. One of the most important species of the australopithecines, *Australopithecus afarensis*, exhibits these features.

*Australopithecus afarensis*, a hominid also popularly known as "Lucy," has a hip joint, that is not quite ape-like, not quite human. While it seems clear that the australopithecines were not knuckle-walkers like modern apes, the hip joints were rotated forward enough that they are not confused with modern human hip joints. (One of the criteria that has been used to identify the genus *Homo* is a fully upright walking posture.) Another structure pointed out by paleoanthropologists as evidence for an australopithecine link between apes and humans is the curvature of the finger and toe bones. The australopithecine fingers and toes are not as straight as human fingers and toes but the knuckle is not as simple as the chimpanzee's.<sup>4</sup> A number of these somewhat simian, somewhat human features in the limbs of the australopithecines have been identified. In addition, the decrease in the size



Adapted from Skelton et al., *Current Anthropology*, 27 (1986).

**Figure 1 - Simplest cladogram, based on 45 of the 69 traits, and the derived conditions characterizing each branch.**



Source: *Nature*, vol. 371 (1994), p. 280.

**Figure 2 - A suggested human tree by evolutionist scientists.**

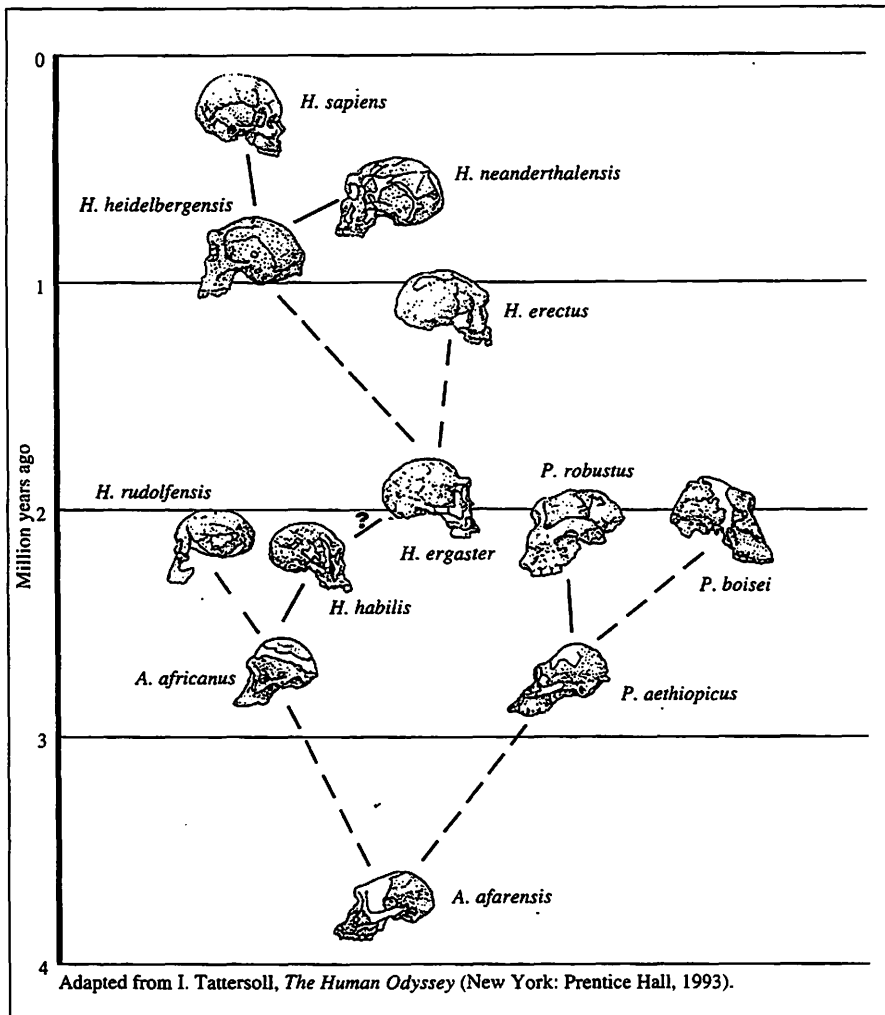
of the teeth from the front of the mouth to the back is a trait similar to the arrangement of teeth in the hominines.<sup>5</sup>

Human/ape-like features also are found in the genus *Homo*. *Homo habilis*, or "Handy Man," is included in the genus *Homo* primarily because the fossil material was found associated with "tools." In addition, *H. habilis* has a jaw that is very human-like; however, its body skeleton resembles an australopithecine. The specimens assigned to *Homo rudolfensis* are included in the genus *Homo* because the skeletal structure is very human-like; but the face and teeth look like robust australopithecines.<sup>6</sup>

Paleoanthropologists divide the erectines into two species, based on the jaws and teeth, African location, and smaller brain capacity of *H. ergaster* relative to the erectines from Asia.<sup>7</sup>

Several diagrams have been constructed to demonstrate the proposed ancestral lineage of the hominids. The diagrams differ because the paleoanthropologists do not agree on the specific physical features that should be used to identify ancestral relationships, timing of divergence, and placement of new skeletal finds.<sup>8</sup>

**Hominid relationships.** Phylogeneticists use cladistic methods (cla-



**Figure 3 - Human evolution, as outlined by I. Tattersoll in *The Human Odyssey* (1993).**

dograms) to describe relationships among organisms. Cladograms are diagrams that arrange organisms in groups having shared characters, describing organisms in terms of sister rather than ancestral relationships, in a hierarchical form. In developing cladograms, phylogeneticists make three basic assumptions: (1) The features or characters that make up the database can be arranged in a hierarchical structure; (2) the data or characters selected accurately represent the organisms; and (3) there has been little or no loss of defining characters.<sup>9</sup> A cladogram describing possible relationships among hominids is shown in Figure 1.<sup>10</sup>

Some characters used to develop the cladogram appear in species in a different order than the majority of the characters defining the cladogram.

Phylogeneticists select the cladogram with the least number of out-of-order characters to develop "best fit" diagrams; consequently, there is some disagreement over which characters best describe the organisms and how they should be arranged in the hierarchy.

After using cladistics to identify hierarchical relationships, numerous researchers incorporate this information into hypotheses and develop phylogenetic schemes depicting ancestral relationships for hominids. By 1993, at least six major phylogenetic schemes had been proposed for the hominids. Since the discovery of *A. ramidus*, a seventh scheme has been proposed. Much of the shuffling of species in these diagrams represents disputes over the validity of attributing to human evolution the various traits found in the skulls and teeth of the specimens.

**The hominid molecular relationships.** Some anthropologists have studied molecular similarities among modern apes and humans to develop hypotheses about hominid lineages. Some of these researchers assume that mutations and changes occur at a constant rate in DNA. Numerous studies, spanning more than 30 years, have tried to determine when various living species diverged from related species, based on the assumption of relatively constant rates of change in DNA, a "molecular clock."<sup>11</sup>

Interpretations based on the "molecular clock" imply human origins occurred millions of years ago and assume that there is a link between apes and humans. The time spans postulated for the ape-human divergence range from 5 to 7 million years ago. However, the assumed mutation rates used to calculate these ages were challenged more than 30 years ago by Morris Goodman and more recently by Wen-Hsiung Li.<sup>12</sup> The issues they have raised allow one to question the validity of the method.

Others have narrowed their field of inquiry and compared the mitochondrial DNA among human races, hypothesizing that the human line can be traced to a single African population.

### The hominid "lineage"

**Australopithecines.** In the australopithecine group, *A. ramidus* (the most recent find) and *A. afarensis* (Lucy) are both considered ancestral (Figure 2), whereas *A. africanus* (Taung Child), listed as recently as 1993 as ancestral (Figure 3), continues to be disputed as part of the direct line.<sup>13</sup>

**Hominines** (See Figure 2). In the *Homo* genus, *H. habilis* (Handy Man) remains problematic but is listed outside the human line by Wood, and inside the human line by McHenry.<sup>14</sup> The gracile form of *H. rudolfensis* once replaced *H. habilis* in the human lineage but now is also excluded by some workers. *H. erectus* (Peking Man, Java Man) should be currently listed as "offline" according to Tattersoll (see Fig. 3)<sup>15</sup> due to the fact that a portion of its skull structure is too robust.<sup>16</sup> Some researchers list *H. ergaster* as one of the preferred "links," although others still consider *H. ergaster* as a separate species and continue to include these organisms with the

erectines and in the ancestral line. Finally, *H. heidelbergensis* is regarded as ancestral to both modern humans and the neanderthals (Figs. 2 and 3).<sup>17</sup>

### Evolutionary hypotheses falsified

Figure 2 illustrates some current paleoanthropological conclusions in regard to ancestor-descendent relationships for hominids. The common ancestor for hominids and apes is still missing. *A. ramidus*, *A. afarensis*, erectines and *H. heidelbergensis* are all clearly listed as “links” in the lineage.

Using standard scientific methods, researchers test their hypotheses, rejecting those ideas shown to be false. In studies of human evolution, standard scientific methods may not be adhered to by some workers. For example, *A. afarensis* has unique traits that actually preclude them from being included among our ancestors. One cladistic study identified 69 traits that are expressed differently among the species in the “human lineage.” Of these, only 45 support the preferred evolutionary hypothesis.<sup>18</sup>

The remaining 24 characters contradict this preferred evolutionary hypothesis. The preferred hypothesis was selected by the researchers as representing the probable path of “human evolution” because it had been falsified the least number of times. As a result—and to their credit—other researchers have questioned the validity of *A. afarensis* as a human ancestor.<sup>19</sup> The reversal in robustness that occurs with the inclusion of *H. erectus* in the “lineage” is another factor that is inconsistent with the current hominid evolutionary hypothesis.

### Conclusion

What does the “book of nature” tell us? All hominid evolutionary hypotheses have been falsified. To be fair, this does not rule out the evolutionary theory (new specimens may be discovered to resolve the conflicts); therefore, it is not appropriate to announce to the world that “Evolution has been refuted,” based on the incongruence of current hypotheses.

If all of the hominid evolutionary hypotheses have been falsified, how does one interpret the fossil material? Comments by Wood illustrate what can be perceived as a blending of characters: “Whereas *H. habilis sensu stricto* [in the

# Evolution and salvation

by Richard Rimmer

Who was the first person to whom God promised salvation?

For most Bible-believing Christians the answer is quite simple. But if you are a Christian who believes in evolution, then you are in a predicament. Evolutionists say that species developed over the ages—that there were progressive changes that finally produced modern humans. If evolution really occurred and human beings evolved from lower life forms, was there a cut-off time between hominids and modern humans when God began to hold them accountable for their actions? Did God save early humans half a million years ago, but not ape-like creatures a million years ago? When was the precise moment they became people, and ceased to be animals?

Remember, God saves *individuals*, not groups. If you were God, you would have had to decide when to begin saving individuals, *and not their fathers and mothers*.

If you're a theistic evolutionist, you've put God in the position of making an arbitrary decision about individuals. Christ has told us that *whoever* believes in Him can be saved (John 3:16). This implies personal choice. Besides, our God is a reasonable God (Isaiah 1:18). He cannot be arbitrary in defining when a being in the long evolutionary process is savable.

Then, there's the question of how, when, and why the plan of salvation was

introduced to these developing creatures. Is the story of Adam and Eve, as presented in Genesis, all a big lie? How can these biblical perspectives be compatible with evolution?

It wasn't a matter of development that determined when people were fit to save. There was a created pair of humans who didn't need salvation, but who sinned by disobeying God. From then on it was, and is, a matter of accepting Christ as our Savior.

If you are a Christian, why not accept the reasonable view that God created humans and endowed them with the ability to make moral choices? Doesn't this make more sense than forcing God to decide when evolving hominids became morally accountable and were advanced enough to save?

There's also the question of sin. What relevance does sin have for people if they descended from lower animals and inherited moral deficiencies? Wouldn't this make God responsible for our sins? Wouldn't it make it unreasonable for Him to ask us to overcome? If God created basic life forms (as theistic evolutionists claim) but then left them to develop through millions of years as lower animals with deficiencies, couldn't we accuse God of creating us sinful?

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strict sense] is hominine with respect to its masticatory complex [mouth or jaws], it retains an essentially australopithecine postcranial skeleton [body]. *Homo rudolfensis*, on the other hand, apparently combines a later *Homo*-like postcranial skeleton [body] with a face and dentition [teeth] which are adaptively analogous to those of the 'robust' australopithecines, especially *P. boisei*." Many characters that occur together in the australopithecines and in the hominines represent a mosaic of

traits. Some Christians would interpret these organisms to have resulted from degeneration of the human form due to the entrance of sin. Another interpretation restricts the term *human* to anatomically modern humans and assigns the rest of the fossils to non-human created kinds. A broader interpretation of the term *human* would accept at least some of the fossils as other created subspecies of humans. Whatever these creatures

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were, it is obvious that there are problems with almost any interpretation of these fossils. Given the current database, caution is warranted. Indeed, it would be premature to draw any definitive conclusions with regard to the origins of these organisms and their relationship to the Genesis record.<sup>20</sup> 🐼

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## Notes and references

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3. Information on the australopithecines and hominines was obtained from the following sources: Tattersall, p. 191; M. H. Nitecki and D. V. Nitecki, *Origins of Anatomically Modern Humans* (New York: Plenum Press, 1994), p. 341; M. L. Lubenow, *Bones of Contention* (Grand Rapids, Mich.: Baker Books, 1987), p. 295.
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15. See I. Tattersall, *The Human Odyssey*.
16. The inclusion of *H. erectus* in the hominid "lineage" represents a reversal in the robustness of the skulls; from the gracile form of *A. afarensis* to robust structure of the *H. erectus* skull and back to the gracile skull structure of humans.
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18. Skelton, McHenry, and Drawhorn, pp. 21-35.
19. *Ibid.*
20. I would like to express my appreciation to Dr. Lee Spencer and to the Geoscience Research Institute staff for their advice during the final stages of this essay.