New Species of Man: Ancestors from 'Afar'

Millions of years ago, two roads diverged on the path to human evolution. Precisely when and how that happened has made all the difference.

A series of spectacular fossil finds in recent years is enabling anthropologists to zoom in on the ultimate origins of humankind. Discoveries in Africa by Mary Leakey, Richard E. Leakey and Donald Carl Johanson all point to the existence of human-like beings around three million years ago. But the stakes are high in this glamorous corner of anthropology, and there remains some disagreement — and controversy — surrounding the exact nature of human origins.

The latest evolutionary bombshell was dropped last week by Johanson, curator of physical anthropology at the Cleveland Museum of Natural History. Johanson announced at a press conference that he has identified a "new species" of ape-man. The discovery — a result of several years of meticulous anatomical study of fossils found by Johanson and Mary Leakey — alters considerably the previously accepted conception of human evolution, according to Johanson.

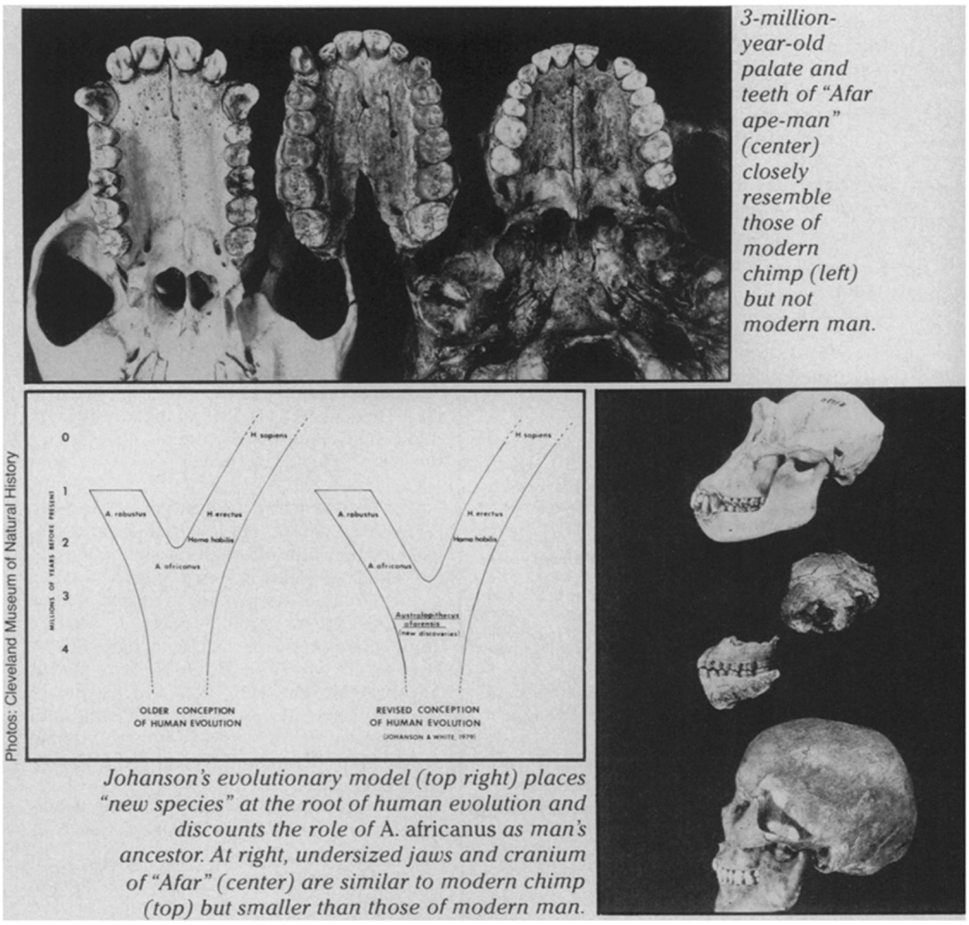
The newly named species, *Australopithecus afarensis* ("afar ape-man"), roamed what is now eastern Africa from 2.9 million to 3.8 million years ago, Johanson says. It walked erect on a human-like body, but had the primitive teeth and small skull of an ape.

The afar-ape is "intermediate of what one thinks of as human and as ape," Johanson told SCIENCE NEWS in a telephone interview prior to the press conference. "New hominid species are not named lightly," he says. "However, we believe that the evidence is overwhelming."

But SCIENCE NEWS has learned that the discovery has already kindled a debate between Mary Leakey and Johanson. Leakey's disagreement with certain aspects of Johanson's work will appear in an upcoming issue of NATIONAL GEOGRAPHIC, officials there confirmed. Elsewhere, initial reaction to Johanson's findings appears positive.

"*Australopithecus afarensis* is a good model for the later [development of] *Australopithecus africanus* [the 'South African ape'] and for *Homo*," says David Pilbeam of Yale University. "The total combination [of the new species] is a bit different from anything else known."

Former scenarios of human evolution "were based largely on fossils no older than about 2.5 million years," says Johanson. "These placed *Australopithecus africanus* ... as a direct ancestor of modern humans." When Mary Leakey discovered 3.8-million-year-old, human-like jaw and tooth fossils, however, she suggested that those were the remains of the true, original human ancestors. She said the fossils — found at the Laetolil site in Tanzania — were of the genus *Homo*, distinct and different from the South African ape (SN: 11/8/75, p. 292).



3-million-year-old palate and teeth of "Afar ape-man" (center) closely resemble those of modern chimp (left) but not modern man.

Johanson's evolutionary model (top right) places "new species" at the root of human evolution and discounts the role of A. africanus *as man's ancestor. At right, undersized jaws and cranium of "Afar" (center) are similar to modern chimp (top) but smaller than those of modern man.*

Johanson's subsequent discovery of the remains of a family or group apparently killed in a flash flood in the Hadar region of Ethiopia was strikingly similar to Leakey's in age and structure (SN: 1/10/76, p. 20). Since that discovery, Johanson and University of California anthropologist Timothy D. White — the principal analyst of the Leakey fossils — have studied more than 350 fossil fragments from both the Hadar and Laetolil sites.

His conclusion that the fossils come from a new species of primitive man is based on two key points:

- The small post-cranial shell and brain are similar to that of the South African ape.
- The "fully bipedal" posture of Afar ape-man links it to human beings. In addition, though its primitive teeth (including large canines) resemble those of the modern chimpanzee, they also are similar — as Mary Leakey has noted — to those of early *Homo, Homo habilis*.

"We can definitely place it [Afar] in the zoological family of man," Johanson says. But "the Hadar and Laetolil material is more primitive than we previously thought. It is, in fact, the oldest, most primitive group of hominids thus far discovered."

Johanson's new evolutionary model places the South African ape on the road to extinction, as an ancestor to *Australopithecus robustus,* which was less than robust and died out one million years ago.

Few proclamations of this magnitude escape controversy altogether. Mary Leakey will raise some objections to Johanson's conclusions in the April issue of NATIONAL GEOGRAPHIC, Johanson acknowledges. Her criticisms center on the name he has given the new species, he says. He emphasizes that he has a "very close relationship" with Mary Leakey, and Johanson's work was partially funded by the Leakey Foundation.

NATIONAL GEOGRAPHIC officials and other sources indicate that Mary Leakey believes the fossils are more closely connected to *Homo habilis* than Johanson has suggested. Leakey, reportedly in Africa, could not be reached for comment. □