Latest find from Ethiopia is oldest known part of chain that connected humans with the apes

Proof that Darwin was right about our ancestry

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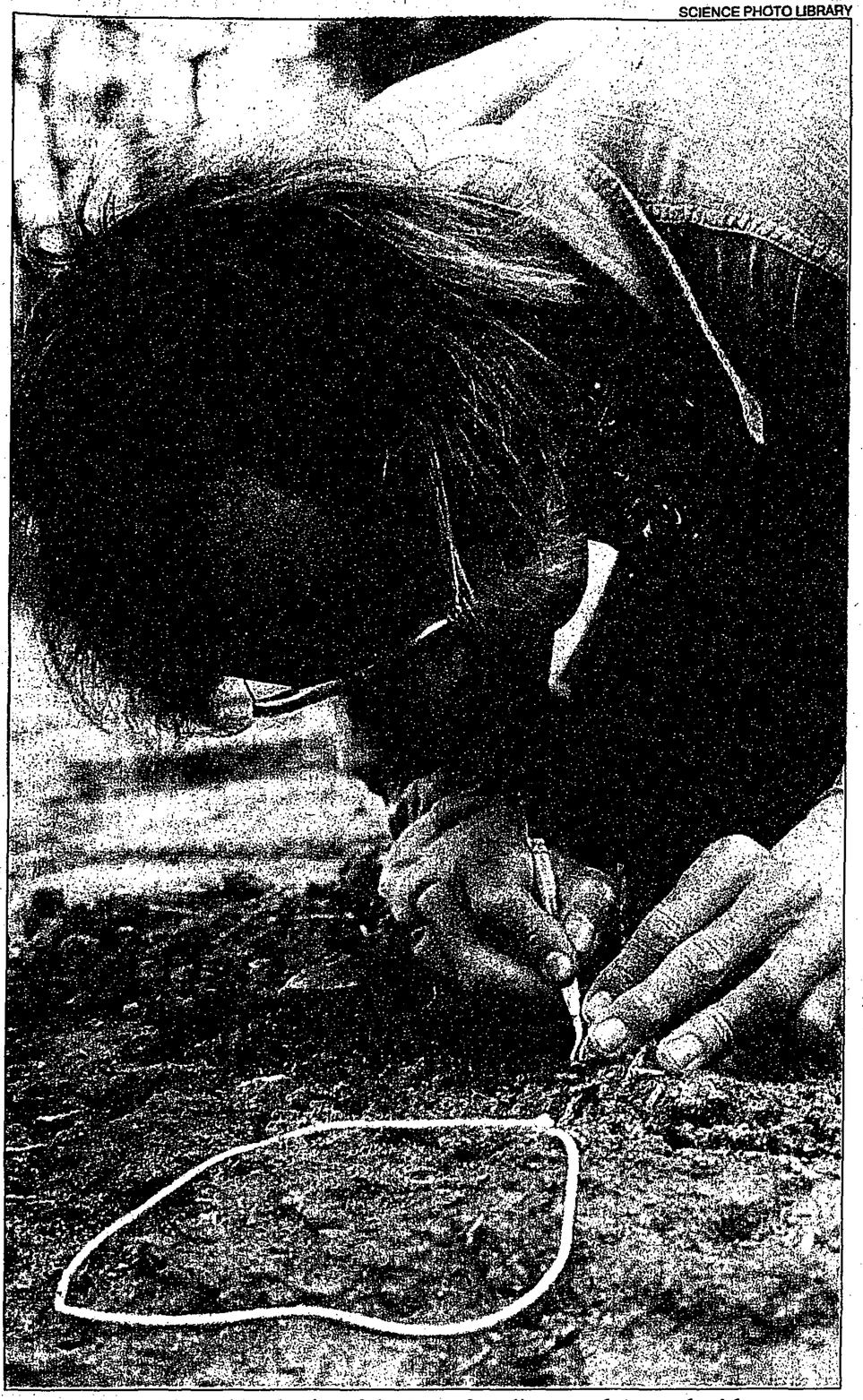


Professor Tim White, leader of the team that discovered *Australopithecus ramidus*, at work on an earlier expedition led by Mary Leakey in Tanzania

Progress in the search for our oldest ancestor has been painstaking. There may be earlier species yet to be discovered, but scientists are content for the moment with the latest candidate. Nigel Hawkes reports

THE search for human origins and its Holy Grail, the "missing link" — which is claimed to have been found in Ethiopia — began in the 1850s, with the discovery of fossils of Neanderthal Man and the publication of Darwin's *The Origin of Species*.

Until then, it had been believed that man had emerged fully formed. The discovery in 1856 in the Neander Valley, near Dusseldorf, of human fossils that were recognisably different from modern man was a great puzzle until Darwin's theory of evolution became accepted.

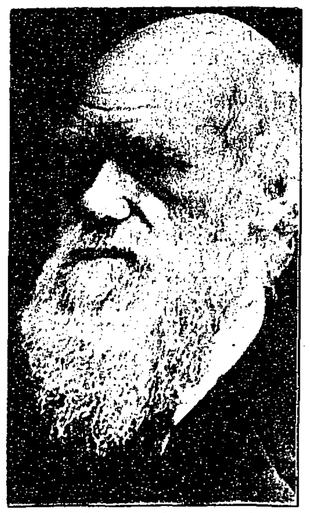
Then the search was on for man's oldest ancestor, the link between humans and apes. Despite false trails such as the Piltdown Man hoax, progress has been steady.

The latest find from Ethiopia dates back nearly 4.5 million years, which is getting close to the period when the evolutionary tree branched: one line leading to apes, and the other to man. Professor Tim White, one of the discoverers of the new fossils, says: "This species is the oldest known link in the evolutionary chain that connected us to our common ancestor with the living African apes."

This common ancestor was once thought to have lived about 20 million years ago, but studies of the genetic similarities between chimpanzees and man in the 1970s and 1980s shortened the timescale. Humans and chimps share 88.4 per cent of their genes, which implies that the two species separated only six million years ago. The rate of genetic change acts as a slowly ticking clock which can measure the time since the two species parted.

There may be earlier species yet to be discovered than *Australopithecus ramidus*, as the new hominid has been called, but for the moment it is the best candidate we have for the missing link. Professor Bernard Wood, of Liverpool University, writes in this week's *Nature*: "The metaphor of a 'missing link' has often been misused, but it is a suitable epithet for the hominid from Aramis".

Charles Darwin believed that mankind's earliest roots lay in Africa, and so it has proved. Seventy years ago the search began in earnest when Raymond Dart recognised that a skull from Taung, in



Darwin: his theory led to search for oldest human

southern Africa, was neither human nor ape, but an ancestor of both which he called *Australopithecus africanus*.

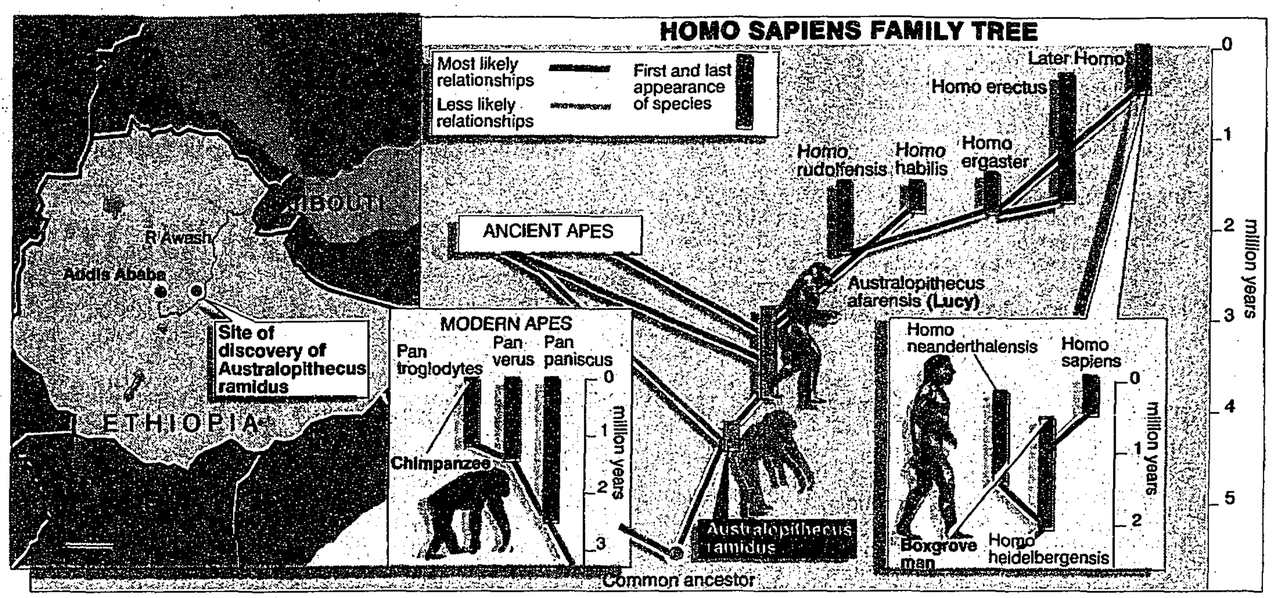
At that time, the waters were still muddied by Piltdown Man, discovered in Sussex in 1912 and not proved to be a fake until the early 1950s. But many had their private doubts long before that. Dart's hominid stood alone for 50 years as the oldest human ancestor until the discovery in 1975 of an even older species, called *Australopithecus afarensis*.

The most famous of these was Lucy, a diminutive half-complete skeleton found by Donald Johanson at Hadar. The civil war in Ethiopia prevented exploration for many years, but it resumed in the late 1980s. The latest finds were made between December 1992 and December 1993 only 50 miles south of Hadar.

Dating suggests that they lived and died 80,000 generations before Lucy, and a full 800,000 years before the oldest known fossils of *afarensis*. Professor White says that it might be the last link in the chain leading back to the still elusive common ancestor.

"This discovery is important because it gives us our first good look at the biology of a very ancient ancestor that sits at the very root of the human family tree," he said. The team will turn to Middle Awash this winter to search for new fossils, including the leg and pelvic bones that would tell them whether the creature walked upright."

'Missing link' found, page 1



'Missing link' ate fruit and leaves

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thinner enamel — an important indicator of diet — and a different shape.

The teeth and skull fragments suggest that *ramidus* (named from the Afar word for root) was closer to a chimpanzee than is *afarensis*. But it is not a chimpanzee. Dr Berhane Asfaw, of the Palaeoanthropology Laboratory in Addis Ababa, one of the discoverers, says: "The short cranium and the hominid shapes of the canine tooth and the elbow show us that this species had already split from the apes."

The fossils, whose discovery is reported in this week's issue of *Nature*, were dated from a volcanic layer lying just below them, using argon dating, and from the analysis of fossil animals near by.

Dr Chris Stringer, of the Natural History Museum, said yesterday: "This is a very important find. It shows combinations of features from australopithecines and apes, and does seem to take us closer to a common ancestor. I suspect it may represent an entirely new form, distinct from the australopithecines, but the fossils found so far are not complete enough to know."

Especially striking, he said, was the tooth enamel. "Chimpanzees and gorillas have thin enamel," Dr Stringer said, "and this one does, too. That distinguishes it from *Australopithecus*, which had thick enamel. It means that this species must have lived on fruit and leaves."