

Fossil discovery rewrites human history

Frank Gaglioti
5 November 2004

The scientific world has just been given an amazing new insight into the complexities of human evolution. A team of Indonesian and Australian scientists has discovered fossils of a new human species on the island of Flores, midway between Asia and Australia in the Indonesian archipelago. Named *Homo floresiensis*, the species coexisted with modern humans as recently as 13,000 years ago.

The dramatic new discovery, which has just been revealed in the October 28 edition of *Nature*, represents a stunning blow against the creationists as it definitively demonstrates humanity's complex evolutionary history. Tim White of the University of California said, "What better demonstrates that humans play by the same evolutionary rules as other mammals?"

Mike Morwood and Peter Brown of the University of New England in Australia and R.P. Soejono of the Indonesian Centre for Archaeology in Jakarta led the team of scientists that first found the skeleton in September 2003. Amateur anthropologists had been excavating the site since 1965.

The most significant find is an almost complete skeleton of an adult female aged about 30 years who stood one metre tall and weighed about 25 kilograms. Her brain case was the size of a grapefruit. This is about the same size as that of a three-year-old child. Scientists named the diminutive creature a "hobbit" after the Tolkien characters in *Lord of the Rings*. She was found deep in the sediments of a limestone cave named Ling Bua near the Wae Racang river valley. The bones, including an almost complete cranium and jaw, were dated as 18,000 years old.

Apart from the small size, the "hobbits" would have had slightly longer arms than modern man, indicating they spent some time in the trees. They also had hard thicker eyebrow ridges, sharply sloping forehead, sunken eyes, flat nose, projecting mouth and no chin.

In total, various bones of six other individuals were found. Some are so young, that the fossilisation process has not proceeded to a great extent, leaving the prospect of finding intact DNA, so a comparison with modern man could be made.

Although *Homo floresiensis* had a small brain it was found with a sophisticated tool kit, including stone blades and barbs that had been used to hunt game, such as a dwarf elephant species called Stegodons, giant Komodo dragons and giant rats. The surrounding animal bones were charred, indicating evidence of cooking. The "hobbits" selectively targeted juvenile Stegodons, as an adult weighed about 1,000 kilograms. The stone tools were found in 95,000-year-old sediments to layers as recent as 12,000 years old, where all traces of both Flores Man and dwarf elephants disappear. After this period scientists found a volcanic ash layer in the sediments, indicating they were wiped out by a volcanic eruption.

None of the tools could be attributed to the *Homo sapiens* known to have inhabited the region from about 55,000 years ago, leaving the *Homo floresiensis* as the only possible manufacturer. Hunting is a social activity requiring language to co-ordinate the hunt. According to Morwood, "language is a given" and "despite very, very small brains, this hominid population was doing sophisticated things."

Scientists have speculated that Flores Man must have colonised the island by boat or raft, as the island would have been surrounded by deep-sea barrier even at the height of the ice age. Boat building is a skill previously associated only with *Homo sapiens*. Morwood had previously found stone artifacts on Flores in 1998 that were attributed to *Homo erectus*, indicating the species had crossed over to the island as early as 840,000 years ago. This has contradicted previous theories on *Homo erectus*, modern man's immediate ancestor, which was thought to have migrated out of Africa about two

million years ago and spread as far as Java when they disappeared about 400,000 years ago. The existence of Flores Man indicates that *erectus* moved beyond Java by boat, a technological advance that was thought to be unique to modern man.

The discovery of *Homo floresiensis* raises many questions. Was the island colonised by *Homo erectus*, which then evolved into the new form? Did Flores Man originate somewhere else and migrate to the island? And what was the relationship to modern man which was in Indonesia 50,000 years ago and would have inhabited Flores around that time?

The last human species that was definitively known to have co-existed alongside modern man was *Homo neanderthalensis* or Neanderthal which became extinct 30,000 years ago. The fossil evidence seemed to indicate that evolutionary history after the extinction of Neanderthal was left solely to modern man. The discovery of Flores Man indicates that at least one other human species continued to thrive to more recent times and raises the prospect that the human family tree has unknown branches still to be discovered.

Brown said “to find that as recently as perhaps 13,000 years ago, there was another upright, bipedal—although small-brained—creature walking the planet at the same time as modern humans is as exciting as it was unexpected.”

Cambridge University anthropologists Marta Mirazon Lahr and Robert Foley in an accompanying commentary in *Nature* characterised the find as “startling” and “among the most outstanding discoveries in palaeo-anthropology for half a century”.

An analysis of *Homo floresiensis*’ bone structure indicates a complex evolutionary history and seems to consist of a strange mix of *Homo erectus* and a more primitive human precursor Australopithecine. The small size is indicative of Australopithecines that evolved in Africa roughly 3.9 million years ago. Most Australopithecine species were very small, usually no more than 1.2 metres tall, and were capable of bipedal motion. *Homo floresiensis* shows features of more modern humans such as a small and delicate face, but the shape of the skull indicates a more primitive form of *Homo erectus*.

Brown said “the only other hominins of this body and brain size date to the Pleiocene epoch (between 13 million and two million years ago) in Africa. However,

they have very different facial skeletons and teeth to *H. floresiensis*. There are also no other examples of hominins dwarfing in the way that some other mammals often do on islands. We’re still not certain that *H. floresiensis* dwarfed on Flores, as no larger-bodied ancestor has been found.”

The classification of the new find as human remains controversial. University of Pittsburgh Professor of Anthropology Jeffery Schwartz thinks the “hobbit” should be classified as an ape: “I don’t think anybody can pigeonhole this into the very simple-minded theories of what is human. There is no biological reason to call it *Homo*. We have to rethink what it is.” Professor of Biological Anthropology at the Australian National University Colin Groves thought Flores Man evolved from a more primitive form of Man: “I think it is a species of human. I’m not absolutely sold on the idea that it’s descended from *Homo erectus*, I think it might come from a more primitive stock than that.”

The scientific team concluded that Flores Man is the product of a long period of evolutionary isolation on the island where environmental conditions placed small body size at a selective advantage. Professor Morwood said that “dwarfing on islands, is a very common response for large mammals—all around the world things like mammoths, stegodon elephants, you get dwarf versions of them on islands ... the same with deer, hippopotamuses, pigs, a whole range of animal species—dwarfs on islands.”

In the light of this find past discoveries will have to be reassessed—opening new vistas for the study of human evolution. The exact relationship of *Homo floresiensis* to earlier human, prehuman and modern human species will be assessed, enabling a more accurate evaluation of man’s family tree. One thing is certain; palaeo-anthropologists will hotly debate how this find fits into the overall picture of humanity’s evolution.



To contact the WSWWS and the
Socialist Equality Party visit:

wsws.org/contact