

Anthropologist confirms 'Hobbit' indeed a separate species

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A National Geographic Society handout photo shows an artist's impression released by the University of Wollongong, south of Sydney, showing a previously unknown human species discovered by Australian and Indonesian scientists on the Indonesian island of Flores and named *Homo floresiensis*. Scientific evidence supports the theory that a 18,000-year old 'Hobbit' skeleton unearthed in Indonesia was a new species closely related to *Homo sapiens*.

After the skeletal remains of an 18,000-year-old, Hobbit-sized human were discovered on the Indonesian island of Flores in 2003, some scientists thought that the specimen must have been a pygmy or a microcephalic — a human with an abnormally small skull.

Not so, said Dean Falk, a world-renowned paleoneurologist and chair of Florida State University's anthropology department, who along with an international team of experts created detailed maps of imprints left on the ancient hominid's braincase and concluded that the so-called Hobbit was actually a new species closely related to *Homo sapiens*.

Now after further study, Falk is absolutely convinced that her team was right and that the species cataloged as LB1, *Homo floresiensis*, is definitely not a human born with microcephalia — a somewhat rare pathological condition that still occurs today. Usually the result of a double-recessive gene, the condition is characterized by a small head and accompanied by some mental retardation.

"We have answered the people who contend that the Hobbit is a microcephalic," Falk said of her team's study of both normal and microcephalic human brains published in the Jan. 29 issue of the journal *PNAS (Proceedings of the National Academy of Sciences of the United States)*.

The debate stemmed from the fact that archaeologists had found sophisticated tools and evidence of a fire near the remains of the 3-foot-tall adult female with a brain roughly one-third the size of a contemporary human.

"People refused to believe that someone with that small of a brain could make the tools. How could it be a sophisticated new species?"

But that's exactly what it is, according to Falk, whose team had previously created a "virtual endocast" from a three-dimensional computer model of the Hobbit's braincase, which reproduces the surface of the brain including its shape, grooves, vessels and sinuses. The endocasts revealed large parts of the frontal lobe and other anatomical features consistent with higher cognitive processes.

"LB1 has a highly evolved brain," she said. "It didn't get bigger, it got rewired and reorganized, and that's very interesting."

In this latest study, the researchers compared 3-D, computer-generated reconstructions of nine microcephalic modern human brains and 10 normal modern human brains. They found that certain shape features completely separate the two groups and that Hobbit classifies with normal humans rather than microcephalic humans in these features. In other ways, however, Hobbit's brain is unique, which is consistent with its attribution to a new species.

Comparison of two areas in the frontal lobe, the temporal lobe and the back of the brain show the Hobbit brain is nothing like a microcephalic's and is advanced in a way that is different from living humans. In fact, the LB1 brain was the "antithesis" of the microcephalic brain, according to Falk, a finding the researchers hope puts this part of the Hobbit controversy to rest.

It's time to move on to other important questions, Falk said, namely the origin of this species that co-existed at the same time that Homo sapiens was presumed to be the Earth's sole human inhabitant.

"It's the \$64,000 question: Where did it come from?" she said. "Who did it descend from, who are its relatives, and what does it say about human evolution? That's the real excitement about this discovery."

Source: Florida State University

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