# Were 'hobbit' hominids island dwarfs?

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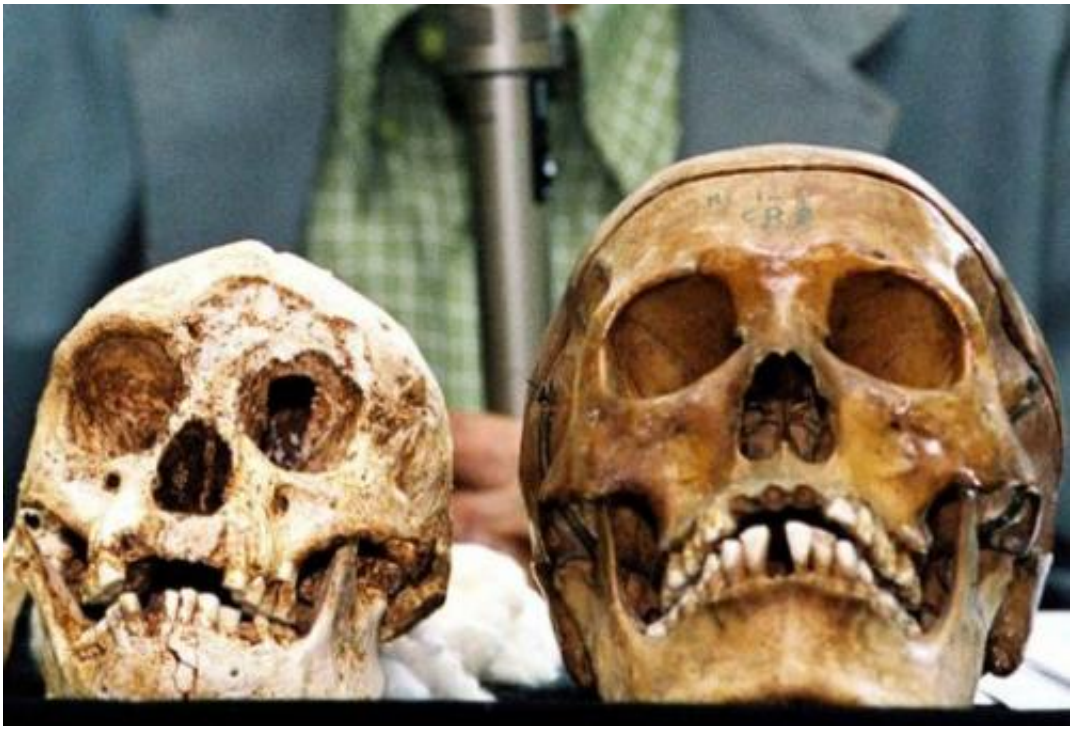

Remains of Indonesia's hobbit-sized humans (L) and modern human (R) in Yogyakarta, on November 5, 2004. Japanese scientists on Tuesday waded into a row over so-called "hobbit" hominids whose remains, found on a remote Indonesian island a decade ago, have unleashed one of the fiercest disputes in anthropology.

Japanese scientists on Tuesday waded into a row over so-called "hobbit" hominids whose remains, found on a remote Indonesian island a decade ago, have unleashed one of the fiercest disputes in anthropology.

The most detailed computerised scan of a skull of *Homo floresiensis*—"Man of Flores"—backs theories that the minute humans were a local product of evolution, they said.

Marooned descendants of a hominid called *Homo erectus*, these people progressively "dwarfed," becoming smaller and smaller to match the availability of food on the island, they suggested.

The findings are a knock to rival hypotheses that surfaced after an Australian-Indonesian team unearthed the bizarre remains in a cave in 2003.

Dubbed after the wee folk in J.R.R. Tolkien's tale, the "hobbits" were just over a metre (3.25 feet) tall, weighed around 25 kilos (55 pounds) and had a brain roughly the size of a chimp's, our closest primate relative.

The find raised huge questions about the human odyssey.

Was H. floresiensis a separate species?

And if so, how come it shared the planet with Homo sapiens some 13,000 years ago, when—so far as was known—anatomically modern man was the sole, supreme strain of human?

A team led by Yousuke Kaifu of the National Museum of Nature and Science in Tokyo measured the brain capacity of "LB1," the most intact specimen out of nine found on Flores, using a computed tomography (CT) scanner.

They put the brain size at 426 cubic centimetres (14.4 fluid ounces), somewhat higher than earlier estimates of around 400 cc (13.5 fluid ounces), but still only a third of a H. sapiens brain, which is around

1,300 cc (40.5 fluid ounces).

The small brain size, argues the Kaifu team, is consistent with a slimmed-down descendant of Homo erectus—"upright man" who was the first human to leave Africa.

H. erectus lived from around 1.7 million years ago to roughly 50,000 years ago. Fossil evidence points to a creature that was about the size and weight of H. sapiens, but with a smaller brain.

Kaifu's team believe that the hobbits' ancestor was a scrawnier, Javanese version of erectus. Its brain size would have been around 860 cc (29 fluid ounces).

Its descendants, cut off from the rest of the world, went through thousands of years of diminution, scaling down in size to match availability of food on the island, according to their theory.

This phenomenon, known as insular dwarfing, is well known among biologists. Indeed, Flores at the time had a pygmy elephant called a stegadon, butchered remains of which were found in the floor of the hobbits' cave.

"Contrary to expectations by some researchers, it is possible that large-bodied Javanese Homo erectus migrated to the solitary island and evolved into Homo floresiensis by marked island dwarfism," Kaifu believes.

Two other ideas have come forward to explain the mysterious folk.

One is that they were descendants of a much earlier, small-brained hominid called Homo habilis. But, say critics, no evidence has ever been found that this human reached Asia.

The other is that the Flores bones are simply those of H. sapiens who suffered from a neurological disability called dwarf cretinism, possibly because of iodine deficiency in their diet. This would have made their brains abnormally small.

But, say naysayers, cretinism does not explain how the little hominids were smart enough to kill animals, use fire and wield stone tools to butcher their prey.

The insular dwarfism theory is not new, but Kaifu said he can further back it by a computer simulation from 20 worldwide populations of modern humans.

These show that the scaling down of H. floresiensis' brain, in line with its tiny body, is entirely possible.

"New models of the brain-size reduction in the evolution of H. floresiensis... show (a) more significant contribution of scaling effect than previously claimed," according to the paper, appearing in the British journal *Proceedings of the Royal Society B*.

**More information:** Research paper: rspb.royalsocietypublishing.or … .1098/rspb.2013.0338