

ANTHROPOLOGY

Man's Ancient Ancestor

Man's early ancestor may have walked the earth nearly two million years ago, new dating of find from East Africa by potassium-argon method indicates.

► ATOMIC DATING shows that primitive man may have lived on earth 1,750,000 years ago.

Tests made on rocks surrounding *Zinjanthropus boisei*, found two years ago by Dr. L. S. B. Leakey in Olduvai Gorge, East Africa, show that this ancient man is about three times older than Dr. Leakey's tentative date of "more than 600,000 years." Dr. Leakey, a leading anthropologist in Africa, is curator of Coryndon Museum, Nairobi, Kenya.

The new date of more than a million and a half years will have important implications for the understanding of man's evolution, Dr. T. Dale Stewart of the Smithsonian Institution told SCIENCE SERVICE.

If *Zinjanthropus* lived 1,750,000 years ago, it makes human evolution reasonable. During this long time span modern types could have evolved from such early men.

The very ancient date for early man was found by the potassium-argon dating method. However, Dr. Stewart said, this method should be tested further and an exact margin of error worked out before it would be possible to say how correct the date is. Nevertheless, the scale of this dating is very likely correct, he said.

He pointed to the carbon dating method

for which a marginal plus or minus error has been worked out. The carbon method, with a limit of 50,000 years, has also been tested against objects of known age. However, sometimes samples from the same site have been cut into several pieces and given to different scientific institutions for carbon dating. Each laboratory has come up with a different answer.

The new date for *Zinjanthropus* was found by two geologists at the University of California at Berkeley. It was announced by the National Geographic Society, Washington, which supports Dr. Leakey's work.

Drs. J. F. Evernden and Garniss H. Curtis determined the age of rock samples in which *Zinjanthropus* was imbedded by

those of modern day primitive man in the recently developed potassium argon dating method, which measures the radioactive decay.

The samples contained a feldspar called anorthoclase, which is found in volcanic ash. The volcanoes erupted both before and after this ancient man lived. His remains, tools and the anorthoclase were sealed in the lava.

Over the ages potassium breaks down into calcium-40 and argon-40. In 1,000,200,000 years, half of any given number of potassium atoms decay. Replacing the missing potassium atoms are calcium-40 atoms and argon-40 atoms in the ratio of eight calcium to one argon. The calcium atoms cannot be used for dating purposes, but argon-atoms can be measured by a mass spectrometer.

The argon atoms in the rock surrounding *Zinjanthropus* were freed by a heating process and the atoms were then electrically charged. By means of a magnet they were deflected to an electronic counter and registered on a graph that showed the amount of argon formed and therefore the age of the mineral.

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Dated at 1,750,000 Years

► TEETH WERE the clue that a "very remote and truly primitive ancestor" of man may have lived in East Africa considerably more than a million years ago.

The crowns of the teeth of this man-like creature have been found to resemble

Australia. The teeth of this remote ancestor differ from those of the South African ape-men (*Australopithecines*) in that they are longer, not as broad and more like human teeth.

This was found by Dr. L. S. B. Leakey, curator of the Coryndon Museum, Nairobi, Kenya, whose son discovered the lower jaw of the 11-year-old individual in November, 1960, on the same spot where Dr. Leakey found the first hand and foot bones of this ancient type earlier in 1960.

These finds were made in the same rock bed in Olduvai Gorge, Tanganyika, that contained *Zinjanthropus boisei*, popularly called Nutcracker Man because of his big teeth, found by Dr. Leakey and his wife in 1959.

The newer finds were made at a lower level than *Zinjanthropus*, which indicates these "men" lived at an earlier date. Dr. Leakey had estimated the date for *Zinjanthropus* as "more than 600,000 years." Now it is estimated at 1,750,000 years.

Stone and bone tools were found with the remains of the 11-year-old. If he or any of his family made these tools according to a regular pattern, these men bear the distinction of being true men, although very primitive.

If the analysis of the "child's" teeth is correct so that these "men" are not *Australopithecines* but early ancestors of modern man, they may have made their own tools as well as those found with *Zinjanthropus*, Dr. Leakey reports in the British scientific journal, *Nature*, 191:417, 1961.

Dr. Leakey has previously reported that the 11-year-old had been murdered by a blow on the head.

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DR. LEAKEY AND ANCIENT SKULL.