

Hominid Bones: Old and Firm at 3.75 Million

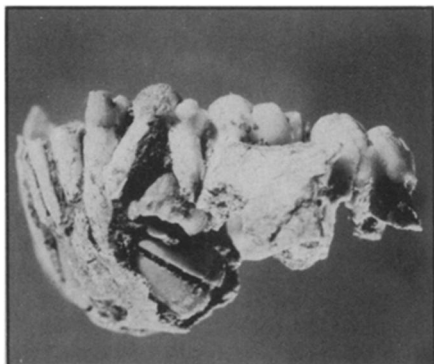
Volcanic ash beds in the East African Rift Valley have yielded traces, in rock and fossil bone, of what many believe to be the birthplace of man. Several finds during the past few years have characterized man's earliest ancestors as large-brained, upright carnivores, hunting the hot dry savannas of that continent. A new finding, just reported by anthropologist Mary Leakey, pushes back the time scale on that composite near-man to more than three and a half million years.

Leakey and co-workers discovered fossil jaws and teeth at a site 25 miles south of Olduvai Gorge called Laetolil. The hominid (man-like) fossils are much like the jaws and teeth found by her son Richard Leakey at East Rudolph, Kenya, in 1972. These, dated to 2.8 million years, are generally accepted to be from a large-brained carnivore, some member of the genus *Homo*, and not from the smaller-brained vegetarian *Australopithecus*.

Hominid jaws and teeth thought to be as old as the new Laetolil find were discovered last fall by D. Carl Johanson and co-workers near the Hadar River in north-central Ethiopia (SN: 11/2/74, p. 276). The Johanson team was not able to establish a firm radiometric date, however, and was forced to arrive at the estimated date of three million to four million years by comparison with associated fauna. The Leakey find, potassium-argon dated to 3.35 to 3.75 million years, thus supercedes the Johanson find as the oldest hominid remains yet reported.

The teeth and mandibles (lower jaws) of 11 distinct individuals were found scattered over an area of volcanic ash beds, some specimens as far as five miles apart. They were found, Leakey reported at a press conference last week at the National Geographic Society in Washington, in the same types of rock beds and at approximately the same levels. "This," she said, "makes the individuals geologic contemporaries. Even so, they spanned 400,000 years. Some were found near the top, in the beds dated 3.35 million years and others were nearer the deeper 3.75 million-year-old beds."

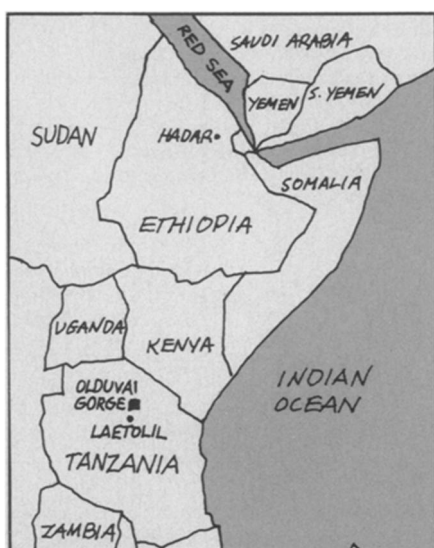
Four of the fossils were found in place in the rocks, making it possible to establish the firm dates. Garniss H. Curtis of the University of California at Berkeley carried out potassium-argon dating tests on biotite crystals associated with the fossil jaws, and gave them "watertight dates." Even though seven of the fossils were not found imbedded in the volcanic ash that originally covered them, Leakey says, "they are identical (to the others) and therefore we could extrapolate from the rocks safely."



Child's fossil jaw, huge canine emerging.



Leakey: 'Firm dates' of earliest man.



Laetolil: Site of latest hominid find.

Leakey and her husband, the late Louis S. B. Leakey, first discovered the Laetolil deposits in 1935. Hominid remains were not found until recently, however, when erosion began to wash them out. "Besides this," Leakey says, "even if we had returned in the 1930's to search for ho-

minids, we would not have had air photos for searching out fossil beds, and no potassium-argon dating techniques anyway."

The Laetolil fossils include a well-preserved adult mandible and the mandible of a child about five years old. A very large canine tooth (see photo) is pushing up through the child's milk teeth. Both are the equivalent, Leakey says, of large present-day mandibles, and are smaller than the "robust" jaws of the vegetarian *Australopithecus*. Leakey was too cautious to speculate about the lives of these early hominids, saying, "We can't infer anything about the way they lived from the present findings." The team will return to the site to excavate, she says, hoping to find evidences such as stone tools. Johanson was a bit more speculative about the similar hominids found at Hadar. The small size of the teeth in the jawbones may well mean, he said last year, that members of the genus *Homo* were "walking, eating meat and probably using tools, perhaps bones, to kill animals" as much as four million years ago.

Assorted fauna were also unearthed in the Laetolil beds, including ancient rhinos, hyenas and jackal-like carnivores, cheetahs, leopards, giraffes, monkeys, elephants and mongoose-like creatures. Fossil elephant teeth reveal an apparently direct lineage to modern elephants, giving the African elephant, Leakey says, "a history as old as man."

The Laetolil find has important implications for anthropology. It adds strong evidence to the theory that "true man" and "near man" lived in the same region at the same time. Fossil remains of australopithecines dating from 5.25 to 1 million years have been found in Africa, and now *Homo* has been found in the same areas and firmly dated to 3.75 million years. This apparently contiguous existence has given rise to another theory—that true man and near man did not evolve from a common ancestor, but rather evolved in parallel fashion from two separate progenitors. The proof or disproof of this, however, lies hidden in the volcanic strata, waiting to be revealed by future erosion or chance discovery.

Just as the Laetolil find supports one important theory, it sets back another, at least temporarily. Johanson, since finding ancient evidences of *Homo* in Ethiopia, (north of the Olduvai and South African excavations) has postulated that man's origins may lie even farther to the north, in the Middle East, rather than in Africa. Leakey's discovery of hominids south of Olduvai redirects the focus to Africa, at least for now. □