

## Teeth link man and ape



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Earliest manlike jaw (center) with *Australopithecus* (left) and gorilla.

Some 5 million to 10 million years ago a number of primate species, unlike any living today, roamed northern India near the foot of the Himalayas.

One of these was large, as big or bigger than present-day gorillas, but had manlike front teeth. Apparently the creature traveled north to China, there to become extinct about one million or two million years ago.

**But it left** a lower jaw in excellent condition with a nearly complete array of teeth. The jaw was found in April by an India-United States research team. It appears to be a man-ape link from a common genetic pool out of which both kinds of primates emerged.

Although the scientists do not place this fossil in the direct ancestral human line, they believe it lies close to the common pool of primates which also produced hominids—man and near-man species. The huge ape may well have been an uncle to later hominids. And while its heirs were becoming extinct in southern China, their remote hominid cousins were arising in Africa.

Judging by the dental formation, this was indeed a transitional animal.

Its large cheek molars cover the same jaw length as the apes. But the front teeth are profoundly different and smaller in size. In place of the apes' large slashing canine teeth, it has small incisors and canines. Reduced front

teeth are the mark of a hominid, although Dr. Elwyn L. Simons of Yale University's Peabody Museum prefers to call the new fossil conservatively, "a very progressive line of apes."

**The northern Indian** site in the state Himachal Pradesh, has rich deposits of ape fossils from the late Miocene and early Pliocene periods, ranging from about 10-to-15 million years ago. If there was a time when man came down out of the trees, this was probably it, says Dr. Simons; but of the years immediately following this period—the latter half of the Pliocene—almost nothing is known. For some reason few fossils of either human or ape species have been uncovered in Asia, Europe or Africa, in the period from 5-to-10 million years ago.

Even if the new fossil is never established as a hominid, it appears to demonstrate an important fact—that the reduction of front teeth was already underway in the Pliocene period.

A shift in this dental formation would have meant a change in life from the way of apes to the way of man. It would have allowed for the first time sideways motion of the jaw and more efficient eating. Unable to slash or fight with his teeth, the early manlike ape would probably have built large social groups and defended himself by throwing rocks.

The new fossil appears to be the old-

est lower jaw recovered to date with teeth to indicate an animal related to both apes and man. Actually jaw fragments of older vintage, showing the same front teeth reduction, were found in northern India about 40 years ago. These fossils, called *Ramapithecus*, 12 million years old and of a smaller scale than the new find, have been considered possible ancestors of man. But the fossils lacked front teeth and jaw segments so scientists could always argue they were only a species of chimpanzee.

**As a result** of the Himalayan find, *Ramapithecus* will now come under renewed scrutiny. Dr. Simons believes the smaller-sized *Ramapithecus* is a better candidate for the direct human line than his new fossil. He infers a link between Indian *Ramapithecus* and the African near-man, *Australopithecus*, which is undoubtedly a human ancestor two million years old. But he also believes that *Ramapithecus* and the new manlike ape stem from a common primate pool which could not have been so very much older than either one.

**The gorilla-sized** manlike ape from India also resembles two-million-year-old fossils uncovered in south China in the 1950's. These jaws and thousands of isolated teeth were labeled *Gigantopithecus*. Scientists assumed there could be no possible relation between *Gigantopithecus* and human ancestry, since its appearance placed it far from hominid lines at the same time that the curtain was rising on man in Africa.

Neither Drs. Simons nor Chopra could speculate on the migration of hominids from India to Africa. That is, however, one possible explanation for the African human genesis. No fossils from the Pliocene age with reduced front teeth have yet been found in Africa. Dr. L. S. B. Leakey recently claimed that a 22-million-year-old fossil uncovered in East Africa has hominid teeth. But Dr. Simons points out that the long slashing canines of this creature are still very apelike. Scientists have only teeth and jaw remains on which to distinguish between man and ape at that early period. "If we couldn't separate them on this basis," says Dr. Simons "we wouldn't know anything."

**The new transitional** fossil was discovered in rocks of the Dhok Pathan formation by a field party under the direction of Grant E. Meyer, research associate of Dr. Simons at Yale. The project, titled The Chandigarh Yale Project, in search of early human forerunners of man, is named for the new experimental town of Chandigarh in northern India located about 150 miles from the paleontological site. The Indian contingent is directed by Dr. S. R. K. Chopra of the University of Panjab.