

ANTHROPOLOGY

Digging Up the First True Man

Very scant fossil evidence substantiated Darwin's theory of man's evolution at the time it was first proposed, but finds of the last 100 years increasingly support it.

By TOVE NEVILLE

A SINGLE TOOTH, a piece of skull or hipbone may be the only clues to the identity of the first true man. That the anthropologist can derive so much information from fossil remains is a great achievement due to his use of scientific know-how and imagination.

In trying to judge who is the first true man, what are the qualifications necessary to call a creature who walks erectly on two feet a man?

Some experts feel that a large brain, as indicated by the capacity of the skull, is the distinguishing mark. However, it is possible to have a large brain with a limited intelligence.

The complexity of the brain counts as much as the actual size. Some anthropologists, among them Sir Wilfred E. Le Gros Clark, use another criterion: enough intelligence to be able to make tools.

An example of a primitive man is *Zinjanthropus boisei*, found in 1959 in Tanganyika, East Africa, and believed by his discoverer to be perhaps the first true man. He has a very primitive human type skull, and nine tools were reported found with him.

Although his cranial capacity would not

have allowed for a brain of more than about 600 cubic centimeters, comparable with the large modern apes, his brain size was probably much larger in proportion to his body size.

His human type teeth are also important, especially in the light of the development of tools. Darwin himself stressed the possibility that the big tusk-like teeth, as found in the large apes, were modified and reduced as man became able to defeat his enemies with his hands, tools and weapons. At an early stage of man's evolution, the mouth is believed to have been used widely as a weapon.

As the human-like creature in time began to pick up rocks and sticks to use as tools and weapons, the canine teeth became less necessary for wounding an enemy.

Later in his development, man was able to make tools and weapons to suit his needs, and still later to make specific forms of tools for special purposes. Makeshift tools, such as rocks and sticks, do not distinguish true man. Tools in the strictest sense of the word must be shaped and made deliberately for a specific purpose, and in any society they are generally made according to certain patterns, or conventions.

Whether or not *Zinjanthropus* will be considered the first true man on the basis

of his tools and human characteristics is yet to be decided by the world of experts. Geological evidence indicates that he is over 600,000 years old and lived at the time the first ice age was at its height in the Northern Hemisphere. This makes him 100,000 years older than the earliest *Pithecanthropus*, or Java Man, who is over 500,000 years old.

The first find of *Pithecanthropus*, whose name means ape-man, was made in Java just after the turn of the century. His cranial capacity was estimated at about 900 cubic centimeters, and the skull had the prominent eyebrow ridges associated with apes. However, the thighbone also found was indistinguishable from that of modern man.

Later finds of *Pithecanthropus* were made in China, near Peking, and skulls were found of up to 1,300 cubic centimeters, or well within the cranial capacity of skulls of modern man though not very likely with the same brain power, because the shapes of the skulls suggest that the brain had a simpler organization.

The first Peking Man was known by the find of merely one single molar tooth of human type in 1927, and he was at first called *Sinanthropus*, or Man of China, and thought to be different from Java Man. As more remains were found in China and Java, it became apparent that these early humans were of a similar type. *Pithecanthropus* has been called a true man because of his many human characteristics and apparently true tools.

Table of Important Facts About Some Early Types, From the Most Primitive Man-Like Creature to a Truly Modern-Type Man

Ages and time scales of ancient man and geological eras are subject to change as new information comes to light with the progress of dating methods. Therefore, dates can only be approxi-

mate and will be found to differ with different authors almost from year to year. The following dates are the best possible estimates available today, according to consulted authorities.

NAME	DATE OF DISCOVERY	PLACE OF DISCOVERY	THIS TYPE LIVED	DESCRIBER	PARTS FOUND
Oreopithecus	1869	Tuscany, Italy	Over 10,000,000 years ago	Paul Gervais	Lower jawbone
Australopithecus	1925	Taung, S. Africa	Between 1,000,000 and 500,000 years ago	Raymond A. Dart	Skull
Zinjanthropus	1959	Tanganyika, E. Africa	Over 600,000 years ago	L. S. B. Leakey	Skull and shinbone
Pithecanthropus	1891	Solo River, Java	Over 500,000 years ago	Eugene Dubois	Skull and thighbone
Heidelberg Man	1907	Heidelberg, Germany	About 500,000 years ago	Otto Shoetensack	Lower jawbone
Swanscombe Man	1935-36	Swanscombe, England	Between 500,000 and 250,000 years ago	Sir W. E. Le Gros Clark and G. M. Morant	Skull fragments (2)
Fontchevade Man	1947	Fontchevade, France	Between 250,000 and 120,000 years ago	H. V. Vallois	Skull fragments (2)
Neanderthal Man	1856	Neanderthal Valley, Germany	From about 120,000 to 50,000 years ago	D. Schaaffhausen	Skull and part of skeleton
Mt. Carmel Man	1931-32	Mt. Carmel, Palestine	Less than 100,000 years ago	T. D. McCown and Sir Arthur Keith	Parts of 12 or more skeletons, including skulls
Cro-Magnon Man	1868	Cro-Magnon, France	From about 50,000 to 20,000 years ago	Paul Broca	Parts of four skeletons, including skulls

Heidelberg Man, found in Germany in 1907, lived about half a million years ago and might rank as one of the earliest true men if enough evidence were available. However, only his lower jawbone was found, and there were no tools with his remains.

Swanscombe Man, found in England in 1935 and 1936, lived somewhere between 500,000 and 250,000 years ago. From the well preserved pieces of his skull it is possible to estimate that he had a brain capacity of 1,300 cubic centimeters which is comparable to *Homo sapiens*, or modern man, with an average of 1,350.

Flint tools were also found at the site as well as animal remains, and there is no reason to doubt that Swanscombe Man was a true man. If, because of his modern type skull, Swanscombe Man is accepted as a true modern man, then *Homo sapiens* is much older as a species than thought earlier.

Fossil skulls, also thought by some to be of early *Homo sapiens* from between 250,000 and 120,000 years ago, have been found at Fontchevade in France.

An uncle or cousin to modern man is Neanderthal Man, first found near Neanderthal Valley in Germany and later in various places in Europe, Africa and Western Asia. He was a low-browed individual with huge eyebrow ridges and a cranial capacity of about 1,450 cubic centimeters.

Neanderthal Man was a true man, credited with a culture, including tools and weapons, and is even by some authorities thought to have invented the art of sewing. He lived from about 120,000 years ago until near the end of the last glacial period when he became extinct, most likely wiped out by other men with smaller but more intelligent brains.

An interesting find of a Neanderthal Man with a crushed skull was made in Shanidar cave in northern Iraq in 1957. He had one defective arm thought to be a birth injury, yet, apparently his fellows permitted him to live and must have helped to provide food for him. Part of the defective arm had later been amputated and furnishes what may be the first example of surgery on record.

Neanderthal Man is not now generally considered as a step in the evolutionary development of later man but rather a sideline not in the direct line of descent of modern man. He lived at a time when modern man was already in existence.

At Mount Carmel in Palestine remains of men were found who lived early in the last glacial period, probably less than 100,000 years ago. The Mount Carmel skulls are of two types. One has very pronounced eyebrow ridges like Neanderthal Man, but the other is more like *Homo sapiens*, or modern man.

(Continued on p. 173)



APE-MAN CALLED TRUE MAN—*Pithecanthropus*, whose name means ape-man, lived more than 500,000 years ago in Java and China. He has been called a true man because he knew the uses of fire and apparently shaped his own tools. The restored portions of the skull appear lighter than the original skull, a cast of which is in the Smithsonian Institution, Washington, D. C.

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The First True Man

(Continued from p. 171)

More recent types of Homo sapiens were found at Cro-Magnon in France. They were tall, muscular, high-browed people with refined faces and great cranial capacity. A variant of the Cro-Magnon type has been found at Combe Capelle, also in France, but this man has more protruding eyebrow ridges.

The Cro-Magnons flourished between 50,000 and 20,000 years ago when the ice sheets from the last glacial period were retreating back toward the North Pole. They developed a culture of a very high degree of artistry and craftsmanship. Another late modern man with some Eskimoid features of the skull was found at Chancelade, France. Possibly related to the Cro-Magnon, he lived up to about 10,000 years ago and is believed by some to be the ancestor of the Eskimos.

The cradle of humanity was thought by Darwin to be Africa, and this may well turn out to be so. However, nature seems to have experimented in this regard, for an ape-man, estimated to be over 10,000,000 years old was found in northern Italy.

Called Oreopithecus, or "the mountain ape," the fragments of some 50 individuals of this ape-man were found in soft coal beds. Some of the human-like characteristics found were the shape and pattern of wear of his teeth and the shape of the dental arch.

Oreopithecus probably is not a direct ancestor of man but may be a relative who represents an extinct branch of the family Hominidae to which man belongs. Thus he and modern man would have evolved from the same ancestor who, Darwin believed, lived about 40,000,000 years ago.

More likely the ancestors or very close relatives of modern man would be the Australopithecines of South Africa. Living between 1,000,000 and 500,000 years ago, this group of primitive creatures combines ape-like and primitive human characteristics, and although the name Australopithecus means southern ape, the Australopithecines seem to have been more human than ape. The Australopithecines had a cranial capacity of only 450 to 700 cubic centimeters.

Pitdown Man, reported found in Sussex, England, between 1908 and 1915, was later exposed as a fake. It turned out to be a composite of a skull from an early Homo sapiens with the jaw of a modern ape which had been treated with chemicals to make it look like a fossil. The hoax was exposed by microchemical tests, X-ray spectrography, and crystallographic analysis.

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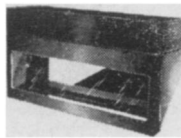
Do You Know

Bilharziasis, sometimes called snail fever, is caused by the parasite of mollusks often found in water.

Africa, with an area of 8,000,000 square miles, has 155,000,000 people in 37 countries and territories or federations of territories including Madagascar but not such islands as Mauritius, St. Helena and Reunion.

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