

ANTHROPOLOGY

Ancient Bones Puzzling

American anthropologists reserve judgment concerning whether 10,000,000-year-old bones found in Italian coal deposits are human or in ancestral line.

► THE HUMAN-LIKE CREATURE who left his bones in the coal deposits of Tuscany, Italy, some 10,000,000 years ago may be "one of Nature's experiments," in the opinion of some anthropologists in this country who have seen the bone fragments in New York.

The creature may not have been in the direct line of descent of modern man or, in fact, of any now existing animal.

"Extremely interesting and important, whatever they turn out to be," is the judgment of Dr. William L. Straus Jr., anthropologist of Johns Hopkins University, Baltimore. He advises caution in making any final judgment on the basis of such fragmentary evidence.

In general, American scientists are reserving judgment on the rare collection of bones which, although discovered in an Italian mine as long ago as 1869, were recently shown to scientists in New York for the first time. Americans have, however, in the past studied casts and photographs.

The actual bones were brought to the United States by a Swiss scientist, Dr. Johannes Hurszeler, under the auspices of the Wenner-Gren Foundation.

There is absolutely no justification for reports that the find conflicts with Darwin's theory of evolution, Dr. Straus told SCIENCE SERVICE. Neither is the idea new that the ape evolutionary line and the human line separated in the very distant past, he pointed out.

One reason why there has not been more scientific discussion of the Bamboli bones is because the paleontologist who first reported them, Dr. Paul Jervais, was mistaken in his classification. He called them the bones of monkeys.

The ancient bones, from about 12 individuals, consist mostly of jaw pieces and teeth with a few fragments of leg and arm bones.

The shape and size of the teeth show strikingly human-like characteristics. They show the creature had a short face, a rounded chin and a slanted opening in the nose.

In these features, he was like a man. The canine teeth were much smaller than those of an ape and there was no gap between canine and premolar, or bicuspid, as there is in the ape.

The front end of the jaw shows that the face went straight down—the front teeth nearly vertical—so there was no "simian shelf" such as characterizes the ape.

Anthropologists want to know much more, however, before accepting this ancient creature as a man or the direct ancestor of modern man. They want to know, for example, the size of the brain; there are

no bones from the top of the skull to show this. They want to know whether he walked erect; the tiny fragments of the leg bones cannot show this.

Dr. Helmut de Terra, European-born geologist of Columbia University, who is acting as interpreter and host for Dr. Hurszeler, believes there is a good chance of finding more of the bones of the human-like creature, needed by scientists to answer their questions.

Untold numbers of the rare bones from the Tuscany mines have already been lost to science. It is rumored that an entire skeleton was thrown into the furnace with the coal in which it was embedded. In addition to the man-like fragments, bones of mastodon, antelopes, and other animals were found.

Dr. de Terra plans to go to Italy and aid Dr. Hurszeler in searching for additional bits of the bones.

The ancient creature has been given the scientific name *Oreopithecus Bambolii* Jervais. The first part of the name means mountain ape, and the second part is for Monte Bamboli, the Italian mountain where the bones were found embedded in coal deposits some 10,000,000 years ago.

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CHEMISTRY

Refrigerant Gas Lubricates Metals

► FREONS, the gases that circulate in domestic refrigerators, have been tried out as lubricants for machinery run at high temperatures.

Known for their ability to withstand temperatures at which ordinary lubricating oils would evaporate and might catch fire, the freon gases have been suggested as substitutes for liquid anti-friction materials.

Their behavior in preventing surface damage to machine parts made of various kinds of hard metals has been studied by S. F. Murray, R. L. Johnson and M. A. Swikert of the Lewis Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics, Cleveland, Ohio.

Action of the gaseous freons, which owe their fireproof quality to the chlorine and fluorine combined with carbon in their structure, seems due to a slippery film formed by chemical combination of the gas with the machine's iron or other metal.

Tool steels gave the best performance with the gaseous lubricants in this study, and results were most satisfactory when the two surfaces being lubricated were of nearly the same hardness.

Tool steel in contact with beryllium copper or with monel metal was effectively lubricated, but stainless steel showed excessive damage. Parts plated with silver to reduce friction were also damaged by the gaseous lubricant.

The tests are reported in *Mechanical Engineering* (March).

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TEN MILLION YEARS OLD—These teeth are no ordinary teeth. They were found imbedded in coal in an Italian mine where they were laid down millions of years ago. They were shown in New York by a Swiss who believes they were human. Americans are reserving judgment.