

ANTHROPOLOGY

Oldest American Bones

Forgotten bones of Natchez man called oldest American, 11,000 years old. Were resting forgotten in museum collection.

See Front Cover

► A HUMAN pelvic bone that has rested obscurely in the collections of the Philadelphia Academy of Natural Sciences for well over half a century promises to be recognized belatedly as the oldest human remains on the American continent.

This human bone unearthed at Natchez, Miss., is about 11,000 years old, contemporaneous with the Mylodon giant sloth which was known to have existed in late Pleistocene (Ice Age) time but which became extinct then.

Dr. T. D. Stewart, U. S. National Museum anthropologist, has reviewed evidence for man's antiquity as measured by the fluorine content of bones. In 1895 Thomas Wilson, then curator of the National Museum in Washington, applied fluorine analysis to the bones of Natchez man. The famous chemist Dr. W. F. Hildebrand found the human bone was more fossilized than those of the sloth bones found with it.

A great controversy raged. The leading geologist of that day, Leidy, gave much publicity to Natchez man. But finally Natchez man and his antiquity was virtually forgotten. He rested undisturbed in the Academy of Natural Sciences, last being exhibited 15 to 20 years ago.

Within the past year the possibility of using the fluorine content of bones to determine their relative age has had renewed investigation. New datings for human remains in Texas, England and elsewhere are being made.

Dr. Stewart, as a result, reviewed the old results and in a communication to the journal, *SCIENCE* (April 6), points out the probable age of Natchez man.

In response to a *SCIENCE SERVICE* inquiry, Dr. H. Radcliffe Roberts, director of the Academy of Natural Sciences, located the Natchez pelvis in his collections. An inch hole in the bone could be seen, showing that samples of it had been furnished for the fluorine test of the 1890's. Records show it was discovered by Dr. N. W. Dickeson, a local physician.

As a result Natchez man will go back on exhibit in the Academy's halls.

Unlike the dating by means of radiocarbon isotope content, which is the atomic age method, fluorine dating depends upon determining contemporaneity and relative antiquity. It can be applied to bones, whereas radiocarbon methods apply only to materials that contain carbon, such as charcoal.

As bones remain buried and exposed to ground water, one of the substances in the

bone, called hydroxyapatite, traps the fluorine ions in the water to form, by ionic exchange, fluorapatite. This is a material that is more stable and resistant to weathering. When two bones come from the same location, one of them human of unknown age and the other from an animal whose age is relatively certain due to its species becoming extinct, they can be matched for age by analysis of the fluorine contents.

This was done years ago for Natchez man and the sloth bones found with him. The fluorine contents matched. The old evidence, like the bones themselves, has now been dusted off and given a prominent place in our knowledge of early man.

Fluorine which is now being added to our water supplies to build better teeth for the population, is recognized today as a chemical that adds also to knowledge of the human past.

Dr. Horace G. Richards, associate cu-

rator of geology and paleontology for the Academy, points out in the picture on the cover of this week's *SCIENCE NEWS LETTER* the region where the bone was found.

Science News Letter, April 21, 1951

CHEMISTRY

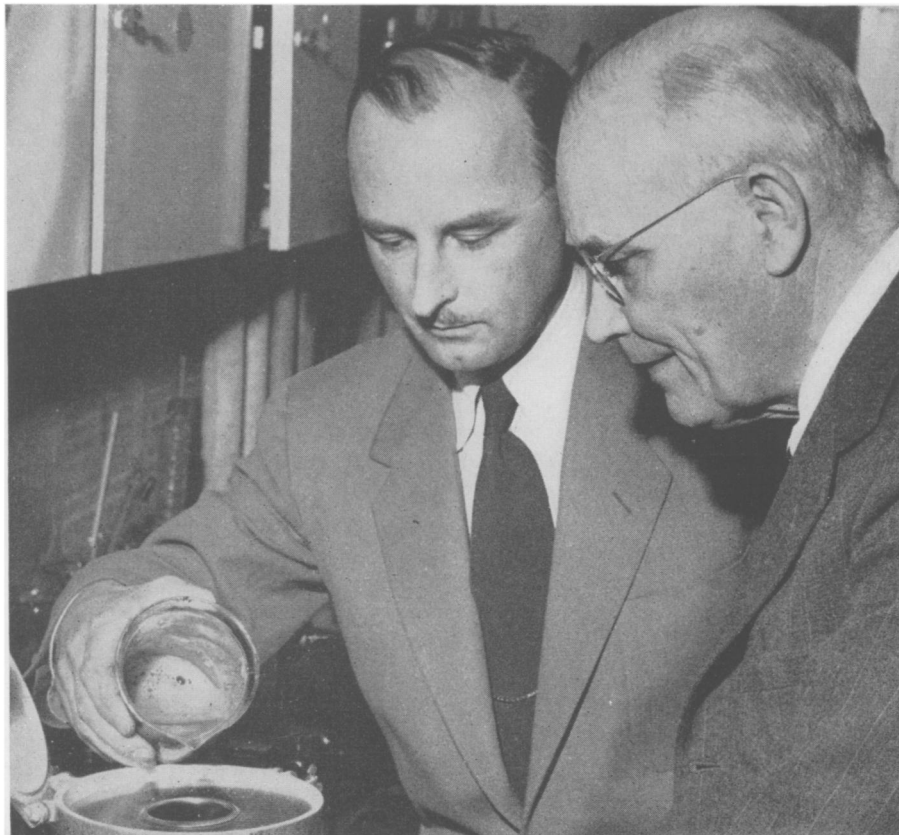
Lignin Shows Promise as Chemical Raw Material

► ONE of the two major constituents of wood, lignin, promises to become as valuable as the other material, cellulose or wood pulp, now widely used in industry.

Two University of Washington scientists have developed a new process for separating the lignin from the other parts of the wood and converting it into complex material that can be used as an adhesive, a plastic and a source of organic chemicals.

Triethylene glycol is used as a solvent in the method developed by Bror Grondal, forestry professor and Piotr Zenczak, research assistant. Acid and alkali solutions are now used to separate out the lignin, which is a troublesome waste material of pulp mills. Instead of being dumped into streams and rivers to cause pollution, or being burned to get rid of it, lignin complexes will become valuable chemical raw material.

Science News Letter, April 21, 1951



LIGNIN EXTRACTION—Piotr Zenczak and Prof. Bror Grondal, who have developed a new method for processing wood pulp, preparing pulp for lignin extraction.