

ICHTHYOLOGY

Find "Extinct" Fish Alive In South African Waters

Big Blue Creature With Goggle Eyes Causes as Much Surprise as Would the Discovery of a Living Dinosaur

HINT of a "Lost World" beneath the sea, a survivor of long-gone geologic ages, has been hauled up in a trawler's net off the east coast of South Africa: a fish of a kind supposed to have disappeared utterly from the earth 50 million years ago.

Word received in Washington, D. C., was heard with amazement by scientists of the Smithsonian Institution, as if some one had announced the discovery of a living dinosaur. But the strange find is attested by the word of colleagues "down under" known to be competent and hard to fool. It seems impossible; yet apparently it's real.

The fish is a rather big one, about five feet long, dark blue in color with a metallic luster, with big goggle eyes. It has two back fins, the forward one in two sections or lobes. The paired fins under its body are almost leg-like, paddle-shaped in outline. The two lobes of its tail-fin are uneven.

Closer inspection shows a pair of openings, known as spiracles, behind the eyes, sharp conical teeth like a cat's, heavy bony plates under the wide jaw. The skeleton is made not of bone but of cartilage.

Very Primitive

All this, to scientists, is a picture of an exceedingly primitive type of fish. Some of the skeletal characters, and especially the bony jaw plates, mark the specimen as a surviving member of one of the most ancient groups of fishes, known as the Crossopterygians. There is no common name, for the whole family is supposed to have become extinct at least 50 million years ago, in Mesozoic time, the age of dinosaurs.

This family originated in the Devonian age, more than 300 million years ago, and most of them were gone even before the Mesozoic. Nearest relatives among fish still abundant are the sturgeons and the bowfin or dogfish of the Great Lakes and other freshwater bodies.

The capture of the strange sea monster has naturally caused a good deal

of commotion in South Africa. First man to see it was Capt. H. P. Goosen, commander of the trawler. When he found this strange-looking five-foot fish staring at him with goggle eyes when the net came up from a 250-foot depth, he knew it was something out of the ordinary.

So he took it to East London, nearest South African port where there was a museum. The curator, Miss Courtney Latimer, immediately identified it as a rare and primitive species. The museum's taxidermist, preparing it for mounting, discovered the primitive cartilaginous character of its skeleton.

Dr. J. L. B. Smith, zoologist at Rhodes University College, Grahamstown, hurried back from his vacation to see the

new find, and found another evidence of its primitiveness in a substance on its scales, known as ganoin. Further studies were made by two scientists of the South African Museum in Capetown, Drs. E. L. Gill and K. H. Barnard. They confirmed the unique nature of the fish, and its membership in the supposedly extinct Crossopterygian family.

Consensus of South African scientific opinion is expressed by Dr. Smith: "This is unquestionably one of the most valuable zoological specimens in the world today. Its scientific value is absolutely incalculable."

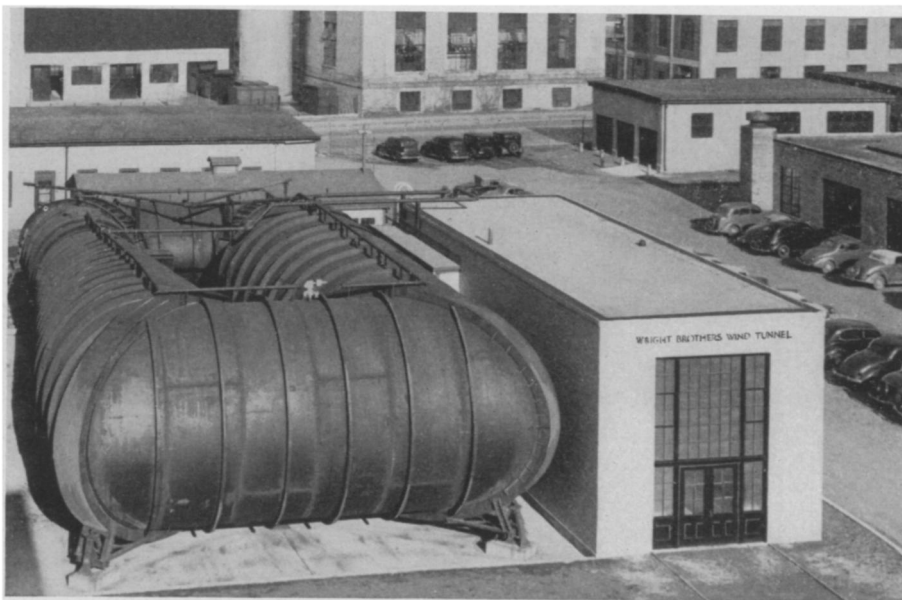
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SEISMOLOGY

Earthquake History of U. S. Compiled by Coast Survey

WHERE would you go to live if you wanted to be safe from earthquakes? Scientists decline to answer. They recall that two of the most severe disturbances in the history of this country, the New Madrid earthquake of 1811 and the Charleston earthquake of 1886, occurred in regions not counted as particularly seismic.

Scientists can, however, tell you in



TWICE AS FAST AS A HURRICANE

The wind blows fast inside the new Wright Wind Tunnel of the Massachusetts Institute of Technology, where scientists are able to obtain data on 400-mile-an-hour airplanes under atmospheric conditions like those found at 35,000 feet above the earth. It looks like a lot of structure to test scale models; just note the size of autos parked in the street next to it. It is one of the world's few variable density (i. e., variable atmospheric pressure) tunnels, which were pioneered by Uncle Sam's National Advisory Committee for Aeronautics. On the cover of this week's SCIENCE NEWS LETTER is shown the guide vanes for the huge wind box which take turbulence out of the air stream, guide it around the corners of its rectangular route. The air stream is turbulent because of the blowers and must be smoothed out to give results that have any meaning. The whole wind tunnel is tightly sealed so that the pressure may be varied.

what regions the fewest earthquakes have occurred in the past, and if you can extrapolate from history and call it prophecy, you are entitled to such comfort as that will give you.

The U. S. Coast and Geodetic Survey has just issued an earthquake history of the United States. The division into two sections, one for California and western Nevada, the other for all the rest of the country including Alaska, is by itself eloquent of the uneasiness of the earth in the region between the Sierra and the sea. Yet numbers of shocks are not necessarily significant; the great majority of California's earthquakes are mere dish-rattlers. Only, scientists are interested in little specimens as well as big ones, so they record them all, regardless of intensity.

Only three states in the Union have histories of no recorded earthquakes at all: West Virginia, Wisconsin and North Dakota. Four have only one each, but with a difference. The single shocks recorded for Rhode Island and the District of Columbia were insignificant, whereas Mississippi and Louisiana have each had a quake classified as of intensity 7 on the seismologist's scale—severe enough to upset furniture and knock down plaster.

Delaware and Iowa have felt only two slight earthquakes apiece; Minnesota two, classed as "moderate." Quakeless North Dakota's sister state, South Dakota, has felt the shock of six earth movements. Texas, with its enormous area, might be expected to have a high place in the column. Actually, however, only seven earthquakes are listed for the Lone Star State.

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AERONAUTICS

WPA Built 154 Airports, Improved 494 Others

THE WORKS Progress Administration in three and a half years ending Dec. 31 last has built 154 new airports, improved 494 others and placed hundreds of air navigation aids, WPA Administrator Col. F. C. Harrington announced.

The WPA has spent more than \$112,000,000 on such projects and has contributed the bulk of public aviation ground facilities erected since the WPA was established in 1935. Nearly 38,000 men are now at work on further projects.

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A North Carolina company is making office furniture out of pecan wood.

PHYSICS

Confirm Release of Neutrons From Splitting Uranium Atoms

FRENCH scientists have confirmed the American discovery that splitting uranium atoms, releasing their enormous amount of atomic energy, also give off neutrons in the reaction.

This liberation of neutrons from uranium atoms split by impact with other neutrons, is most important because it provides a mechanism which, at least theoretically, might serve to keep the chain of splitting continuing and hence produce a continuous release of atomic energy.

Scientists F. Joliot, H. von Halban, Jr., and L. Kowarski of Paris report the discovery. (*Nature*).

Prof. Joliot and his co-workers find that neutrons (neutral atomic particles) from a source of radium and beryllium can split uranium atoms placed nearby. Along with the energy released additional neutrons are given off in the process. This discovery is comparable with, and a confirmation of, the announcement (See SNL, March 11, March 18) that scientists at the Carnegie Institution of Washington's Department of Terrestrial Magnetism had been able to observe the same reaction in atomic transmutation.

These American scientists, Drs. Richard B. Roberts, R. C. Meyer and P. Wang, found that the secondary neutron emission from the uranium splitting was delayed by some seconds. There is no indication whether the new French experiments also describe a delayed effect or whether the emission of the neutron happened immediately.

Also the American workers would like to know if the experiment really was done with the neutrons obtained from radium-beryllium sources which have energies of 480,000 electron volts, or whether these 480,000 electron volt neutrons were slowed down with large paraffin blocks, then allowed to strike the uranium and split it.

Uranium splitting with these "slow" neutrons is nothing startling now, for it has been done in many laboratories in the few short weeks since the initial discovery. Splitting with 480,000 electron volt neutrons is something else, however. At Carnegie Institution such neutrons were tried but no evidence has yet been found of uranium splitting for these energies.

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AERONAUTICS

Fire Aloft May Be Conquered By Safe Fuel and New Engines

FIRE aloft, aviation's most fearsome hazard, appeared nearer substantial elimination by a special safe airplane fuel and engines similar to present types to use it.

The fuel may even make possible larger and more powerful engine cylinders than those of today.

A separate approach from the yet improved Diesel engine, a petroleum fuel, with an octane rating comparable to the best grades of gasoline but with a high enough "flash point" to prevent explosions, has been found and can be burned efficiently in spark-ignition motors of modified design, Frank C. Mock of the Bendix Aviation Corporation told the Society of Automotive Engineers.

The fuel itself, which has an octane rating of 87, the same as the gasoline

used for cruising airliners, was first found more than a decade ago, Mr. Mock related, in the hunt for a safe high-powered petrol for the motors that drive airships. It cannot be used in an ordinary engine because it does not vaporize as easily as gasoline.

Interest in lighter-than-air craft at an ebb in the United States, interest in the special fuel likewise died, he said. But in the last few years, as fire remained the single most destructive untamed force in aviation, scientists have returned to the attack. The refining companies have since added several other fuels of similar type. Mr. Mock cautiously estimated that five more years of intensive development work are still necessary.

The familiar carburetor will have to