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GEOLOGY

Atlantic Fishing Banks Once Part of Continent

➤ THE OFFSHORE banks of New England, Nova Scotia and Newfoundland, famous for their rich fisheries, were once a part of the continental land mass, Dr. Frank Press and Walter Beckmann, Columbia University geologists, told the Geological Society of America meeting in Boston.

The geologists said that seismic refraction measurements showed these banks are covered by as much as a two-mile deep layer of continental shelf sediments, indicating they once extended to the shore.

The deep rift valleys that separate the banks from the continental shelf were probably caused by erosion, they said.

Science News Letter, December 6, 1952

CHEMISTRY

Only 98 Kinds of Matter

If neutron, atomic bomb trigger, is considered as element 0, however, then number of kinds of matter goes to 99, many of which have been isolated only recently.

➤ THERE ARE only 98 kinds of matter in the universe, and everything is composed of these fundamental building blocks.

A new SCIENCE SERVICE publication, written by Helen Miles Davis, editor of CHEMISTRY magazine, explains that some of these have been created by man for a very momentary existence, but others like hydrogen and helium seem to hold a very stable majority in the universe. (See p. 364.)

If the neutron, the atomic bomb trigger, is considered element O, as is sometimes the case, then there are 99 elements.

Some of these elements have been found or created in only the few years after the great atomic energy push. There are hundreds of varieties of these elements, isotopes they are called, many artificially radioactive and not found in nature.

The story of the kinds of atoms, 0 to 98, has been long in composition, with many minds and hands putting it together. The ancients knew and recognized some of the elements, such as gold, silver, copper, etc., found in their native state. Others, even some of the most common, long remained hidden, in disguise of some other element or in the crudeness of early chemistry.

An outline of the elements is needed by anyone who attempts to work with them or understand them. This story is unfinished, although it is more nearly complete today than in the recent past. The blank holes in the periodic table are filled. There is not too great hope that chemists will add to the elements beyond 98 with the speed, precision and practicality that the dawn of our atomic age added neptunium, plutonium, americium, curium, berkelium and californium.

The present frontier of the chemical elements lies in the mystery of what composes them. Just what more fundamental particles make them up and what laws and forces keep their nuclei together is the prime question of physical science. Scientists are trying to pry loose the answer with cosmic rays and gigantic accelerators.

The chemistry of the elements has some blank pages to be filled and some figures to change in the future. To give individuality to the many names in today's list of elements, and provide a guide to the varied literature about them, is the purpose of this introduction to the chemical elements.

Science News Letter, December 6, 1952

BIOCHEMISTRY

Swift Cyanide Antidote

➤ ONE FORM of the anti-anemia vitamin B-12 acts as a swift antidote to cyanide poisoning, at least in mice, four scientists at the Merck Institute, Rahway, N. J., have discovered.

Mice "apparently dead" of cyanide poisoning, that is, mice that showed no signs of breathing and did not respond to handling, reacted "dramatically" when the vitamin was injected. They often began to breathe even before the entire dose was given, and many were able to walk immediately after the injection.

The vitamin was given by injection into the veins. It was effective in saving the mice when given as long as four minutes after an otherwise deadly dose of potassium cyanide. It was not effective when given as long as six or eight minutes after the poison.

Vitamin B-12 itself is not effective, but vitamin B-12a does act as an antidote to cyanide. B-12a is, chemically, hydroxocobalamin. B-12 is cyano-cobalamin. B-12a picks up cyanide ions to replace its hydroxo group, and binds the cyanide tightly. In doing this, it becomes vitamin B-12, but also removes the deadly cyanide from the body. It can also prevent cyanide poisoning when given before the cyanide.

Merck scientists who announce this discovery are Charles W. Mushett, Kane L. Kelley, George E. Boxer and James C. Rickards. Their findings are reported in the *Proceedings of the Society for Experimental Biology and Medicine* (Oct.).

Science News Letter, December 6, 1952

PHYSIOLOGY

Different Pains Follow Same Paths to Brain

➤ THE TWO kinds of pain, both the pricking kind and the kind that is burning and never lets up, follow the same nerve pathways to the brain.

This finding, important to surgeons when they try to stop intractable pain by blocking or cutting nerve pathways, was reported by Drs. Henry G. Schwartz and James L. O'Leary of Washington University School of Medicine, St. Louis, at the meeting of the National Academy of Sciences there.

Science News Letter, December 6, 1952