PHYSICS

Carbon 14 Into Service

Radioactive isotope carbon 14, byproduct of the atomic bomb, has been shipped to hospitals and research laboratories to begin its career for science.

➤ FIVE LITTLE pea-sized amounts of an atomic bomb byproduct, called radioactive carbon isotope 14, were shipped from Oak Ridge, Tenn., on Aug. 2, first of the Manhattan District's atomic materials to be put to peaceful use.

For the next 10,000 to 25,000 years these chemicals from the atomic pile will emit 37,000,000 electrons a second, allowing them to be traced wherever they are. More important is this fact:

In a few years or even months the five laboratories receiving these new research materials may be able to announce new discoveries about cancer, diabetes, the conversion of sunlight into stored energy, tooth decay and fat utilization in the human body.

First carbon 14 unit, with the active material weighing only about one ten-thousandth of an ounce, went to the Barnard Free Skin and Cancer Hospital of St. Louis, with Dr. E. V. Cowdry and Dr. William L. Simpson receiving the precious stuff that today is more useful than radium.

Some of the problems in diabetes will be unraveled by use of another carbon 14 unit by Dr. D. Wright Wilson of the University of Pennsylvania School of Medicine. Carbon in sugar and lactic acid will be tagged with the radioactive carbon and fed to well animals and those sick with diabetes.

At the University of Minnesota Dr. W. D. Armstrong will trace the deposition of radioactive carbon in inner pulp and enamel of teeth and in bone, fundamental information needed in puzzling out the reasons for good and bad teeth. Similarly Dr. I. L. Chaikoff at the University of California School of Medicine will follow its use in liver, muscle and blood.

First use of carbon 14 upon a non-medical problem will be by Nobelist James Franck of the University of Chicago in photosynthesis studies. This is the basic method of storing the energy of the sun in plants. Understanding this mechanism of the green leaf may mean more to an energy-using world than energy from the chain-reacting uranium pile.

In the St. Louis cancer studies made possible with carbon 14 the radioactive material in the form of a carbonate will be converted into carbon dioxide and then into acetic acid. It will be shipped to Antioch College where a cancer-producing agent, called 20-methylcholanthrene, will be prepared. This chemical, full of tagged carbon atoms, will be used in animal experiments at both Antioch College and St. Louis to discover just where the cancer-producing parts of the compound do their cancerous work.

While the first use of radioactive carbon 14 is as a label, tracer or tag, detecting the atomic explosions of its atoms with Geiger counters, it may be possible later to use it as an agent in the actual treatment of some diseases.

Hundreds of requests for radioactive elements made in the Monsanto-operated Clinton laboratories, uranium piles have been received. Many other kinds of chemical elements, made artificially radioactive, will shortly be supplied.

Radioactive gold is wanted by Vanderbilt University to study possible use in treating leukemia. Radiophosphorus 32 is desired by Purdue for medical research. Sulfur 35 would be used by American Smelting and Refining Company at Salt Lake City to study plant growth. Montefiore and Memorial Hospitals in New York ask for radioiodine for thyroid studies. The University of Michigan wants radioactive antimony, arsenic and caesium for fundamental nuclear studies.

Radioisotopes are sold by the government at cost, the radiocarbon units costing $400 each.

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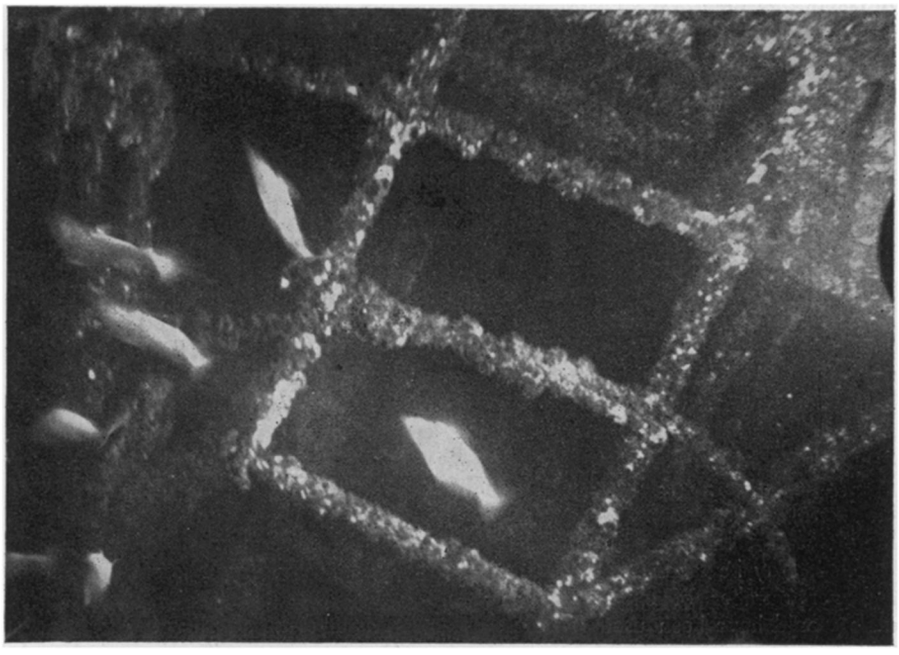
An important *by-product* of corn is the oil found in the germ, of which 200,000,000 pounds are produced annually in America.

The brown-winged *hawk* always garnishes her eggs with one carefully placed green leaf.



OCEAN BOTTOM—Part of a sunken wreck with fish swimming through it at a depth of 138 feet. The picture was taken with a camera recently developed for photographing the depths of the ocean. Two such cameras have been developed by Dr. Maurice Ewing of Columbia University and Woods Hole Oceanographic Institution and his associates, Allyn Vine and J. L. Worzel. Both pieces of apparatus include an upright pole with the trigger at the lower end. They point nearly downward, and exposure is made when the extended trigger hits the bottom at the proper depth.