

Newsman at Oak Ridge Witness Atom Process

OAK RIDGE, Tenn. — Natural science has opened the gates to the constructive new world of neucleonics.

Here in this war-spawned city of 43,000 persons, world-famous atomic research center, a group of newspapermen last week witnessed hitherto top-secret laboratory processes. The occasion was the sale of the first radioactive isotopes to the nation's research institutions.

The setting and the story unfolded to the first authorized civilian visitors was like something out of H. G. Wells.

Hiroshima Anniversary
The event took on added significance from the fact that it coincided with the first anniversary of the atom bombing of Hiroshima.

It marked the fruition of the first practical application of atomic energy to the exploration of peacetime fields which are waiting to be investigated.

The first allotment of radio-isotopes was sold to Barnard Hospital of St. Louis for medical research purposes.

Its industrial potentialities are believed to compass equally wide horizons. Dr. E. V. Cowdry, Barnard Research Director, received the millieurie of carbon 14 — a speck too small to be seen with the naked eye.

Cost of Specimen
The first unit developed weighed only about one ten thousandth of an ounce. Its actual production cost to the Clinton Laboratories Research Center here, run by the Monsanto Chemical Company, was \$367. Handling and shipping costs brought the total cost up to about \$400.

The half life of this unit of carbon 14 is estimated from 10,000 to 25,000 years. In other words starting with the year 11,946 A. D. the unit if kept intact should be still giving out billions of beta particles per minute. The amount of carbon 14 delivered to Dr. Cowdry was contained in a glass vial about 3 inches long. This was carefully enclosed in a steel tube which in turn was enclosed in a lead tube, all of which was stowed in a push-padded plywood box about 6 inches high and 4 inches square.

For all its small size, the first millieurie of carbon 14 to go on sale represents from 100 to 1,000 times as much of the isotopes as heretofore made available to research in any single cyclotron-produced order. One millieurie is that amount of radioactive material which emits 37,000,000 disintegration particles per second.

How Isotopes Are Made
A radioactive isotope commonly referred to as a "radio-isotope" in the uranium chain-reacting pile, is made by placing in the pile a stable element. This may be in the form of a metal or a salt or even a liquid or a gas. It is left in the pile for a given length of time. This is the basic process and it applies regardless of whether the material inserted is a fissionable material, such as uranium, a common salt such as sodium chloride, or an ordinary metal such as iron.

The method is known as the piled irradiation of the material. The

pile is a block of cells which looks like ovens. The block is constructed of cement about 15 feet square and about a foot thick. It is also insulated with a heavy thickness of lead.

Newspapermen were shown the process of loading small aluminum cans of calcium nitrate salt about the size of a man's index finger into the piles where it is left for the period of irradiation. While the pile is being loaded or unloaded it is not running. This means that the control rods which stop the chain reaction are in place. This is to prevent a dangerous beam of neutrons from emerging through the oven door.

Dramatic Process
A newspaperman had the thrill of "stopping the pile." Bells rang, buzzers buzzed and red lights flashed as the process of irradiation stalled with a loud grinding noise. Spectators and laboratory personnel galoshed around wet footed canvas. They were warned to keep well clear of the hole to avoid the residual gamma rays as they watched an attendant with an aluminum 10-foot pole extract the fabulous radio-isotope.

A radio-isotope?
Yes. According to Dr. E. P. Wigner, research and development director of the Monsanto Company, an isotope is a form of an element which is chemically the same but physically different from the ordinary element. The former Professor of Mathematical Physics at Princeton explained that a radio-isotope is one that has a "death rate." In other words, its radioactivity is not constant. Its half life—that is, the moment when its power begins to diminish—may be anywhere from a minute to 25,000 years.

Capital Letters

(Continued From Page Two)

England, he came to this country—he and his brother, H. H. Brimley, who died in April—on Dec. 31, 1930—and made a name for himself. Yet at no time in his life did he ever make more than \$180 per month. When Dr. C. S. and H. H. left England that cold December day, they said farewell to their only brother. They didn't think they would ever meet again—but they did—57 years later. In 1937 the brother came to Raleigh and the three old men were boys again.

WEBB — Lindsay Warren is Comptroller General — Kenneth Royal is Undersecretary of War — O. Max Gardner is Assistant Secretary of the Treasury — R. L. Doughton is chairman of the Ways and Means Committee — and now James E. Webb of Oxford is Director of the Budget Bureau — Be careful how you curse Washington, Podner, you're talking about our home folks! Ain't gonna stand fer it!

Oh, yes, you've been knowingly saying that Webb got that position because of his being in the famous Gardner-Webb family. Nothing to it, no kin, if so, exceedingly distant. He came up the hard way—in Washington—worked in the daytime, studied law at night, became an official for Sperry Corporation, working with Moran, another Tarheel—was a Gardner law partner, which did him no harm, of course—but they say that Webb is entirely self-sufficient. This appointment, by the way, caught all political clairvoyants unawares — at least those in N. C.

Siamese Population
A land of nearly 16 million people, mostly Siamese, Siam includes many Chinese, East Indians, and Malaysians. Chinese business interests are numerous. A sprinkling of Europeans and Americans figured in the census reports. Buddhism is the principal religion.

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