PHYSICS

Many New Radioisotopes

➤ THE ATOMIC bomb project has developed a "considerable number" of still-secret radioactive isotopes and superior methods of their production which will result in epoch-making advances in nuclear science, Dr. Glenn T. Seaborg, professor of physics at the University of California and co-discoverer of plutonium, stated.

Addressing a petroleum conference of the American Association for the Advancement of Science, Dr. Seaborg pointed out that more than 400 artificial radioactive isotopes, or "sisters," of ordinary elements have been made public. These elements are useful for tracer or "atom tagging" experiments in chemistry, physics, biochemistry and medicine.

"The work in connection with the plutonium project of the atomic bomb development has resulted in the production, or possibility of production, of a considerable number of additional radioactive isotopes, many of which are still in the secret category," Dr. Seaborg stated.

"More important than this, however, is the fact that this development has given rise to vastly superior methods for the production of a number of these isotopes and in particular a number of the most important ones. It seems realistic and entirely safe to predict that a large number of advances and discoveries will be made in the future, a few of them epoch-making."

Dr. Seaborg said that the "pile" technique of production and the 184-inch cyclotron now being built on the University of California campus will be instrumental in these advances and discoveries.

"The fission product elements, that is, the radioactive isotopes in the region of atomic numbers about 35 to 60 inclusive, are available in tremendous amounts," Dr. Seaborg said.

"The pile, as a powful neutron factor, also makes it possible to produce important amounts of practically any radioactive isotope which can be produced by neutrons and since almost all the important isotopes can be produced by neutron irradiation, this means that in the future practically all important isotopes should be available in huge intensities.

"In the near future there will also be available another device which will introduce another order of magnitude into the attainable energy of charged heavy particles, hence will undoubtedly give rise to another milestone in the field of transmutation.

"Within a few months the new 184-inch giant cyclotron at the University of California will be ready for operation. Using the new frequency modulation principle in order to compensate for the relativistic increase in mass at these tremendous energies, this instrument will generate deuterons at 200,000,000 electron volts and helium ions at 400,000,000 electron volts. This will result in many entirely new nuclear reactions."

Science News Letter, June 29, 1946

ANCIENT VILLAGE—This painting by Prof. M. Kneberg shows the three great council houses at one end of the public square, and in the foreground is a home under construction in the village on Hiwassee Island. The town was fortified with a stockade because the people who built it had evicted the earlier inhabitants.

ARCHAEOLOGY

Early Indians Had Modern Troubles

➤ THEY HAD no atomic bombs, but other modern dangers including aggressor nations, famine and toothaches wiped out four different Indian peoples who inhabited an island on the Tennessee River in the course of 700 years, University of Tennessee archaeologists report.

Hiwassee Island, second largest island in the Tennessee River a few miles from Dayton, scene of the famous courtroom battle between Clarence Darrow and William Jennings Bryan, was the home of Indian tribes almost continuously from the twelfth or thirteenth century A. D. until 1818, excavations on the island reveal. Profs. T. M. N. Lewis and Madeline Kneberg of the University of Tennessee, who conducted the work at Hiwassee, say that the first Indians on the island were wiped out by an aggressor nation after perhaps two centuries.

At the time of the first European settlements in America, the island was the home of two more Indian tribes, who died from diseases brought over from Europe by the white men, according to the archaeologists.

This early and unintentional "germ warfare" also accounted for the fourth Indian inhabitants of Hiwassee, the Cherokees, who abandoned the island in 1818.

The investigators declare that dietary deficiencies were noted in most of the human remains of the inhabitants of the island with tooth trouble especially prominent. They estimate that at least 45% of the islanders at the time of Columbus suffered from toothaches.

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