of underwater swimming and other equally difficult challenges, physical and mental, to preschool youngsters.

He was never happier than when surrounded with youngsters and delighted in getting them to stretch their brains. We need more men like him, and we should devise workable procedures to take advantage of their enthusiastic help wherever programs are under development for leading bright youngsters toward scientific careers. Too little stress has been directed toward drawing the attention of youngsters to the satisfying sense of intellectual achievement which is an integral part of the compensations received by the true scientist. For those who feel that the golden age is past, Langmuir would probably say that it is certainly past for individuals who think this to be true. For the youngsters and the young of heart, he would say that there is no better time than the present, and I am sure he would demonstrate, with many illustrations, the opportunities which abound in all directions for those who have the will to do.

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News of Science

Euratom Agreement

John W. Finney reported in the 8 May *New York Times* that the United States and the European Atomic Energy Community have agreed in principle on a broad-scale cooperative program to promote the development of atomic power in Western Europe. The agreement, which still must be formally approved by both sides, provides for United States technical and financial assistance in the construction of atomic power plants in the six European nations banded together in the atomic energy group known as Euratom. When carried out, the agreement will represent one of the biggest steps yet taken by the United States to implement the policy of atoms-for-peace first proclaimed by President Eisenhower in 1953.

Inspection Issue Solved. In reaching the agreement, the two sides finally succeeded in overcoming the issue of inspection, which had obstructed negotiations in recent months. Previously, Euratom has been insistent that it should perform the inspection to make sure that none of the fissionable materials were diverted to military purposes. The United States, through the Atomic Energy Commission and the State Department, had been demanding inspection rights of its own as a precondition to cooperation.

In the recent negotiations a compromise agreement was reached. The details have not been made public, partly because the issue may still be subject to diplomatic negotiations. The negotiating teams were headed by Max Kohnstamm, special adviser to the Euratom commission, and R. W. Cook, deputy general manager of the Atomic Energy Commission.

Isotope of Element 102

Scientists in the University of California Radiation Laboratory have announced the definite discovery of an isotope of element 102. At the same time they said that in repeated, careful experiments they have been unable to duplicate the work of an international team of scientists who last year reported discovering an isotope of element 102.

The Berkeley research was reported on 5 May in Gatlinburg, Tenn., at a Conference on Reactions between Complex Nuclei, by Albert Ghiorso, a senior nuclear scientist in the Radiation Laboratory. The work was done by Ghiorso, Torbjorn Sikkeland, an exchange scientist from the Joint Establishment for Nuclear Energy Research at Kjeller, Norway; John R. Walton, research chemist; and Glenn T. Seaborg, Nobel laureate and professor of chemistry on the Berkeley campus.

Final identification of the element 102 isotope was achieved early in the morning of April 18, after a sustained 24-hour period of research, climaxing 3 months of experimentation. The element 102 isotope was created by bombarding a rare isotope (mass number 246) of curium (element 96) with carbon-12 nuclei having an energy of 68 million electron volts or carbon-13 nuclei of 75 mev. The new element 102 isotope has a mass number of 254; it decays quickly. Its half-life is 3 seconds. It decays by emitting an alpha particle and turning into fermium-250 (an isotope of element 100). As many as 40 atoms were observed in a single experiment.

The discovery was made by radically new methods of research. As yet the element 102 isotope has not been directly observed—chiefly because of its short half-life. The observations were made on fermium-250, the daughter atom, which has a half-life of 30 minutes. Under the conditions of the experiments, the scientists could deduce that the fermium atoms could arise only from the decay of the isotope of element 102.

In their experiments, the Berkeley scientists deposited curium over an area of less than a square centimeter on a thin nickel foil. This target foil was placed in front of the highly concentrated beam of the heavy ion linear accelerator. The target was enclosed in a container filled with helium gas.

When a curium atom captured a carbon nucleus, a new nucleus was instantaneously formed, four neutrons came off, and the resulting nucleus flew out of the target. This nucleus was slowed down by colliding with the helium atoms, and attracted to a metallic conveyor belt having a negative charge and moving just under the target. The belt passed next to a thin foil plate which had a strong negative charge. As the 102 atoms decayed by emitting an alpha particle, the resulting fermium atoms were kicked off the conveyor belt and attracted to the foil.

The length of foil was cut into five strips, and each was simultaneously analyzed in counters. The distribution of fermium atoms on the foil strips determined the half-life (the fast decay of the atoms of element 102 insured that most of the daughter fermium atoms were deposited on the closest sections of foil to the target, and fewer of them with greater distance). When the speed of the belt was changed, the distribution of fermium atoms varied in conformance with a 3-second half-life for the 102 isotope.

Identification of the atomic number of the element was made by chemically identifying the daughter atoms as fermium in chemical separation experiments with the dissolved foil.

The scientists searched repeatedly for evidence of an isotope of element 102 reported found last year by scientists of the Argonne National Laboratory in Chicago, the Harwell Laboratory in England, and the Nobel Institute in Stockholm, Sweden. These scientists re-