

CHEMICAL PHYSICS

Make Element Number 100

Neutrons, in a two-stage process, are used to produce newest, heaviest element by bombardment of plutonium in an atomic pile. Temporarily known as eka-erbium, its mass is 254.

► THE ELEMENTS in the universe now number an even hundred. A few fleeting atoms of chemical element 100 have been produced, starting with the atomic bomb element plutonium, number 94, as the raw material.

The creation of the newest, heaviest element became known when four nuclear chemists of the University of California's Radiation Laboratory talked at a seminar at Berkeley, Calif. They were members of the chemical group led by Dr. Glenn T. Seaborg, Nobelist, who has been in on the synthetic production of all the elements heavier than plutonium. The chemists were Bernard G. Harvey, Stanley G. Thompson, Albert Ghiorso and Gregory R. Choppin.

Neutrons are used in a two stage process to "fatten" plutonium so as to produce element 100. The Atomic Energy Commission's materials testing reactor at Arco, Idaho, was used to supply the neutrons.

Although element 100 is thus built of two essential ingredients of the A-bomb, plutonium which is the fissionable material and neutrons which trigger the bomb, it is itself not useful for making atomic weapons or generating atomic power.

Element 100 has a mass of 254 compared with that of 239 for plutonium. This means that 15 neutrons are added to plutonium to produce it.

Just recently (see SNL, Feb. 13, p. 103), the same laboratory made known the production of element 99 by an entirely different process. Now it is revealed that element 99 can also be made in the reactor by adding neutrons.

Element 100 will be known at least temporarily as eka-erbium, because it is chemically analogous to erbium, element 68, in the rare earth series. Later it may be named by the discoverers.

Element 100 has a half life of about three hours and it decays by shooting off alpha particles, the hearts of helium atoms.

First step in producing element 100 was conversion of plutonium 239 into californium, element 98 with mass of 252. Then neutrons were added further to make the chemical world's new champion heavy-weight, mass 254.

The whole story of the discovery of element 100 will not be known until the *Physical Review* dated March 1 is available. Hints are that first preparation of the new element may have been in a cyclotron instead of a reactor.

The scientists phrased it this way: Due to the existence of unpublished information on element 100, the question of its first preparation should not be prejudged on the basis of the present announcement.

Element 100 is the eleventh in the actinide series, and the eighth man-made element. The actinide series, it is believed, will end with the still undiscovered number 103.

Science News Letter, March 6, 1954

MEDICINE

New Palsy Medicine Now Available in U. S.

► DOCTORS GENERALLY will now be able to give their patients with Parkinson's disease, or shaking palsy, a drug which has been limited to clinical trials in this country for the past several years.

The drug is called Parsidol by its manufacturers, Warner-Chilcott Laboratories, New York. Chemically it is N-(2-diethylaminopropyl)-phenothiazine hydrochloride.

It has a sedative, antispasmodic and anti-histamine effect. It is said to be especially effective in controlling rigidity, which is

one feature of Parkinson's disease. Drs. William H. Timberlake and Robert S. Schwab of Harvard Medical School, Boston, found in their trials of the drug that it was most effective when combined with other drugs. (See SNL, Aug. 16, 1952, p. 105.)

Science News Letter, March 6, 1954

STATISTICS

Predict More Than Eight Million Widows by 1960

► BY 1960 the United States may have as many as 8,500,000 widows in its population, statisticians of the Metropolitan Life Insurance Company, New York, predict.

We have almost 7,500,000 widows now and their number is increasing steadily, the statisticians find. In the early years of this century widows were increasing by about 80,000 each year, but since 1930 the yearly rise has been about 100,000.

More than one-half our widows are 65 or older, 1950 Census figures show. Another two-fifths are in the 45 to 64 age group, with only a tenth younger than 45.

A large number of our widows live in cities, 73% in 1950. Nearly three-fifths of all widows maintain their own households, the proportion running as high as 70% among those in the age range 45 to 54, when almost half have children or other relatives living with them.

Science News Letter, March 6, 1954



FAMILIAR SCENE, WINTER-PAINTED—Although as many as 35,000 visitors have jammed Niagara Falls on a single Sunday to view this year's ice bridge, largest since 1952, a photographer in a Bell Aircraft helicopter captured this view on film. Winter's icy touch turns the famous cataracts and park area into a silvery wonderland.