

CHEMISTRY

Three Elements Get Names

Elements 43, 85 and 87 receive names technetium, astatine and francium from their discoverers. Only element 61 is now without a name.

► THREE of the four still unnamed chemical elements have been christened.

The new names are technetium for element atomic number 43, astatine for element 85 and francium for element 87.

The discoverers of the elements have done the naming as is the custom in chemical circles. Technetium with Tc as its symbol was the first artificially made element, formed by neutron or deuteron bombardment of molybdenum in 1937 in the 37-inch cyclotron at the University of California. Dr. C. Perrier, now at the University of Genoa, Italy, and Dr. E. Segre of the University of California have now named it after the Greek word for "artificial". Later when the fission of uranium was accomplished it was discovered that one of the fission products is element 43 and relatively large amounts have been isolated as a by-product of atomic bomb research.

Element 85, now called astatine with At as its code name, in 1940 was also born in a cyclotron, a larger 60-inch one also at the University of California. It is one of the chemical group of halogens, to which chlorine, bromine and iodine belong. So the co-discoverers, Dr. Segre, Dr. D. R. Corson, now at Cornell, and Dr. K. R. Mackenzie, now of the University of British Columbia, named it from the Greek for "unstable" since it is the only halogen without stable isotopes or varieties. Astatine is made by bombarding bismuth with alpha particles.

Actinium K is the name previously given to element 87 by its discoverer, Mlle. M. Perey, who announced her new element in a French journal in 1939. Now she christens it francium, symbol Fr, after her country, just as Mme. Curie named the first element she discovered, polonium, after her native Poland.

This rash of new chemical element names announced in the British journal, *Nature* (Jan. 4), results from the suggestion of Prof. F. A. Paneth of the University of Durham that missing elements positively found should be christened so as to clear up the periodic table of the elements.

The last remaining unnamed chem-

ical element among the 96 now discovered will be christened in April by a paper before the American Chemical Society meeting at Atlantic City.

Element 61 was positively identified among the fission products of uranium at Oak Ridge, Tenn., during experiments in 1945 by J. A. Marinsky and L. E. Glendenin. Dr. Charles D. Coryell, now at Massachusetts Institute of Technology, was associated in the work but does not consider himself one of the codiscoverers.

Two relatively fleeting varieties of this radioactive element were identified, one with an atomic weight of 147 that has a half-life of 3.7 years and another with a mass of 149 with a half-life of only 47 hours.

Element 61 has been given the name of illinium on the basis of a reported discovery of some years ago that is not now generally accepted.

Chemical books and tables will in many cases show elements 43, 61, 85 and 87 as previously discovered and named as masurium, illinium, alabamine, and virginium. But the researches culminated in the newer names for three of these elements are being accepted as the real discoveries of these elements.

Four elements actually discovered since the ones now named have won a prompt place in popular speech as well as chemical literature, at least in the case of element 94, plutonium, one of the two atomic bomb elements. The others are 93, neptunium, 95 americium, and 96 curium, all made basically from uranium.

Science News Letter, February 8, 1947

MATHEMATICS

Electronic Computer Faster Than ENIAC to Be Developed

► AN IMPROVED electronic computer, that will handle figures in difficult arithmetical problems faster than earlier models, is under development at the Moore School of Electrical Engineering, University of Pennsylvania, it was revealed to the American Institute of Electrical Engineers by T. K. Sharpless.



ROCKET COMMUNICATION—
A new light-weight electronic device to transmit information from rocket to ground was used in the V-2 rocket fired recently at White Sands, New Mex. (See SNL, Feb. 1.) General Electric engineers are shown testing the device.

He described ENIAC, the present computer used by the Army in solving problems connected with rockets, guided missiles and supersonic aerodynamics. The new machine will operate faster, "remember" 50 times as many numbers, and use only 3,000 electronic tubes instead of the 18,000 tubes in ENIAC. (See SNL, Jan. 25.)

ENIAC is a coined name for "electronic numerical integrator and computer." Illustrating the high speeds with which it can operate, Mr. Sharpless pointed out that ENIAC can multiply two ten-place numbers and give 20-place answers at the rate of 300 problems per second.

Another electronic high-speed computer, under development at the Servomechanisms Laboratory, Massachusetts Institute of Technology, was described by Jay W. Forrester, associate director of the laboratory. It will complete in five minutes calculations which would take a human operator one year, he said. It is being developed under the sponsorship of the Office of Naval Research.

Mr. Forrester listed many of the applications of automatic computing machines.

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