

# THE SCIENCE NEWS-LETTER

*A Weekly Summary of Current Science*

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## AMERICAN DISCOVERY LEAVES ONLY TWO ELEMENTS UNKNOWN

Hail to illinium, chemical element number 61, first to be born on American soil.

For Prof. B. S. Hopkins of the University of Illinois has isolated the hitherto unknown element 61 after detailed chemical work extending over several years.

Four hundred pounds of monazite residues, donated by one of the big manufacturers of gas mantles, yielded the new element only after this quantity of rare earth material had been subjected to repeated fractional crystallization. Prof. Hopkins found it extremely difficult to separate the new element, illinium, from neodymium, another element, which masked its presence.

From theoretical considerations, physicists and chemists have predicted just what spectral flags, as it were, the new element should fly when it is detected with spectroscope and X-ray. And Prof. Hopkins bases his claim of discovery on many new lines in the spectrum, prominent bands in the absorption spectrum in the expected position and lines in the X-ray spectrum in the predicted position.

The element is named after the university at which it was discovered and its symbol will be the first two letters of its name, Il.

Little practical use for illinium can be predicted as it is just another of a large family of very closely related and much mixed up rare earths. Some of these rare earth elements make up the incandescent part of gas mantles in everyday use, and it is probable that small amounts of illinium are actually contained in such mantles.

Now all but two of the 92 fundamental materials of the universe, the chemical elements, have been discovered. The two still missing are numbered 85 and 87.

Efforts to locate element number 87, called prenately, ekacaesium have been made at Harvard by Prof. T. W. Richards and Dr. E. H. Archibald in 1902 and again by Prof. G. P. Baxter in 1915. All these experimenters made successive fractionations of caesium nitrate and other caesium salts. Element 87 is known to belong in the alkaline group along with sodium, potassium and caesium. Later attempts were made by Prof. L. M. Dennis and Dr. R. W. G. Wyckoff at Cornell University in 1919 fractionating caesium alum and caesium perchlorate obtained from the mineral pollucite. In all cases spectrum analysis of the final products of fractionation failed to yield any lines that could not be attributed to elements already known. These final products were also examined for signs of radioactivity with negative

results. Likewise in further studies of radioactive decomposition no evidence has been found for an element having the properties of an alkaline metal.

No work reported has been done in an attempt to isolate element 85 which when discovered will be in the same group with iodine.

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#### MOST RECENT CHEMICAL ELEMENTS DISCOVERED

| Number | Name            | Discoverer              | Country         | Year |
|--------|-----------------|-------------------------|-----------------|------|
| 72     | Hafnium         | Coster and Hevesy       | Denmark         | 1923 |
| 43     | Masurium        | Noddack                 | Germany         | 1925 |
| 75     | (Rhenium        | Noddack                 |                 |      |
|        | Bohemium        | Heyrovsky and Doleyssek | Czecho-Slovakia | 1925 |
| 61     | Illinium        | Hopkins                 | United States   | 1926 |
| 87     | Ekacaesium      | Undiscovered            |                 |      |
| 85     | Unknown halogen | Undiscovered            |                 |      |

There are places for 92 chemical elements in the scheme of things as now conceived by the chemists. All but 87 and 85 have been filled. But some believe that there is a possibility that there may exist elements 93, 94, and 95, heavier than uranium, which is 92. Discovery of 75 is disputed.

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#### UR EXCAVATORS DISCOVER TOMBS AND RARE GODDESS STATUE

The chance discovery of great coffins of hammered and riveted copper and the unearthing of the earliest female statue in all Mesopotamia are among the achievements of the Joint Expedition of the British Museum and the museum of the University of Pennsylvania which has over two hundred men at work excavating Ur of the Chaldees, Iraq, one of the most famous sites of antiquity.

In the shrine of the Moon goddess, worshipped by the ancient Chaldeans, there was found a diorite statue of the goddess, Bau, patroness of the poultry yard, and, in the report of C. Leonard Woolley, leader of the expedition, just received, it is declared that this is the only female statue of early date ever found in Mesopotamia. Only the goddess's nose is missing; other less fortunate statues and vessels had been smashed to bits upon the brick floor of the temple Gig-Par-Azag, when that place of worship was sacked and burned, probably during a rebellion against an ancient king of Babylon, the great Hammurabi.

During January the Moon goddess temple was laid bare by the excavators. This really magnificent structure was built about 2220 B. C. and then rebuilt in fine burnt brick a hundred and fifty years later by Enanatum, son of Ishme-Dagan, king of Isin. This is the most imposing building at Ur, with the single exception of the Ziggurat, covering a very large area and laid out on a bold and spacious plan. One of its two temples is that of Nin-Gal. It has a court with wide gateways on