

PHYSICS

New Element is "Relative" Of Brittle Metal Manganese

Fermi Reveals Metal Salts Added to Uranium Removed Radioactivity, Producing Precipitate of No. 93

THE HEAVIEST element known to science—No. 93—is a substance whose properties make it a chemical relative of the hard, brittle metal manganese. A description of the nature of the new element together with proof of its existence has appeared in the British science journal, *Nature*, over the signature of its discoverer, Prof. Enrico Fermi of the Royal University, Rome.

Since the first announcement of the discovery by the veteran scientist Senator Mario Corbino before the Lincei Academy in Rome, scientists of the world have waited eagerly for the published report of brilliant, young Prof. Fermi.

In describing his research which added another element to the 92 already known to science, Prof. Fermi declared that the crucial test was to add salts of the metal manganese to a solution of uranium after the latter had been bombarded with neutrons. Uranium is the dense "mother" element which breaks down by radioactive disintegration to produce a variety of lighter elements including radium.

Following the addition of manganese salts to the uranium fluid, a cloudy precipitate formed in the vessel and fell to the bottom. Most of the radioactivity floated down with this precipitate, indicating that a disintegrating substance, other than uranium, was present. The precipitate was a chemical salt of the new element No. 93.

The addition of salts of other elements—uranium, lead and barium—while forming precipitates in some cases did not remove the radioactivity from the uranium mixture.

This precipitation test, Prof. Fermi indicates, shows that element No. 93 probably is a heavy-weight relative, or homologue, of manganese. The experiment is not quite conclusive, however, in the sense that the yet-unfound elements 94 and 95 may have been present in the tell-tale precipitate, he added.

The use of chemical tests to prove radioactivity is not new. In the epoch-

making experiments of Irene Curie and her husband, F. Joliot, last January, in which science for the first time produced artificial radioactivity, the French scientists shot the cores of helium atoms at boron nitride. By heating the boron nitride target in caustic soda, ammonia gas was formed. The radioactivity present then separated from the boron compound and was carried away as a gas with the ammonia vapor. The active substance in the ammonia, said the Jolios, was a form of nitrogen gas breaking down spontaneously by radioactive disintegration. Prof. Fermi, in a comparable test, finds the radioactivity going off with the precipitate.

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MEDICINE

Babies Inhaling Oil May Get Pneumonia

PNEUMONIA may occasionally result from accidentally drawing oil into the lungs, Dr. Kano Ikeda, of Saint Paul, told members of the American Society of Clinical Pathologists.

Such cases are not as rare as generally believed and are especially apt to occur among weakened infants who are almost always artificially fed and prone to infection of the upper part of the breathing tract, Dr. Ikeda pointed out.

Cod liver oil, haliver oil and the like are often prescribed for such infants and often forcibly fed, and nasal oil of one kind or another is instilled almost routinely during colds. A little of the oil may be accidentally drawn into the lungs and there cause changes associated with a certain type of pneumonia. Dr. Ikeda found seven such cases in examining microscopic sections from the lungs in 100 consecutive post-mortem examinations of infants' bodies.

Other oils which may be accidentally aspirated are castor oil, olive oil, poppy seed oil which is used for diagnostic purposes, and cream and milk fat.

While this type of pneumonia is most apt to occur in frail babies, it may occur in older children or adults who from various causes have lost control of swallowing or of the reflex mechanism that, in the popular phrase, keeps things from going down the wrong way and being inhaled instead of swallowed.

The pneumonia which may occur in infants from accidentally getting oil into the lungs is relatively harmless in itself but may develop into a more serious condition. For this reason Dr. Ikeda warned that care should be exercised in giving oils, particularly to weakened babies.

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MOST BEAUTIFUL BRIDGE

One of the three most beautiful bridges built during 1933, as selected by the American Institute of Steel Construction. It is the "Dr. John D. McLoughlin Bridge" at Portland, Oregon, which won in class "C," for the smaller bridges. A stainless steel plaque will commemorate the award.