volume of $CaCl_2$ is 49, and $TiCl_4$ is 109, the volume of Ekabor chloride must be near 78, and consequently its specific weight will be close to 2.

The oxides of Ekaboron, Eb_2O_3, must be non-volatile, and possibly non-fusible, and insoluble in water, because even the oxide of calcium is only slightly soluble in water, but it will be soluble in acids. The specific volume of the oxide of Ekaboron must be close to 39, because in this series K_2O has a volume of 35, CaO of 18, TiO of 29 and CrO_3 of 36. That is, with a content of one atom of oxygen the volumes at first rapidly decrease and then slightly increase, as can be seen from the following: volume of K = 35, Ca = 18, Ti = 10, Cr = 12, therefore the volume for the oxide of Eb with a content for one equivalent of oxygen ought to be about 13. Consequently the formula Eb_2O_3 must correspond to a volume of about 39, and therefore the oxide of Eb in the dehydrated state will have a specific gravity of approximately 3.5. Being a rather active base, this oxide must show a slight tendency to the formation of alum, although it is possible that it will form alum-like compounds, that is, double salts with potassium sulphate. Ekaboron, of course, will not form metallo-organic compounds. From analogy with the elements of the even series, judging from the data at hand on the elements accompanying cerium, not one of them could fill the place of Ekaboron. Therefore this metal almost certainly does not belong to the number of satellites of cerium known at present.

Ekaluminium

This cannot be said of the remaining elements of the third group in the even series, because their equivalents nearly approach those which should be possessed by the following unknown members of this group. In this group the element in the third series following zinc is lacking. Its atomic weight must be close to 68. We will call this element Ekaluminium, El = 68, because it follows directly after aluminium in the third group. In distinction from Eb, it must possess the ability to form metallo-organic compounds, and because of its position between aluminium and indium it must have properties close to those two elements. Consequently it will form alums. Its hydroxide will be soluble in a water solution of potassium hydroxide. Its salts will be more stable than the salts of aluminium, thus Ekaluminium chloride will be more stable than aluminium chloride. Its atomic volume, based on consideration of the same characters as were applied in determination of the properties of Ekaboron, must be close to 11.5, hence the specific weight in the metallic state will be near 6.0. The properties of this metal in all respects must represent the transition from the properties of aluminium to the properties of indium. It is very likely that the metal will possess greater volatility than aluminium and therefore we may hope that it will be discovered by spectro-investigation in the way indium and thallium following it have been discovered, although it will be less volatile than either of them and therefore we must not expect such striking spectral phenomena as led to the discovery of the latter. Most probably this element also does not belong to the number of cerium's satellites, although its equivalent approaches the equivalent of Yttrium. But it has not the form of oxide typical of Yttrium with the molecular formula RO, nor do the distinct basic properties of its oxide permit us to consider Yttrium as belonging to this place in the system of elements; instead the next place, in the third series, position III-4, belongs to Yttrium. . . .

DMITRI MENDELYEV
(or Mendeleef), the Russian chemist who discovered the Periodic Law governing relationships between the chemical elements.

Science News Letter, October 31, 1931

MEDICINE

Machine Outdoes Physician In Detecting Artery Hardening

A SPECIAL machine which can determine the presence of hardening of the arteries when a physician cannot determine it by ordinary tests was demonstrated for the first time at the Graduate Fortnight of the New York Academy of Medicine.

This and other new instruments for diagnosing heart disease are included in the exhibit which is a special feature of this year's Graduate Fortnight. More than 2,500 physicians from all over the United States and from Canada and England are attending the Fortnight to learn the latest developments in the diagnosis and treatment of heart disease and disorders of the circulation.

The exhibit covers almost every known fact pertaining to the circulatory system, according to the director, Dr. Louis Gross, pathologist of Mount Sinai Hospital.

Another machine on exhibit automatically registers the heart beats of a patient undergoing an operation. This enables the physician or his assistant to tell just what condition the patient's heart is in without stopping to take the pulse or listen to the heart with a stethoscope.

Dr. Maude E. S. Abbott of McGill University and Dr. John L. Bremer of Harvard Medical School have arranged a special exhibit of hearts which traces the growth of the organ in the embryo. In addition, Dr. Abbott has an exhibit which displays all the known forms of congenital heart disease. In this display are hearts of persons who lived despite the fact that they had holes where heart muscle should be and despite the fact that they lacked an entire heart valve or the aorta, main blood vessel from which all the arteries rise.

Motion pictures showing the heart valves in action and showing studies under the microscope of the first heart beat of the embryo are other interesting features of the exhibit.

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