

E. YUNG: "Le sens de l'humide chez les Mollusques," "Structure des tentacules chez *Helix*."

C. ZELENY: Title not yet received.

Notices have also been received that the following demonstrations will be made:

S. VON APÁTHY: "Certain Instruments for Microtechnique," "Microscopic Preparations."

C. W. BEEBE: "Bird Skins."

W. DANTCHAKOFF: "Microscopic Preparations."

G. A. DREW: "Illustrations of a Method to make Series of Anatomical Drawings."

J. H. EMERTON: "Demonstration Collection of Spiders."

W. JUNK: "Zoological Books."

F. E. LUTZ: "Abnormal Wings of *Drosophila*."

O. MAAS: "Microscopic Preparations."

A. MAXIMOW: "Microscopic Preparations."

S. METALNIKOFF: "Preparations of Blood and of *Bacillus tuberculosis*."

A. PETRUNKEVITCH: "Images in the Spider's Eyes."

C. F. ROUSSELET: "Mounted Slides of Rotifera."

J. A. THOMSON: "Peculiar Alcyonarians."

Members are reminded that notices of communications, demonstrations, etc., should now be in the hands of the General Committee of the Seventh International Zoological Congress, Cambridge, Mass.

For the Executive Committee,

G. H. PARKER, *Chairman*

RADIUM EMANATION¹

IN 1903, it was shown by Mr. Soddy and myself that the spontaneous change of the emanation from radium results in the formation of helium; this observation has been confirmed by Indrikson, by Debierne, by Giesel, by Curie and Dewar, and by Himstedt and G. Meyer. Debierne has shown that actinium chloride and fluoride also develop helium. I have also once detected helium in the gases evolved continuously from a solution of thorium nitrate, and hope soon to confirm this observation.

When the emanation is in contact with, and dissolved in water, the inert gas which is produced by its change consists mainly of neon; only a trace of helium could be detected.

¹From *Nature*, July 18. This letter is apparently the basis of the alleged interview with Sir William Ramsay, cabled to a prominent New York newspaper on July 28 and widely quoted.

When a saturated solution of copper sulphate is substituted for water, no helium is produced; the main product is argon, possibly containing a trace of neon, for some of the stronger of its lines appeared to be present. The residue, after removal of the copper from this solution, showed the spectra of sodium and of calcium; the red lithium line was also observed, but was very faint. This last observation has been made four times, in two cases with copper sulphate, and in two with copper nitrate; all possible precautions were taken; and similar residues from lead nitrate and from water gave no indication of the presence of lithium; nor was lithium detected in a solution of copper nitrate, similarly treated in every respect except in its not having been in contact with emanation.

These remarkable results appear to indicate the following line of thought: From its inactivity it is probable that radium emanation belongs to the helium series of elements. During its spontaneous change, it parts with a relatively enormous amount of energy. The direction in which that energy is expended may be modified by circumstances. If the emanation is alone, or in contact with hydrogen and oxygen gases, a portion is "decomposed" or "disintegrated" by the energy given off by the rest. The gaseous substance produced is in this case helium. If, however, the distribution of the energy is modified by the presence of water, that portion of the emanation which is "decomposed" yields neon; if in presence of copper sulphate, argon. Similarly the copper, acted upon by the emanation, is "degraded" to the first member of its group, namely, lithium; it is impossible to prove that sodium or potassium are formed, seeing that they are constituents of the glass vessel in which the solution is contained; but from analogy with the "decomposition-products" of the emanation, they may also be products of the "degradation" of copper.

A full account of this research will shortly be communicated to the Chemical Society.

WILLIAM RAMSAY.

July 11.