1925, will give a graduate course in the psychology of the handicapped at George Washington University. His place in Northwestern University will be filled by Professor A. R. Gilliland, of Lafayette College.

A. R. CAHN, PH.D. (Illinois, '24), and F. B. Adamstone, Ph.D. (Toronto, '24) have been appointed instructors in zoology at the University of Illinois.

DR. REYNOLD KENNETH YOUNG, of the Ottawa Observatory, has been appointed associate professor of astronomy at the University of Toronto.

DR. B. B. BAKER, of the University of Edinburgh, has been appointed to the university chair of mathematics at University College, London, tenable at the Royal Holloway College.

DR. MANGIAGALLI, senator and director of the post-graduate work at Milan, has been elected rector of the newly organized university there.

DISCUSSION AND CORRESPONDENCE

DETERMINATION OF "e" FROM MEASUREMENTS OF THE SCHROTT-EFFECT

SCHOTTKY[1] has calculated, under the name "Schrott-effect," the spontaneous variations in thermionic currents that are to be expected if electron evaporation follows the law of probability. These variations depend upon the value of "e". Hartmann[2] attempted to determine "e" by measuring these variations. He succeeded in amplifying the variations to audibility, and by subjective comparison with pure tones of known intensity obtained values of "e" which varied from one fifteeenth the accepted value to three times this value.

We have repeated these measurements, using a radio-frequency amplifier instead of audio-frequency, thus avoiding disturbances due to gas effects or mechanical shocks; and using a "square" vacuum tube detector and d.c. ammeter to measure directly the energy of the Schrott disturbance. *The values of "e" calculated from these measurements are all within 2 per cent. of the accepted value, and the mean differs by less than one half per cent. from this value.*

Schottky's theory is thus fully substantiated, and it appears possible that this method of measuring "e" may yield values comparable in accuracy with the oil-drop method.

The Schrott variations appear to be the same for all types of cathode (pure tungsten, thorium coated tungsten, etc.) provided the current is limited by temperature. *When the current is limited by space charge instead of temperature, however, the Shrott-variations are much smaller.* This is in accordance with the theory, since under space charge conditions the electrons no longer fly off independently, but influence each other in such a way as to smooth out the variations.

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[1] Schottky, *Ann. d. Phys. 57*, 541–67, 1918; *68*, 157–76, 1922.

[2] C. A. Hartmann, *Ann. d. Phys. 65*, 65, 1921.

AN OSMOSIS EXPERIMENT IN BIOLOGY

IT is customary in an elementary course in biology to set up a demonstration of osmosis. Sometimes the thing does not work. A biology teacher usually performs it as a side line to the regular course work and seldom has time to experiment when it fails.

We have tried various grades of parchment, not always with good result. The solutions would exchange too fast in some cases. Other grades proved impermeable. Our best results have been with chicken crop. The smooth side is put out.

When the craw proves impermeable, the outside should be scraped and 5 per cent. HCl be painted on with a brush. A rise to six feet can then be obtained. I hope this may prove of service to some who have met with troubles.

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LETTERS OF RAFINESQUE

APROPOS of the note on "The Bones of Rafinesque" in the issue of SCIENCE for June 20—it may be of interest to those who care to delve in scientific biography—to know there is on deposit at the Philadelphia Academy of Natural Sciences the Haldeman letters and correspondence which contains the personal letters of Rafinesque, pertaining to his early life not only in America but in Europe. It is a veritable mine of information for any one who may care to prepare a biography of this remarkable character.

JOSEPH LEIDY, II

SCIENTIFIC BOOKS

I. Descriptions and Biology of New or little known Coccids from Japan. By INOKICHI KUWANA. II. *Observations on the Hymenopterous Parasites of Ceroplastes rubens Mask., with Descriptions of New Genera and Species of the Subfamily Encyrtinae.* By TEI ISHII (Dept. Agr. and Comm. Japan, Imp. Plant Quar. Sta., Bull. 3, Aug. 1923, p. 1–68, pl. I–XIV, fig. 1–5 (Art. I.) and pp. 69–114, pl. XV–XIX (Art. II.).

THERE are only three existing copies of this paper, the remainder of the edition having been destroyed by the Japanese earthquake of September 1, 1923. Two of these have been retained in Japan, while the third was brought to Dr. L. O. Howard, chief of the Bu-