

companying increased permeability after membrane formation.

6. That an increase of surface tension, which must accompany a change of potential at the surface, is quite general in naked eggs after fertilization, as indicated by their rounding up when previously they had been irregular in outline.

A logical explanation is afforded why such a change as increased permeability should cause development, namely—the removal of some reaction product whose accumulation has brought the cycle of reactions occurring during the growth period to a standstill. This does not exclude the possibility that in time another change may take place which leads to those disintegrative changes, especially emphasized by Loeb.

E. NEWTON HARVEY

COLUMBIA UNIVERSITY,

October 7, 1909

SOCIETIES AND ACADEMIES

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 668th meeting was held on October 9, 1909, Acting President Wead presiding. The following papers were read:

Reversion of Power Series: C. E. VAN ORSTRAND, of the Carnegie Institution of Washington.

The equation which Professors Harkness and Morley developed for the reversion of a power series was extended so as to obtain a general term for the reverse series similar to the one obtained by Professor McMahon. The complete expansion for the first thirteen coefficients was given, and some comment was made in regard to the application of the reverse series to inverse functions including solutions of polynomials of the n -th degree.

The Vibration Galvanometer: FRANK WENNER, of the Bureau of Standards.

The vibration galvanometer is an instrument for the detection or comparison of small alternating currents and electromotive forces. It differs from other instruments for the same purpose mainly in having the moving system tuned to the frequency of the current or electromotive force to be investigated.

The general theory of the instrument was developed, and equations derived which show how the amplitude of the vibration depends upon the

various constants of the instrument and the conditions under which it is used. An auxiliary set of equations gives all the constants in terms of quantities easily measured. This makes it possible, with but few simple measurements on any particular instrument, to predict its behavior under almost any set of conditions, or to calculate the effect of any contemplated change in the design.

It has been observed that some instruments resonate to two different frequencies. The cause of this double period of the moving system was explained. For those instruments which develop a relatively large back electromotive force the effect of putting a large inductance in the circuit is shown and the advantage of using a step-up transformer is pointed out.

The experimental part of the work has to do mainly with the verification of the more important relations shown by the equations. The constants of the different instruments used were obtained, using the theory developed. Some of the constants are also determined by an independent method and thus serve as checks on the theory. A method of tuning was given which is more sensitive than the method generally used and which is applicable in other cases where the vibration is forced.

W. P. White, of the Carnegie Institution of Washington, spoke informally on the zero shift in moving-coil galvanometers, discussing briefly its cause and how it may be lessened.

R. L. FARIS,
Secretary

THE CHEMICAL SOCIETY OF WASHINGTON

THE 192d meeting of the Washington Section of the American Chemical Society was held at the George Washington University Lecture Hall on October 14, 1909. President Walker presided, the attendance being 94. Dr. H. W. Wiley gave a report of the seventh International Congress of Applied Chemistry, held in London in May and June of this year, including a history of the development of the society. He described the entertainments furnished by the British members, told of the more important papers presented at the meeting and of the personnel in attendance, and the part taken by some of the prominent American chemists. Twenty-one new names were added to the list of members and twelve names removed.

J. A. LECLERC,
Secretary