- 12. New "Reststrahlen." A. H. PFUND.
- 13. Study of Polarization Phenomena in the Infra-red. A. H. PFUND.
- 14. Note on a New Form of Radiometer. W. W. COBLENTZ.
- 15. Fish eye Views. R. W. WOOD.
- 16. Interference Colors of Chlorate of Potash Laminæ. R. W. WOOD.
- 17. Fluorescence and Magnetic Rotation of Vapors. R. W. WOOD.
- 18. Resonance Radiation of Fluorescence of Sodium Vapor. R. W. WOOD.

SATURDAY AFTERNOON.

Professor H. A. Lorentz, of Leyden, addressed the Society on the subject of "Gibbs' Statistical Mechanics."

The regular program was then continued as follows:

- 19. The Ratio of the Electromagnetic and Electrostatic Units. E. B. ROSA and N. E. DORSEY.
 - 20. Spectral Lines as Light Sources in Polariscopic Measurements. F. J. BATES.
 - 21. Water of Crystallization and Water of Constitution. W. W. COBLENTZ.
 - 22. Distribution of the Intensity of Radiation from Radioactive Substances. E. RUTHERFORD.
 - 23. The Dispersion of Electric Waves. L. E. WOODMAN and H. W. WEBB.
 - 24. Note on the Compound Interferometer. C. W. CHAMBERLAIN.
 - 25. The Constancy of Platinum Thermo Elements and other Thermo-element Problems. W. P. WHITE.
 - 26. Some Properties of Moving Coil Galvanometers. W. P. WHITE.
- Adjourned.

ERNEST MERRITT,
Secretary.

NOTE ON A NEW FORM OF RADIOMETER.¹

BY W. W. COBLENTZ.

THE chief objection to a radiometer having vanes of appreciable area is its slow period. This can be shortened by using a heavier fiber, which means a decrease in sensitiveness. This can be compensated for by increasing the efficiency of the vane. Now, in a radiometer the energy developed is at the surface of the vane, which by conduction transmits it to the surrounding medium. In the thermopile we use only the energy developed within the conducting wire.

¹ Abstract of a paper presented at the meeting of the Physical Society held April 20-21, 1906.

The present scheme is to superpose the radiometer effect upon the radiomicroscope effect, by placing the whole in a vacuum and making the Bi-Sb or Cu-Te thermojunction the vane of a radiometer. The junction is in the form of a , part of the long side being the vane. The loop of copper wire lies in the same plane and joins two of the free ends. The magnet is taken from a Weston ammeter. In other respects the whole is similar to the Boys radiomicroscope, with the exception that the suspended system is in a vacuum, which is an added advantage since, as shown by Kurlbaum, the sensitiveness is increased in a rarified atmosphere.

On account of numerous delays and pressure of other work, it has not been possible to give the instrument a thorough test for sensitiveness. It might be added, however, that the aim is not so much to develop an instrument which is more sensitive than a radiometer, but to construct a device that for a given sensitiveness has a shorter period than obtains in an ordinary radiometer. In an ordinary radiometer the suspension weighs about 10 to 12 mg. In the present case the weight is 20 mg. The half period is only 5 sec. at present. Selecting a finer fiber would make it more sensitive.

In conclusion I might add that I hesitate to give the data for sensitiveness of the present suspension (junction of Cu-Te), because the radiometer effect is only about fifteen per cent. of the radiomicroscope while it is well known that at all times the radiometer is the more sensitive instrument. By making the suspension of lighter material the radiometer effect will be increased. The present suspension is about three times as sensitive as the radiomicroscope described by Boys.

For measuring small electric currents, *e. g.*, from telephone, etc., we obviously need not have such a large vane. The heating coil is to be placed between the vane and what corresponds to the inner window of the radiometer as it appeared in its original form. It would seem that such an instrument ought to be more sensitive than the modification of the Boys' radiomicroscope which is now being exploited under a patent.

ON THE DETERMINATION OF MELTING POINTS BY RADIATION METHODS.¹

BY C. W. WAIDNER AND G. K. BURGESS.

THE methods used are based on the monochromatic and on the total radiation from platinum at different temperatures. Minute specimens of the metals to be studied are placed on a platinum ribbon whose temperature is slowly raised by an electric current flowing through it;

¹ Abstract of a paper presented at the meeting of the Physical Society held April 20-21, 1906.