Dr. L. H. SIERTSEMA. *A determination of the magnetic rotatory constant of water.*

In order to control the constant factors, used at the reduction of the measurements of magnetic rotation in gases to absolute units [1]), a measurement is made with the same apparatus on the absolute rotatory constant of water with *Na*-light. The experimental tube is filled with distilled and boiled water, and the magnetic rotation of *Na*-light is measured in the same way as with the other gases. Only a smaller current-intensity is used (7 amp.) and in consequence the shunt of the galvanometer was to be changed.

The ray *D*, which could not be pointed in the solar spectrum on account of bad weather, is made visible by throwing common salt on the carbons of the arc-lamp.

Four sets of measurements at a temperature of 13°.4 give for this constant:

0′.01303
1302
1302
1300

mean 0′.01302 (13°.4)

[1]) Communications etc. N°. 24.

In reducing it to 0° with the coefficient determined by RODGER and WATSON [1]), and comparing the result with those of other investigators, we find with a sufficient agreement:

| | |
|---|---|
| ARONS [2]) . . . . . | 0'.01298 (0°) |
| QUINCKE [3]) . . . . . | 0'.01418 (0°) |
| RODGER and WATSON [1]) | 0'.01311 (0°) |
| SIERTSEMA . . . . . | 0'.01303 (0°) |

[1]) RODGER and WATSON, Zeitschr. phys. Ch. 19, p.323.
[2]) ARONS, Wied. Ann. 24, p. 161 (1885).
[3]) QUINCKE, Wied. Ann. 24, p. 606 (1885).

Dr. L. H. SIERTSEMA. *Measurements on the magnetic rotatory dispersion in gases.*

In the former communications [1]) the magnetic rotations, found for some gases, are expressed in minutes for unity of magnetic potential-difference, by means of a reducing factor, calculated from the dimensions of the apparatus, the number of windings of the coils, and the constant of the tangent galvanometer with which the galvanometer of D'ARSONVAL is calibrated. This latter constant was deduced from comparisons with a copper-voltameter.

The accuracy of this reducing factor is controlled by a determination of the rotatory constant of water, which, as may be seen in the preceding pages, has showed a sufficient agreement with the values found by others.

Meanwhile it appeared necessary to add another correction to the manometer-readings, in consequence of which the following formulae are obtained:

*Air* (100 KG., 13°.2) $\quad n.10^6 = \frac{190.6}{\lambda}\left(1 + \frac{0.242}{\lambda^2}\right).$

*Oxygen* (100 KG., 7°.0) $\quad n.10^6 = \frac{271.7}{\lambda}\left(1 + \frac{0.0704}{\lambda^2}\right).$

*Nitrogen* (100 KG., 14°.0) $\quad n.10^6 = \frac{169.9}{\lambda}\left(1 + \frac{0.311}{\lambda^2}\right).$

[1]) Communications etc. N°. 24.