

modern measurements, that Cavendish and his colleague froze out and separated the hydrates $\text{HNO}_3 \cdot 3\text{H}_2\text{O}$, $\text{HNO}_3 \cdot 2\text{H}_2\text{O}$, and $\text{H}_2\text{SO}_4 \cdot \text{H}_2\text{O}$; determined accurately their compositions and melting points, as well as those of the eutectic mixtures in which these hydrates are concerned; and secured data which can be plotted with remarkable accuracy on a modern freezing-point diagram.

In addition to the chemical papers and manuscripts, the second volume of the "Scientific Papers" includes reprints of the remaining papers, of which the most important describes the well-known "Experiments to Determine the Density of the Earth." In dealing with this section of Cavendish's work the editor has obtained contributions from Dr. Chree, who writes a note on the determination of the height of the aurora, and gives an account of Cavendish's magnetic work; from the Astronomer Royal, who writes on Cavendish's astronomical manuscripts; from Sir Archibald Geikie, who writes on Cavendish as a geologist; and from Sir Joseph Larmor, who adds a note to a manuscript on "The Refraction on a Mountain Slope," and gives an account of Cavendish's mathematical and dynamical manuscripts.

It is a tribute to the work which has been expended on these two volumes that only sixty-six out of 452 pages of the first volume, and 220 out of 496 pages of the second, are occupied by reprints of the papers from the Philosophical Transactions. The Cambridge University Press has produced a worthy memorial of the work of one of the most distinguished of Cambridge men, and no student of the history of science in England can afford to ignore or to neglect these volumes.

T. M. L.

Paris Weather Statistics.

Atlas Météorologique de Paris. By Joseph Lévine. Pp. vi+83+9 plates. (Paris: Gauthier-Villars et Cie, 1921.) 20 francs.

MUCH more will be found in this atlas than is to be inferred from the title. The author promises to set out graphically the annual values of meteorological elements for Paris from 1700 to 1920, with monthly values from 1761. This is shown in a series of plates. He also gives complete monthly and annual tables for several elements from 1874 to 1920, with a column of annual departures from average, and of variations from year to year. The wind tables are not

so full, as they date back only to 1890, and some of the other tables do not begin until 1876 or 1878. In addition, there is a table of extreme barometer readings from 1809 to 1919 for each month and for the year, and of highest and lowest mean monthly and annual readings from 1757 to 1919. The highest recorded barometer reading at an altitude of 67 m. was 781.2 mm. in February, 1821, and the lowest 713.5 mm. in December of the same year. During the period from 1878, of which fuller details are given, the highest readings were 782.4 mm. on January 16, 1905, and 782.3 mm. on January 17, 1882, at an altitude of 50.3 m. (corresponding to 780.7 mm. at an altitude of 67 m.), and the lowest 718.1 mm. on January 10, 1916. It is to be remarked that at Greenwich, in the same period, the highest readings—782 mm.—were recorded on January 17, 1882, and January 29, 1905. The latter was nearly a fortnight later than the Paris maximum, though the former was on the same day, indicating a very extensive anticyclone, with possibly an even higher reading at some intermediate point. Naturally, no such accordance can be expected in the minimum readings.

The highest shade temperature at Paris was 38.4° C. (101.1° F.) on July 20, 1881, five days after the Greenwich reading of 97.1° F., which has been exceeded only by that of 100.0° F. on August 9, 1911, on which day the Paris reading was 97.7°. The lowest shade minimum in the same period at Paris was -25.6° C. (-14.1° F.) on January 20, 1879, about 20° F. lower than anything at Greenwich since 1841; but in spite of the greater rigour of the Paris frosts, they occur neither so early nor so late as at Greenwich. The limiting dates at Paris are October 5 and May 13; at Greenwich, September 27 and May 24. The corresponding limits for ground frost at Paris are September 13 and June 9, but the period covered by the table is only from 1902 to 1920. There are no real limits at Greenwich for ground frost, for it has been recorded during the same period in both July and August.

The mean rainfall of Paris is about an inch less than that of Greenwich. In the forty-six years of the table 28 in. was exceeded at Paris twice, and at Greenwich eight times. On the other hand, in six years at Paris, and in only two at Greenwich, did the annual total fall below 19 in.

Unfortunately, there is scarcely any information about duration of sunshine. The author remarks that the record is not homogeneous, and gives only the figures for 1919.

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