

S. S. E.	301	264	49.3	51.8
S.	315	373	86.6	103.0
S. S. W.	363	547	178.7	254.9
S. W.	305	448	204.5	578.1
W. S. W.	282	346	238.6	752.2
W.	384	356	315.7	297.6
W. N. W.	326	400	539.5	418.9
N. W.	357	412	503.1	668.6
N. N. W.	413	513	385.0	886.0
	6010	6250	4246.7	6247.0
Calms,	2669	2409		
No observations	81	101		
	8760	8760		

The greatest pressures of the winds during the two years, as recorded by the anemometer, gives 23 days between N. and W., 11 between S. and W., and 4 each between N. and E. and S. and E., 5 from the N., 2 each from W. and E., and 0 from S. The receiving surface of the anemometer rain gauge, was about 9 feet above the ground. It indicated 26°. 58' inches in 1841, and 42°. 80' in 1842.

Rain Gauge.—An instrument for determining the quantity of rain falling at different intervals was attached to the anemometer. Its receiving surface was about 9 feet above the ground. In 1841, 8.14 inches fell in the month of July, which was the maximum; the minimum amount, 1.16 inches, fell in March. In 1842, the maximum quantity fell in September, amounting to 6.16 inches; the minimum, in May, being 1.28. The whole amount which fell in 1841 is rated at 36.58 inches,—in 1842 at 42.80 inches. These observations, however, are not sufficiently extended to permit of any very useful result.

The third and most voluminous portion of the work now under consideration, consists of 340 pages of tables, comprising the observations made at the Toronto Observatory, on the monthly term periods agreed upon in Europe, and taken at short intervals at mean Göttingen time, Toronto being 5h. 57m. 12s. 5., or nearly six hours west of the latter place. To show how very numerous and minute these observations were, it will be only necessary to state, that in 1840 the declination of the magnet was noticed throughout the 24 hours every five minutes, its horizontal and vertical forces every ten minutes; and that hourly observations were taken of the barometer, the dry and wet thermometer, the direction and force of the wind, and the general state of the weather. At the end of the year there are reductions of the observations of the declination and horizontal intensity by curved lines, with the corresponding curves as far as obtained from Boston, Philadelphia, and Praguer Breslau, with the mean diurnal oscillations at Toronto.

The meteorological tables consist of the two hourly observations on every day of the year, except Sundays, of the barometric pressure, the standard and wet ther-

mometers, the humidity of the air, and tension of the atmospheric vapour, and a meteorological journal of six-hourly observations of the dew point, the direction and force of the wind, the weather and its phenomena, the maximum and minimum of the thermometer, the solar and terrestrial radiation, and the quantity of rain. These observations, except those in the meteorological journal, were made hourly after July, 1842.

In 1841, these observations were still further augmented by two-hourly observations on every day of the year, except Sundays, augmented to hourly observations after July, 1842, of the declination of the magnet, and of the horizontal and vertical forces, with the temperatures of the bifilar and vertical force magnets.

Attached to the larger volume, of which we have thus given a review commensurate with our space, but by no means with the importance of the subject, there is a smaller one, entitled "*Observations on days of unusual magnetic disturbance, made at the British Colonial Magnetic Observatory, under the departments of the Ordnance and Admiralty, and published under the superintendence of Lieut.-Colonel Sabine,*" the scientific editor of the preceding. This publication has been made in advance of the receipt of the observations from all the parts in which the experiments are being conducted; and it is done in the hope that their early publication, and their "comparison with simultaneous observations in other parts of the globe, may lead to the suggestion of more specific points of inquiry, than are at present apprehended, and possibly to the substitution of improved instruments and modes of observation." The four Colonial Observatories at which these experiments are progressing, are those at St. Helena, Toronto, Van Dieman's Land, and the Cape of Good Hope. But the observations recorded have principally been made at Van Dieman's Land and Toronto, two stations situated in different magnetic hemispheres, and nearly at opposite extremities of a diameter of the globe, in both of which the magnetic phenomena, whether of declination, horizontal and vertical force, or general disturbance, present a remarkable degree of uniformity.

Diurnal Oscillation. The first general result obtained is, that the regular diurnal oscillation does not consist in a simple movement from one extremity of the range to the other, and back, as Arago supposes for instance, but in an alternate progression and retrogression. Commencing at 2 P.M., the movement is continuous towards the East until 10 P.M., when the bar returns towards the West, and reaches at 2 A.M., a second Westerly limit. A second progression towards the East then commences, and continues until 8 A.M., being more decided in the summer than in the winter months, both in its amount, and in the precise hour at