

these last operations, the Earl of Rosse took the most active part, himself ordering the workmen, and constantly superintending their labours. After many years of toil, frequent disappointments, and the spending as much money as would have purchased a fine estate, he achieved a perfect success. He made, likewise another reflecting telescope, with a mirror 3 ft in diameter; but it was by means of the great six-foot telescope that he was enabled to carry out a series of observations of the remotest star-clusters, or nebulae, reported by him to the Royal Society in 1861, and published in their *Philosophical Transactions*. The general reader will find, however, in Mr G. F. Chamber's compendious volume of "Descriptive Astronomy" (recently published by Macmillan and Co for the delegates of the Clarendon Press in Oxford University) an account of the most important of these observations, beautifully illustrated by a set of wood engravings which show the appearance of each nebular group as viewed by Lord Rosse, compared with the imperfect view of it previously obtained by Sir John Herschel. The difference is particularly striking in the case of the so-called "crab" nebula in the constellation Taurus, and in that of the "dumb-bell" nebula in Vulpecula; while the discovery of the spiral or whirlpool nebulae is acknowledged to belong to Lord Rosse. It is probable that these observations may lead to the explanation of some of the most interesting questions relating to the constitution of the starry heavens. Lord Rosse was a man of whom the Irish Peerage and the whole nation in the United Kingdom may well be proud: his example has done honour to his native country and to the present age, as well as to his rank and station. He is succeeded by his eldest son, hitherto known as Lord Oxmantown, who was born in 1840.—*Illustrated London News*.

METEOROLOGY.

—Abstract of Meteorological observations.—From the Records of the Montreal Observatory, lat 45° 31 North-Long.; 4h 45m. 11 sec West of Greenwich, and 182 feet above mean sea level. By CHARLES SMALLWOOD, M.D., LL. D., D.C.L.

DAYS.	Barometer corrected at 32°			Temperature of the Air.			Direction of Wind			Miles in 24 hours
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	
1	30.00	29.99	29.93	-0.9	10.0	16.4	W	W	W	279.20a
2	29.747	.674	.550	20.6	26.7	20.2	N S W	W S W	W S W	219.10a
3	.562	.476	.700	22.4	32.6	31.7	W	W S W	W S W	110.00
4	.551	.437	.389	-2.0	10.9	41.2	W	W	W	97.90a
5	.400	.497	.601	8.4	30.7	9.4	N E	N E	N E	101.04
6	.601	101	28.710	9.2	24.2	31.7	S E	S E	W	66.10b
7	.161	.279	29.432	13.4	23.4	9.7	W	W	W	290.17
8	.651	.696	.776	-8.2	4.7	-6.6	N N W	N N E	N E	126.24
9	.831	.832	.759	-12.5	7.0	-2.1	W N W	W by N	W	246.24c
10	.311	.500	.552	-2.3	6.4	5.1	N E	N E	W	206.12d
11	.579	.714	.767	0.0	7.4	-5.6	W	W	N E	97.24
12	.951	.952	.949	-13.8	-5.0	-12.0	N E	N E	N E	191.20
13	.976	.999	30.021	-13.9	7.7	-4.6	N N E	N E	N N W	98.20
14	30.000	30.000	29.999	-6.5	5.5	-5.0	N E	N E	N E	214.12
15	29.820	29.714	.649	-5.1	8.2	5.8	N E	N E	N E	21.10
16	.448	.355	.399	9.9	17.8	13.4	N E	N E	N E	99.24
17	.325	.311	.350	7.3	16.9	18.4	W	W	W	82.10e
18	.561	.744	.900	4.2	17.3	0.0	W	W	W	97.24
19	30.101	30.203	30.290	-10.1	7.3	-0.7	W	W	W	85.29
20	29.900	29.643	29.650	1.7	13.7	16.7	N E	S W	S W	91.11f
21	30.020	30.161	30.101	17.3	32.6	19.3	W	W	W	129.10
22	29.500	29.247	29.030	26.4	33.6	34.1	S	S	S	101.00g
23	.075	.437	.847	20.7	21.4	7.3	N N W	N E	W	327.14h
24	.860	.425	.560	4.3	15.7	22.5	S W	S W	S W	101.00j
25	.962	.624	.401	6.9	7.4	23.3	N E	N E	N E	214.10k
26	.250	.512	.714	32.2	38.3	17.6	W	W	W	327.14
27	.452	.201	.051	17.4	36.3	34.7	N E	N E	N E	121.16l
28	.501	.620	.763	20.0	23.3	15.7	N W	N E	N E	212.00m
29	.700	.748	.851	13.3	18.9	12.7	W	W	W	124.11n
30	30.026	30.167	30.250	-3.3	6.9	-4.4	N W	W	W	107.24
31	.147	.116	.098	-4.6	20.2	9.4	W S W	W S W	W S W	101.44

RAIN IN INCHES.—g 0.176; k 0.120; l 0.381; m 0.026  
 SNOW IN INCHES.—a 1 napp.; b 5.74; c 0.70; d 0.17; e 0.10; f 4.10; g 4.86; h 0.94; j 2.20; k 1.75; l 1.70; m 2.80.

REMARKS.

The mean temperature of the month was 10° 99 degrees.  
 The lowest temperature on the 12th day was -14° 5 degrees below zero; the lowest temperature on the 13th day was -15° 1 degrees below zero. This was the lowest reading of the month, and the thermometer read only 7 times above .32° degrees during the month.  
 The mean temperature at Montreal for the month of December for a series of years has been recorded as 19° 10 degrees.  
 The same at St. Martin, Isle Jesus (9 miles due west of Montreal), for a series of years, was 17° 4C degrees.  
 The mean temperature of December, 1866, at Montreal was 24° 12 de-

grees, showing that the mean temperature of last December (1867) was lower by 13° 13 degrees than December 1866, and 8° 11 degrees lower than the mean temperature of December for a series of years at St. Martin, Isle Jesus; but at St. Martin, Isle Jesus, December, 1859, showed a lower temperature by 2° 06 degrees than December, 1867, at Montreal, but this was caused by three "cold terms" which occurred during that month, when the thermometers read respectively, -13° 9, -16° 9, and -32° 6 degrees below zero as the minimum temperature.

*The Meteoric Display.*—Dr. Smallwood in a letter to the Montreal Gazette writes that although the Meteoric Shower was not visible at Montreal, owing to the cloudy state of the sky, yet science has achieved a great victory in predicting within a very short space of calculation, the time of its appearance in places more highly favoured than ourselves with a clear sky. Yet he thinks there were more physical phenomena observed here which he believes should be placed on record. He says that:

The Barometer on the 11th day at 9 p. m. (time of full moon) attained an altitude of 29.649 inches with a wind from the W.S.W., and a temperature of 42° 4 degrees. A small and inappreciable amount of snow fell during the afternoon of that day, and the day closed with a cloudy sky; during the night the wind veered to N. E. The mean temperature of the 12th day was 37° 4 degrees and the day was cloudy, with a falling barometer; on the 13th day, at 7 a. m., it stood at 29.290 inches, wind W. by N. sky clear, and the mean temperature of the day was 29° 8 degrees. At 9 p. m. the Barometer was at 29.446 inches.

From this time although the wind was W. by N. (which is generally accompanied by a rising column,) a very sudden depression occurred; at mid-night the indications were 29.224 inches and at 4 a. m. 14th [the supposed time of the appearance of the greatest number of meteors] the barometer was 29.187 inches, wind still W. by N.; the thermometer 24° 2 degrees. A little after midnight heavy cumulus clouds formed and passed from the N. W., until the whole of the heavens were covered which increased in density, so as to obscure in some measure the moon's light [which was three days after full] and rendered invisible any meteors that might have crossed the earth's orbit. The cloudy state of the sky mostly continued, and culminated in a snow shower which lasted 8 hours 10 minutes. The barometer at 9 p. m. showed a reading of 29.451 inches; thermometer 19° 7 degrees, wind W. S. W., and a clear sky.

The observations made at the present time under more favourable circumstances than our own, will tend to complete in a satisfactory manner, the determination of the "radiant point." Hitherto, observers have placed it midway between the stars Zeta and Epsilon in the constellation Leo. Little doubt does exist that the orbit is circular, or nearly so, or at least, that the descending node of the orbit coincides very nearly with its aphelion or perihelion distance. No doubt at present exists respecting the planetary motion of meteors. This point is already established; all that remains in doubt is the exact form and position of the orbit described by the meteor flight around the Sun. The estimated thickness of this meteor is 60,000 miles, and the mean distance of the meteors from the Sun is somewhat less than the earth's mean distance—These are approximate elements, and confirmatory observations are yet wanting, which the late observations may supply.

MISCELLANEOUS INTELLIGENCE.

—The Artesian well in Louisville is now being enlarged to six inches in diameter and 2,200 feet in depth, which will make it the largest in the world.

—An old affidavit made by George Peabody in 1814, has been hunted up at Newburyport in which the now princely millionaire swore that he only possessed \$200 worth of taxable property.

—A man in Providence, R. I. claims to own the oldest book ever printed in America. It bears the imprint "Doctrina christiana, Mexico, 1544."

—The meteors fell in such profusion in Leavenworth on November 14, that the deck hands on board the steamer Hensley became frightened, and, falling upon their knees, called upon God for mercy, satisfied, as they were, that the day of judgment was at hand.

*A new use for paper.*—A new process has been discovered, by which paper can, by chemical and mechanical influences, be rendered as hard as hickory wood, and may be manufactured into a variety of articles hitherto made of wood, tin, copper, and iron. The substance produced is a non-conductor of heat, impervious to the action of acids, and not liable to be injured by cold or heat. It can bear a heat of three hundred Fahrenheit without injury. When the preparation is soft it is shaped in moulds, and made into water-pails, wash-basins, pitches, &c.

When further improvements are made articles formed of paper will come into competition with crockery and china. The White House and the Departments in Washington have been already supplied with sets of paper water-pails, ice-coolers and spittoons. A factory at Greenpoint, L. I. is now engaged in developing the process, which of course is a secret.