

The mean temperature of the year 1857 was $42^{\circ} 73$, being $1^{\circ} 34$ below the average of 15 years, but $0^{\circ} 57$ above that of the preceding year. The mean temperatures of the several months were in seven instances below and in five above the averages for the respective months, the average depression to the average elevation being moreover in the ratio of 4 to 2.5. January was the coldest, January and February was the warmest February on record, and the thermic deviation from their respective averages but in contrary directions, was so great as to occasion an inversion in the difference between their temperature; for whereas February is on the average $0^{\circ} 24$ colder than January it was in this instance by $5^{\circ} 78$ the warmer of the two.

Another example somewhat similar but not amounting to an inversion occurred at the close of the year. November, which, on the average is more than 9° warmer than December was but $1^{\circ} 7$ warmer in 1857. January was further remarkable for exhibiting the lowest absolute temperature $-29^{\circ} 1$ that ever occurred in January, and February was also remarkable for the high temperature $52^{\circ} 4$ that ever occurred in February. The minimum of November $-3^{\circ} 5$ was more than 10° lower than any temperature that occurred before in that month. January was moreover not only the coldest January on record and the coldest month of 1857, but it was absolutely the coldest month ever recorded. The highest absolute temperature was $86^{\circ} 6$ in August, and the lowest $-20 1$ in January.

There were 71 instances in which the temperature at the hour of observation was depressed 20° below the normal for that hour, 17 instances only when there was an equal deviation in excess.

BAROMETER.—The highest reading of the barometer was $30 361$ inches, and the lowest occurred on 10th February, and the lowest $28 152$ inches which was the lowest ever recorded, occurred at $10 4$ a. m. on 16th November. There were 43 instances in which the reading of the barometer exceeded the average, and 54 when it fell short of the average to the extent of half an inch. The greatest deviation in excess was $0 748$ at midnight on 10th February, and the greatest deviation in defect was $1 110$ at 8 a. m. 19th November.

The greatest barometric range within 24 hours with a rising column was $9 18$ on 8th February, and the greatest with a falling column was $7 15$ on 26th February.

HUMIDITY.—The mean humidity of the year was 79, the greatest monthly humidity being in January, and the least in April and May. There were 15 instances of complete saturation, of which 7 occurred in January, 4 in February, 2 in March, and 2 in December. The days of the greatest humidity were 22nd January and 5th February, on both of which the mean humidity of the day amounted to 98. The least humidity at the time of observation was 31 on the 4th March, and the two driest days were 30th March with a mean humidity $45 1$, and 21st May with a mean humidity 55 .

CLOUDS.—The extent of sky clouded was on the average of the year three-fifths of the whole, and for nine months the sky was on the average more than half overcast. December was the most cloudy month, and September the month most free from clouds. The most cloudy hours on the average were from 2 to 4 p. m., and the hour most free from clouds was 10 p. m.

WIND.—The resultant direction of the wind it will be seen from the table was rather more from the north than usual, and both the resultant velocity and the mean velocity were less than in the preceding year. The most windy day was 24th October when the velocity was $27 08$ miles per hour. The most windy hour absolutely was 6 a. m. to 7 a. m. on 10th February, when the velocity was $44 6$ miles per hour. The most windy hour on the average of the year was from noon to 1 p. m. with an average velocity of $10 63$ miles per hour, and the least windy hour from 5 to 6 a. m. with an average velocity of $6 36$ miles per hour.

RAIN AND SNOW.—The depth of rain, $33 205$ inches, was considerably in excess of that of late years, but the total depth of rain and melted snow, though amounting to $40 553$ inches fell short by about one inch of that of 1856, when the quantity of snow was extraordinarily great. August was the most rainy month, considered, with reference to the quantity of rain, and June with reference to the number of rainy days. January, both as regards the quantity of rain and the number of rainy days was the least rainy month, but if snow be reckoned as well as rain January will rank next to August with respect to the amount, and next to June with respect to the number of days of precipitation. The most rainy day was 14th February, when the depth amounted to $1 620$ inches, and the heaviest fall of snow was on 16th January with a depth of $5 5$ inches.

Rain fell on 134 days and snow on 79 days, including some of the days already enumerated as days of rain; and there were but 171 days when neither rain or snow fell, a number of fair days, less by 27, than those of either of the three preceding years. The rain occupied 613.3 hours, and the snow 322.5 hours in its fall, giving a total of 935.8 hours or upwards of 33 days when rain or snow was actually falling. The hour when rain was most prevalent throughout the year was from 3 p. m. to 4 p. m., similarly the most snowy hour was from 5 p. m. to 6 p. m., and the hour most subject to rain or snow was from 2 p. m. to 3 p. m. The hours most free from rain and snow considered separately were from 5 a. m. to 6 a. m. for rain, and 1 a. m. to 2 a. m. for snow; and the hour most free from rain or snow collectively was from midnight to 1 a. m.

THUNDERSTORMS.—Of the 23 thunderstorms enumerated in the table there were but few remarkable for violence. There were besides 19 days when lightning occurred without thunder or hail, 3 days of thunder without lightning or hail, and 6 days when hail fell unaccompanied by either thunder or lightning.

AURORAS.—The nights favorable for observing auroras and the number of auroras observed were both considerably less than in the preceding three years, but the auroras that were observed on the nights of 7th May and 17th November were far more brilliant than any recorded during the same period. From the 10th to the 13th August the periodic meteors were numerous, and some of considerable brilliancy; in November there was a remarkable absence of these bodies.

TORONTO BAY was clear of ice on the 17th April. During the severe weather in November it was frozen over, but on the return of the mild weather in December the ice again disappeared.