

25th. Snow on 15th, 16th, 19th, 20th, 27th. Rain on 3rd, 5th, 12th, 14th, 22nd, 23rd, 24th, 25th, 26th, 29th. Corrected results for OCTOBER are transmitted by the observer, which will be given next month.

**GOBERICH.**—On 4th, storm of wind; rainbow NE. Indian Summer haze on 20th, 21st, 22nd, 23rd. Snow on 11th, 12th, 29th. Rain on 3rd, 19th, 26th, 28th, 29th. Navigation still open at close of the month—weather unusually good.

**HAMILTON.**—On 3rd at night and following morning the wind in gales, the highest during the year, marked 8. Weather during month very fine, drought still continued. The real Indian summer began on 19th and continued till evening of 29th, when the change was sudden and extreme; it froze hard that night, some snow fell and at once the rigors of winter set in. The mean temperature of the 29th was 38° 5, and of 30th 16° 5; at same time barometer rose from 29.208 to 29.604. 13th, watched for meteoric shower: till midnight the sky was overcast with cumuli, and a few of them flitted across after that hour; appearance of constellation of Leo carefully observed: at 1.55 a.m. (14th) two meteors fell towards N, at 2 a.m., one towards E; at 2.2 two fell SE; at 2.11 one E; at 2.15 one NE; at 2.18 one NE; at 2.22 one NE; at 2.35 one very bright, rocket-like, NE; at 2.36 one NE very near H; at 3.10 one NW, &c., &c.; at 4 a.m. eight fell at once, and at 4.15 eight more; the shower continued thus till 5 a.m. when the last observed fell. The observer remarks that while all the meteors seen at this station made their appearance beyond the limits usually assigned to the constellation Leo, all seemed to start from a common centre. Storms of wind 1st, 2nd, 5th, 8th, 12th, 16th, 25th, 29th, 30th. Fogs 8th, 25th. Snow on 4th, 6th, 17th, 30th. Rain 3rd, 4th, 8th, 9th, 29th.

**PEMBROKE.**—On 2nd, heavy storm of wind. 5th, lightning in evening. 22nd, at night, vivid lightning with rain and heavy thunder. 29th, at night, fearful storm of wind. Wind storms also on 2nd, 4th, 5th, 13th, 18th, 26th, 30th. Fogs on 22nd, 23rd, 24th, 25th. Snow on 3rd, 5th, 15th, 16th, 17th, 20th, 26th, 29th, 30th. Rain on 1st, 2nd, 3rd, 4th, 9th, 21st, 22nd, 23rd, 24th, 27th. Steamboat's last trip on lake on 30th. Water unusually scarce through the country, being very low in streams and wells. Sleighting not very good, but passable during latter part of the month.

**PETERBOROUGH.**—On 5th, from 7.25 p.m. till 8.50 p.m. occasional flurries of snow with very high winds, force 8; at 7.20 and 8.45 p.m. bright flashes of silent lightning at SE from heavy clouds which had passed along to the southward. 13th and 14th, sky overcast both nights, so that no observation could be made as to predicted meteoric shower. 14th, blew heavily during afternoon, beginning at 1 p.m. 19th, many of the large lakes frozen over. 22nd and 23rd, Indian Summer. Storms of wind 1st, 2nd, 4th, 5th, 14th, 29th. Fogs on 22nd, 23rd, 25th. Snow on 4th, 5th, 6th, 15th, 16th, 20th, 29th. Rain on 3rd, 4th, 9th, 23rd, 24th, 25th, 29th. Great scarcity of water all over the country; wells generally dry, owing to the failure of ordinary fall rains. First half of month unusually mild; the whole month unusually cloudy.

**SIMCOE.**—On 3rd, very high wind from SW at night, doing some damage to fences, &c. Night of 13th and morning of 14th, the cloudiness of the sky rendered a good observation of meteors impossible, but from 2 a.m. till 2.30 twenty-six were seen, starting from a point in the constellation Leo and taking a north-westerly direction, disappearing at a point about 30° from the NW horizon; they all had apparently the same point of departure, took the same direction, and disappeared at the same, or nearly the same spot; three or four were very brilliant, and one especially illuminated the ground under it, making a bright yellow path,—this seemed much lower than the others; at 2.30 the sky became clouded and no more were seen. Snow on 4th, 6th, 12th, 14th, 16th. Rain on 8th, 24th, 25th, 26th, 27th, 28th, 29th. Weather this month very beautiful, and Indian Summer strongly marked. A number of autumn flowers in bloom in the gardens till nearly the end of the month; *leontodon* quite plentiful up to the 25th. Extremely dry; many farmers in some of the townships have to drive their stock three and four miles to water; the marshes dry at a season when they are ordinarily full.

**STRATFORD.**—3rd, lightning thunder and rain. 4th, snow,—first of season. 13th and 14th, meteoric shower not visible at this station on account of the cloudy state of the sky. 18th, mill pond frozen, first time this season; free from ice again on 24th. Indian Summer 20th, 21st, 22nd, 23rd, 24th, 29th, storm of wind and snow began at 2.15 p.m. and continued till 6 p.m. of 30th. Storms of wind also on 1st, 2nd, 3rd, 8th, 10th, 15th, 16th. Fogs on 21st, 22nd, 23rd, 24th. Snow on 4th, 5th, 6th, 11th, 12th, 17th, 18th, 29th, 30th. Rain on 3rd, 9th, 22nd, 24th, 25th, 29th.

**WINDSOR.**—On 3rd, at night, severest wind storm of the month; wind reached a velocity of 8 or 9; it fell towards morning to 2, but blew in occasional gusts on 4th, and rose again on 5th, to 6th and 7th. On 4th, at 10 p.m. meteor fell from Z to N; and on 9th at 8 p.m. from Z to W. 6th, lunar halo about 8 p.m. 10th, larkspur, mignonette, verbenas, and a number of other flowers still in bloom in open ground. 13th, prismatic lunar halo. The observer watched for the meteoric shower, but the sky was very unfavourable and no meteors were seen till about 4 a.m. (14th) when about sixty were observed during one hour: at Ann Arbour, about 40 miles distant, some thousands were observed during the same space of time. Storms of wind on 1st, 5th, 8th, 9th, 14th, 15th, 16th, 25th. Fogs on 21st, 22nd, 23rd. Snow on 30th. Rain on 3rd, 8th, 24th, 25th, 27th, 29th. Month remarkably fine and dry; somewhat windy, but on the whole very pleasant.

**ST. JOHN, N. B.**—Further reports have been received from our correspondent at this point, of which an abstract will be published in our next number.

MAGNETIC OBSERVATORY, TORONTO, 21st Jan., 1868.

(To the Editor of the Ontario Journal of Education.)

SIR,—In the Number for December, 1867, of your Journal, I notice an article extracted from the Toronto *Daily Telegraph*, relative to the meteors of November 14.

With reference to the extract I wish to remark, that although founded on a notice sent by me to some of the city papers, it contains statements made without my knowledge or concurrence, and that I neither expressed nor entertained the opinions which it attributed to me relative to the probability of the continuance of the display on the following night.

I am, Sir, Your obedient servant,  
G. T. KINGSTON.

### 3. SHOOTING STARS AT HAMILTON.

At the Meteorological Station, Hamilton, Mr. Macallum was on the look out. The night was fine though cloudy, but, it was not until fifty-five minutes past one o'clock on Thursday Morning that two meteors of considerable size and brilliancy were observed to fall towards the northern horizon. These were naturally regarded by the patient observer as the advanced guard of the meteoric army, and he waited anxiously for some signs of the approach of the main body. At two o'clock one fell in the east, at two minutes past 2 two fell in the southeast; at eleven minutes past 2 one fell to the east; at a quarter past 2 one fell to the northeast; at eighteen minutes past 2 one fell to the northeast; at twenty-two minutes past 2 one fell in the same direction, and one again at thirty-five minutes past two. This one was exceedingly bright with a long train; it finally exploded in a shower of fire not unlike a rocket. At thirty-six minutes past 2 one fell to the northeast near the horizon. There was then a cessation and no more meteors were seen until ten minutes past three, when one fell in the northwest. At exactly four o'clock eight rockets of great brilliancy and beauty fell at the same moment, and in a quarter of an hour afterwards eight more fell. In all 125 shooting stars were seen by the observer at this Meteorological Station.

This was comparatively a very meagre show. There is a wide difference between 125 stars within three hours, and 400 per minute, which was about the number that fell in the year 1833. Still when the cloudy condition of the atmosphere is taken into account, even this small display probably indicates that astronomers were not far out of the way in their predictions, the outer limits of the meteoric group having most likely been entered by the earth early on the morning of the 14th, the spot where they congregate most thickly having in all likelihood been passed in the daytime yesterday.

In front of the group of meteors is a large comet, which in the month of January, 1866, crossed that point of space which the earth reaches on the 14th of each November. The swarm of meteors follows the comet as bees follow their queen. The meteoric stream is 40,000 miles in thickness, and travels at the respectable rate of 1,600 miles per minute. There does not appear much reason to fear any danger from the comet at present, as although the exact length of the meteoric train is not known, it is computed by astronomers that we are at least 600 millions of miles from the comet, although a few millions of miles nearer than we were in 1833.

The most generally received opinion as to the nature of shooting stars is, that there are zones or clusters of such bodies travelling round the sun in orbits, which occasionally intersect the earth's path. When, in the earth's course round the sun, it encounters any of the bodies forming such clusters, they are ignited by friction with the upper layers of the earth's atmosphere, and become visible as shooting stars or meteors, or may occasionally fall as aerolites. Aerolites generally are about the size of a man's fist, but occasionally, they have been found much larger. In the British Museum there is one weighing not less than 3½ tons; and Marshal Bazaine has taken one from Mexico to France which weighs three-quarters of a ton. The largest meteorite known lies on the plain of Tucuman in South America, and is estimated at 14 or 15 tons weight, and is from seven to eight feet in length. The Chinese give the most ancient records of stone-falls, their accounts of shooting-stars extending to 687 B. C. According to a mongolian tradition, a black, rocky mass, 40 feet high, fell from heaven upon a plain in Western China. The falling of stones and mineral masses from the sky was not believed without question, until 1803, a fiery globe was seen to burst into fragments nearly over the town of L'Argyle, in Normandy, thousands of stones being scattered over an elliptical area seven or eight miles long and about four miles broad; the stones were hot and smoking, and the heaviest weighed about 17½ pounds.

The following account of the great shower of stars in 1833 is given by Professor Loomis. He states that the number of stars visible at a single station could not have been less than 200,000, and goes on to say: