

is extended into Lake Michigan, a distance of 600 feet, through which water is supplied to the pump well, from which it is elevated, by means of two steam engines (a condensing and a duplicate non-condensing), into a reservoir at a height of 8 feet. For the want of elevated ground, they are compelled to make use of a tower and tank similar to the one in use at Detroit. The tank is made of boiler iron, braced across its centre with wrought-iron rods, is 60 feet diameter, 28 feet deep, and contains about 493,000 gallons. Other reservoirs of like capacity, will be constructed as required. The works are calculated to furnish a daily supply of 3,000,000 gallons, and have cost about \$100,000. The unprecedented growth of that city will probably require the immediate extension and enlargement of the works.

The Hurricane of the 18th April, 1855.

The interest excited by the brief and unconnected accounts which have been published from time to time, of the course and effects of the Hurricane of the 18th April, affords sufficient grounds for noticing at length an occurrence which, though not unfrequent in Canada, is still possessed of general and wide-spread interest. It happens very unfortunately in the present instance, that few memoranda of the time when the storm of wind and hail was at its height in different localities appear to have been preserved. The extracts from newspapers to which we have been able to refer, make specific mention of the time of the occurrence in three instances only. It is therefore quite impossible, from the data before us, to trace with accuracy the course of the storm, or to ascertain the width of the moving mass of air in different places. We may, however, obtain some idea of the diameter of the circle described by the storm in its course. Occasionally we find trees, fences, and houses exhibiting its effects over areas many miles in width, while in other places it appears to have struck the earth with extraordinary violence over a narrow belt not more than a few hundred yards broad. The fluctuations in the levels of Lakes Huron and Ontario, and Seneca Lake are evidently nothing more than "Seiches" due to sudden variations in atmospheric pressure, a necessary result of the rapid passage of an immense vertical column of air over the surface of their waters.

It is a rather singular coincidence, that on the 25th of April, 1851, a storm somewhat similar in its effects to the hurricane of the 18th April, 1855, should have traversed nearly the same ground. Two persons were then drowned at Niagara by the sudden rise of the waters of the Lakes. At page 278 of the *Canadian Journal*, Vol. II., an account of this storm may be found, and the following extract from the *Niagara Mail* of May 3rd, 1851, giving a description of the rise in the Lake, may not inappropriately be introduced here:

"About a quarter or half-past six o'clock, p. m., a thunder storm came up from the north-west, with a few flashes of lightning and a heavy shower, accompanied by a strong squall of wind for a few minutes, the weather being quite calm just before the gust, and the same after it. The fishermen who were on the beach, seeing the squall coming on, hurried to get in their lines, when suddenly there appeared rolling in upon them an immense wave from the north-west. The height of this wave could not have been less, we judge, than from six to eight feet, although it is difficult to ascertain correctly. It came rolling on the smooth Lake with great velocity, carrying all before it, and sweeping some of the fishermen into the Two Mile Pond, and dashing others of them high up against the bank, by which, as we stated, two persons were unfortunately drowned. The water came and returned three times in succession, and then settled down quite calm as it had been before this commotion."

The late storm appears to have crossed the Indian Reserve Peninsula from Lake Huron, and passing over Georgian Bay it struck the main land of Canada in the township of St. Vincent, near the village of Meaford.

At Meaford the storm commenced about 1 a. m. "The wind blew a perfect hurricane." "Hailstones of very great size fell in a con-

tinued shower for fifteen or twenty minutes." At Owen Sound, a few miles west of Meaford, the storm of wind does not appear to have been noticed. The *Owen Sound Comet* describes the rising and falling of the waters of the Bay on the 18th, and attributes the phenomenon to a storm "of which we may hear in a few days." The following extract is from the *Owen Sound Comet*:

"PHENOMENON.—Last Wednesday a very singular occurrence happened in Owen Sound Bay, such as has frequently been witnessed on former occasions, but not in so great a degree. This last freak commenced by the rising of the water to the height of say nine feet, and immediately falling down say ten feet. The bottom of the Bay was dry when the water went down to within ten or fifteen feet of the end of the wharf, and we are told by Mr. John Boyd, that a man might have waded across to the Indian Village at the time. We are also told by those who were present at the time, that at the bridge crossing on Division Street, a man might have jumped across the river. The rising and falling followed in quick succession, and so suddenly, that an observer could distinctly see the advancing and receding of the water on the shore. When the water commenced to rise it came rushing up the river like a wave about three feet high. This phenomenon is doubtless owing to a storm of which we may hear in a few days having occurred somewhere on the Georgian Bay or Lake Huron."

The course of the storm seems to have followed the south shore of Georgian Bay, from Meaford to Collingwood Harbour, sweeping round the base of the Blue Mountains, and levelling in its passage very considerable tracts of forest.

A similar occurrence very probably took place a few miles east of Collingwood Harbour some years since, as recorded by wide areas of prostrate forest trees in the valley of the Nottawasaga River.

From Collingwood the general direction of the storm appears to have been towards Toronto, along the line of the Northern Railway. Its effects were particularly noticed at Barrie, LeRoy, Richmond Hill, Davenport, Toronto, in the township of Whitley and at Oshawa; then it appears to have crossed Lake Ontario, and its outskirts reached and traversed the Line of the Rochester and Niagara Falls Railways. Its full force was probably felt at Niagara and Port Dalhousie. The hours at which the storm reached different localities are given below as far as we have been able to ascertain them:—Meaford (Georgian Bay), 4 a. m.; Toronto, 6 a. m.; Niagara, 6½ a. m. We subjoin a number of extracts illustrating the effects of the storm and the Lake phenomena accompanying it:—

1. *Meaford, Township of St. Vincent.*—Wind blew a hurricane.—Hailstones of large size fell. Buildings unroofed.

2. *Lake Shore, from Meaford to Collingwood.*—A very considerable tract of the forest leveled.

3. *Collingwood.*—Houses unroofed—heavy timbers moved to some distance; fishermen's boats carried some distance into the woods; ice in Harbour broken up and blown out. Waters in the Harbour rising and falling continuously.

4. *Davenport (N. R. R.)*—Fences blown down.

5. *Toronto, 17th April, 8 p. m.*—Almost incessant sheet and forked lightning in W. and N. W., illuminating some dense cum. strat, and which would otherwise have been invisible. Zenith clear.

10 p. m.—Constant sheet lightning round horizon.

Midnight.—Continued sheet lightning and distant thunder.

18th April.—During the greater part of the night there was a continued display of vivid lightning and a rumbling of distant thunder.

5-30 a. m.—Thunderstorm rising in N. W., the sky very dark and peculiarly threatening; very dense cumulo stratus rolling over with a rushing noise; the wind for a few minutes (5-50 to 6-05 a. m.) was very violent, scattering the leaves and dust about in every direction. The rain drops which fell during the storm were large, and a few hailstones fell, which were generally ¼ of an inch in diameter.

6-30 a. m.—The storm was over, but the clouds were still rolling about in a very peculiar manner. Sultry morning.

8-00 a. m.—Detached clouds passing in almost opposite directions: the upper strata from S. W., the under rapidly from East.

The direction of the wind which was E. b. N. during the night, suddenly backed round the N. to N. N. W. at 6 a. m., but it returned to its original direction at 6.20 a. m. The velocity of the hour was about 130 miles, but from 5-55 to 6-05 it must have equalled the rate of 38 miles per hour.—*Extract from Met. Reg. Pro. Ob.*