

tables from dying. Nights generally cool, sometimes quite cold. Daily ranges in temperature sometimes large. Atmosphere during the month very hazy and smoky. Grasshoppers very destructive to vegetables.

BELLEVILLE.—Lightning and thunder with rain on 4th, 6th, 15th, 16th, 20th. Wind storm, 8th. Rain, 6th, 15th, 16th, 20th, 26th, 27th, 29th, 30th. This month was characterized by a high temperature and by absence of rain. Fires raged especially in northern townships, and the cattle suffered from want of grass and water.

GODERICH.—Lightning on the 6th and 15th. Lightning and thunder with rain, 4th, 15th. Wind storms, 11th, 12th, 16th, 28th, 29th, 30th. Fogs, 24th, 26th. Rain, 4th, 11th, 15th, 19th, 26th, 28th—31st. A considerable number of shooting stars, some very brilliant, seen from 7th to 14th.

STRATFORD.—Lightning on 4th, and 8th. Lightning and thunder with rain, 15th. Frost (reported), 19th. Wind storms, 15th, 29th, 30th. Fogs, 10th, 16th. Rain, 11th, 15th, 19th, 26th—30th. Excess of mean monthly temperature over average of ten years = $+0^{\circ}.81$.

HAMILTON.—Harvest pears ripe on 5th. Lightning and thunder with rain, 8th. Harvest apples ripe, 27th. Wind storm, 30th. Fog, 26th. Rain, 4th, 8th, 11th, 20th, 26th—30th. Ordinary meteor, on 17th, at 9 p.m., 45° high, fell South-west. The drought has this season, been exceedingly great, and of long continuance. Ordinary sources of water have all failed; the grass in the pastures has been dried up, so as to be almost useless for cattle; the ground has been dry to the depth of about four feet (rain on the 29th had penetrated one foot). Vegetation has languished to a very great extent. The following is a comparative statement of the amount of rain from 1st April to 19th August, at this station for the past six years:

	1866.	1867.	1868.	1869.	1870.	1871.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
August 1st to 19th.	3.3290	0.6238	0.8122	1.0095	1.4768	0.6620
April 1st to August 19th	18.1743	9.6227	10.5419	17.4493	12.9454	9.1841

SIMCOE.—Lightning and thunder with rain, 20th, 24th, 29th. Rain, 24th, 26th—31st.

WINDSOR.—Lightning on 10th, 14th, 15th. Rainbow on 2nd. Lunar halo, 24th, 25th, 29th. Meteors, as follows: on 3rd, one in S. W., towards H; 6th, one S. towards S. W.; 8th, one W. towards H; 10th, one E. towards S.; one N. towards W.; one S. towards W.; 11th, one E. towards S.; 18th, two W. towards S. Wind storms, 3rd, 20th, 25th, 29th. Fogs, 9th, 10th, 22nd, 23rd, 24th. Rain, 2nd, 4th, 26th, 28th, 29th. Month characterized by the great height ($98^{\circ}.7$) attained by the thermometer, by the extreme drought that prevailed, and by a total absence of thunder storms.

III. Papers on Scientific Subjects.

1. THE DAILY WEATHER REPORTS.

The meteorological reports from the office of the chief signal department, Washington, are now regularly received, and read with great interest; and when their importance is more generally known, our mariners of the lakes will regulate their movements by the "Probabilities" telegraphed from Washington. In order, however, to make these reports available to that class, they must be placed before them otherwise than through the columns of the daily press, which cannot reach them in time. In England, Admiral Fitzroy organized a system of drum signals, in connection with his observatory, at every port in the United Kingdom, and though the signals were at first laughed at, it was not very long before the captains of ships trusted completely in them and were not deceived. The consequence is the saving of an immense amount of shipping and many lives annually. The Washington Bureau has already established a great reputation for accuracy in its surmises of the coming weather, and it is only requisite to make them more widely known to secure their appreciation. We would be glad to see arrangements entered into with the Washington authorities by our Government, by which storm signals could be erected at all our principal lake ports. The saving of property in a short time would more than repay the first expenses. The ocean tide and the storms are under fixed rules, and though they have long baffled enquiry, Science at length has obtained the clue to their movements and can tell all their courses with considerable accuracy. —*Telegraph.*

The signal-office at Washington now has such telegraph facilities that at any hour, day or night, should reports of heavy storms be received, the regions over which the storm is likely to extend can be warned some hours in advance, the headquarters being in direct communication with all the principal cities of the country.

2. THE LAW OF STORMS.

In the fourth meteorological report by Prof. J. P. Espy, of Washington, D. C., we find the following instructive generalizations:—

1. The rain and snow storms, and even the moderate rains and snows, travel from the west toward the east in the United States, during the months of November, December, January, February and March, which are the only months to which these generalizations apply.

2. The storms are accompanied with a depression of the barometer near the central line of the storm, and a rise of the barometer in the front and rear.

3. This central line of minimum pressure is generally of great length from north to south, and moves side foremost towards the east.

4. This line is sometimes nearly straight, but generally curved, and most frequently with its convex side toward the east.

5. The velocity of this line is such that it travels from the Mississippi to the Connecticut river in twenty-four hours, and from the Connecticut to St. John's, Newfoundland, in nearly the same, or about thirty-six miles an hour.

6. When the barometer falls suddenly in the western part of New England, it rises at the same time in the valley of the Mississippi, and also at St. John's, Newfoundland.

7. In great storms the wind for several hundred miles on both sides of the line of minimum pressure blows toward that line directly or obliquely.

8. The force of the wind is in proportion to the suddenness and greatness of the depression of the barometer.

9. In all great and sudden depressions of the barometer there is much rain or snow; and in all sudden great rains or snows there is a great depression of the barometer next the centre of the storm, and rise beyond its borders.

10. Many storms are of great and unknown length from north to south, reaching beyond our observation on the Gulf of Mexico and on the northern lakes, while their east and west diameter is comparatively small. These storms therefore move side foremost.

11. Most storms commence in the "far west," beyond our most western observers, but some commence in the United States.

12. When a storm commences in the United States the line of minimum pressure does not come from the "far west," but commences with the storm, and travels with it toward the eastward.

13. There is generally a lull of wind at the line of minimum pressure, and sometimes a calm.

14. When this line of minimum pressure passes an observer towards the east, the wind generally soon changes to the west, and the barometer begins to rise.

15. There is generally but little wind near the line of the maximum pressure, and on each side of that line the winds are irregular, but tend outward from that line.

16. The fluctuations of the barometer are generally greater in the northern than in the southern part of the United States.

17. The fluctuations of the barometer are generally greater in the eastern than in the western part of the United States.

18. In the northern part of the United States, the wind, generally in great storms, sets in from the north of east and terminates from the north of west.

19. In the southern parts of the United States the wind generally sets in from the south of east and terminates from the south of west.

20. During the passage of storms the wind generally changes from the eastward to the westward by south, especially in the southern parts of the United States.

21. The northern part of the storm generally travels more rapidly toward the east than the southern part.

22. During the high barometer on the day preceding the storm it is generally clear and mild in temperature, especially if very cold weather preceded.

23. The temperature generally falls suddenly on the passage of the centre of great storms, so that sometimes, when a storm is in the middle of the United States, the lowest temperature of the month will be in the West on the same day that the highest temperature is in the East.

Some of the storms, it is true, are contained entirely, for a time, within the bounds of my observers, and in that case the minimum barometer does not exhibit itself in a line of great length, extending from north to south, but it is confined to a region near the centre of the storm, and travels with that centre towards the eastward.

From these experiments it may be safely inferred, contrary to the general belief of scientific men, that vapour penetrates the air from a high to a low dew point with extreme slowness, if, indeed, it pene-