II.—This disturbance was at no time within the limits of the stations of observation, but the telegraphic reports from the northern stations show that it was central north of Minnesota, on the 5th, and that it passed almost directly east during the 6th and 7th. Light showers occurred in the lake region.

III.—The afternoon chart of the 8th, exhibited an extended barometric depression in the lower Missouri valley with general rains in Missouri and Iowa and adjoining states. The winds indicated that the centre of disturbance was near Springfield, Missouri, at this report. This storm increased in severity during the succeeding eight hours, the barometer falling below 29.60, and the bounding isobars contracting and assuming a circular form. The rainfall in the central Mississippi valley was very heavy on the 8th. During the 9th, this storm passed over the southern portion of Michigan, over lake Huron, and north of the lower lake region, where it was central at the 11 p. m., observation of that day. Signals were ordered in advance at stations on Lakes Michigan and Huron, and at Detroit, but were only justified at Milwaukee and Detroit. After reaching the upper Saint Lawrence valley, this area moved eastward to the New England coast, where it disappeared on the afternoon of the 10th.

IV.—When the preceding disturbance moved northeastward from Missouri the pressure remained below the normal in the west Gulf states, and the cool winds from the north following storm number iii., resulted in the development of a second storm in the southwest on the following day. Very heavy rains occurred in the central Mississippi valley on the 10th, when this area was central in Missouri. The barometer was low in all districts at the afternoon report of the 10th, attended by general rains in the Gulf states and thence northward over the lake region, the centre of disturbance being in central Illinois. This storm continued its northeasterly course until it finally disappeared to the northeast of the Canadian stations, increasing greatly in energy as it passed over the lake region. When central near lake Huron the pressure at the centre was below 29.30, and dangerous winds were reported from stations on Lake Erie on the 11th. During the night of the 11th this storm inclined to the eastward, the centre passing to the east of the Saint Lawrence river to northern New England, after which it moved to the northeast and disappeared, the barometer being unusually low at the maritime stations on the 12th.

V.—This depression was first observed on the northern slope of the Rocky mountains on the 17th, but the reports indicate that it developed over the middle or southern plateau during the 15th and 16th. Moving eastward to the Missouri valley, where it was central near Omaha, Nebraska, at the afternoon report of the 17th, the course changed to the northeast, and during the night it passed over western Iowa and southern Minnesota, causing violent local storms and very heavy rains generally throughout the northwest and upper lake region. The centre passed over Lake Superior, near Marquette, Michigan, on the morning of the 18th, when the barometer fell to 29.50, and the winds became dangerous after shifting to the northwest. After passing to the north of the lake region, this storm remained almost stationary during the 19th and 20th, and finally disappeared before reaching the Atlantic coast, by a gradual increase of pressure in the northern districts.

Low area vi. developed in the middle plateau region on the 19th, but at no time was it well defined. The barometer fell to 29.70 at Denver, Colorado, on the 19th, and to 29.67 at North Platte, Nebraska, at the morning report of the 20th, accompanied by thunder storms and rain in the Missouri valley and Kansas. These storms advanced over Iowa, Missouri, and Illinois, during the 20th, when the centre of disturbance was in Missouri. The rains caused by this slight depression were very heavy in the central Mississippi and lower Ohio valleys, but it lost energy and was last observed in the lower Ohio valley, where it disappeared on the morning of the 21st.

VII.—This is the most marked depression of the month, owing to its unusual retardation after the centre reached the lower lake region. It apparently developed near Lake Superior on the afternoon of the 23d and moved southeastward to the southern part of Lake Michigan, and thence to the northeast, the centre being immediately north of Lake Huron at 7 a. m. of the 24th. The central depression extended to the southward, covering the Ohio valley, and the barometric trough was thus located between an advancing high area in the northwest and a second high area which approached the Atlantic coast from the northeast. This distribution of pressure continued until the 26th, the area of low barometer becoming more contracted and remaining almost stationary near Lake Erie until the area of high pressure to the east had advanced over the Atlantic and the barometer fell at the Canadian stations, when the pressure rose slowly in the lake region.

VIII.—This was a secondary disturbance which formed over the south Atlantic coast immediately after the disappearance of low area vii. Its development was probably due to the southerly movement of the high area referred to in description of low area vii. This depression moved northward along the middle Atlantic coast, causing violent local storms near the coast. The following maximum wind-velocities occurred at the coast stations during this storm: Cape May, New Jersey, 50, nw.; Delaware Breakwater, Delaware, 48, nw.; Sandy Hook, New Jersey, 42, E.; Hatteras, North Carolina, 38, se.; Cape Henry, Virginia, 42, nw. This disturbance could not be traced to the north of the middle Atlantic coast, as it probably lost much of its energy and disappeared near Sandy Hook, New Jersey.

NORTH ATLANTIC STORMS DURING JUNE, 1883.

[*Pressure expressed in inches and in millimetres; wind-force by scale of* 0—10.]

Chart ii. exhibits the tracks of the principal depressions that have moved over the north Atlantic ocean during June, 1883. The location of the various storm-centres has been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels in the north Atlantic, and from other miscellaneous data received at this office up to July 21st. The observations used are, in general, simultaneous, being taken each day at 7 h. 0 m. a. m., Washington, or 0 h. 8 m. p. m., Greenwich mean time.

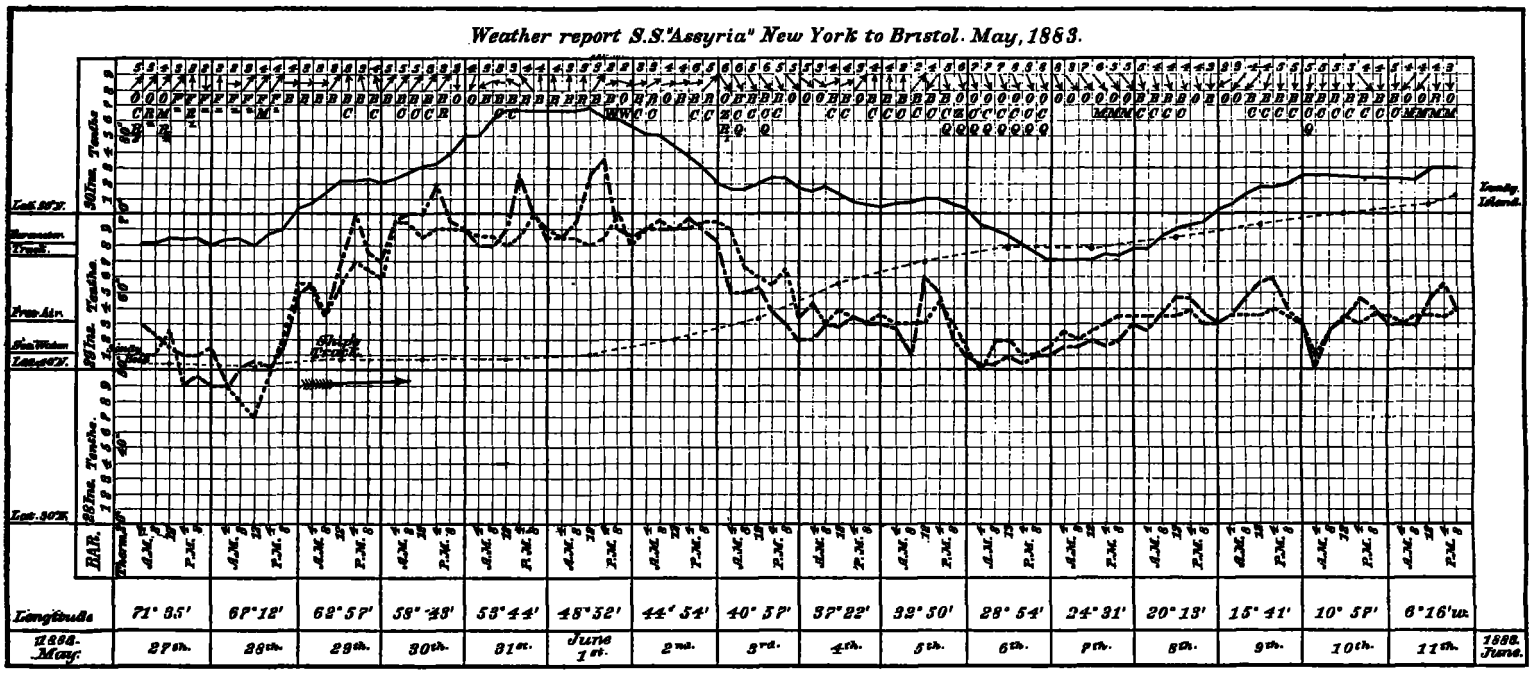
For the month of June, 1883, the approximate paths of three areas of barometric disturbance are charted; these are all east of the twenty-fifth meridian. None of the depressions traced to the coasts of the United States and Canada, (chart i.,) have remained sufficiently well-defined, within the range of observation, to warrant a farther tracing of their paths; but numerous small, shallow depressions appear to have prevailed over the Atlantic during the month. These were of short duration and of limited extent, and did not exert any marked influence over the weather, beyond causing occasional rains and sudden changes of the wind, which, generally, did not exceed the force of a strong breeze or moderate gale.

The weather conditions over the Atlantic during the month may be summarized as follows: from the 1st to 8th, generally fair, with light to moderate breezes, variable in direction. From the 8th to 23d, generally light to moderate breezes, occasonal rains and dense fogs from the fortieth meridian westward. From the 23d to the close of the month, cloudy weather and stormy breezes, increasing at times to moderate gales, prevailed to the eastward of W. 35°.

The barometric pressure was, in general, high throughout the month, particularly so in mid-ocean during the period from the 14th to 22d. Captain Hughes, of the s. s. "Alene," reported the barometric pressure as ranging from 30.4 (772.1) to 30.9 (784.8) from the 2d to 14th at the various ports in Hayti.

In connection with the subject of fog, Captain Brooks, of the s. s. "Arizona, reported having steamed through no less than 1,500 miles of fog during the voyage from Queenstown to New York, June 17th to 24th.

The following diagram shows the weather conditions over the Atlantic during the period from May 27th to June 11th, as reported by Captain Brown, of the s. s. "Assyria," on the passage from New York to Bristol:



An interesting feature of the above diagram is the rise in temperature after leaving the Atlantic coast, and its corresponding fall after passing to the eastward of the fiftieth meridian, as indicated by the thermometric curve.

The following descriptions refer to the depressions shown on the chart:

I.—This depression was observed on the 5th, between the meridians of 20° and 25° west longitude and near the fiftieth parallel of latitude. On that date, the s. s. "Scythia," in N. 50° 34′, W. 21° 19′, reported barometer 29.70 (754.4) wind n., force 4, foggy; vessels to the eastward had light southerly winds, while those to the south of the disturbance reported moderate westerly breezes. By the 6th, the disturbance had moved, with decreased pressure, to about N. 49°, W. 17°. The s. s. "Werra" in N. 49° 31′, W. 15° 39′, reported barometer 29.58 (751.3), wind light and unsteady between n. and se.; in 50° 01′, W. 21° 20′, the ship "E. J. Spicer", had the wind at ene., force 3, barometer 29.53 (750.3), while to the southward the bark "Childwall," in N. 46° 14′, W. 19° 30′, had w. by s. wind of force 4, barometer, reduced to freezing only, 29.49 (749.0). During the 6th, the disturbance appears to have moved very slowly, the region of least pressure being near N. 47°, W. 16°, on the 7th. On that date the bark "Childwall" reported barometer (reduced to freezing only), 29.31 (744.5), wind varying between sw. and n. by e., force 2, weather fine. During the day the disturbance moved eastward, and on the 8th, it was probably central in the Bay of Biscay, causing a slight decrease of pressure over France and the southern part of the British Isles. The winds remained moderate in force in all quadrants of the disturbance. By the 9th, the depression had disappeared, the pressure having increased rapidly both to the east and west of the centre.

II.—On the 23d, there was a decrease of pressure to the westward of the tenth meridian, and vessels on the fiftieth parallel of latitude reported strong westerly breezes. During the day the disturbance moved northeastward, probably near to the Irish coast, causing strong southerly breezes to moderate gales. On the 24th, the s. s. "State of Georgia," in N. 55° 25′, W. 9° 21′, reported barometer 29.75 (755.6), wind sse., force 5.

III.—This depression was observed on the 25th, near N. 50°, W. 25°, in which region the barometric pressure ranged from 29.53 (750.0) to 29.7 (754.4), with southeast to northwest winds of force 2–6. On the 27th, the region of least pressure was transferred to about N. 51°, W. 15°, where the barometric readings were between 29.5 (749.3) and 29.6 (751.8); to the westward the winds were mostly northerly and northwesterly, remaining moderate in force, and to the east of the centre, over Ireland and the Channel, they were southeasterly, southerly, southwesterly. On the 28th, the depression was apparently off Valentia, Ireland.

OCEAN ICE.

Chart ii. also exhibits the southern and eastern limits of icebergs in the north Atlantic during the month of June, 1883. This chart is based on reports communicated by shipmasters to this office; reports furnished through the co-operation of the "New York Herald Weather Service," and other data published by the "New York Maritime Register."

In the month of June, 1883, the eastern limit of icebergs extended to W. 42°, and the southern limit to N. 40° 30′; within this region the icebergs appear to have been most numerous between N. 42° and 45° and W. 51° and 45°. Field-ice was reported to the northward of the fiftieth parallel and from W. 48° to the Straits of Belle Isle, in which much ice was reported. South of the fiftieth parallel no ice was observed.

Compared with the chart for last month (May), there has been a somewhat extensive movement toward the east; in the region north of the forty-second parallel, the eastern limit is about three degrees farther to the east than in May. The southern limit is on the same parallel of latitude, but its eastern point is about two degrees to the westward of that of last month.

A comparison with the ice chart for June, 1882, shows a marked change, both as regards the extent of the ice-region and the number and size of the icebergs observed. In that month, icebergs were reported as far east as the thirty-ninth meridian and south of N. 40°, whilst this month, the extreme easterly limit was close to the forty-second meridian and north of N. 48°; and on the fortieth parallel no ice was observed to the eastward of W. 51°.

In June, 1882, large masses of field-ice drifted southward to N. 42°, and hundreds of large icebergs were observed in groups. In June of this year, although the number of observers making reports to this office has been more than doubled, not more than one hundred icebergs, mostly small, have been observed in the ice region, and these were isolated bergs or in small groups.

Icebergs were reported as follows:

3d.—S. S. "Lord Clive," in N. 44° 30′, W. 45° 00′, passed

an iceberg; s. s. "Elysia," in N. 42° 40′, W. 52° 40′, passed an iceberg.

4th.—S. S. "Lord Clive," from N. 43° 16′, W. 48° 50′ to N. 43° 12′, W. 48° 39′, passed five icebergs; s. s. "Elysia," in N. 42° 30′, W. 50° 34′, passed an iceberg.

5th.—S. S. "Finchley," in N. 42° 15′, W. 49° 47′, passed several icebergs; s. s. "Amsterdam," in N. 42° 24′, W. 50° 04′, passed a large iceberg; s. s. "Azalea," in N. 48° 18′, W. 44° 51′, passed a large iceberg; also, in N. 48° 30′, W. 43° 00′, passed another.

6th.—S. S. "Elbe," in N. 42° 10′, W. 49° 46′, passed a small iceberg.

7th.—S. S. "Azalea," in N. 43° 30′, W. 52° 20′, passed an iceberg.

7th.—Saint John's, Newfoundland: thirty sealing schooners are reported fast in heavy field-ice in the northern part of Gulf of Saint Lawrence.

12th.—S. S. "Devon," at New York, reported: passed two large icebergs in N. 48° 14°, W. 42° 23′; s. s. "Habsburg," in N. 41° 23′, W. 48° 55′, passed an iceberg; also, in N. 41° 29′, W. 49° 36′, passed another about one hundred and fifty feet high; s. s. "Fulda," in N. 42° 45′, W. 48° 39′, passed two large icebergs.

13th.—S. S. "Château Lafite," in N. 40° 28′, W. 51° 45′, passed an iceberg about eighty feet high; s. s. "Jason," in N. 42° 17′, W. 55° 09′, passed an iceberg; ship "Colchester," in N. 42° 30′, W. 52° 40′, passed two icebergs.

14th.—S. S. "Grecian Monarch," in N. 47° 42′, W. 42° 40′, passed a small iceberg. Captain Dale, of the s. s. "Dominion," reports: "At 8.40 p. m. of the 14th (between N. 53°, W. 49°, and N. 51° W. 51°), ran into a quantity of field-ice; at midnight stopped engines, awaiting clear weather and daylight. At 3 a. m. of the 15th, weather clearing, found large quantities of field-ice about, so determined not to try a passage through the Straits of Belle Isle; shaped a course for Cape Race, and passed numerous icebergs up to 8 p. m.

15th.—Ship "Terpsichore," in N. 43° 50′, W. 47° 50′, passed three icebergs each about eighty feet high; s. s. "Wisconsin," in N. 44° 17′, W. 46° 26′, passed an iceberg; s. s. "Plantyn," in N. 45° 01′, W. 47° 16′, passed an iceberg about one hundred and ten feet high.

16th.—S. S. "Faraday," at New York, reported: passed several large icebergs between N. 43° 43′, W. 47° 09′ and N. 42° 03′, W. 52° 32′; s. s. "Ethiopia," in N. 43° 00′, W. 47° 31′, passed three icebergs; s. s. "Wyoming," in N. 43° 37′, W. 46° 07′, passed a large iceberg; also, in N. 43° 52′, W. 45° 40′, passed another.

17th.—S. S. "Joseph Ferens," in N. 47° 55′, W. 43° 10′, passed a large iceberg; s. s. "Elbe," in N. 43° 45′, W. 46° 11′, passed six miles north of a very large iceberg.

18th.—S. S. "City of Richmond," in 43° 30′, W. 44° 56′, passed an iceberg about one hundred feet high; s. s. "Rugia," in N. 43° 39′, W. 45° 10′, passed a large iceberg; s. s. "Joseph Ferens," in N. 46° 36′, W. 47° 45′, passed an iceberg.

NOTE.—The absence of reports between the 18th and 29th seems to indicate that the ice disappeared rapidly during the latter part of the month.

29th.—S. S. "Lord Gough," in N. 48° 32′, W. 46° 06′, passed an iceberg; also, in N. 48° 06′, W. 48° 02′, passed another.

TEMPERATURE OF THE AIR.

[*Expressed in degrees, Fahrenheit.*]

The distribution of mean temperature over the United States and Canada, for the month of June, 1883, is exhibited on chart iii., by the dotted isothermal lines.

In the first column of the following table is shown the normal temperature of June in the several districts, as determined from the Signal-Service records; the second column shows the mean temperature of June, 1883, and the third column shows the departure of June, 1883, from the normal.

Average Temperatures for June, 1883.

Districts.	Average for June. Signal Service observations. For several years.	For 1883.	Comparison of June, 1883, with the average for several years.
	°	°	°
New England	64.4	66.7	2.3 above.
Middle Atlantic states	70.5	71.7	1.2 above.
South Atlantic states	77.8	78.2	0.4 above.
Florida peninsula	81.7	82.3	0.6 above.
Eastern Gulf	79.4	79.0	0.4 below.
Western Gulf	80.5	80.4	0.1 below.
Tennessee	76.3	76.0	0.3 below.
Ohio valley	73.4	72.5	0.9 below.
Lower lakes	65.3	64.7	0.6 below.
Upper lakes	61.9	60.8	1.1 below.
Extreme northwest	61.6	62.4	0.8 above.
Upper Mississippi valley	71.6	69.3	2.3 below.
Missouri valley	72.0	68.3	3.7 below.
Northern slope	63.0	61.9	1.1 below.
Middle slope	72.3	69.0	3.3 below.
Southern slope	78.4	78.6	0.2 above.
Southern plateau	78.0	78.9	0.9 above.
North Pacific	62.0	63.0	1.6 above.
Middle Pacific	68.7	70.9	2.2 above.
South Pacific	72.4	74.2	1.8 above.
Mount Washington, N. H	43.4	46.6	3.2 above.
Pike's Peak, Colo	33.3	31.3	2.0 below.
Salt Lake City, Utah	68.7	70.5	1.8 above.

The general distribution of mean temperature for June, and the districts of maximum departures from the normal in each year, beginning with 1873, are as follows:

Districts.	Maximum departures.	Year.	Remarks.
	°		
Northeastern Virginia	+ 4.5	1873	Below the normal in the Lake Superior region and at stations in the south Atlantic states, New Jersey, and in eastern Pennsylvania; elsewhere it is above normal.
Northern New York	+ 1.7		
	to + 6.5		
Lake Superior region	— 0.7		
	to — 1.8		
Ohio valley	+ 5.9	1874	Above the normal in all districts east of the Rocky mountains, except 0°.1 below in New England; below the normal on the Pacific coast.
Missouri valley	+ 4.0		
Middle Atlantic states	+ 3.1		
Pacific states	— 2.0		
Upper Mississippi valley	— 3.6	1875	Normal in the middle Atlantic states; slightly above the normal in the Gulf states and lower lake region; small departures below the normal occur in other districts.
Upper lakes	— 2.4		
Lower lakes	+ 0.6		
Gulf states	+ 0.6		
Middle Atlantic states	+ 3.0	1876	Normal in the Gulf states; above the normal in the lower lake region, Saint Lawrence valley, and on the Atlantic and Pacific coasts; below the normal over the interior districts.
New England	+ 2.8		
Missouri valley	— 3.1		
Upper Mississippi valley	— 2.9		
Upper Missouri valley	— 4.5	1877	Slightly above the normal in the Atlantic and Gulf states; below the normal over the interior districts.
Minnesota	— 3.1		
Upper Mississippi valley	— 2.4		
New England	+ 1.1		
Ohio valley	— 4.3	1878	Slightly above the normal on the Pacific coast, in the Gulf states, upper Missouri valley, and Minnesota; below the normal in all other districts.
Middle Atlantic states	— 4.0		
Upper Missouri valley	+ 1.4		
Minnesota	+ 0.8		
Saint Lawrence valley	— 3.7	1879	Normal in the south Atlantic states; above the normal between the Mississippi river and Rocky mountains; below the normal in other districts.
New England	— 2.3		
Southern slope	+ 2.4		
Northern plateau	— 3.8	1880	Normal in the Missouri valley; below the normal west of the Rocky mountains, in the middle Atlantic and Gulf states; above *the normal in other districts*
North Pacific	— 2.9		
Upper lakes	+ 2.8		
Lower lakes	+ 2.0		
Lower lakes	— 4.4	1881	Below the normal on the Pacific coast, in the lake region, upper Mississippi valley, New England, and middle Atlantic states; above the normal in the Ohio and Missouri valleys, the Southern states, and in the Rocky mountain districts.
New England	— 4.3		
Upper lakes	— 4.1		
Middle slope	+ 5.1		
West Gulf states	+ 4.2		
Upper Mississippi valley	+ 2.1	1882	Normal in the south Atlantic and Gulf states; slightly above the normal in New England, middle Atlantic states, Missouri valley, and northern plateau; below the normal in all other districts.
Upper lakes	+ 2.0		
Southern plateau	— 3.8		
Middle Pacific coast	— 2.2		

The mean temperature of June, 1883, shows no marked deviations from the normal. On the Pacific coast, in New England, and the middle Atlantic states, it is from 1°.4 to 2°.3 above the normal. In the south Atlantic states, Florida, and the southern plateau, the departures above the normal temperature are less than 1°, and a normal condition is reported from the west Gulf states. In all other districts the mean temperature is below the normal. The districts of greatest deficiencies are the upper Mississippi and Missouri valleys, and middle slope, where they are 2°.3, 3°.7 and 3°.3 respectively. In the northern slope and upper lake region, the deficiencies average about 1°,