

NORTH ATLANTIC STORMS FOR OCTOBER, 1892.

[Pressure in inches and millimeters; wind-force by Beaufort scale.]

The paths of storms that appeared over the west part of the north Atlantic Ocean during October, 1892, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

October usually marks the commencement of the stormy season in the middle latitudes of the north Atlantic. There is a general decrease of atmospheric pressure over the ocean, save from the British Isles over the northern ocean between Iceland and the Norwegian coast, the Iceland low area extends southward with a decrease of central pressure, and storms from the west part of the north Atlantic and from the American continent have a comparatively unobstructed path to the middle and north coasts of Europe. Reports of preceding years show that an average of two storms per month traverse the north Atlantic from America to Europe in October, and that their average rate of advance in that month is 21 statute miles per hour. Storms of tropical origin are not uncommon in October. The West India cyclones of that month generally appear over the Caribbean Sea and recurve over or near extreme western Cuba. October storms of this class have averaged about one in 2 years.

Generally unsettled weather prevailed over the north Atlantic during October, 1892. Over the British Isles the month was cold and wet. Over mid-ocean severe and persistent storms were encountered during the second and third decades of the month. Over the western part of the ocean there was a succession of storms of marked energy, an unusual number of which were of tropical or sub-tropical origin.

The month opened with generally stormy weather from coast to coast. Low area VIII for September, 1892, occupied the region northeast of the Grand Banks, the pressure was low over the Gulf of Saint Lawrence, a storm was apparently developing east of the Bahamas, and the barometer was low over the British Isles. On the 2d the September low area VIII had apparently recurved westward and united with the low area from the Gulf of Saint Lawrence, the storm from the vicinity of the Bahamas had moved northeastward to a position south of Bermuda, and the pressure continued low over the eastern part of the ocean. The morning of the 3d the low areas over the western part of the ocean had apparently united south of Newfoundland, where pressure below 29.50 (749) and northwest gales of force 9 to 10 were reported. By the morning of the 4th this storm had apparently recurved westward and joined low area I on the New England coast. During the next two days this storm occupied the Gulf of Saint Lawrence, with pressure below 29.20 (742) on the 6th, after which it moved northeastward over Labrador.

A storm of marked strength moved westward along the Venezuela coast of the Caribbean Sea from the 6th to the 8th, and apparently passed thence westward to Honduras by the 11th, and possibly to the Mexican coast by the 15th. On the 7th very heavy rain fell on the Island of Trinidad, with high west winds, which shifted to southeast and increased to a gale at 4.15 p. m.; 5 lighters were sunk; streams overflowed their banks, causing a suspension of railroad traffic and doing considerable damage to property. At La Guayra the storm was very severe the afternoon of the 7th; vessels were obliged to leave port on account of the tremendous seas. On the 8th the wind was very strong from the east, with rough sea at Curacao Island. On October 11th a severe hurricane of short duration struck the Bay Islands off the north coast of Honduras, causing serious damage to plantations, build-

ings, and shipping. The schooner "Stranger" went down off Cape Gracias, with a loss of 16 passengers. On the 15th a destructive storm was reported along the Mexican coast; vessels in the port of Vera Cruz dragged anchor, and many buildings were destroyed.

On the 9th low area II passed south of Nova Scotia, thence northeastward over Newfoundland by the 10th, and reached mid-ocean in high latitudes on the 11th. Over the British Isles the pressure continued low during the first decade of the month, with gales of considerable force and copious rains. From the 11th to the 13th the pressure was low north of Newfoundland and the Grand Banks. This low area moved to mid-ocean where it remained nearly stationary from the 14th to the 17th, with pressure below 29.30 (744) and northerly gales of force 9 to 10 on the 16th, after which it recurved westward and united with a storm from the southwest.

Reports of the 13th indicated the development of a storm of marked energy east of the Bahamas, and in the afternoon gales of hurricane force were encountered between Bermuda and the Bahamas. On the 14th this storm was central south of Bermuda, and pressure below 29.70 (754) and north-northeast gales of force 9 were reported in that region. During the 15th, 16th, and 17th the storm pursued a slow northeasterly course and on the 17th was central east of Bermuda. About 3 p. m. of that date a tornado passed across the eastern part of Saint Georges Island, Bermuda. The disturbed surface of the sea clearly indicated the track of the tornado as it approached the island. This storm was not felt at Hamilton.

By the morning of the 18th the low area had reached a position off the southeast edge of the Grand Banks, and by the morning of the 19th was central off the northeast edge of the Grand Banks. During the 20th this storm united over the Banks of Newfoundland with low area V. On that date the barometer fell below 29.00 (736), and gales of force 9 to 11 were reported east of Newfoundland. From the 20th to the 24th the pressure continued low in the region of Newfoundland and the Grand Banks. By the 25th the storm-center had advanced to mid-ocean where it remained nearly stationary during the 26th, with very low pressure, a reading of 28.20 (716) being noted by the steamship "Pennsylvania," in N. 50° 33', W. 29° 03' on the 26th, with gales of force 8 to 10. This storm apparently reached the British Isles on the 28th.

From the 14th to the 16th a storm of considerable strength was apparently central south of the British Isles. The rains of this period were very heavy in the eastern counties of England. In York the greatest flood in 60 years occurred along the River Ouse; upwards of 500 houses were damaged. On the 25th low area VII was central north of the Bahamas, with pressure below 29.70 (754). By the morning of the 26th the storm had moved northeastward between the Carolina coast and Bermuda, and the morning of the 27th was central on the southwest edge of the Banks of Newfoundland. By the morning of the 28th the center of disturbance had apparently moved northwestward and united with low area VIII which moved eastward north of the Gulf of Saint Lawrence. On that date a new development appeared between Bermuda and the Carolina coast and moved rapidly northeastward to eastern Nova Scotia by the morning of the 29th, with pressure 29.30 (744) and gales of force 9 to 12, and by the 30th had advanced north of the Banks of Newfoundland, where it was central at the close of the month with pressure below 29.20 (742) and strong gales east of Newfoundland.

OCEAN ICE IN OCTOBER.

The following table shows the southern and eastern limits

of the region within which icebergs or field ice were reported for October during the last 10 years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
October, 1883	46 56	46 22	October, 1883	46 56	42 22
October, 1884	Off Cape Race		October, 1884	46 56	50 55
October, 1885	48 21	47 12	October, 1885	48 21	47 12
October, 1886	41 34	49 43	October, 1886	46 03	46 32
October, 1887	42 58	50 02	October, 1887	42 58	50 02
October, 1888	51 43	55 36	October, 1888	51 43	55 36
October, 1889	44 32	49 28	October, 1889	46 30	45 59
October, 1890	44 47	48 33	October, 1890	47 36	45 45
October, 1891	48 04	48 27	October, 1891	48 04	48 27
October, 1892	Straits of Belle Isle		October, 1892	52 34	51 09
Mean	46 41	50 40	Mean	47 48	48 49

Ice was not reported south of the 50th parallel. In an area extending from the Straits of Belle Isle to the 51st meridian ice was reported on the 1st, 5-9th, 16th, 18th, 22d, and 27th. The southern limit of ice was nearly 5° north and the eastern

limit was about 5° west of the average southern and eastern limits of ice for October. The quantity of ice was notably deficient when compared with the average amount reported for October of preceding years. The region within which icebergs or field ice were reported for the current month is shown on Chart I by ruled shading.

OCEAN FOG IN OCTOBER.

The limits of fog belts west of the 40th meridian, as determined by reports of shipmasters, are shown on Chart I by dotted shading. Near the Banks of Newfoundland fog was reported on 9 dates; between the 55th and 65th meridians on 3 dates; and west of the 65th meridian on 2 dates. Compared with the corresponding month of the last 5 years the dates of occurrence of fog near the Grand Banks numbered 4 less than the average; west of the 55th meridian the number of foggy days corresponded with the average. The fog noted west of the 40th meridian, and at stations of the Weather Bureau on the middle Atlantic and New England coasts, generally attended the advance from the interior of areas of low barometric pressure.

TEMPERATURE OF THE AIR (expressed in degrees Fahrenheit).

The distribution of mean temperature over the United States and Canada for October, 1892, is exhibited on Chart II by dotted isotherms. In the table of miscellaneous meteorological data the monthly mean temperature and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the average for the several districts. The normal for any district may be found by adding the departure to the current mean when the temperature is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Weather Bureau represents the mean of the maximum and minimum temperatures.

The mean temperature was highest in the Colorado Desert, California, and over the southern extremity of Florida, where it was above 75, and the mean values were about 70 generally over the Florida Peninsula, at points along the immediate middle Gulf coast, over the southern half of eastern Texas, and in southeastern California and western Arizona. Over the Gulf States and in the central valleys of California the mean readings were above 60. The mean temperature was lowest in the eastern Saskatchewan valley, in the mountains of central Colorado, on the north shore of Lake Superior, and in the lower Saint Lawrence valley, where it was below 40, and the mean temperature was below 50 north of a line traced from the central New England coast westward over the Lake region to western South Dakota, thence southward to central New Mexico, thence to the Sierra Nevada Mountain range in eastern California, and east of this line traced from north-eastern California over eastern Oregon and eastern Washington.

DEPARTURES FROM NORMAL TEMPERATURE.

The mean temperature was above the normal, except in Nova Scotia, and from the lower lake region to the east Gulf and south and middle Atlantic coasts, over the southern plateau and a part of the middle plateau region, and along the Pacific coast south of the Columbia River. The greatest departure above the normal temperature was shown from the middle Missouri valley over Manitoba, where it exceeded 5, and the most marked departure below the normal temperature was noted along the immediate Atlantic coast from Virginia to northern Florida, where it was more than 2.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for October for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for October, 1892; (4) the departure of the current month from the normal; (5) and the extreme monthly mean for October, during the period of observation and the years of occurrence:

State and station.	(1) Normal for the month of Oct.	(2) Length of record.	(3) Mean for Oct., 1892.	(4) Departure from normal.	(5) Extreme monthly mean for October.			
					Highest.	Year.	Lowest.	Year.
<i>Arizona.</i>	°	Years	°	°	°	°	°	°
Fort Apache	56.0	20	53.6	- 2.4	60.0	1875	50.6	1883
Fort Mohave	73.0	20	71.3	- 1.7	80.0	1875	68.5	1886
Whipple Barracks	55.0	21	54.0	- 1.0	62.2	1875	49.9	1883
<i>Arkansas.</i>								
Keesees Ferry	60.1	10	60.9	+ 0.8	64.0	1881	56.0	1885
<i>California.</i>								
Fort Bidwell	51.3	20	48.6	- 2.7	59.2	1875	45.1	1873
Riverside	64.0	10			67.2	1885	60.7	1886
<i>Colorado.</i>								
Las Animas	53.0	9	50.0	- 3.0	57.1	1889	49.4	1883
<i>Florida.</i>								
Merritts Island	75.4	10	73.8	- 1.6	79.0	1882	72.9	1891
<i>Georgia.</i>								
Forsyth	66.9	18	68.0	+ 1.1	75.4	1884	61.7	1885
<i>Idaho.</i>								
Boise Barracks	50.0	18	51.2	+ 1.2	56.9	1872	44.5	1883
Fort Sherman	46.4	9	49.8	+ 3.4	50.8	1889	41.2	1883
<i>Illinois.</i>								
Centralia	52.8	9			61.7	1883	45.0	1880, 1882
<i>Indiana.</i>								
Lafayette	52.5	10	56.0	+ 3.5	56.4	1881	47.9	1889
<i>Indian Territory.</i>								
Fort Supply	58.6	12	58.6	0.0	62.2	1874	54.4	1885
<i>Iowa.</i>								
Cresco	45.8	20	49.2	+ 3.4	54.1	1879	41.2	1873
<i>Kansas.</i>								
Eureka Ranch	55.6	9	56.0	+ 0.4	62.9	1886	51.0	1883
Independence	58.4	20	60.8	+ 2.4	63.0	1881	52.2	1873
Salina	57.5	10	56.6	- 0.9	62.4	1886	52.0	1883
<i>Louisiana.</i>								
Grand Coteau	68.0	11	69.4	+ 1.4	75.5	1883	63.4	1891
<i>Maine.</i>								
Orono	45.6	21	45.3	- 0.3	49.7	1879	42.1	1888
<i>Maryland.</i>								
Cumberland	53.1	21	52.6	- 0.5	60.0	1881	48.0	1888
<i>Michigan.</i>								
Kalamazoo	50.0	16	51.9	+ 1.9	54.5	1879	45.7	1887
<i>Missouri.</i>								
Sedalia	57.0	10	58.8	+ 1.8	61.4	1886	51.3	1883
<i>Montana.</i>								
Fort Custer	47.4	13	52.0	+ 4.6	55.0	1891	42.2	1883
<i>Nebraska.</i>								
Fort Robinson	48.6	9	50.6	+ 2.0	53.6	1884	41.4	1883
Genoa (near)	49.2	16	54.1	+ 4.9	55.9	1886	45.0	1883
<i>Nevada.</i>								
Browns	54.5	20	53.0	- 1.5	61.7	1875	46.4	1882
Carson City	48.9	15	47.6	- 1.3	55.1	1875	44.0	1883