

# MONTHLY WEATHER REVIEW,

AUGUST, 1879.

(General Weather Service of the United States.)

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WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

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## INTRODUCTION.

In preparing this REVIEW the following data, received up to September 13th, have been used, viz: the regular tri-daily weather charts, containing the data of simultaneous observations taken at 132 Signal Service stations and 12 Canadian stations, as telegraphed to this office; monthly journals and means 143 and 156 respectively, from the former; reports from 37 Sunset stations; 213 monthly registers from Voluntary Observers; 17 monthly registers from United States Army Post Surgeons; Marine Records; International Simultaneous Observations; monthly reports from Voluntary Observers in, and the local Weather Service of Missouri; reliable newspaper extracts; special reports.

## BAROMETRIC PRESSURE.

Upon chart No. II is shown by the isobaric lines the general distribution of atmospheric pressure, as reduced to sea-level, for the month. The barometric pressure, as compared with the means of the seven preceding years, shows that the mean of the entire country has been abnormally low. Cincinnati only shows a normal pressure. The average deficiencies for the various districts are as follows: New England, 0.08 inch; Middle Atlantic States, 0.06; South Atlantic States, from 0.05 on the coast to 0.02 in the interior; Gulf States, 0.07; Tennessee and Ohio valley, 0.02; Lower Lake region, 0.04; Upper Lake region, 0.045; Upper Mississippi and Lower Missouri valleys, 0.06; Northwest, 0.07; Rocky Mountain Slope, 0.035; San Diego, Cal., 0.10; San Francisco, Cal., 0.08; Portland, Or., 0.11.

*The Local Barometric Ranges* were as follows: California from 0.25 of an inch at San Diego to 0.48 at Red Bluff; Oregon from 0.51 at Roseburg to 0.63 at Olympia; Northern and Middle Plateaux from 0.59 at Salt Lake City to 0.63 at Boise City; Southern Plateau from 0.34 at Tucson to 0.55 at Phoenix; Rocky Mountain Slope from 0.31 at Pike's Peak and 0.40 at Fort Davis to 0.74 at Dodge City and 0.85 at Cheyenne; Rio Grande valley from 0.48 at Rio Grande City to 0.55 at Brackettville; Western Gulf States from 0.55 at Indianola to 0.91 at Shreveport; Eastern Gulf States from 0.26 at Key West to 0.45 at Mobile; South Atlantic States from 0.42 at Augusta to 1.05 at Cape Lookout; Middle Atlantic States, from 0.47 at Philadelphia to 0.99 at Kittyhawk and 1.22 at Cape Henry; New England States from 0.51 at Springfield to 1.05 at Eastport, 1.07 at Newport and 1.13 at Wood's Holl; Ohio valley and Tennessee from 0.51 at Columbus to 0.76 at Cairo; Lower Lake region from 0.46 at Toledo to 0.63 at Oswego; Upper Lake region from 0.50 at Chicago to 0.75 at Alpena; Upper Mississippi valley from 0.49 at Davenport to 0.64 at St. Paul; Red River of the North valley from 0.63 at Pembina to 0.67 at Breckenridge; Lower Missouri valley from 0.63 at Leavenworth to 0.69 at Yankton.

No. VII.—A few reports already received from the West Indies, Bahamas and vessels at sea seem to indicate the existence of this storm for some days previous to its appearance on the Atlantic coast, but are not sufficient to justify the charting of its center, as yet, further southeast than shown on chart. The paucity of reports may be, in part, attributed to the small area of the storm. The barometer fell slowly at the Florida stations during the 16th until midnight, when the pressure became stationary. Partly cloudy weather and variable winds prevailed until midnight, when a calm was reported from Havana, fresh northwest winds from Key West, and brisk north from Punta Rassa. On the morning of the 17th an abnormal barometric fall of 0.07 was reported from Jacksonville, Punta Rassa and St. Marks. The wind at St. Marks remained southwest, but at Jacksonville changed to brisk north. Clear or partly cloudy weather prevailed along the coast from South Carolina to Cuba. The afternoon (17th) report showed a stationary barometer in the South Atlantic States and Florida, except a sharp fall at the coast stations from Smithville to Jacksonville; the latter barometer 0.28 below the normal. Clear, calm weather prevailed at Havana; fresh west winds and partly cloudy weather at Key West and Punta Rassa; fresh northwest winds and partly cloudy weather, with a light rain-fall, at St. Marks; gentle northeast and east winds, partly cloudy weather, from Charleston to Jacksonville, with moderate rain-fall at Charleston and Savannah. A very heavy local rain of 1.45 inches, with a northeast wind, was reported from 2:23 to 5:30 p. m. at Gulf Hammock, western coast of Florida. The depression was then probably central some 200 miles east of the central Florida coast. The Cautionary Signals displayed in connection with area No. V were ordered down except from Cape Hatteras south to include Smithville, which remained displayed for this depression. During the day at Cape Lookout "a tremendous southeast sea-swell broke on the beach all day, with an unusually high tide in the afternoon." At Savannah heavy rain fell from 11:25 a. m. to 6 p. m., with southeasterly wind backing to northwest during the afternoon. At 7:50 p. m. the gale commenced at Cape Lookout with a heavy southeast rain-squall, which lasted until 10:05 p. m. At 10 p. m. the gale commenced at Macon. The schooner "Abbie J. Bentley," which passed Hatteras at 8 p. m., going north, experienced fresh breezes at midnight, which obliged light sails to be furled. At midnight of the 17th, the reports showed a stationary or rising barometer over the whole country east of the Mississippi river, except in Georgia, South Carolina and the southern

part of North Carolina, with the greatest abnormal fall of 0.17 at Charleston, (barometer 0.35 below the normal.) Brisk to high southeast winds and cloudy weather prevailed from Cape Hatteras to Cape Lookout, brisk east and northeast winds from Smithville to Charleston, with heavy rain and a brisk northwest wind at Savannah. Clear weather, with gentle northeast winds, prevailed over Florida and the interior of Georgia. High winds were reported on the Carolina coast ranging from NE. 25 at Charleston to SE. 32 miles at Cape Lookout. The storm-centre was then off the South Carolina coast. Cautionary Signals were then ordered at Cape Henry and Kittyhawk. The gale after midnight increased at Smithville, the wind backing to northeast, with heavy rain and rapidly falling barometer. Between 3 and 4 a. m., (18th,) the wind backed to northwest with increasing force, and at the same time (3:15 a. m.), the gale commenced at Wilmington. At 4 a. m. at Cape Henry the wind, which had been southwest, died away to a calm, and rain commenced, followed immediately by light north and northeast winds. At 5 a. m. the wind reached its greatest velocity, 37 miles NW. at Smithville, and at 5 a. m. at Wilmington W. 68 miles. At that time (5 a. m., 18th, at Cape Lookout, the wind had increased to SE. 80 miles, the rain fell in torrents and a fearful sea swept away the stable and outbuildings. Schooner "Seychelle" came ashore as wind veered to southwest, and although drawing twelve feet was carried, a total wreck, above the highest tide mark, over ground never remembered to have been overflowed before. After 5 a. m. the wind and rain abated at Smithville, with 2.10 inches rainfall in preceding ten hours. At 6:30 a. m. (18th) at Macon, the anemometer registered 80 miles and then the electrical connections failed. At 6:30 a. m. the barometer at Cape Lookout, which, at 6 a. m., was 29.22 had fallen to 29.15, and the anemometer cups were blown away, the wind then blowing at the rate of 138 miles per hour. The barometer remained at 29.15 till 7 a. m., the wind and sea still increasing. By 7:30 a. m. the barometer had risen to 29.18 with wind at its greatest force—an estimated velocity of SW. 165 miles. At Portsmouth, N. C., the wind at 6:30 a. m. had attained a velocity of SE. 49 miles. The 7:35 a. m. reports showed the cyclone central inland of the North Carolina coast stations, lowest pressure, Cape Lookout, 29.24,—0.75 below the normal and a gradient of 0.30 between that station and Cape Hatteras. Signals were ordered from Norfolk north along the coast to include Boston. Heavy rains had set in about 2 a. m. at Cape May, at which station the barometer at this report was 0.18 below the normal. At 8:45 a. m. the wind at Portsmouth, N. C. was SE. 97 miles when the recording apparatus became temporarily disabled. At Macon the wind veered to SW. at 8 a. m. 18th and the tide rose four feet above the ordinary high tide. At 8:30 a. m. the wind reached its maximum recorded velocity at Cape Hatteras, SE. 74, when the cups were blown away, and at Kittyhawk at 9:50 a. m., SE. 100 miles. The gale continued at Wilmington until 10 a. m., with a total rain-fall of 4.60 in 6½ hours. At Norfolk, at 10:45 a. m., the barometer had fallen in preceding hour from 29.58 with NE. 24 miles to 29.16 NE. 48. At 10 a. m. (18th) schooner "A. J. Bentley," latitude 37° 26' N., 74° 2' W., which had been compelled at 8 a. m., to close-reef sails, experienced brisk, southeast winds, which increased rapidly in force, at 11 a. m. blowing a southeast hurricane, which carried away jib and obliged her to take in nearly all sail. At noon the wind was hardest ever experienced, rain very heavy and waves estimated at 40 feet from trough to crest. At 2:20 p. m., (barometer compared with Signal Service at New London and found to be an excellent instrument) read 29.20. Hurricane increased to 3 p. m., when it carried away main-sail and obliged her to send under bare poles. Wind blew violently until 4:30 p. m., when it settled down to severe gale, little north of west, until 8 p. m. At 11 a. m., the wind at Cape Henry had reached a velocity of N. 66 miles, when it moderated for a short time to 35 miles, and shifted to northwest, blowing with hurricane violence 70 miles at 11:30 a. m. At 11:15 a. m. (probably the time the wind lulled at Cape Henry) the Norfolk barometer reached 29.12, lowest point, and the wind fell to NE. 39. The barometer had risen at 11:30 a. m. and 11:45 a. m. to 29.13 (NE. 34) and 29.20 at which latter time the wind changed to north and attained its maximum velocity, 72 miles. During this half hour the greatest part of the damage, at Norfolk and its vicinity, was done. At 12:30 p. m. the rising mercury reached 29.42 while the wind backed to NW. 60. At the same hour (12:30 p. m., 18th) at Cape Henry the wind had reached a velocity of NW. 76 when the anemometer cups were carried away. The wind increased steadily, and about 2 p. m. attained its greatest velocity—estimated at NW. 100. At Johnstown, eastern shore, Virginia, about 35 miles north of Cape Henry, the barometer was at its minimum between 12:30 and 1:30 p. m. The wind, on that day (18th) was heavy NE. until noon and then "shifted" to NW. with heavy gusts. Thirty panes of glass were blown from the observer's house *outward against* the wind's direction. The bark "Eliza J. McManeny" at noon (18th) 45 miles southeast of Five Fathom Bank lightship, reported barometer, early in the day, falling very rapidly, with SE. wind and rain in torrents. At 2 p. m. the wind ceased blowing from the SE. leaving a terrific sea, and suddenly the wind came out of the NW. and blew "a perfect cyclone" for two hours. At Atlantic City the maximum recorded velocity NE. 60 miles was at 3 p. m., after which time the flooded battery failed to record, and at Barnegat N. 64 miles about 5 p. m., at which time 5.39 inches rain-fall had fallen in nine hours. The U. S. S. Wachusett reports that 4 a. m. (18th) off Virginia Capes, barometer stood 30.04. SSE. wind, force 2, and squally weather and moderate swell; 8 a. m. barometer 30.03, 10 a. m. 30.01 weather unchanged. At noon position 38° 45' N. 73° 51' W., wind E. force 6, ship heading NNE. At 2 p. m. headed E. by N., barometer 29.71, E. wind, force 9, sails furled. At 4 p. m. barometer 29.46, wind SE., force 10. At the afternoon report of the 18th, (4:35 p. m.) the pressure was central about one hundred miles east of Barnegat. At that time Cautionary Signals were ordered up at Portland and Eastport. The signals displayed at Baltimore and on the North Carolina coast, from Smithville to Cape Lookout inclusive, and at Kittyhawk, were lowered. From Lewes northward along the Atlantic coast, to include New York, the Cautionary

Signals were changed to Off-shore. At 4 p. m. the wind, which had been increasing steadily at Cape May during the day, attained a velocity of N. 60 miles and shortly after the wind backed to west, and the rain—which had commenced at 2 a. m. (18th) ceased—total amount 8.46 inches. At this report, New England, where heavy rains, east and northeast winds had prevailed for preceding day in connection with the remains of low area No. V; felt the influence of the advancing depression as far north as to include the greater part of Massachusetts. The storm commenced at New Haven about noon, soon increasing to a severe northeast gale which soon backed to N, and at 9:20 p. m. blew 33 miles. Rain-fall in 15 hours 4.15 inches. At New London a sharp barometric fall since noon was shown by the 2 p. m. report, when a heavy rain-storm set in with heavy gusts from the N. and NW.—the heaviest from the N.—attaining a velocity of 37 miles about midnight. At Sandy Hook the minimum barometer and highest wind occurred at 9 p. m. (18th) 29.59, NW. 52 miles. At New York City; however, the maximum velocity was but NE., 24 miles during p. m. 18th. At 5:30 p. m. the U. S. S. Wachusett, about 39° N., 73° 30' W., reported the barometer fallen to 29.15—a fall of 0.86 inch in seven and one-half hours—wind SE. by E., force 11. Then fell a calm with confused, heavy seas. At 5:45 p. m. light airs from NNW., and then a hurricane from NW., until 10 p. m. At 6 p. m. barometer 29.32 (a rise of 0.17 in 30 minutes,) NW. wind, force 11. At 8 p. m. barometer 29.52, wind-force 12. At midnight wind moderated, W. by N., force 7, barometer 30.08, a rise of 0.93 inch in six and one-half hours. The U. S. S. Constellation left Newport 2 p. m., August 18th, barometer at noon 30.02, slowly falling to 29.96 at 3 p. m. Rounded Point Judith, 4 p. m. barometer 29.90 and at 5 p. m. 29.80 with very heavy rain and NE. squalls; shortened sail. Shortened sail still further between 6 and 7 p. m., wind increasing, barometer 6 p. m. 29.75, 7 p. m. 29.63. Could not see Red Flash Race Light although less than a mile distant. Wind increased to whole gale, backing slowly, and barometer fell rapidly—at 8 p. m. 29.43 and 9 p. m. 29.32. Between 8 p. m. and midnight obliged to take in all but storm sails, send down yards and bend sheet cables. 9 p. m. barometer 29.30 and 10 p. m. 29.25, 10.15 p. m. 29.23 (lowest point) 11 p. m. 29.27, midnight 29.35, (rain ceased) 1 p. m. (19th) 29.48, 1:30 p. m. 29.50, at which time wind moderated very much, 2:30 a. m. 29.61. At 10 p. m. the Bark Glint, 20 miles SSW. of Fire Island, had a hurricane from ESE. to NNW., lasting an hour-and-a-half. At the midnight report 18th the storm was central just east of Long Island. The signals then displayed from New Haven, at all coast stations east and north to include Portland, were then changed to Off-Shore Signals. At 11 p. m. the steamer John Hopkins about 25 miles off Chincoteague had heavy southeast winds with tremendous seas; the wind changed suddenly to northwest and the rain fell in torrents. The storm commenced from New Bedford, Mass., to Portsmouth, N. H. at about 8 p. m. At that time the barometer at New Bedford stood at 29.48 with a strong E. by S. wind, which increased to a gale by 10:30 p. m. At midnight a calm, probably at the center of the depression; at 12:20 a. m. 19th, the barometer had reached its minimum 29.05. The wind then recommenced with great violence (direction not given but probably NW.) and attained its maximum force between 2 and 3 a. m. At 5 a. m. (19th) the barometer had risen to 29.62, and a strong W. by S. wind prevailed. At Newport the storm commenced about 8:30 p. m.; the wind attained by 11 p. m. a velocity of 26 miles N. E. At 11:23 p. m. (18th) the center was probably very near the station, the barometer standing at 29.11—a fall of 0.72 in. in the preceding 6 hours and 25 minutes—and the wind lulled to six miles per hour. At midnight the wind shifted to violent northwest, attaining a velocity of 44 miles at 2 a. m., and the barometer rose with a rapidity equal to its fall, showing 8½ hours later a rise of 0.71 inch. At Wood's Holl the storm which began at 8:15 p. m., reached its height at 2:30 a. m. 19th, when the wind blew at the rate of 56 miles from the northwest. The midnight report showed a barometric fall of 0.78 in. in 6½ hours. At Boston the gale which had commenced at about 6 p. m. was extremely severe; the wind attained its highest velocity NE. 44, at 11:30 p. m. At Thatcher's Island, commencing at 8 p. m., the storm was at its height at 3:40 a. m. (19th), the wind blowing 54 miles NE. The barometric fall at midnight report of 18th was 0.42 inches in preceding 6½ hours. At Highland Light, Cape Cod, the gale continued from 5 p. m. 18th, until 10 a. m. 19th, being the severest for years. The wind attained a velocity of 40 miles. At Newburyport, Mass., the storm commenced about 8 p. m. and from 9 to 12 p. m. (18th) a veritable hurricane was reported to have prevailed. The barometer at 10 p. m. (local time) was 29.62 showing a fall of 0.43 inch in preceding 7 hours. The barometer must have been much lower during the night as at 6 a. m. (19th) it stood at 29.55. At Portsmouth, N. H., commencing at 8 p. m., 18th, the gale lasted only until 3 a. m., 19th, the wind attaining its maximum velocity NE. 50 miles, at midnight. The 7.35 a. m. report of the 19th showed the cyclone central a short distance south of Eastport, at which station heavy rain, barometer 29.30—0.70 below the normal, and wind E. 54 miles were reported, while at the remaining New England and the Middle Atlantic stations brisk to high NW. winds and clear or clearing weather prevailed. Signals were ordered down from New York eastward and northward to include Boston, and also at Cape Hatteras. The Signal at Eastport was changed to Off-shore. At Portland, Me., a heavy rain had ceased and a northwest gale sprung up early in the morning. At 7 a. m. (local time) the barometer stood at 29.53, a fall of 0.48 inch, in 17 hours, with a NW. wind of 20 miles, and a rain-fall of 2.03 inch in 16 hours. At 8 a. m. (morning report of 19th) the barometer had risen to 29.55 with wind NW. 24 miles. The maximum wind velocity NW. 42 miles occurred at 4 a. m., 19th. At Eastport the barometer continued to fall, standing at 10.30 a. m. (19th), 29.20 NE. 34 miles; at 11 and 11.15 a. m. 29.16 (lowest) NE. 34 and 32 miles; 12 m. 29.19 N. 21; 1 p. m. 29.29 NW. 34; 2 p. m. 29.37 NW. 26; 3 p. m. 29.45 NW. 27; at 5.15 p. m. (afternoon observation) 29.56 NW. 36. Heavy rain prevailed until 12.30 p. m. and then light rain until 4.30 p. m. The barometer at 11.15 a. m. had fallen 0.95 inch in 27 hours. At the afternoon report 19th, the storm had passed into New Brunswick—

Halifax barometer 0.42 below the normal. Signals were lowered from Lewes northward to include all displayed, except at Eastport, which were lowered at midnight. By midnight of the 19th the storm was probably central over St. Lawrence bay, moving northeast.

This storm is especially interesting on account of the rapid and extreme fluctuations of pressure and the attending phenomena near the immediate center. The following tabulated statement shows the most marked phenomena attendant on its passage as compiled from reports now at hand :

PLACE.	BAROMETER.					WIND.				Time of occurrence of central calm-18th.	TOTAL RAIN-FALL.
	Lowest reading.	Fall.		Rise.		In Front of Storm.		In Rear of Storm.			
		in.	h. m.	in.	h. m.	direction.	max. vel.	direction.	max. vel.		
Macon.....	—	—	—	—	—	SE.	*100	—	—	—	—
Lookout.....	29.17	0.73	8.00	0.72	7.00	SE.	*138	SW.	*165	—	4.29
Norfolk.....	29.12	0.60	4.15	0.75	5.15	NE.	48	NW.	60	—	6.03
Cape Henry.....	29.05	0.68	4.30	0.80	4.30	N.	65	NW.	100	11:10 a. m.	4.62
Cape May.....	29.51	0.41	6.30	0.40	9.00	N.	64	NW.	60	—	8.46
Sehr, H. A. Bentley, 38° N. 74° W.....	29.20	—	—	—	—	SE.	*90	—	—	3 p. m.	Very heavy.
U. S. S. Wachusett, 80° N. 74° W.....	29.15	0.85	5.30	0.93	6.30	SE. by E.	175	NNW.	190	5:45 p. m.	—
U. S. S. Constellation	29.33	0.79	10.15	0.38	4.15	—	165	—	—	—	Torrents.
Newport.....	29.11	0.72	6.25	0.71	8.30	N.	26	NW.	44	11:23 p. m.	1.96
New Bedford.....	29.05	0.84	10.20	0.57	4.40	E. by S.	*50	NW.	*50	Midnight.	1.74
Wood's Holl.....	29.08	0.78	6.30	0.70	8.38	ESE.	40	NW.	56	—	2.40
Eastport.....	29.16	0.95	27.00	0.67	12.30	E.	56	N.	38	—	3.84

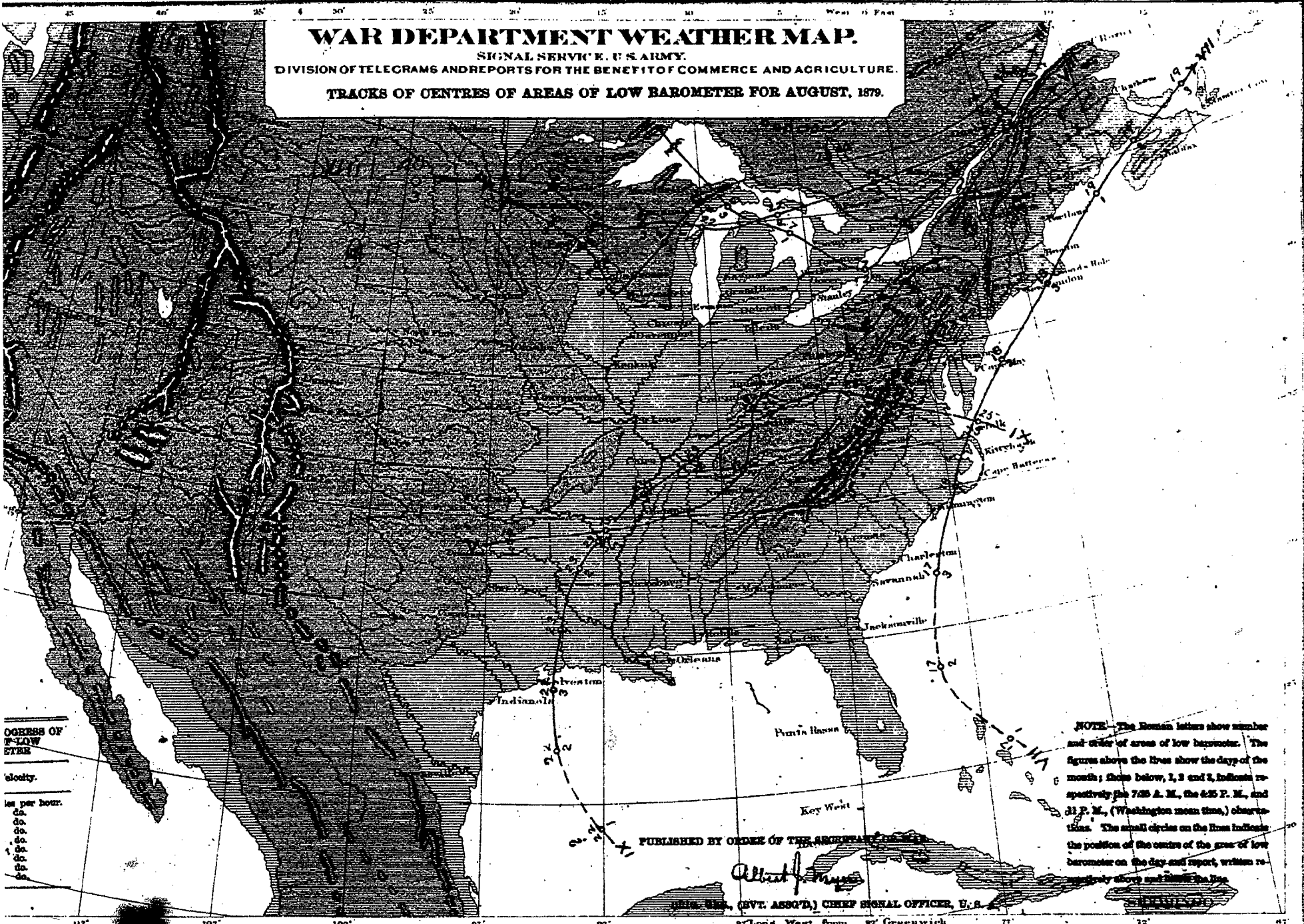
\* Estimated. † Converted from a scale of 0 to 12.

The amount of damage done by this storm, can not be enumerated in detail within the limits of this Review. The injury to inland property over sections traversed by the immediate center was very extensive. Fortunately this damage was confined to the track of the storm-center itself, and consequently, is quite limited. The damage to maritime property must have been enormous, reports already at hand, show that over one hundred large vessels were shipwrecked or suffered serious injury, while the number of yachts and smaller vessels which were destroyed or seriously damaged, must certainly exceed two hundred.

No. VIII.—During the 20th the barometer fell steadily in the Northwest, and at midnight a depression was central in western Dakota, at which time Bismarck reported barometer 0.19, abnormally low, and a heavy local rain-fall. On the morning of the 21st the area was central, with decreased pressure, in eastern Dakota—Breckenridge barometer 0.35 below the normal. Cloudy weather and occasional rain, with fresh to brisk southerly winds, then prevailed over the Upper Lake region. By that afternoon it had moved southeast into Minnesota, with no change of pressure, when partly cloudy weather, occasional rains and brisk southerly winds were reported from the Upper Lake region, with maxima velocities of SW. 26 miles at Milwaukee and S. 25 at Grand Haven. Moving slowly east through Wisconsin the night of the 21st it was central, with decreased pressure, over Lake Michigan the morning of the 22nd—Escanaba barometer 0.42 below the normal. At that time rain and partly cloudy weather were reported from the Upper Lake region, clear or partly cloudy weather from the Lower Lake region, cloudy weather and rain from New England and St. Lawrence valley, and brisk southwest winds from Wisconsin to New England—maximum velocity S. W. 28 miles at Milwaukee. The area was central that afternoon over Lake Huron; brisk southerly winds still continuing from the Lower Lake region to New England, with maxima velocities of S. W. 28 miles at Sandusky, 27 at Cleveland and 34 at Milwaukee; there was but little precipitation reported save in St. Lawrence valley. Moving northeast the center reached the St. Lawrence valley at midnight—Montreal barometer 0.54 below the normal. Generally clear weather prevailed from the Lower Lake region to New England, with brisk S. W. winds in the Middle Atlantic States and New England, and maxima velocities reported of S. 27 miles at Cape May and W. 32 at Port Huron. The center moving northeastward, the morning of the 23rd was in the lower St. Lawrence valley with decreased pressure—Father Point barometer being 0.63 below the normal. Brisk southwest winds prevailed from Middle Atlantic States to New Brunswick, with partly cloudy weather. By afternoon the center was over the Gulf of St. Lawrence. No signals were displayed during the passage of this area.

No. IX.—During the 20th and 21st a low pressure prevailed over the Gulf of Mexico, and on these days brisk easterly winds, cloudy weather and occasional rain, were reported along the Gulf Coasts. At midnight of the 21st Cautionary Signals were ordered at Mobile, Port Eads, New Orleans and Galveston. On the morning of the 22nd the abnormal isobar of  $-0.20$  inch included Louisiana and the greater part of Texas—Galveston barometer 0.31 below the normal. Brisk east to north winds prevailed from St. Marks to Galveston along the Gulf coast, with cloudy weather and occasional rain. Cautionary Signals were then ordered for Indianola. During the day the barometer fell rapidly over the whole Gulf region, and at the afternoon report cloudy weather and rain generally prevailed, with brisk southeast winds from Key West to New Orleans, and brisk northwest winds on the Texas coast, with maxima velocities of NW. 27 miles at Indianola, NW. 38 at Galveston and SW. 36 at New Orleans. The depression was then central in the northwest part of the Gulf of Mexico—Galveston barometer 0.48 below the normal. Very heavy rainfalls of 1.55 at New Orleans and 2.27 inches at Mobile in past 8 hours

**WAR DEPARTMENT WEATHER MAP.**  
 SIGNAL SERVICE, U. S. ARMY.  
 DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.  
 TRACKS OF CENTRES OF AREAS OF LOW BAROMETER FOR AUGUST, 1879.



**DIRECTION OF FLOW**  
**WIND**

cloudy.

feet per hour.

do.

do.

do.

do.

do.

do.

do.

**NOTE**—The Roman letters show number and order of areas of low barometer. The figures above the lines show the days of the month; those below, 1, 2 and 3, indicate respectively the 7:30 A. M., the 4:30 P. M., and 11 P. M., (Washington mean time), observations. The small circles on the lines indicate the position of the centre of the area of low barometer on the day and report, written respectively above and below the line.

PUBLISHED BY ORDER OF THE SECRETARY OF WAR

*Albert J. Myer*

ALBERT J. MYER, (SUT. ASSG'D.) CHIEF SIGNAL OFFICER, U. S. A.

27° Long. West from 27° Greenwich

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## OCTOBER, 1879.

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WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

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### INTRODUCTION.

In preparing this REVIEW the following data, received up to October 14th, have been used, viz: the regular tri-daily weather charts, containing the data of simultaneous observations taken at 157 Signal Service stations and 12 Canadian stations, as telegraphed to this office; monthly journals and means 133 and 132 respectively, from the former; reports from 29 Sunset stations; 249 monthly registers from Voluntary Observers; 52 monthly registers from United States Army Post Surgeons; Marine Records; International Simultaneous Observations; monthly reports from Voluntary Observers in, and the local Weather Service of, Missouri; reliable newspaper extracts; special reports.

### BAROMETRIC PRESSURE.

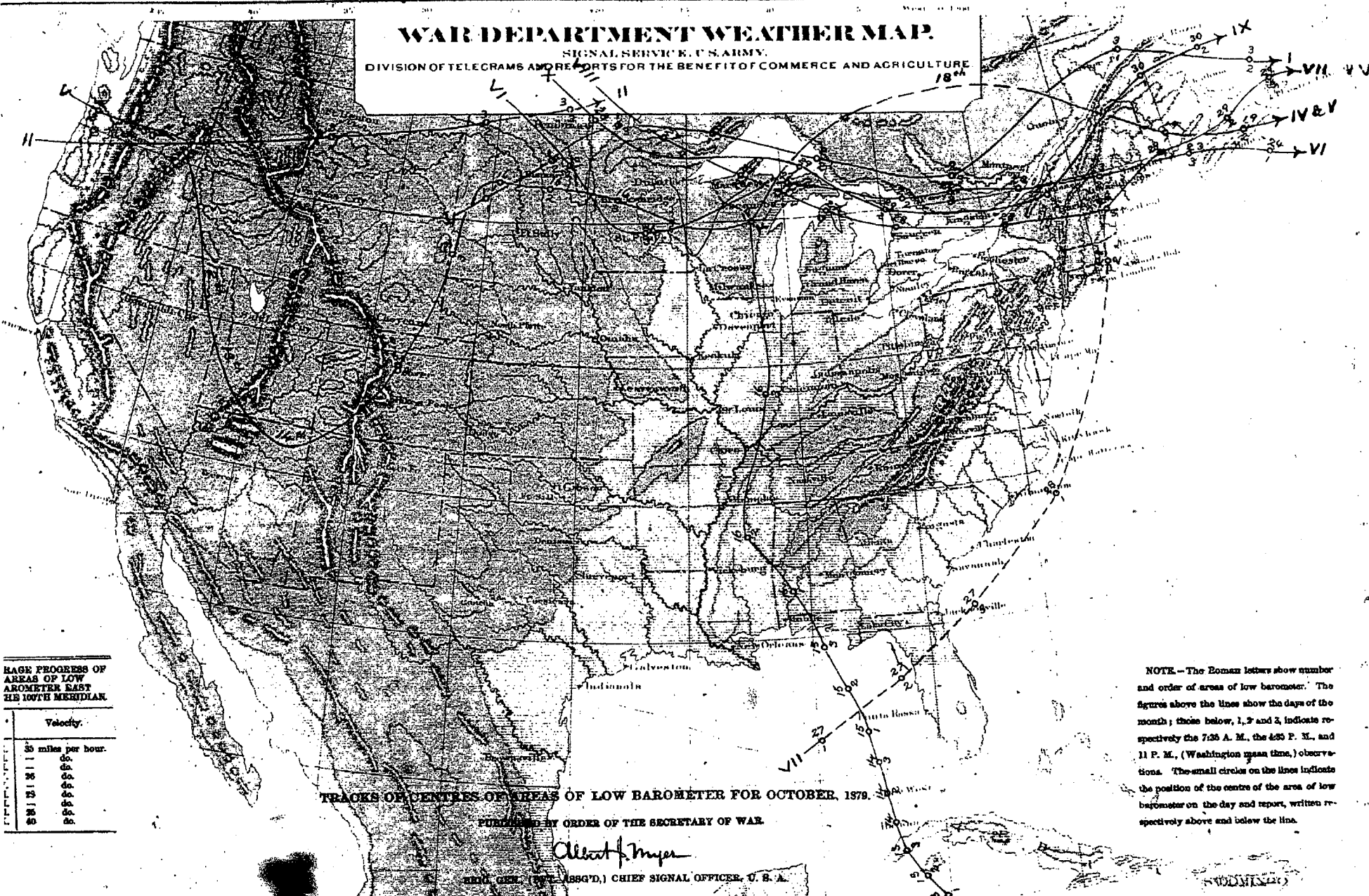
Upon chart No. II is shown by the isobaric lines the general distribution of atmospheric pressure, as reduced to the sea level, for the month. The variations from the average pressure for the past seven years have been marked and general. East of the Mississippi river the pressure has been decidedly in excess save in the Gulf States. The excess in New England has ranged from 0.04 inch to 0.08 inch, except on Mount Washington, where it was 0.11. The greatest excess was in the Middle Atlantic States and the Lower Lake region, where it varied only from 0.09 inch to 0.11 inch. The deficiencies have been greatest in the Red River of the North valley, ranging from 0.08 to 0.11 inch, and in southern Florida from 0.04 to 0.06 inch. Deficiencies are reported in the Plateau District from Salt Lake of 0.03 inch, and from Virginia City of 0.04 inch, these being the only stations therein with seven years means. On the Pacific coast the pressure at San Diego was normal, at San Francisco 0.01 inch in excess, and at Portland there was a deficiency of 0.035 inch.

The Local Barometric Ranges have been greatest in New England, over which section the severest storms of the month have passed. The ranges in that district have been unusually great, ranging from 1.38 inch at New Haven to 1.85 inch at Eastport. The range elsewhere of one inch and over includes the Middle Atlantic States, the Lake region, the Northwest, the Lower Missouri valley, North Carolina, the greater part of the Ohio valley, the Mississippi valley from Keokuk northward, and the Northern Plateau district. The range of 0.75 inch and below includes in its limits ten Gulf stations, the southern half of Texas and Georgia, the Southern Plateau district and southern California. The only ranges below 0.50 inch have been 0.40 at Los Angeles, 0.44 at Punta Rasa and 0.49 at Key West.

No. IV.—This area apparently developed in the Carribean Sea, and on the afternoon of the 11th was central southeast of the Island of Jamacia. By the morning of the 12th it reached the eastern end of that Island, and by midnight of the 13th was central near the Island of Cuba, southwest of Havana. From the morning of the 11th until the afternoon of the 14th, 19.80 inches of rain-fall were reported from Kingston Jamaica. In the rest of the island exceedingly severe rains did serious injury to property and crops. Reports state that 13 lives were lost in Kingston. Many bridges, houses and much stock were swept out to sea, and all communication obstructed. The reports from the Gulf stations showing a steady decrease of pressure, a Cautionary signal was displayed at Key West the morning of the 12th. The cyclone moved slowly northeastward, and by the afternoon of the 14th, was central in the southeastern part of the Gulf. Signals were then displayed at New Orleans, Port Eads, Mobile and St. Marks. At this time Key West barometer was 0.31 below the normal, with a southeast wind of 26 miles, while fresh northeast winds were reported from the northeastern Gulf. The area moved slowly northeastward and at midnight of the 15th was central in the northeastern Gulf. At that time brisk southeast to northeast winds prevailed in the Eastern Gulf, States the Mobile barometer was 0.38 below the normal, while St. Marks reported a heavy rain of 2.36 inches in eight hours with a maximum velocity of E. 28 miles. The morning report of the 16th showed the centre over southern Alabama, Mobile barometer 0.51 below the normal. Brisk easterly winds were reported from Florida, with a maximum velocity of E. 32 at St. Marks, and a heavy rain-fall of 2.10 inches in eight hours from Montgomery. At noon Cautionary Signals were ordered for Jacksonville, Savannah and Charleston. By the afternoon of the 16th the centre had reached the central Mississippi valley, Memphis barometer 0.38 below the normal. The signals on the Gulf coast and from Jacksonville to Savannah were then lowered, having been fully justified. At midnight of the 16th reports showed it central with diminished energy in Illinois. Its subsequent track is described as that of area No. V., with which it united in Wisconsin on the morning of the 17th.



**WAR DEPARTMENT WEATHER MAP.**  
 SIGNAL SERVICE, U. S. ARMY.  
 DIVISION OF TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE



**RANGE PROGRESS OF AREAS OF LOW BAROMETER EAST THE 100TH MERIDIAN.**

Velocity.
30 miles per hour.
do.
do.
do.
do.
do.
do.
do.

**TRACKS OF CENTRES OF AREAS OF LOW BAROMETER FOR OCTOBER, 1898.**

FURNISHED BY ORDER OF THE SECRETARY OF WAR.

*Albert J. Meyer*

1ST LIEUT. (COL. 1897) CHIEF SIGNAL OFFICER, U. S. A.

**NOTE**—The Roman letters show number and order of areas of low barometer. The figures above the lines show the days of the month; those below, 1, 2 and 3, indicate respectively the 7:35 A. M., the 4:35 P. M., and 11 P. M., (Washington mean time,) observations. The small circles on the lines indicate the position of the centre of the area of low barometer on the day and report, written respectively above and below the line.

NOV. '79

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No. XII.—This hurricane, from the West Indies, first appears on the Signal Service tri-daily maps, in the falling barometer and increasing winds at Havana, Key West and Punta Rassa, at midnight of the 18th, at which time the centre was evidently some distance to the eastward; then it moved very rapidly north and northeastward, passing Cape Hatteras at 11 p. m. of the 19th and Halifax at 3 p. m. of the 20th. It was preceded by heavy rain on the South Atlantic coast, and snow in the Canadian Provinces and followed by snow in New England. The lowest pressures recorded were at Cape Hatteras, 29.47, at 11 p. m. of the 19th, and Halifax, 28.59, at 3 p. m. of the 20th. Cautionary Signals were ordered in advance of this hurricane, as follows:—On the 20th, at 7 a. m., from Cape Lookout to Smithville, which were, however, already late. Off-shore Signals were ordered on the 20th, at 7 a. m., from New York to Baltimore, which were justified. Among the reports from vessels are the following:—The schooner O. S. Bailey, from Dominica November 8th, on the 17th, encountered furious gale; 20th, tremendous seas boarded vessel; crew were taken off and landed at Baltimore on November 27th; exact location not given. Steamer Hermod,  $39^{\circ}$  N.  $66^{\circ}$  W., hurricane for 5 hours from SE. to NW. Steamer Llanarthan,  $50^{\circ}$   $50'$  N. and  $32^{\circ}$   $10'$  W., from the 18th to the 21st, SE. to NE. gales and high sea. Steamship Leipsig, 19th,  $40^{\circ}$  N. and  $69^{\circ}$  W., barometer 29.05; wind NNE. to NW. force 10, heavy NW. sea. Brig Una, 19th,  $33^{\circ}$  N.  $73^{\circ}$  W., heavy NW. gale, barometer 29.25. Schooner Victor Ping, 19th, in the Gulf Stream, NW. gale. Schooner Kit Carson, 19th, in Gulf Stream, NNE. gale; decks swept by high sea. Ship Stewart Freeman, 200 miles east of Henlopen, 19th, NW. gale. Barque Lincoln,  $39^{\circ}$  N.  $68^{\circ}$  W., 19th, ESE. to WSW. heavy gale. Steamer Albert, between Magdalen Islands and Pleasant Bay, November 20th. 3:30 p. m., wind suddenly rose to violent gale; 8:30 p. m., veered to NE., hurricane; barometer 27.60 (?). Barque Susan A. Blaisdall, 20th,  $31^{\circ}$  N.  $72^{\circ}$  W., severe WNW. gale for forty-eight hours. Barque Grasmere, 29th, [19th (?) or 20 (?)]  $39^{\circ}$  N.  $66^{\circ}$  W., terrific east hurricane for two hours; then south hurricane four hours; then calm half an hour, then hurricane more severe than at first. Schooner "Addie Fuller" on the 19th, in  $36^{\circ}$   $03'$  N.  $74^{\circ}$   $33'$  W., and 20th in  $34^{\circ}$   $20'$  N.  $74^{\circ}$   $39'$  W., reports during the night between the 19th and 20th had a severe hurricane, lowest barometer 29.30 about midnight as read off; highest force of wind 80 to 90; wind commenced from NNE. and backed gradually to NW. Baltimore, November 20th, Bay steamers delayed and reported heavy NW. gales and cold weather; harbor very rough and tide unusually low; steamer "Mystic" driven ashore and bilged near Queenstown. Several smaller vessels capsized and sunk in Bay and some lives lost.