

MONTHLY WEATHER REVIEW,

SEPTEMBER, 1875.

WAR DEPARTMENT,

Office of the Chief Signal Officer,

DIVISION OF

TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.

INTRODUCTION.

In the preparation of this general review of the meteorological conditions which obtained in the United States and adjoining territories during the past month, meteorological reports from the following sources have been recorded and carefully examined at this office: Signal Service, U. S. A., 96 stations; United States Army post surgeons, forwarded by the Surgeon General, 39; Canadian meteorological service, 13; regular volunteer observers, 251; these latter reports have been particularly valuable in the preparation of the accompanying Rain Chart. In addition to the above, marine reports have been received, which have served to determine the course and extent of storms beyond the region of permanent stations. The most noticeable meteorological features of the month are—

First. The violent cyclone, which passed to the westward over the West Indies, and thence to the coast of Texas, causing great loss of life and destruction of property, and furnishing one of the most perfect types of a tropical storm originating in the lower latitudes, and passing into the region of the temperate zone, the centre of disturbance describing approximately a parabola, the axis of which may be said to coincide with the northern limit of the trade-winds, and the vertex or most westerly portion of the curve being located near Galveston. This storm is referred to in the text under the head of Low Barometers, and is marked as No. III on the chart of storm tracks.

Second. The low mean temperature of the month, which has averaged from one to four degrees below the mean in the several districts. This variation, though apparently slight, gives to the month its appreciable low temperature, a condition particularly unfavorable to the agricultural interests of those sections of the country requiring warm, dry weather for the maturing of the unusually late crops. Very early frosts have injured fruit and late corn in the Northwest, and sections of the Middle and New England States.

Third. The drouths which prevailed in sections of the Southern States, have been followed by heavy rains in the regions of the Gulf States and lower Mississippi valley, but dry and warm weather has continued in the southern portion of the South Atlantic States, and in the northern portion of Texas.

Fourth. The violent local storms which have occurred, especially in New Mexico and Colorado, and on the eastern slope of the Rocky mountains,

(2.) *Areas of Low Barometer.*—The number of barometric depressions traced from the tri-daily reports received at this office during the month is, as in the two preceding months, less than in the corresponding months of previous years.

Chart No. I shows the track of each depression as determined from the consecutive reports after the definite progressive movement had commenced. Compared with those of the previous month the tracks in the northern portion of the country have a lower mean latitude and a general direction more directly to the east, passing to the Atlantic in the region of the St. Lawrence valley.

The disturbances in the southern portion of the United States have been unusually severe, and resulted from storms which originated beyond the limits of the stations of observation. The records of previous years show that the most violent storms occurring in the United States have their origin in the Tropics, and that before reaching our stations they have a westerly movement.

No. III. First observed latitude 13° , longitude 17° east; last observed latitude 38° , longitude 6° east; co-ordinate of the vertex of path, latitude $28^{\circ} 30'$, longitude $19^{\circ} 30'$ west; mean velocity per hour, 19 miles. Although this storm is not traced on the chart further to the eastward than the western portion of Cuba, reports recently received indicate that it originated east of Barbadoes, where a severe tornado occurred on the morning of the 9th. Succeeding reports from the West India stations show great barometric disturbances in that region until the afternoon of the 12th, when the storm had reached the eastern portion of Cuba. On the 13th a violent hurricane occurred at Santiago de Cuba, and the barometer at Key West had fallen to 29.81, with a brisk northeast wind. By midnight the wind had increased to a northeast gale and the barometer had fallen to 29.74. The morning report of the 14th indicated that the centre of disturbance had passed to the westward of Key West and Havana. The succeeding tri-daily reports of the 15th and 16th show a continuous westerly movement of the centre, the progressive velocity being retarded as the storm approached the vertex of its path; from the afternoon of the 15th to the afternoon of the 17th its mean velocity being 8 miles per hour. During the slow progressive movement the velocity of rotation increased to 88 miles per hour, when the cups of the anemometer at Indianola were carried away. Full accounts have already appeared giving details of the loss of life and destruction of property caused by this storm, the most severe which has occurred in the United States since the establishment of the Signal Service. In the meteorological history of the country its parallel occurred between the 27th of September and the 10th of October, 1837. In Chart No. I it will be seen that the northern half of the curve passes directly to the northeast, cutting the coast line near Norfolk. During the easterly movement the centre of depression gradually changed to an elongated ellipse, and the velocity of rotation was materially retarded while the centre remained on the continent. It however left

the Atlantic coast, producing heavy gales and marine disasters on the Jersey coast. Recent reports from the Atlantic, considered in connection with the violent storms which prevailed north of Great Britain from seven to nine days after the storm left our coast, indicate that this depression may have crossed the Atlantic.

The following reports and observations are taken from the monthly journals of the Signal Service:

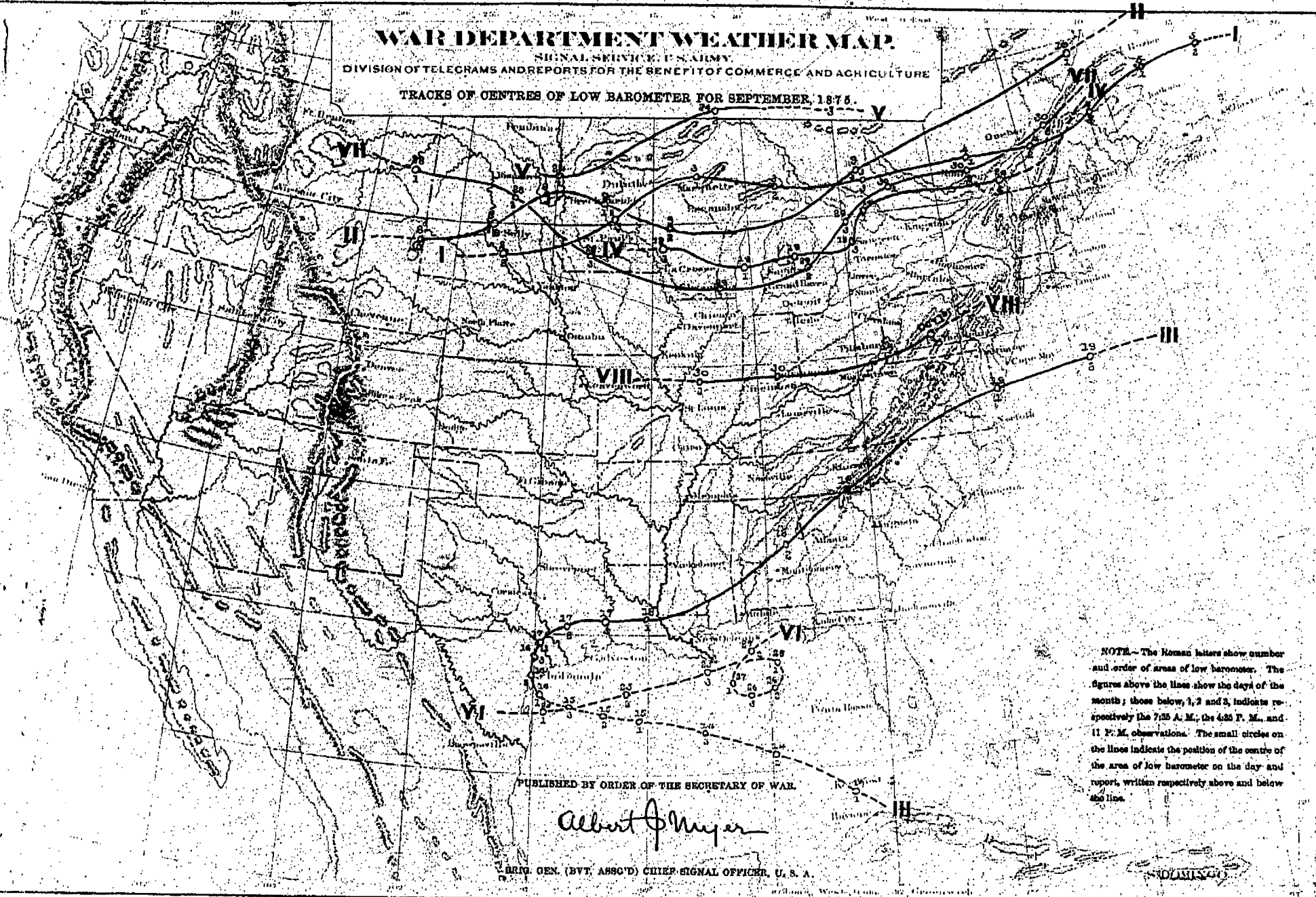
Galveston, September 17th.—Storm continues with increased violence; at 2 P. M., barometer reached its minimum, 29.038; maximum velocity of wind, 4:50 P. M., sixty miles, southwest and west.

September 16th, —Observer at Indianola reports: "Rain continued and storm increased to hurricane from northeast, accompanied by a disastrous inundation from the Bay. One hundred and seventy-six lives lost and three-fourths of the town swept away, causing a loss of upwards of one million dollars worth of property, a severance of communication with the outside world, and a total suspension of business. Highest registered velocity of wind 88 miles, estimated velocity 100. The following hourly observations were taken at Indianola on the 15th and 16th:

DATE	BAROMETER.	THERMOMETER.	DIRECTION.	WIND-VEL.	WEATHER.
15th, 2 p. m.	29.60	84	NE	40	Threatening.
3 "	29.73	83	N	36	Threatening.
4 "	29.70	82	N	40	Threatening.
5 "	29.70	76	N	38	Light rain.
6 "	29.68	76	N	41	Light rain.
7 "	29.70	75	N	40	Light rain.
8 "	29.68	75	NNE	48	Light rain.
9 "	29.66	75	NNE	53	Light rain.
10 "	29.63	74	NNE	56	Light rain.
11 "	29.59	74	NNE	58	Light rain.
12 m.	29.56	74	NNE	60	Light rain.
16th, 1 a. m.	29.52	74	NNE	56	Light rain.
2 "	29.46	74	NNE	60	Heavy rain.
3 "	29.39	74	N	66	Light rain.
4 "	29.36	74	NNE	68	Heavy rain.
5 "	29.35	74	NNE	64	Heavy rain.
6 "	29.36	74	NE	58	Light rain.
7 "	29.34	75	NE	66	Heavy rain.
8 "	29.33	75	NE	56	Light rain.
9 "	29.31	75	NE	64	Light rain.
10 "	29.29	75	NE	60	Light rain.
11 "	29.22	75	NE	74	Light rain.
12 m.	29.17	75	NE	72	Light rain.
1 p. m.	29.13	75	NE	72	Light rain.
2 "	29.06	75	NE	68	Light rain.
3 "	29.01	75	NE	72	Heavy rain.
4 "	28.95	75	NE	76	Heavy rain.
5 "	28.90	75	NE	82	Heavy rain.

During the continuance of this storm in the Gulf a secondary depression developed in the upper Mississippi valley and passed directly eastward to the Atlantic coast, causing high winds on the Lakes and near the New England coast. This depression was central in Maine on the 17th and disastrous storms occurred in the Gulf of St. Lawrence and the Gulf of Mexico on that day.

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 LOW BAROMETER FOR SEPTEMBER, 1875.



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 4:25 P. M., and 11 P. M. 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.

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