

INTRODUCTION.

In preparing this REVIEW the following data, received up to September 14th, have been used, viz: the regular tri-daily weather charts, containing the data of simultaneous observations taken at 143 Signal Service stations and 15 Canadian stations, as telegraphed to this office; 147 monthly journals and 161 monthly means from the former, and 15 monthly means from the latter; reports from 25 Sunset stations; 211 monthly registers from Voluntary Observers; 16 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.

The general distribution of the atmospheric pressure, as reduced to sea-level, for the month of August, 1880, over the United States and Canada is shown by isobaric lines on chart No. II. At a few out-lying stations the means are given in figures indicating English inches. The region of highest pressure is on the Atlantic coast and farther northward than usual, covering the coast from New Jersey to North Carolina instead of being confined to the South Atlantic States. The region of lowest pressures extends from Manitoba to southern Texas. On the Pacific coast the highest pressure is as usual in Oregon, while the lowest means are reported from the interior valleys.

Departures from the Normal Values for August.—The barometric means for August, 1880, when compared with the average for the past eight years, show marked and unusual departures. Over New England, the Middle Atlantic States, the Lake region, (except the southern half of Lake Michigan) the pressures range from .04 inch to .01 inch above the normal, being .07 above at Marquette, .09 at Albany and .10 at Burlington. The Gulf States, the Upper Mississippi valley, and the greater part of the Rocky Mountain region reported means slightly below the normal, the greatest deficiency being reported from Punta Rassa, .07 below the normal.

Barometric Ranges.—The local barometric ranges, reduced to sea-level, have been very unusual and irregular, especially in those parts of the Gulf States over which the cyclones of August 12th and 29th passed, where the following ranges were reported: Punta Rassa, 0.65; Indianola and Galveston, 0.45; Cedar Keys, 0.80; Pensacola, 0.81; Mobile, 0.84; Laredo, 1.09; Brownsville, 1.79. Ranges exceeding 0.90 are reported from the Red River of the North valley, from Burlington, Vt., and North Platte, Neb. The smallest ranges in the country were: Santa Fe, 0.24; Campo, 0.32; and Key West, 0.33.

Areas of High Barometer.—During the month of August, 1880, eight areas of high pressure prevailed within the limits of the Signal Service stations. Nos. II and VIII were slight encroachments of the area of high barometer from the Pacific ocean. The remaining areas were the usual out-flows of cold air moving southeastward from the Saskatchewan region. Area No. III was marked by the first frosts east of the Mississippi river.

No. I.—This area appeared in the Upper Missouri valley during the 1st; Bismarek barometer the morning of the 2nd 0.53 above the normal. During the 2nd and 3rd, the area although remaining central in the Missouri valley extended its influence over the entire country excepting the Eastern Gulf States. During the 4th it moved gradually eastward to the Lake region, where it remained central with slight changes of pressure until the 7th, during which day moving down the St. Lawrence valley it withdrew over the Gulf of St. Lawrence during the 8th. During the prevalence of this area occurred the minimum temperatures of the month over Lake Michigan, the Ohio valley, and for the entire region between the Mississippi river and the Rocky Mountains. On the afternoon of the 5th, Cautionary Signals were ordered for the North Carolina coast; they were lowered at midnight of the 6th, having been partly justified: maximum velocities, Cape Henry, NE. 32; Chincoteague, NE. 29, and Cape Lookout, SW. 28.

No. II.—This area appeared on the North Pacific coast during the 7th, where it remained until the 16th, when it gradually dissipated. The highest barometer reading was at Olympia the afternoon of the 9th, 0.24 above the normal.

No. III.—During the 10th the barometer rose slowly over the Upper Lake region, and in the afternoon of the 11th Duluth barometer was 0.23 above the normal. The highest pressure was reported from Saugeen the afternoon of the 12th, 0.29 above the normal. During the 13th the area gradually dissipated. On the 13th Cautionary Signals were ordered from Kittyhawk northward to Delaware Breakwater and at Sandy Hook and Wood's Holl. These signals were changed to Off-shore on the afternoon of the 14th, and were lowered at midnight. The following maximum velocities were reported: Sandy Hook, NW. 31; Cape May, W. 25; Wood's Holl, SW. 25; Delaware Breakwater, SW. 26.

No. IV.—During the 13th and 14th the barometer rose above the mean in the Northwest, and in the afternoon of the latter date it was 0.30 above the normal at Fort Garry. Moving slowly eastward with increasing pressure, it was central during the 16th over the Lower Lake region; Kingston barometer at midnight 0.54 above the normal. Moving down the valley of the St. Lawrence, the area withdrew eastward over the Atlantic ocean during the 18th. On the afternoon of the 17th, the