# MONTHLY WEATHER REVIEW,

## JUNE, 1874.

**WAR DEPARTMENT,**

**Office of the Chief Signal Officer,**

DIVISION OF

**TELEGRAMS AND REPORTS FOR THE BENEFIT OF COMMERCE AND AGRICULTURE.**

## I.—INTRODUCTORY.

The month of June has been distinguished by a decided excess of temperature, which has been especially marked in the central and western portions of the country, and by a decided excess of rain in the extreme Northwest and Northeast. The crop reports indicate on the average favorable returns, although the local exceptions to this general statement are quite remarkable, and the destruction by insects has, in some sections, particularly southe n Minnesota, been quite complete. No severe general storms have been experienced within the United States, but their occurrence has been replaced as usual during June by numerous and severe thunder and lightning and hail storms.

## II.—BAROMETRIC PRESSURE.

(1.) *In general.*—The general distribution of barometric pressure during the month will be apparent from the accompanying map, No. 2, from which will be seen that on the average the pressure has been highest on the Gulf and south Atlantic coasts, diminishing gradually as we proceed northward to the St. Lawrence valley and northwestward to Dakota. On the Pacific coast the barometer has as usual stood higher than on the Atlantic coast in similar latitudes; it has averaged 0.17 inch higher at Portland, Oregon than at San Diego. The barometric range during the month has been greatest in the northern portion of the Upper Lake region and somewhat less in Minnesota, Dakota and New England: it has been least in southern Florida and Texas, and on the California coast: the range in Colorado and Wyoming Territories has been about the same as in the lower Mississippi valley.

(2.) *Areas of high barometer.*—The principal areas of high barometer have been: No. I, that which on the 3d and 4th of the month existed off the coast of the Middle and Eastern States, producing south and east winds, with cloudy weather and rain.

No. II. Present in the Gulf States on the 9th.

No. III. Advanced from Upper Canada on the 10th southeastward over New England on the 11th.

No. IV. Passed over the Rocky Mountains on the 10th, having been central in Oregon on the 9th. Its influence was felt southward as far as Texas, while the central area passed eastward over the lower Missouri and Ohio valleys, reaching the middle Atlantic coast on the 14th, and continuing to produce easterly winds, with increasing cloudiness, on that coast on the 15th.

No. V. Was present over the South Atlantic and Eastern Gulf States from the 23d to the 26th.

(3.) *Areas of low barometer.*—The tracks pursued by the areas of low barometer are shown upon the accompanying map, No. 1, from which it will be seen that these have been confined to the northern portion of the country, the average latitude of the whole being somewhat more northerly than the similar average for June, 1873.

No. I. This depression passed from Nebraska on the 2nd of the month into Iowa on the 3d, after which it ceased to be traceable as a definite disturbance, although rainy and cloudy weather were very generally reported over New England.

No. II. Passed from Dakota on the 3d into Canada, and was last recorded north of Lake Superior on the 4th.

No. III. Passed from Nebraska on the 6th eastward over the Lake region and New England, being central in the latter region on the 8th.

No. IV. Passed from Nebraska on the 7th, northeast and eastward over the Lake region and New England, being central in the latter region on the 9th.

No. V. Passed from Nebraska on the 10th, northeastward over the Upper Lake region, Canada and the St. Lawrence valley, reaching the Gulf of St. Lawrence on the 13th.

No. VI. Passed from Kansas on the 14th, northeastward over the Upper Lake region, and thence slowly east and southeastward over Canada and New England, reaching a point south of Halifax on the 18th. The barometric gradients observed in the latter part of the course of this storm-centre were, with one exception, the steepest recorded during the month, although barely amounting to a tenth of an inch for a hundred miles.

No. VII. This storm passed somewhat suddenly from an unknown point one hundred and fifty miles north of Quebec, southeastward over Nova Scotia on the 23d.

No. VIII. Passed from Wyoming Territory on the 23d, eastward over the Upper Lakes, and was lost in Canada on the 25th.

No. IX. Passed from Nebraska on the 27th, northeastward over Lake Superior and thence to the St. Lawrence valley, reaching the Gulf of St. Lawrence on the 30th. This was a very well marked storm-centre. Its barometric gradients on the western side were, on the 28th, three-tenths of an inch to an hundred miles, with corresponding high north and west winds. During its passage eastward over Canada on the 29th, the Middle and Eastern States were visited by numerous local storms, of which some were unusually severe.

(4.) *Local Storms.*—The number of local storms has been apparently greater than usual in the northeastern and northwestern portions of the country, and has been fully up to the average in other sections. Approximately it is estimated that at least five hundred and fifty such storms have been recorded, most of which have been seen at more than two stations. Of those that were especially remarkable, whether in relation to wind, hail, rain or lightning, those may be noted that occurred on the following dates: On the 4th, in Colorado, Missouri, Illinois; 5, Ohio, Michigan; 6, Illinois, New York, Massachusetts; 7, Nebraska, Wisconsin, Illinois, Canada, New York, Michigan and Massa-

chusetts; 8, Nebraska, Iowa, Illinois, Wisconsin, Maryland, Rhode Island, Massachusetts, Canada, Cape Breton; 9, Nebraska, Indian Territory, Pennsylvania, New York, New Jersey, Long Island, Massachusetts; 10, Indiana, South Carolina, Virginia; 11, Indiana and Kingston, West Indies; 13, Louisiana; 14 Missouri, Nebraska; 15, Minnesota; 17, Massachusetts; 20, Tennessee; 21, Havana, West Indies; 23, Texas; 24, Texas, Wisconsin, Virginia; 25, Texas, Indiana, Michigan, Ohio, Canada, Pennsylvania, Virginia; 26, Minnesota, Wisconsin; 28, Missouri, Indiana, Ohio; 29, Indiana, Ohio, Pennsylvania, New York, New Hampshire.

In this series of storms the most remarkable dates are those of the 7th, 8th, 9th, 25th and 29th, on all of which days the local storms were especially prevalent over regions covered by masses of air flowing north and northeastward toward the general barometric depressions then existing in the northern sections of the country. The observer on the summit of Pike's Peak states that the local storms there experienced come from the northwest, west or southwest, and evidently originate over the central portions of the "parks" on the hot afternoons. One such storm approached his station under conditions very favorable for observation, and he noted that while the cloud-bearing currents of air flowed toward the rotating centre from all directions, they had also a decided downward movement, but through the interior funnel masses of smoke-like vapor rapidly ascended. The local storms observed at Pike's Peak belong possibly to the same class with those observed in the Gulf States and the West Indies, and which apparently originate often in the overheating of limited portions of land, rather than in the influence of the wind attending areas of low pressure. The average number of this class of storms as observed at any one station has been: In the Western Gulf States, 6; in the Central and Eastern Gulf, Florida and Key West, 15.

## III.—ATMOSPHERIC TEMPERATURE.

(1.) *In general.*—The general distribution of temperature during the month is shown by the isotherms on the accompanying map No. II, on which map, as also on map No. III, the Canadian observations have been carefully combined with those of the United States. From the table of comparative temperatures, it will appear that the month throughout the whole country has been warmer than usual. The range of temperature has been least on the Texas coast and in southern Florida, where it has amounted to about 20 degrees. It has averaged about 30 degrees from Cape May to Wood's Hole. The greatest range has been reported from Colorado and Minnesota, where it has amounted to 50 and 60 degrees. The average temperature on the summit of Mount Washington has been 42.9, or 25° below that of stations near the sea level.

The remarkable contrasts of temperature that are noticed in the winter months on the border of regions over which northerly and southerly winds respectively prevail, are represented during this month by only a single instance—that of the afternoon of the 26th of June—on which occasion a slight barometric depression appears to have been central in northeastern Pennsylvania. South and west winds were at the time prevailing, with a temperature of 90 or more over the South Atlantic and Eastern Gulf States, as also over a portion of West Virginia and Maryland. Southeasterly winds, with a temperature of 68 to 76, prevailed in the southern part of New England, and northerly winds, with a temperature of 56 to 60, prevailed in central New York.