

The wind veers or backs immediately when the rain begins, and blows from the opposite direction, with increasing force and falling temperature. The wind from any point around the storm blows toward the center, conforming to the general law, consequently any direction of movement taken by the storm would be against the wind.

Rainfall does not result from this opposition of the storm movement and the wind direction. It is a fact that points on either side of the storm path are not favored with rain, not because there is no opposition between the wind and storm, but because the rain area is small and confined to the storm path.

Rain may continue to fall for a short time after the storm center has passed with the wind blowing with the storm movement, but these storms usually move suddenly or dissipate rapidly, giving place to a clearing sky, light, variable winds and rising temperature.

#### CLIMATE AND CROP SERVICES.

In 1874 the system of voluntary meteorological observers, that had for many years been maintained by the fostering care of the Smithsonian Institution, was officially turned over to the Chief Signal Officer of the Army, and in 1891 it became an integral part of the Weather Bureau of the Department of Agriculture. In 1881 a circular letter was sent to the governors of States recommending the organization of State weather services under the proper State official and the appropriation of money for the necessary expenses. Since that date several States have taken the necessary action, and in some other States the work has been provided for by special local interests, but the great burden of expense still devolves upon the Weather Bureau. In order to encourage this important work the successive Chiefs of the Weather Bureau have assigned experienced observers to assist in the respective States, and in many cases the work that is done by these officers and the voluntary observers far exceeds that done by the State officials. Moreover, an undesirable diversity has developed in the methods and style of publication and the distribution of the climatological data.

In order to remedy these difficulties and bring about a more equable division of responsibilities the Chief of the Weather Bureau has issued "Instructions No. 18," dated January 30, 1896, from which we make the following extracts:

1. The State Weather Service Division of the Central Office will hereafter be known as "Climate and Crop Division," and the latter designation is hereby officially adopted.

It is desired to emphasize the distinction between "climate" and "weather." The term "climate" refers especially to seasonal meteorological conditions and to the variations between places in their average meteorological features. The work of voluntary observers and crop

correspondents has to do almost entirely with "climate" and not with "weather," which latter term refers more especially to the drift of changing air conditions from day to day. The weather-crop bulletins of the Weather Bureau will hereafter bear the following caption:

U. S. DEPARTMENT OF AGRICULTURE.

#### CLIMATE AND CROP BULLETIN OF THE WEATHER BUREAU.

The attention of directors of State Weather Services, supported wholly or in part by State funds and cooperating with the Weather Bureau, is respectfully called to the advisability of changing the titles of their services so as to omit the word "weather." Probably something like the following designation would be acceptable: "Ohio Climate and Crop Service."

Services wholly supported by funds from the Department of Agriculture will not, after March 1, 1896, be termed "State Weather Services." Such designation is misleading and manifestly improper, as the States have nothing to do with their maintenance.

The following caption for letters, crop bulletins, and monthly meteorological tables will be adopted, and will clearly indicate the status of these services:

U. S. DEPARTMENT OF AGRICULTURE.

#### CLIMATE AND CROP SERVICE OF THE WEATHER BUREAU.

ILLINOIS SECTION.

C. E. LINNEY, Section Director.

CHICAGO, ILL.

The necessary change may go into effect at once where possible, but it must not be delayed longer than March 1st, next.

Where the meteorological tables are printed in journals supported by private means care will be exercised not to designate such journals as "official."

All observers and other officials of the Weather Bureau are forbidden to approach State legislators or committees of State legislatures for the purpose of inducing them to appropriate public funds to be used in State Weather Service work, or for other purposes. They may appear before the proper committees for the purpose of explaining the need of such appropriation, if invited by the proper State officials, but in no way will they solicit legislative action in the interest of their work. The work of the Climate and Crop Service of the Weather Bureau should be extended along all proper lines, so as to meet the needs of the people as fully as the resources of the national service will permit.

If legislatures desire to appropriate funds for the purpose of cooperating with the national service in still further extending its benefits to their States, that matter must be left to the determination of such legislatures, without solicitation on the part of any Weather Bureau employee.

It is hoped soon to perfect printing appliances so that each Section of the Climate and Crop Service of the Weather Bureau may be able to print its own daily weather maps, crop bulletins, and monthly publications, and that the long-sought object of issuing uniform publications may at last be realized. If this is accomplished, it is intended to set apart proper space for text or editorial notes, so that the individuality of the official at the head of the Section may be fully recognized.

### METEOROLOGICAL TABLES.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

Table I gives, for about 130 Weather Bureau stations making two observations daily and for about 20 others making only the 8 p. m. observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation.

Table II gives, for about 2,400 stations occupied by voluntary observers, the extreme maximum and minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of any snow that may have fallen. When the spaces in the snow column are left blank it indicates that no snow has fallen, but when it is possible that there may have been

snow of which no record has been made, that fact is indicated by leaders, thus (. . .).

Table III gives, for about 30 Canadian stations, the mean pressure, mean temperature, total precipitation, prevailing wind, and the respective departures from normal values. Reports from Newfoundland and Bermuda are included in this table for convenience of tabulation.

Table IV gives, for 29 stations, the mean hourly temperatures deduced from thermographs of the pattern described and figured in the Report of the Chief of the Weather Bureau, 1891-'92, p. 29.

Table V gives, for 28 stations, the mean hourly pressures as automatically registered by Richard barographs, except for Washington, D. C., where Foreman's barograph is in use. Both instruments are described in the Report of the Chief of the Weather Bureau, 1891-'92, pp. 26 and 30.

Table VI gives, for 136 stations, the arithmetical means of the hourly movements of the wind ending with the respective