

want to stand on the proposition, however, that the *irregularities of the rivers are due to their habit of following the irregularities of precipitation, irrespective of the nature of the cover on the ground.* The present writer, who claims to be a disciple of the river engineers, would like to present as an article for the treaty of peace, that there is an analogy between the annual discharge of the upper Ohio and the variation of levels of the Great Lakes, for the purpose of showing that whatever it is which produces extremes of drought or high water in the Ohio, has its seat of operation in the Gulf of Mexico and the Pacific Ocean, that the forested areas of the central United States are creations of those operations, and that cutting away the forests has in no wise interfered with them, or reduced or increased the volume of the Ohio returned annually to the ocean.

It is to be feared, however, that no lasting peace can be made until the meteorologists and the hydrologists have worked up all their available data (they are the court of last resort) and deal only with facts and figures, as indeed the engineers have tried to do, but have not always been well treated by the popular tribunals.

SUMMARY OF THE CLIMATOLOGICAL DATA FOR THE UNITED STATES, BY SECTIONS.

By Prof. FRANK H. BIGELOW, in charge of the Climatological Division.

The climatological data of the United States, which have accumulated for the last half century, have been recently collected together in a series of summaries, 106 in number, covering the United States by sections, as given on the accompanying chart. It has been found convenient for various purposes to bring the data together for ready reference, in order that the numerous inquiries addressed to the Central Office or to the section directors may be more readily answered. The summaries also serve the purpose of special studies on the part of engineers and others interested in water resources, in farming operations, and in climatological matters generally. The records of the Central Office have been carefully compared with the retained copies on the stations, and all possible errors have been eliminated from these tables. The Annual Report of the Chief of the Weather Bureau will contain similar data for the years succeeding 1908, so that the record will be continuous for the future. The summaries contain a statement of the topographical and climatic features of the region, with remarks of a practical nature such as are likely to be of interest to the reader. The tables include the precipitation for the section, giving the monthly, annual, and average amounts of rain or the equivalent of snow in inches and hundredths. Some gaps which have occurred in the records are filled in by interpolation of data from surrounding stations, such interpolated values being printed in bold faced type.

A series of subordinate tables follow, giving (a) the average number of days with 0.01 inch or more of precipitation in each month; (b) the mean temperature; (c) the highest temperature; (d) the lowest temperature; (e) the average hourly wind movement in miles; (f) the mean relative humidity in percentage; (g) the prevailing wind direction; (h) the frost data, etc.

A brief summary of hydrographic data for the section, furnished by the United States Geological Survey, is added, which gives some of the relations between the precipitation and the discharge of the important rivers for each month, namely, the maximum, minimum, and mean discharge in second-feet; also per square mile, together with the run-off as depth in inches on the drainage area and total in acre-feet.

Diagrams are added showing the comparative monthly distribution of precipitation at a number of stations, and a chart showing the boundaries of the sections, the location and number of reporting stations, river systems, and general elevation above sea level.

These summaries will finally be brought together in a volume and this will give a history of the climate of the United States in as convenient a form for reference as is practicable.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZBUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —.

American forestry. Washington. v. 16. April, 1910.

Roth, Filibert. The Appalachian forests and the Moore report. p. 209-217.

Glenn, L. C. Forests as factors in stream flow. p. 217-224.

Swain, George F. "The influence of forests on climate and on floods." A review of Prof. Willis L. Moore's report. p. 224-240.

Astrophysical journal. Chicago. v. 31. April, 1910.

Barnard, E. E. Observations of the aurora made at the Yerkes observatory, 1902-1909.

Electrician. London. v. 64. March 11, 1910.

— Some magnetic storm records. p. 891-892. [Includes diagram of earth currents obtained on broken Atlantic cable before and during magnetic storm.]

Engineering news. New York. v. 63. April 14, 1910.

Swain, George F. The influence of forests on climate, floods, and erosion. p. 427-429. [Extracts from discussion of a report by Prof. Willis L. Moore, from an advance copy of a contribution to "American forestry."]

White, Lazarus. The retarding of snow melting by forests in the Catskills. p. 436. [Illustrated.]

Geographical journal. London. v. 35. April, 1910.

Beadnell, H. J. Llewellyn. The sand dunes of the Libyan desert. p. 379-395. [Includes discussion of sand-carrying winds and sandstorms.]

Huntington, Ellsworth. Problems in exploration—Central Asia. p. 395-419. [Outlines methods of investigating possible changes of climate in Central Asia.]

Indian meteorological department. Memoirs. Simla. v. 21, pt. 1. 1910.

Walker, Gilbert T. On the meteorological evidence for supposed changes of climate in India. p. 1-21.

Nature. London. v. 82. 1910.

Bo'ston, W. E. The spectrum of the zodiacal light. p. 470-471. (Feb. 17.)

Nature. London. v. 83. 1910.

Schuster, Arthur. Prof. K. J. Ångström. p. 134-135. (Mar. 31.)

Cook, J. Center of gravity of annual rainfall. p. 125-126. (Mar. 31.)

Watt, Andrew. Center of gravity of annual rainfall. p. 188. (Apr. 14.) [Criticism of Cook's method of comparing annual rainfalls.]

Popular science monthly. New York. v. 77. May, 1910.

Bigelow, Frank H. The circulations of the atmospheres of the earth and of the sun. p. 437-461.

Smith, James Perrin. Ancient climates of the west coast. p. 478-486.

Royal society. Philosophical transactions. London. ser. A. v. 210.

Swann, W. F. G. On the specific heats of air and carbon dioxide at atmospheric pressure by the continuous electric method at 20° C. and 100° C. p. 199-238.

Royal society. Proceedings. London. ser. A. v. 83. 1909.

Simpson, George O. On the electricity of rain and snow. p. 394-404.

Science. New York. v. 31. April 15, 1910.

Matthes, François E. Air currents in mountain valleys. p. 577-578.

Scientific American. New York. v. 102. April 9, 1910.

— A reform in meteorological units. p. 294.

Symons's meteorological magazine. London. v. 45. April, 1910.

Mossman, R. C. Correlation of climatic changes. p. 45-46.

Aérophile. Paris. 18 année. 15 mars 1910.

Lorenc, Vladimir, & Lorenc, Victor. Du rôle du vent dans l'aviation. p. 127-129.

Ciel et terre. Bruxelles. 31 année. 1910.

Neumann, S. Navarro. Le tremblement de terre Ibérique du 23 avril 1909. p. 41-51. (Février.)

V[andevyver]. Vulgarisation de la météorologie. p. 99-106. (Mars.)

— Le paratonnerre avant Franklin. p. 127-131. (Mars.)

L., E. Électricité atmosphérique et électromètres. p. 140-141. (Mars.)

France. Académie des sciences. Comptes rendus. Tome 150. 21 mars 1910. Nouailhac-Pioch & Maillet, Edmond. Sur les crues de la Seine en janvier-février 1910. p. 813-816. [Includes summary of the meteorological factors.]