

requirements, and it is most likely that the fact that many people were unable to get in communication with this office tended to increase the excitement. The best means of meeting a situation of this kind is the issue of a short bulletin on the ordinary forecast card, which is given wide distribution in the city by mail carrier in the early morning delivery or in the afternoon, as conditions warrant. By multigraph process 2,000 or more of these bulletins can be prepared in a few minutes. In this way we have been able to reach the public more effectually than by telephone, and to do so several hours before the afternoon papers are issued.

It is exceedingly difficult to give timely warnings of floods in a river the size and character of the Miami because of the short interval of time between rainfall and the resulting crest stage in the river, which is approximately 12 hours in the upper and 18 hours in the lower stream. This was most clearly brought out in July, 1915. A heavy rainstorm occurred over the watershed on July 7, most of the rain falling between 8 p. m. and midnight. The crest stage from this rain was reached at Piqua, 40 miles above Dayton, about 11 a. m. of the 8th, and the river at Dayton had risen to within a foot of the highest stage by 2 p. m. of the 8th, although it continued to rise slowly till about midnight.

#### GENERAL CLASSIFICATION OF METEOROLOGICAL LITERATURE.

By CHARLES F. BROOKS, Meteorologist.

[Dated: Weather Bureau, Washington, Mar. 5, 1919.]

The following general classification of meteorological literature was evolved for the purpose of having a logical, simple, and easily remembered system for filing notes, pamphlets, and references. It is the outgrowth of the use of the Dewey Decimal System, of that in the International Catalogue of Scientific Literature (section F, Meteorology), and, finally, of a decimalized edition of the latter proposed by the late Eleanor Buynitzky of the Weather Bureau Library.<sup>1</sup> For an individual, the Dewey Decimal System is unduly detailed and cumbersome. To use this system it is necessary to refer to the classification and its index constantly while filing material. Furthermore, for appropriate space for the important new developments of meteorology the original classification was made too long ago. The International Catalogue has plenty of detail, but the numbers are very difficult to remember. The decimalized modification of it is not easy to remember, and it is somewhat difficult to use on such important subjects as winds, and effects of the weather.

Therefore, I have tried to make a classification with fewer divisions, especially in those parts of the subject where single papers (e. g. winds) usually cover several of the more refined divisions of classifications now in use. Subheadings can be made to suit individual requirements of those who may use this system. The order is in most respects the same as that shown in the outline on page 559 of the December, 1918, REVIEW. This classification is now in use in handling current material for the MONTHLY WEATHER REVIEW.

#### GENERAL CLASSIFICATION OF METEOROLOGICAL LITERATURE.

- 00 General.
  - 01 History. Biography.
  - 02 Bibliographies, general treatises, textbooks, glossaries.
  - 03 Periodicals. Reports of societies, etc.
  - 04 Miscellaneous addresses, articles, and notes.
  - 05 Teaching and research.
- 10 Observation.
  - 11 Methods of observation. Work of observatories and weather services.
  - 12 Kite and balloon stations and methods.
  - 13 Radiation and temperature measurement.
  - 14 Pressure measurement.
  - 15 Wind and cloud movement observation.
  - 16 Moisture measurement.
  - 17 Meteorographs. Miscellaneous.
  - 18 Tables for reductions.
  - 19 Applications of mathematics.
- 20 Air.
  - 21 Composition and extent of the atmosphere.
  - 22 Thermodynamics of air.
  - 23 Miscellaneous properties of air as a gas.
  - 24 Acoustics.
  - 25 Optics.
  - 26 Atmospheric electricity.
  - 27 Lightning.
  - 28 Aurora. Magnetic storms.
- 30 Temperature.
  - 31 Solar radiation.
  - 32 Atmospheric scattering, absorption, and radiation.
  - 33 Land-surface absorption, radiation, and temperature.
  - 34 Water-surface absorption, radiation, and temperature.
  - 35 Effect of surface on air temperature.
  - 36 Vertical distribution of temperature.
  - 37 Geographical distribution of temperature.
- 40 Pressure.
  - 41 Vertical decrease of pressure and density. Hypsometry.
  - 42 Pressure reduction to stated levels, for map making.
  - 43 Pressure changes.
  - 44 Wind pressure.
  - 45 Geographical distribution of pressure.
- 50 Wind.
  - 51 Convictional circulation. Local winds due directly to heating or cooling.
  - 52 Vertical convectional currents in the free air.
  - 53 Gradient (frictionless) wind. Actual wind.
  - 54 Influence of the earth's surface on wind velocity and direction; turbulence.
  - 55 Over- and under-running of winds. Wind billows.
  - 56 General circulation of the atmosphere.
- 60 Moisture.
  - 61 Evaporation. Humidity.
  - 62 Dew and frost.
  - 63 Condensation nuclei.
  - 64 Fog. Fog ice deposits.
  - 65 Cloud forms and their genesis.
  - 66 Precipitation in general: causes, fluctuations, distribution.
  - 67 Snow, sleet, rain, hail: characteristics, causes, and distribution of each.
- 70 Weather.
  - 71 Weather abnormalities: changes in "grand centers of action."
  - 72 Tropical cyclones.
  - 73 Extra-tropical migratory cyclones and anticyclones considered as units: origin and maintenance, general characteristics, movement and paths.
  - 74 Distribution of meteorological elements about and in cyclones and anticyclones.
  - 75 Local storms: thunderstorms, squalls, tornadoes, and waterspouts.

<sup>1</sup> Mo. Wea. Rev., 1915, 43: 362-364; review, Science, Feb. 11, 1916, p. 216.

## 80 Application of meteorology.

- 81 Weather forecasting: basis, (.1) Local, (.2) Collected observations.  
 82 Agricultural meteorology. Climate and crops. Phenology. Ecology.  
 83 Hydrology.  
 84 Manufacturing and business aspects of the weather.  
 85 Land transportation and the weather.  
 86 Marine meteorology. Oceanography.  
 87 Aeronautical meteorology.  
 88 Military meteorology.  
 89 Physiological effects of weather and climate on man.

## 90 Climatology.

- 91 General climatology: the climatic elements; climate in relation to latitude, surface covering, altitude, and exposure.  
 92 Climatology: climates of the world and their effects on the people. [Divided geographically by continents or natural regions.]  
 93 Changes of climate in historical and geological time.

## BIBLIOGRAPHY.

## RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

## Aitken, John.

Ground-ice. diagr. 27½ cm. (Reprinted from Journal of the Scottish meteorological society. 3d ser. vol. 18, no. 35. 1918. p. 13-18.)

## Ångström, Anders.

Determination of the constants of pyrogeometers. Stockholm. 1918. cover-title, 16 p. 3 tables. diagrs. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 8. Meddelande från Uppsala universitets fysiska institution.)

On the radiation and temperature of snow and the convection of the air at its surface. Observations at Abisko in January 1916. Stockholm. 1918. cover-title, 18 p. tables. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 21.) Literature, p. 17-18.

## Arrhenius, Svante [August].

The destinies of the stars: authorized tr. from the Swedish by J. E. Fries. New York [etc.] 1918. xvii, 256 p. plates. (part. fold.) 19½ cm. [Chapter 3.—The climatic importance of water vapour. 4.—Atmosphere and physics of the stellar bodies. 5.—The chemistry of the atmosphere.]

## Batavia. Magnetisch en meteorologisch observatorium.

. . . Observations made at secondary stations in Netherlands East-India . . . Vol. 4-5. (1914-1915.) Batavia. 1917-1918. 2v. tables. 37 cm.

Observations made at the Royal magnetical and meteorological observatory at Batavia . . . Vol. 37, 1914 . . . Batavia. 1918. xxvi, 116 p. charts. tables. 36½ cm.

## Chamber of commerce of the United States of America.

Relation of weather and business in regard to rainfall. Washington. 1919. 12 p. charts. 27½ cm.

## Harvard travellers club.

Handbook of travel. Cambridge, Mass. 1917. 3 p. l., 544 p. plate. illus. tables. diagrs. 18 cm. [Meteorological observations, by R. DeC. Ward, p. [451]-472.]

## Harvey, R[odney] B[eecher].

Hardening process in plants and developments from frost injury. Washington. 1918. plates. charts. tables. 26 cm. (Reprinted from Journal of agricultural research. Vol. 15, No. 2, p. 83-111.) Literature cited, p. 108-111.

## Leverett, Frank.

Surface geology and agricultural conditions of Michigan: with a chapter on climate by C. F. Schneider. Lansing, Mich. 1917. 223 p. 23½ cm. (Michigan geological and biological survey. Publication 25. Geological series 21. Published as part of the Annual report of the Board of geological survey for 1917.)

## Lourenço Marques. Observatório Campos Rodrigues.

Relatório. Ano de 1917. Volume 9. Lourenço Marques. 1918. 102 p. incl. tables. 38½ cm. At head of title: Provincia de Moçambique. Serviços de Marinha.

## Lundblad, Ragnar.

A theory of the pyrogeometer of Ångström. Stockholm. 1918. cover-title, 10 p. 22 cm. (Arkiv för matematik, astronomi och fysik . . . Band 13. No. 7. Meddelande från Uppsala universitets fysiska institution.)

## McEwen, George F[rancois].

Oceanic circulation and its bearing upon attempts to make seasonal weather forecasts. A sketch of observational methods and explanations. 20 p. 23½ cm. (Bulletin of the Scripps institution for biological research of the University of California. No. 7. [La Jolla, Cal.] 1918.) Bibliography, p. 19-20. [Largely historical.]

## Maryland. Geological survey.

The geography of Maryland, by W. B. Clark. Baltimore. 1918. 5 p. l., [41]-167 [4] p. illus. maps. diagrs. 25½ cm. (Special publication, volume 10, part 1.) [Climate, p. 99-101.]

## Mysore. Meteorological dept.

Report on rainfall registration in Mysore for 1917 . . . Bangalore. 1918. 1 p. l., xvii, 53 p. charts (part. fold.). tables. 31½ cm.

## Salter, Carle.

The relation of rainfall to configuration. [London] 1918. cover-title, 37 p. charts (part. fold.). tables. 22 cm. At head of title: The institution of water engineers. [cf. pp. 33-41, M. W. R., Jan., 1919.]

## Seeley, D[ewey] A[lsdorf].

The length of the growing season in Michigan. charts. tables. 23 cm. (Reprinted from the 20th Report of the Michigan academy of science [Lansing, Mich.] 1918. p. [223]-232.)

## Shaw, [William] Napier.

Memorandum on atmospheric visibility. [London] 1918. 16 p. charts. 22½ cm. (Published for the Naval meteorological service, Hydrographical dept., Admiralty.) [Abstr. to be published in Feb. Review.]

## RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Professor in charge of Library.

The following 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 and other communications bearing on meteorology and cognate branches of science. This is not a complete index 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.

*American journal of science. New Haven. v. 47. February, 1919.*

Winchell, A. N., & Miller, E. R. Further notes on the dustfall of March 9, 1918. pp. 133-134. [cf. M. W. R., Nov., 1918.]

*Aviation. New York. v. 6. February 15, 1919.*

Tucker, Frank T. Winds and the transatlantic flight. p. 85.

*Franklin institute. Journal. Philadelphia. v. 187. February, 1919.*

Shelton, F. H. Windmills, picturesque and historic. p. 171-188. *Journal of geography. New York. v. 18. February, 1919.*

Palmer, Andrew H. Water power in California. p. 41-53.

*London, Edinburgh, and Dublin philosophical magazine. London. v. 57. January 1919.*

Jeffreys, Harold. On travelling atmospheric disturbances. p. 3-8.

McLeod, A. R. On the lags of thermometers with spherical and cylindrical bulbs in a medium whose temperature is changing at a constant rate. p. 134-144.

*Nature. London. v. 102. January 16, 1919.*

Shaw, Napier. Climograph charts. p. 383.

Dines, W[illiam] H[enry]. Some temperature anomalies. pp. 384-385.

Dines, J[ohn] S[omers]. Cyclones. p. 385.