In the case of vessels that are in port when storm warnings are displayed, the service now rendered by the Government is as satisfactory as present knowledge of storms and facilities for disseminating advices regarding them will permit, provided, of course, shipmasters seek and are guided by the detailed information that the advices convey. Vessels that are leaving port and those that may be able to sight warnings displayed on shore possess no means of knowing the character, as regards intensity, of an approaching storm, and vessels beyond the sight of land are unable to obtain a knowledge either of storm-warning displays or of the qualifying or emphasizing advices that form a part of hoisting orders.

Assuming that the skill of the Government forecaster is limited to an issue of warnings twelve to twenty-four hours before the full force of a gale is experienced, and that conscientious and active interest on the part of the shipmaster impels him to secure all possible information from one or more of the numerous storm-warning stations that circle the Great Lakes, it is obvious that an extension of the service to vessels in the open lake can be accomplished only by new and improved methods of communication.

The recent loss in three lake storms of more than 100 human lives and millions of dollars' worth of property, which, it is assumed, may in part be attributed either to failures to receive or failures to heed the warnings, renders imperative the adoption of measures and methods calculated to increase the effective operation of the warning service.

A measure that is now a practise with careful commanders would require vessel masters before leaving a port to consult and record the latest forecasts and advices issued by the Weather Bureau. A second, that could be adopted with profit during the stormy fall months, would be to have vessel masters in the open lake shape courses that would permit them to sight at intervals the storm-warning display stations, and in cases where displays are observed to adopt measures that may in their judgment be of advantage to their employers, to the lives and property in their charge, and to themselves. A feasible method of extending the scope and area of the distribution of advices would be the equipment of stations and vessels with wireless telegraph apparatus. The operation of this latter method would require one or two wireless stations on each lake shore and the methods of wireless communication between shore and ships that are being adopted by sea going vessels.

The measures and methods here outlined are practicable and can be rendered operative by cooperation between the Government and vessel owners. In a few years their adoption will be demanded as a purely business proposition.

RECENT PAPERS BEARING ON METEOROLOGY.

H. H. KIMBALL, 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 Journal of Science. New Haven. 4th Series. Vol. 20. Dec., 1905.

Barus, C[arl]. Relations of ions and nuclei in dust-free air. Pp. 448-453.

Engineering News. New York. Vol. 54. Nov. 23, 1905.

Beardsley, J. W. Labor conditions in the Philippine Islands. [Includes observations of wind, temperature, and precipitation in Manila.] Pp. 538-544.

Nature. London. Vol. 73. Nov. 16, 1895.

Rotch, A[bbott] L[awrence] and Teisserenc de Bort, L[eon.] Exploration of the atmosphere over the tropical oceans. Pp. 54-56.

Nature. London. Vol. 73. Nov. 30, 1905.

Chree, Charles. Magnetic storms and auroras. [Notes on recent phenomena.] P. 101.

Proceedings of the Royal Society. London. Vol. 76. Dec. 6, 1905.

Lockyer, Norman, and Lockyer, Wm. J. S. The flow of the River Thames in relation to British pressure and rainfall changes. Pp. 494-506.

Quarterly Journal of the Royal Meteorological Society. London. Vol. 31. Oct., 1905.

Ball, John. On a logarithmic slide-rule for reducing readings of the barometer to sea-level. Pp. 285-292.

Fergusson, S. P. Two new meteorological instruments: 1. The automatic polar star light recorder; 1. The ombroscope. Pp. 309-316.

Hepworth, M. W. Campbell. Climatological observations at an Arctic station in Repulse Bay. Pp. 317-326.

Simpson, George C. Normal electric phenomena of the atmosphere. Pp. 295-306.

Strachan, Richard. Measurement of evaporation. Pp. 277-281.

Review of Reviews. New York. Vol. 32. Dec., 1905.

——Natural and artificial rain-formation. [Abstract of paper by Prof. von Schiller-Tietz]. Pp. 745-746.

Science Abstracts. London. Sec. A. Vol. 8. Nov., 1,905.

A[llen], G. E. Laws of distribution of size in raindrops. [Abstract of paper by A. Defant.] P. 634.

Scientific American Supplement. New York. Vol. 60. Nov. 25, 1905.

——Some curious phenomena of rainfall. Pp. 25000-25001.

Montgomery, J. New principles in aerial flight. Pp. 24991-24993.

Scientific American Supplement. New York. Vol. 60. Dec. 16, 1905.

——Thermometers, pyrometers, and thermo-regulators operated by the pressure of saturated vapors. [Abstract from La Science au XXme Siècle]. Pp. 25048-25050.

Symons's Meteorological Magazine. London. Vol. 40. Nov., 1905.

Jenkin, Arthur P. Periodicity of rainfall. Pp. 179-181.

Annales de Geographie. Paris. 14 année. Nov. 15, 1905.

Vacher, Antoine. Le haut Cher, sa vallée et son régime. [Precipitation at Montluçon]. Pp. 399-423.

Ciel et Terre. Bruxelles. 26 année. Nov. 16, 1905.

L[ancaster], A. La température de la France et des pays limitrophes. [Abstract of paper by A. Angot, with additional remarks on the temperature of Belgium.] Pp. 427-442.

Ciel et Terre. Bruxelles. 26 année. Dec. 1, 1905.

Gosselet, J. Essai de comparaison entre les pluies et les niveaux de certaines nappes aquifères du nord de la France. Pp. 476-478.

Comptes Rendus de l'Académie des Sciences. Paris. Tome 141. Nov. 6, 1905.

Maillard. Sur la trombe du 4 juillet dans l'Orléanais. Pp. 742-744.

Comptes Rendus de l'Académie des Sciences. Paris. Tome 141. Nov. 13, 1905.

Hergesell, H. L'exploration de l'atmosphère libre au-dessus de l'Océan Atlantique, au nord des régions tropicales, à bord du yacht de S. A. S. le Prince de Monaco, en 1905. Pp. 788-791.

Comptes Rendus de l'Académie des Sciences. Paris. Tome 141. Nov. 20, 1905.

Rey, M. J. Observations d'électricité atmosphérique sur la Terre de Graham. Pp. 850-852.

La Géographie. Paris. Tome 12. Aug. 15, 1905.

Legendre, A. F. Le Sseu-tch'ouan. Son sol, son climat, ses productions. Pp. 87-98.

Steen, Aksel S. La sécheresse en Norvège. Pp. 09-102.

Le Temps qu'il Fait. Mons. 2 année. Nov., 1905.

Bracke, A. Anciennes observations faites à Jemappes. [1845-1848. 1853-1857.] Pp. 203-212.

Bracke, A. Échos du concours de prévision du temps. Pp. 201-203.

Touchet, Em. Photographie des éclairs. Pp. 213-220.

Annalen de Physik. Leipzig. 4 folge. Bd. 18. 1905.

Denizot, A. Zur Theorie der relativen Bewegung und des Foucaultschen Pendelversuches. Pp. 299-322.

Gaea. Leipzig. 41 Jahrgang. Dec. 1905.

——Wetterperioden. Pp. 705-707.

Gaea. Leipzig. 42 Jahrgang. Jan., 1906.

——Eine Anleitung zum Beobachten von Erdbeben. Pp. 17-28.

Klein, [Hermann J.]. Die bisherigen Erfolge der Wetterprognosen. Pp. 4-9.

Illustrierte Aeronautische Mitteilungen. Strassburg. 9 Jahrgang. Nov., 1905.

Archdeacon, Earnest. Vortrag von E. Archdeacon über den Schwebeflug. (Uebersetzt durch A. de Quervain.) Pp. 342-353.

Meteorologische Zeitschrift. Wien. Band 22. Oct., 1905.

Greim, G. Schätzung der mittleren Niederschlagshöhe im Grossherzogtum Hessen im Jahre 1903. P. 477.

Hann, J[ulius]. Bemerkungen über die Schwerekorrektion bei den barometrischen Höhenmessungen. Pp. 456-462.

H[ann], J[ulius]. Eredia über die Temperatur-Differenz zwischen Rocca di Papa und Monte Cavo. P. 470.
H[ann], J[ulius]. Mittelzeiten für die Vegetation und die Landwirtschaft in Schweden 1873-1900. P. 456.
H[ann], J[ulius]. Regenfall in der Stadt Oaxaca. Pp. 477-478.
Hann, J[ulius]. Resultate der meteorologischen Beobachtungen auf dem Kodaikánal-Observatorium in Südindien im Jahre 1904. Pp. 468-469.
McDowall, Alex. B. Sonnenflecken, Luftdruckabweichungen zu Stykkisholm und Frosttage zu Greenwich. Pp. 462-463.
——Meteorologische Beobachtungen in Arequipa (Peru) 1902 und 1903. Pp. 471-462.
——Ein meteorologisches Amt für das britische Reich. Pp. 467-468.
Osthoff, H. Formen der Cirruswolken. (Schluss.) Pp. 439-455.
——Prohaska über Blitzschäden und bemerkenswerte Blitzformen in Steiermark und Kärnten in den Jahren 1902 und 1903. Pp. 464-467.
——Resultate der meteorologischen Beobachtungen am Observatorium in Quito in den Jahren 1901-1904. Pp. 475-476.
Taudin-Chabot, J. J. Geometrisches zum sogenannten Sonnenuntergang; die 5 merkwürdigen Stellungen. Pp. 463-464.
Topolansky. Dauer der Blitze. P. 468.
Topolansky. A. J. Monné über den Niederschlag im Königreich der Niederlanden. Pp. 470-471.
Vageler, P. Beobachtungen während der Sonnenfinsternis am 30. August 1905. Pp. 473-474.
—— Wassermangel in Norwegen im Jahre 1904. P. 475.
—— Zur Ozonbildung in der Atmosphäre. P. 468.

Naturwissenschaftliche Rundschau. Berlin. 20 Jahrgang. Nov. 23, 1905.
Defant. Berichte aus den naturwissenschaftlichen Abteilungen der 77. Versammlung deutscher Naturforscher und Ärtze in Meran 1905. *Abteilung 6: Geophysik, einschliesslich Meteorologie* und Erdmagnetismus. P. 606.

Physikalische Zeitschrift. Leipzig. 6 Jahrg., Nov. 9, 1905.
Gerdien, H. Demonstration eines Apparates zur absoluten Messung der elektrischen Leitfähigkeit der Luft. Pp. 800-801.

Physikalische Zeitschrift. Leipzig. 6 Jahrg. Dec. 1, 1905.
Saussure, René de. Vorschlag zu einem europäischen meteorologischen Zentralbureau. (Bericht an der Kongress der Schweizerischen Naturforschenden Gesellschaft, Luzern, den 13 Sept., 1905.) Pp. 852-855.

Das Wetter. Berlin. 22 Jahrgang. Nov., 1905.
Sieberg, August. Einiges über den Schnee. Pp. 241-249.

Journal of the Meteorological Society of Japan. Tokyo. 24th year. Oct., 1905.
Wada, Y. Régime des pluies aux environs de Tchemulpo. Pp. 1-7.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

H. H. KIMBALL, Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

American Catalog, 1900-05.
Containing a record under author, title, subject and series of the books published in the United States together with a directory of publishers. lxii, 1233 pp. 4°. New York, 1905.

Britton, Nathaniel Lord, and Brown, Addison.
Illustrated flora of the northern United States, Canada and the British Possessions from Newfoundland to the parallel of the southern boundary of Virginia and from the Atlantic Ocean westward to the 102d meridian. 3 v. 4°. New York, 1905.

Davison, Charles.
Study of recent earthquakes. xii, 355 pp. 12°. London, 1905.

Ebert, H[ermann].
Anleitung zum glasblasen. Ed. 3, enl. xii, 120 pp. 8°. Leipzig, 1904.

Geographisches Jahrbuch. v. 27, 1904.
Hrsg. von Hermann Wagner. 2 pts. in 1 v. 8°. Gotha, 1905.

Gray, Asa.
Field, forest, and garden botany; a simple introduction to the common plants of the United States east of the one hundredth meridian, both wild and cultivated; revised and extended by L. H. Bailey. [New edition.] 519 pp. 8°. New York, [1895.]

Insurance Company of North America.
Lakes manual. 166 pp. 12° Chicago, [1905.]

John Crerar Library, Chicago.
List of bibliographies of special subjects. 504 pp. 4°. Chicago, 1902.
List of cyclopedias and dictionaries with a list of directories. 272 pp. 4°. Chicago, 1904.
List of serials in the public libraries of Chicago and Evanston, corrected to April, 1903. 101 pp. Chicago, 1903.

Larousse, [Pierre].
Nouveau Larousse illustré; dictionnaire universel encyclopédique publie sous la direction de Claude Augé . . . 7 v. f°. Paris, [1898-1904.]

Lippincott's New Gazetteer.
A complete pronouncing gazetteer or geographical dictionary of the world . . . edited by Angelo Heilprin and Louis Heilprin. x, 2053 pp. 4°. Philadelphia, 1905.

Mossman, Robert C.
Scottish national Antarctic expedition; meteorology. n. t. p. 12 pp. 8°. Edinburgh, [1905.] Reprinted from Scottish geographical magazine. v. 21, No. 8, August, 1905.

New York. State Library.
Indexing; principles, rules, and examples. (Bulletin 94, Library School bulletin 19) pp. 465-530. 8°. Albany, 1905.
Material for course in reference study. (Bulletin 83, Library School bulletin 16) pp. 297-408. 8°. Albany, 1903.
Selection of cataloguer's reference books in . . . State Library. (Bulletin 84, Bibliography bulletin 36) pp. 235-416. 8°.

Rich'er, Victor von.
Organic chemistry; or, Chemistry of the carbon compounds; edited by R. Anschütz, translated by E. F. Smith. 3d American from 8th German edition. 2 v. 8°. Philadelphia, 1902.

Righi, Augusto.
Modern theory of physical phenomena; radio-activity, ions, electrons; authorized translation by Augustus Trowbridge. xiii, 165 pp. 12°. New York, 1904. Bibliography, pp. 155-61.

Shaw, W[illiam] N[apier].
On the treatment of climatological observations. n. t. p. 13 pp. 4°. [Edinburgh], 1905. Reprinted from Scottish meteorological society. Journal. ser. 3, v. 13 pp. 3-13.
Seasons in the British Isles from 1878. n. t. p. 97 pp. 8°. [London.] 1905. Reprinted from Royal statistical society. Journal. v. 68 pt. 2, June, 1905.

Société Astronomique et Météorologique, Port-au-Prince.
. . . Statuts. 5 pp. 12°. Port-au-Prince, 1905.

Strobel, *Friedrich, comp.*
Adressbuch der lebenden physiker, mathematiker und astronomen des in- und auslandes und der technischen hilfskräfte. x, 258. 8°. Leipzig, 1903.

Sutton, J. R.
Influence of water-vapour upon nocturnal radiation. (Royal Dublin society Scientific proceedings. New ser. v. 11, No. 3, August 1905.) pp. 13-33. 8°. Dublin, 1905.

Switzerland. Meteorologische Central-anstalt.
Annalen. v. 40, 1903. v. p. f°. Zurich, [1905].

Woodruff, Charles E[dward].
Effects of tropical light on white men. vii, 358 pp. 8°. New York, 1905.

NOTES AND EXTRACTS.

A GUIDE TO THE OBSERVATION OF EARTHQUAKES.

The Strassburg Seismological Station has distributed a circular[1] throughout the world to all German consuls that will, it is hoped, concentrate our efforts to record and collect earthquake data. As we now reprint this circular we will request all to send their observations to the nearest consulate of the German Empire, or to the German Consul-General in New York, or direct to Prof. H. F. Reid, Johns Hopkins University, Baltimore, Md., or to the Editor, who will forward them properly. These observations will not be printed in the MONTHLY WEATHER REVIEW, but the records from our Weather Bureau seismographs and the special studies of Professor Marvin will be thus printed for the information of all.

[1] Reprinted from Beiträge zur Geophysik, 1905. VII Bd. 4 heft.

A GUIDE FOR THE OBSERVATION OF EARTHQUAKES.

1. IMPORTANCE OF THE INVESTIGATION OF EARTHQUAKES.

Few branches of science have in the last few years received such a great impetus as the investigation of earthquakes. The modern investigation of earthquakes dates from the time when, by the construction of highly sensitive seismic instruments, it was made possible to register at any point of the surface of the earth all strong shocks of the earth's