But its potentialities are not realised. Those of us who are most anxious for the spread of the application of mathematics and physics to the phenomena of astronomy, meteorology, and geophysics have thought that this opportunity could not properly be utilized by crowding together all the papers that deal with such subjects into one day, or possibly two days, so that they can be polished off with the rapidity of an oriental execution. In fact, the opportunity to be polished off is precisely not the opportunity that is wanted. There are some of us who think that a British Association week is not too long for the consideration of the subjects of which a year's abstracts occupy a volume of six hundred pages, and that, if we could extend the opportunity for the consideration of these questions from one or two days to a week, and let those members who are interested form a separate committee to develop and extend these subjects, the British Association, the country, and science would all gain thereby. I venture from this place, in the name of the advancement of science, to make an appeal for the favourable consideration of this suggestion. It is not based upon the depreciation, but upon the highest appreciation of the service which mathematics and physics have rendered, and can still render, to the observational sciences, and upon the well-tried principle that close family ties are strengthened, and not weakened, by making allowance for natural development.

The plea seems to me so natural, and the alternatives so detrimental to the advancement of science in this country, that I can not believe the Association will turn to it a deaf ear.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

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. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a ——.

Borghese, Gaetano.
Meteorologia e climatologia di Novara di Sicilia. Messina. 1907. 61 p. 8°.

Buitenzorg (Java). Botanical institute.
Observations météorologiques. Année 1907. [Buitenzorg. 1908.] 12 p. f°.

Curityba. Observatorio meteorologico.
Historico sobre os meteorographos Theorell em serviço nas estações meteorologicas de repartição geral dos telegraphos. Curityba. 1908. 10 p. 8°. 6 sheets. 33 x 40 cm.

Denmark. Danske meteorologiske Institut.
Meteorologisk Aarbog. 1907. Kjobenhavn. 1908. 144 p. f°.

Finland. Finska vetenskaps-societetens meteorologiska centralanstalt.
Observations météorologiques. Helsingfors. 1908. 126 p. f°.

Fischli, Fritz.
Das Verhalten der meteorologischen Elemente und Erscheinungen in der Vertikalen. Bern. 1908. 129 p. 8°.

Krebs, Wilhelm.
Umschwung der Niederschlagverhältnisse zwischen 1902 und 1908, mit besonderer Berücksichtigung Mitteleuropas. (Sonderabdruck aus der Zeitschrift für Gewässerkunde. 9 Bd. 1 H. p. 64–81.)

Luyken, K.
... Die absoluten erdmagnetischen Beobachtungen der Kerguelen-Station. Berlin. 1908. p. 77–187. f°. (Deutsche südpolar-expedition 1901–1903. VI. Erdmagnetismus II.)

Mizusawa. International latitude observatory.
Annual report. 1907. 1908. 37 p. f°.

Möller, Max.
Zur Theorie der Bewegungsvorgänge. Leipzig. 1907. vii, 86 p. 9°. (Sonderabdruck aus der Zeitschrift "Die Turbine," Organ der Turbinentechnischen Gesellschaft E. V. Jahrgang 1907.)
Wetter-Berather. Anleitung zum Verständniss und zur Vorherbestimmung der Witterung. Hamburg. 1886. 30 p. 8°.
Witterungs-Kalender. Theil 2–3. Erläuterungen. Braunschweig. [1899?] 104 p. 8°.

Mohn, H[enrik].
Daemringen in Norge. Christiania. 1908. 76 p. 4°. (Videnskabs-Selskabets Skrifter. 1. Mathematisk.-Naturv. Klasse. 1908. No. 5.)

Montessus de Ballore, [Fernand de].
Efectos del terremoto del 18 de abril de 1906... Santiago de Chile. 1907. 34 p. 8°.
Los progresos de la sismolojía moderna. Santiago de Chile. 1907. 20 p. 8°.
Travaux séismologiques du Comte de Montessus de Ballore. n. p. n. d. 4 p. 8°.

Mylius, Ernst.
Volks-Wetterkunde. Witterungstypen und Witterungs-Katechismus für Nord- und Mitteldeutschland. Berlin. 1908. 40 p. 8°.

National antarctic expedition. 1901–1904.
Meteorology. Part 1. Observations at winter quarters and on sledge journeys, with discussion by various authors. London. 1908. xiv, 548 p. f°.
Physical observations, with discussion by various authors. London. 1908. v, 192 p. f°.

[Naturforschender Verein in Brünn.]
Ergebnisse der phaenologischen Beobachtungen aus Mähren und Schlesien... 1905. Brünn. 1907. 16 p. 8°.

Petermanns Mitteilungen.
Inhaltsverzeichnis... 1895–1904. Gotha. 1907. iv, 160 p. 4°.

Royal society of London.
Catalogue of scientific papers 1800–1900. Subject index. v. 1. Pure mathematics. Cambridge. 1908. lviii, 666 p. 4°.
International catalogue of scientific literature. 6th annual issue. F. Meteorology. London. 1908. viii, 257 p. 8°.

Rummler, —.
Ueber die Messung der Windestärke. (33. Städtische Oberrealschule Freiburg, Schl. 33 Jahresbericht. Freiburg, Schl. 1907. p. 1–20. 4°.)

Société ouralienne d'amateurs des sciences naturelles.
Bulletin. Tome 27. Ekatherinbourg. 1908. xix, 122, lviii p. 8°.

Tacubaya. Observatorio astronomico nacional.
Annuario. 1909. Mexico. 1908. 610 p. 12°.

Wall, W. J.
The hyge-donor humidifyer. Montreal. [1907?] 8 p. 24°.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH 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 geographical society. Bulletin. New York. v. 40. Dec., 1908.
—— The forest region of Mount Kenia. p. 745–746. [Includes notes on climate.]
W[ard], R[obert] DeC[ourcy]. Plague and climate. p. 750–751.

California physical geography club. Bulletin. Berkeley. v. 2. Dec., 1908.
Moore, Edward. A cloudburst in the high Sierra. p. 24–27.

Conservation. Washington. v. 14. Dec., 1908.
McGee, W J Bearing of the proposed Appalachian forest on navigation. p. 661–663.

Electrical News. New York. v. 53. Jan. 2, 1909.
Potamian, —. Divisch, a lightning-rod pioneer, 1754. p. 30–33.
—— Effect of the recent drought upon water-power plants. p. 33–35.

Engineering news. New York. v. 60.
Snow, J. P. Forests and stream flow. (Dec. 3, 1908.) p. 619.
Winslow, A. A method for determining the number of dust particles in air. (Dec. 31, 1908.) p. 748.

Mount Weather observatory. Bulletin. Washington. v. 1. pt. 4.
Kimball, H[erbert] H[arvey]. Pyrheliometer and polarimeter observations. p. 207–231.

School science and mathematics. Chicago. v. 9. Jan., 1909.
Jefferson, Mark. Some remarks about the meteorology to be taught in a high-school course in physiography. p. 41–44.

Science. New York. v. 29. Jan., 1909.
Reid, Harry Fielding. Mr. Manson's theory of geological climates. p. 27–29.

Scientific American supplement. New York. v. 47. Jan. 9, 1909.
—— An electric barometer. p. 19.

Terrestrial magnetism and atmospheric electricity. Baltimore. v. 13. Dec., 1908.
Humphreys, W[illiam] J[ackson]. Note on the magnetic effect of winds. p. 153-154.
Aérophile. Paris. 16 année. 15 déc., 1908.
Carton, E. Les perturbations météorologiques et les ballons. p. 505-506.
Ciel et terre. Bruxelles. 29 année. 16 déc., 1908.
Alfani, Guido. Le grand baromètre de l'exposition de Faenza. p. 483-493.
L., E. Les grands baromètres. p. 405-506.
France. Académie des sciences. Comptes rendus. Paris. v. 147. Déc., 1908.
Savornin, J. Sur le régime hydrographique et climatérique algérien depuis l'epoque oligocène. p. 1431-1433.
Arctowski, Henryk. Sur les variations des climats. p. 1438-1440.
Angot, Alfred. Perturbations sismiques du 12 et du 18 décembre 1908. p. 1440-1442.
Société météorologique de France. Annuaire. Paris. 56 année. Sept., 1908.
Angot, Alfred. La vie et les travaux de M. Mascart. p. 229-237.
Durand-Gréville, E. Le premier crépuscule du matin et le second crépuscule du soir. p. 238-239.
G., Ch. Chutes de foudre sur les navires. p. 240.
Hansa. Hamburg. 45. Jahrgang. 26. Sept. 1908.
Hermann, E. Kann die drahtlose Telegraphie zur Zeit der modernen Witterungskunde wesentliche Dienste leisten? p. 962-964.
Meteorologische Zeitschrift. Braunschweig. Bd. 25. Dez., 1908.
Hann, J[ulius]. Mossman über die meteorologischen Ergebnisse der Schottischen Antarktischen Expedition. p. 529-542.
Wien, W. Gesetze und Theorien der Strahlung. p. 542-549.
Abbot, C. G., & Fowle, F. E. Die neuesten Untersuchungen über die Solarkonstante der Strahlung. p. 549-552.
Hann, J[ulius]. Ueber den täglichen Gang der Temperatur in den höheren Luftschichten. p. 557-559.
Hann, J[ulius]. Resultate der meteorologischen Beobachtungen in Oberägypten und im Sudan. p. 559-562.
—— Meteorologische Beobachtungen in dem Gebiete der Hudsonbai im Jahre 1905. p. 562.
Voeikov, A. Turkestan. Ist eine fortschreitende Austrocknung Turkestans vorhanden? p. 567-568.
Schuster, Arthur. Die 4.8 jährige Sonnenfleckenperiode. p. 568.
Forel, F. A. Periodische Gletscherschwankungen und ihr Zusammenhang mit den meteorologischen Faktoren. p. 569-570.
Siegel, Franz. Regenmessungen auf den Stationen der Paranáenser Staatsbahn (Estrada de ferro do Paraná) im Jahre 1907. p. 572.
Physikalische Zeitschrift. Leipzig. 9. Jahrgang.
Thorner, Walther. Ueber Tageslichtmessungen. (1 Dez. 1908.) p. 855-858.
Bestelmeyer, A. Luftdruckvariometer zur Messung der Vertikalgeschwindigkeit bei Ballonfahrten. (1 Dez. 1908.) p. 863-864.
Gockel, A., & Wulf, T. H. Beobachtungen über die Radioaktivität der Atmosphäre im Hochgebirge. (15 Dez. 1908.) p. 907-911.
Wetter. Berlin. 25. Jahrgang. November 1908.
Meissner, Otto. Wahrheit und Irrtum in den Bauernregeln. p. 241-247.
Schulze, Paul. Ludwig Friedrich Kämtz. p. 247-250.
Joester, Karl. Die Föhnerscheinungen in Riesengebirge. p. 250-254.
Zeitschrift für Instrumentenkunde. Berlin. 28. Jahrgang. Nov., 1908.
Scheel, K., & Heuse, W. Ueber scheinbare Abweichungen vom Mariotteschen Gesetz und deren Einfluss auf die Messung kleiner Drucke. p. 346-348.
Sociedad científica "Antonio Alzate." Memorias y revista. Mexico. Tome 26.
Diaz, Severo. Un temporal de invierno. (Abril 1908.) p. 359-368.
Descroix, Leon. Perturbations barométriques accidentelles. Relation entre la vitesse et l'amplitude des oscillations orageuses ou cycloniques. (Junio 1908.) p. 481-483.

THE BALTIMORE MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

By WM. R. BLAIR, Research Director. Dated Mount Weather, Va., January 14, 1909.

Of the papers given before the American Physical Society and Section B of the American Association for the Advancement of Science three were of sufficiently direct interest to meteorologists to be reviewed here. Prof. R. DeC. Ward's paper on the cyclonic unit in climatological investigations was withdrawn[1] from the program of the Geographical Section.

The paper on the diurnal variations in the intensity of the penetrating radiation present at the surface of the earth by A. Galline was read by Professor McLennan of Toronto University. The experimental work on which this paper was based was undertaken because work done by Strong and one or two other experimenters seemed to indicate: 1. That the air and not the earth was the source of the radiation in question; and 2. That the radiation had a diurnal variation in intensity. The Wilson electroscope was used in the experiments. Several series of data were shown in which measurements were made of the conductivity of the air near the surface (1) of the earth, and (2) of the lake (on the ice). It was found that the value of the conductivity of the air over the lake was consistently less than 50 per cent of that over the earth's surface. This result showed, Professor McLennan thought, that the source of the penetrating radiation was in the earth rather than in the air, the reason for the lower values over the lake being the screening effect of the water. Laboratory experiments on the screening effects of water had also been made in support of this view. Other series of data showing hourly observations on the conductivity of the air for periods of twenty-four hours showed the variations in its value during any one day were never greater than the errors of the observations themselves and plots of these data gave no indication of any periodic variation whatever.

The two sets of data above mentioned are remarkably consistent and seem to support each other and the conclusion that the earth is the source of the penetrating radiation and that the radiation does not have a diurnal variation in intensity sufficiently marked to be detected with the apparatus used, i. e., if such a variation exists it is less than 2 per cent of the total radiation.

Doctor Bauer, of the Carnegie Institution, made an eloquent plea for terrestrial and cosmical physics. He set forth interesting and practical problems in this field of applied physics and contrasted the attention given it in the European countries and our own. In England, for example, a very considerable part of the program at such a meeting as the one before which the plea was being made would be devoted to terrestrial and cosmical physics, while here a very small number of papers dealing with subjects in this field appear. A separate section in the American Association for the Advancement of Science was not advocated. The purpose of Doctor Bauer's address was to commend to the men and the laboratories of our universities the above-mentioned problems.

In the nature of things such a plea as this could not help the cause much, if any, when presented to men who have chosen other lines of work and have come together to exchange ideas with those working in the same related fields as themselves. Some of us at work in this particular field of applied physics find it most interesting and do not feel that it needs this sort of plea. We can not expect all physicists to be interested in it, but to those who are or may become so the best inducement for them to take up its problems is the presentation from time to time of the work itself as it develops.

The upper inversion in the atmosphere was again spoken of by Prof. W. J. Humphreys. This time no reference was made to the moisture content of the inversion layer. It was assumed that the base of the upper inversion marks the upper boundary of vertical currents in our atmosphere. This is the opinion held by Teisserenc de Bort and has been given by him as the cause of the temperature inversion. Others hold the presence of vertical currents below the coldest point reached and their absence above it to be a necessary result of the temperatures obtaining. The probable mean temperature of the effective radiating surface of the earth, which Abbot and Fowle put at fully 4,000 meters above sea-level, has been determined by them to be 263° absolute temperature or —10° C. (14° F.). Using this result with the above consideration Professor Humphreys computed the temperature at the turning point in the gradient, i. e., at the base of the upper inversion

[1] See notice of Association of American Geographers.