at Erasmus on the 18th. The average precipitation was 2.71, or about 1.50 below normal; the greatest monthly amount, 6.14, occurred at Springdale, and the least, 0.12, at Madison.—*H. C. Bate.*

Texas.—The temperature on an average for the month, determined by comparison of 42 stations distributed throughout the State, was 1.1° below the normal; there was a slight excess in a few localities over the northeastern portion, while there was a general deficiency ranging from 1.0° to 3.1° in all other sections, with the greatest over southwest Texas. The highest was 106°, at Sugarland on the 24th, and the lowest, 49°, at Amarillo on the 9th. The precipitation on an average for the month, determined by comparison of 47 stations distributed throughout the State, was 3.88 above the normal. About normal conditions prevailed along the immediate east and west coast districts and over the extreme west portion of the State, while there was a general excess elsewhere, ranging from 1.00 to 19.06, with the greatest in the vicinity of Fort Clark; the greatest monthly amount, 22.32, occurred at Fort Clark, and the least, 0.61, at El Paso.—*I. M. Cline.*

Utah.—The mean temperature was 64.0°, or 1.6° below normal; the highest was 110°, at Saint George on the 30th, and the lowest, 21°, at Snowville on the 25th and Woodruff on the 6th. The average precipitation was 0.59, or 0.17 above normal; the greatest monthly amount, 2.43, occurred at Tooele, while none fell at Kelton and Snowville—*L. H. Murdoch.*

Virginia.—The mean temperature was 74.0°, or about 1.0° above normal; the highest was 106°, at Doswell on the 7th, and the lowest, 40° at Burkes Garden on the 18th. The average precipitation was 3.71 or 0.02 above normal; the greatest monthly amount, 7.60, occurred at Hot Springs, and the least, 1.11, at Manassas.—*E. A. Evans.*

Washington.—The mean temperature was 58.0°, or about 1.5° below normal; the highest was 97°, at Kennewick on the 17th, and the lowest, 31°, at Monte Cristo on the 5th. The average precipitation was 1.41, or 0.50 below normal; the greatest monthly amount, 5.81, occurred at Cedar Lake, and the least, 0.01, at Moxee.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 72.0°, or 0.9° above normal; the highest was 98°, at Eastbank on the 5th, New Cumberland, Upper Track, and Weston on the 24th, and the lowest, 35°, at Terra Alta on the 14th and 18th. The average precipitation was 4.99 or 0.91 above normal; the greatest monthly amount, 8.93, occurred at Oceana, and the least, 1.46, at Huntington.—*C. M. Strong.*

Wisconsin.—The mean temperature was 66.1°, or 0.2 below normal; the highest was 94°, at Prairie du Chien on the 20th, and Delavan on the 6th. The average precipitation was 5.54, or 1.35 above normal; the greatest monthly amount, 11.56, occurred at La Crosse, and the least, 1.60, at North Crandon.—*W. M. Wilson.*

Wyoming.—The mean temperature was 58.0°, or 1.5° below normal; the highest was 103°, at Bitter Creek on the 17th and Carbon on the 30th, and the lowest, 14°, at Rock Springs on the 7th. The average precipitation was 1.82 or slightly above normal; the greatest monthly amount, 5.50, occurred at Rock Springs, and the least, 0.18, at Evanston.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has 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:

American Journal of Science. New Haven. Vol. 8. *4th series.*
McLean, G. V. Velocity of Electric Waves in Air. P. 1.

Boletín Agricola y Meteorológico. Barcelona. Año 1.
Lozano, E. Marcha media anual de la temperatura en Barcelona. P. 102.

Bulletin Mensuel de l'Observatoire Carlier d'Orthez. 5me Année.
Leon, Henri. Orages dans les Pyrénées. P. 13.
Marchand. Origine solaire des orages. P. 14.
Piche, A. De la prévision du temps à courte échéance à l'aide du baromètre dans le département des Basses-Pyrénées. P. 17.

Ciel et Terre. Bruxelles. 20me année.
V. Ventosa. Direction du vent et la scintillation. P. 197.
Russell, Cte. H. Nuages et Montagnes. P. 210.
Spring, W. Remarques sur une note de M. Pernter, concernant la couleur bleue du ciel. P. 177.

Comptes Rendus. Paris. Tome 128.
Palladine, W. Modification de la respiration des végétaux à la suite des alternances de température. P. 1410.
Gutton, C. Comparaison des vitesses de propagation des ondes électromagnétiques dans l'air et le long des fils. P. 1508.

Geographical Journal. London. Vol. 14.
Murray, (Sir) J. Temperature of the Floor of the Ocean, and of the Surface Waters of the Ocean. P. 34.

Nature. London. Vol. 60.
Review of A. J. Henry. Wave or billow clouds. P. 235.

La Nature, Paris, 27 année.
Jullien, O. Un cyclone. P. 42.

Meteorologische Zeitschrift. Wien. Band 16.
Koch, K. R. Ein Normalbarometer. P. 193.
Hann, J. Einige Ergebnisse der meteorologischen Beobachtungen am Observatorium Vallot auf dem Mont Blanc. P. 198.
Billwiller, R. Ueber verschiedene entstehungsarten und Erscheinungsformen des Föhns. P. 204.
Hann, J. Die ungeheuren Regemengen am Fusse des Kamerun-Pik. P. 215.
Beyerlein, Fr. Einige Versuche über den Wasserverlust bei Regenmessungen durch Verdunstung und durch Befeuchtung des Regenmessers. P. 217.
Rona. Die Gewitter in Ungarn. P. 219.
Prohaska, K. Gewitter und Hagelschlag am 9 August, 1898, in den Ostalpen. Wetterschiessen. P. 224.
Prohaska, K. Gewitter in November 1898 in den Ostalpen. P. 226.
Penck, A. Ein mysteriöses Phänomen der Geophysik. P. 227.
Reimann. Die geometrischer Verhältnisse des Nordlichts vom 9 September, 1898, um 9.45 p. m. P. 230.
Wolfer, A. Wirbelsturm zu St. Vincent. P. 232.

L. E. D. Philosophical Magazine. London. Vol. 48.
Waidner, C. W., and Mallory, F. Comparison of Rowland's Mercury Thermometers with a Callendar-Griffiths Platinum Thermometer; Platinum Thermometer with a Tonnelot Thermometer Standardized by the Bureau International; Reduction of Rowland's Value of Mechanical Equivalent of Heat to Paris, Nitrogen Scale. P. 1.
Milner, S. R., and Chattock, A. P. Thermal Conductivity of Water. P. 46.
Knott, C. G. Reflexion and Refraction of Elastic Waves, with Seismological Applications. P. 64.
Maclean, G. V. Velocity of Electric Waves in air. P. 115.
Fisher, O. Residual Effect of Former Glacial Epoch upon Underground Temperature. P. 134.
Rayleigh, *Lord.* Theory of Anomalous Dispersion. P. 151.
Chree, C. Denudation and Deposition. P. 156.

Quarterly Journal of the Royal Meteorological Society. Vol. 25.
Bayard, F. Campbell. Government Meteorological Organizations in Various Parts of the World. P. 69.
Mawley, Edward. Report on the Phenological Observations for 1898. P. 133.
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(Review of T. H. Engelbrecht). Zones of Cultivation. P. 365.

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Clayton, H. H. Recent Recurrence in Weather; Lunar or 30-day Period. P. 68.
Jones, J. H. Black Rain. P. 73.

Das Wetter. 16 *Jahrgang.*
Less, Dr. Emil. Die wissenschaftlichen Grundlagen von Wetterprognosen für kurze und solchen für etwas längere Zeiträume. P. 121.
Meissner, Friedrich. Barometer und Niederschlag. P. 129.
Nippoldt, Jun., A. Cirrus und sein Werth für Prognosen auf den nächsten Tag nach A. Stanhope Eyre P. 137.

Zeitschrift für Instrumentenkunde. Berlin. 19 *Jahrg.*
Sprung, A. Ueber den photogrammetrischen Wolkenautomaten und seine Justirung. (Fortsetzung P. 118. P. 131.

Zeitschrift für Luftschiffahrt. Berlin. 18 *Jahr.*
Hinterstoisser. Einige Daten über die simultanen Ballonfahrten am 24 März, 1899, in Wien. P. 104.

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