rain began at 10:35 p. m.; about 10:50 p. m. the two storms seemed to meet over the sea to the north-northwest of the city, and from that time until after 11 p. m. the discharges of lightning to the northwest were very vivid and numerous, but the thunder was not as loud as it had been during the previous ten or fifteen minutes; heavy rain began at 10:57 p. m.; the wind, which had been light and generally east during the evening until 10:45 p. m., reached a maximum of 32 miles from the northeast between 10:55 p. m. and 11 p. m.

Most of the studies of lightning hitherto published have emanated from northerly regions. We are glad to publish this article from within the Tropics, where lightning is supposed to be most intense, and where special opportunities offer for studying its spectrum, its structure, and its physical peculiarities.—*C. A.*

E. O. NATHURST.

Biographical note by H. C. BATE, Local Forecaster and Section Director.

Mr. Einer Oswald Nathurst, Voluntary Observer, Tennessee section of the Climate and Crop Service of the Weather Bureau, died at his home in Tracy City, Tenn., Thursday, October 15, 1903, aged 69 years.

Mr. Nathurst was a native of Stockholm, Sweden, and came to America in 1854. For many years he was bookkeeper in Nashville, Tenn. In 1865 he went to Tracy City, and entered the service of the Tennessee Coal, Iron, and Railroad Company, and from that time until his last illness was connected with that company.

For the past seven years he had been a faithful and valued member of the corps of voluntary observers of the Tennessee section of the Climate and Crop Service. His work was characterized by a remarkable record of promptness and accuracy.

He was a man of very considerable scientific attainment in many branches, particularly in geology and mineralogy, which made him especially valuable, both as superintendent of the great coal mining industries at Tracy City, and also as a voluntary observer in the Weather Bureau, and the Service sustains a great loss in his passing away.

RECENT PAPERS BEARING ON METEOROLOGY.

Dr. W. F. R. PHILLIPS, Librarian, etc.

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 ——.

Science. New York. N. S. Vol. 18.
Lockyer, J. Norman. Simultaneous Solar and Terrestrial Changes. Pp. 611-623.
Scientific American Supplement. New York. Vol. 61.
McLennan, J. C. Some Experiments on the Electrical Conductivity of Atmospheric Air. Pp. 23280-23281.
Nature. London. Vol. 68.
Strutt, R. J. Radium and the Sun's Heat. P. 572.
Everett, J. D. Rocket Lightning. P. 599.
MacDowall, Alex. B. Our Winters in Relation to Brückner's Cycle. P. 600.
Rotch, A. Lawrence. The New Bishop's Ring. P. 623.
Nature. London. Vol. 69.
Shaw, W. N. [Review of] Handbook of Climatology. Part 1. General Climatology. By Julius Hann. Translated by Robert de Courcy Ward. Pp. 3-4.
Langley, S. P. Variation of Atmospheric Absorption. P. 5.
Fowler, A.; Chree, Charles. Solar and Magnetic Disturbances. P. 6.
Shaw, W. N.; Ormond, R. T. Dr. Shaw's Address at the British Association. Pp. 6-7.
Mill, Hugh Robert. Weather Changes and the Appearance of Scum on Ponds. P. 7.
Lockyer, William J. S. Magnetic Storms, Auroræ and Solar Phenomena. Pp. 9-10.
Symons's Meteorological Magazine. London. Vol. 38.
Shaw, W. N. Methods of Meteorological Investigations. Pp. 151-159.
Druce, Francis. Sun Pillar. P. 159.
Ellis, William. Mean Rainfall. P. 162.
Popular Science Monthly. New York. Vol. 44.
Bell, Alexander Graham. The Aurora Borealis of August 21. Pp. 87-88.
Physical Review. Lancaster. Vol. 17. Pp. 233-244.
Proceedings of the Royal Society. London. Vol. 72.
Mattaei, Gabrielle L. C. On the Effect of Temperature on Carbon-Dioxide Assimilation. Pp. 355-356.
Astrophysical Journal. Chicago. Vol. 18.
Cortie, A. L. Solar Prominences and Terrestrial Magnetism. Pp. 287-293.
Philosophical Transactions of the Royal Society of London. London. Series A. Vol. 202.
Shaw, W. N. and Dines, W. H. Meteorological Observations obtained by the use of Kites off the west coast of Scotland. Pp. 123-141.
Knowledge. London. Vol. 26.
Damania, P. J. Radium and the Sun's Heat. P. 255.
Journal of the Franklin Institute. Philadelphia. Vol. 156.
Hammer, D. Airy's Theory of the Rainbow. Pp. 335-349.
Engineering News. New York. Vol. 50.
—— Flood Damage to Bridges at Paterson, N. J. Pp. 377-378.
Aeronautical Journal. London. Vol. 7.
Hugo, T. H. The Sailing Flight of the Turkey Buzzard. Pp. 72-74.
Ciel et Terre. Bruxelles. 24me année.
L., V. D. Les théories modernes sur la matière. Pp. 341-347.
—— L'émanation radio-active de l'air atmosphérique. [Note on memoir by Elster and Geitel.] Pp. 389-390.
Debrowolski, A. Quelques idées sur la forme et sur la structure des cristaux de neige. Pp. 391-403.
Comptes Rendus de l'Académie des Sciences. Paris. Tome 137.
Moissan, Henri. Sur le dosage de l'argon dans l'air atmosphérique. Pp. 600-606.
Annales de Chimie et de Physique. Paris. 7me série. Tome 30.
Curie, Sklodowska (Mme.) Recherches sur les substances radio-actives. Pp. 145-203.
Bulletin de la Société Belge d'Astronomie. Bruxelles. 7me année.
Vincent, J. La météorologie jugée par un astronome. Pp. 273-278.
Annuaire de la Société Météorologique de France. Paris. 51me année.
Barbé, G. Sur la question des saintes de glace des 11-13 mai. Pp. 137-142.
Gaea. Leipzig. 39 Jahrgang.
—— Studien über Gestalt und Struktur des Blitzes auf Grund photographischer Aufnahmen. Pp. 705-712.
—— Eine seltsame Wirkung des Blitzes. Pp. 759-760.
Zeitschrift für Gewässerkunde. Leipzig. 6 Band.
Oppokow, E. Zur Frage der vieljährigen Abflussschwankungen in den Bassins grosser Flüsse, im Zusammenhang mit dem Gang der meteorologischen Elemente. Pp. 1-23.
Halbfass, Wilhelm. Stehende Seespiegelschwankungen (Seiches) im Madüsee in Pommern. Pp. 65-100.
Hempel, R. Die Hochwassergefahren und ihre Bekämpfung. Pp. 101-108.
Petermanns Mitteilungen. Gotha. Band 49.
Fitzner, Rud. Die Regenverteilung in der Kilikischen Ebene (Kleinasien.) Pp. 212-215.
Illustrirte Aëronautische Mittheilungen. Strassburg. 7 Jahrgang.
—— Internationale Kommission für wissenschaftliche Luftschiffahrt. Pp. 358-359.
Geographische Zeitschrift. Leipzig. 9 Jahrgang.
Krug-Genthe, Martha. Der Chinook. Pp. 575-578.
Annalen der Hydrographie und Maritimen Meteorologie. Berlin. 31 Jahrgang.
—— Die Staubfälle vom 19. bis 23. Februar 1903 über dem Nordatlantischen Ozean, Grossbritannien und Mitteleuropa. Pp. 425-438.
—— Der westindischen Orkan vom 8. bis zum 15. August 1903. Pp. 439-441.
Krebs, Wilhelm. Staubfallbeobachtung im Oberelsass am 22. Februar 1903. Pp. 462-463.
Das Wetter. Berlin. 20 Jahrgang.
Treitschke, Fr. Die aktinometrische Differenz von Erfurt und Bericht über Versuche zur Aufzeichnung des Wärmeeffekts der diffusen Strahlen in der Atmosphäre. Pp. 217-225.
Ziegra, Alfred. Untersuchung der "Nachtfrostprognose nach Kammermann" für mehrere meteorologische Stationen Nord-und Mittel-deutschlands. Pp. 226-233.
Meteorologische Zeitschrift. Wien. Band 20.
Hann, J. Ueber die tägliche Drehung der mittleren Windrichtung auf Berggipfeln von 2-4km. Seehöhe. Pp. 433-444.