Calendar of Scientific Pioneers.

July 14, 1827. Augustin Jean Fresnel died.—An officer in the Corps des Ponts et Chaussées, Fresnel during the last twelve years of his life devoted himself to experimental and mathematical researches in optics. Like Young, he did much to establish the undulatory theory of light.

July 14, 1879. Sir Thomas Maclear died.—Trained as a doctor, through Admiral Smyth Maclear took up astronomy, and from 1833 to 1870 was Royal Astronomer at the Cape of Good Hope. Among other work was his extension of Lacaille's arc of meridian.

July 14, 1907. Sir William Henry Perkin died.—The discoverer in 1856 of the first of the aniline dyes, aniline purple or mauve, Perkin established a factory for its manufacture, and thus became the founder of the great coal-tar colour industry. His success, especially with the manufacture of alizarin, enabled him in 1874 to retire, after which he made important investigations of questions of chemical constitution. He was knighted at the jubilee of his great discovery.

July 17, 1878. Thomas Oldham died.—After holding the chair of geology at Trinity College, Dublin, Oldham in 1850 was appointed by the East India Company the first Superintendent of the Geological Survey of India.

July 17, 1899. Charles Graves died.—The successor of McCullagh in the chair of mathematics in Trinity College, Dublin, Graves contributed matnematical memoirs to *Crelle's Journal*, and served as president of the Royal Irish Academy.

July 17, 1912. Jules Henri Poincaré died.—Born in Nancy in 1854, Poincaré in 1908 was elected president of the Academy of Sciences of Paris, by which time he had written 1300 books and memoirs relating to pure mathematics, mathematical physics, astronomy, and philosophy.

July 18, 1650. Christoph Scheiner died.—A member of the Society of Jesus and an opponent of the views of Copernicus and Galileo, Scheiner was one of the earliest observers of sun-spots. He taught at Freiburg (Baden), Rome, and Ingolstadt, and was rector of a Jesuit college in Silesia.

July 18, 1819. Barthélemy Faujas de Saint-Fond died.—Attracted to natural history by Buffon, Faujas de Saint-Fond became professor of geology in the Jardin des Plantes. He travelled much, wrote a valuable work on extinct volcanoes, and was the first scientific writer to direct attention to the basalt pillars of the Isle of Staffa.

July 19, 1814. Matthew Flinders died.—Known for his important survey of the Australian coast, Flinders made observations on the compass, and to him we owe the "Flinders bar" for neutralising a ship's magnetism.

July 19, 1838. Pierre Louis Dulong died.—Dulong was director of studies at the Ecole Polytechnique, and in 1832 became one of the secretaries of the Paris Academy of Sciences. In 1819 with Petit he enunciated the law connecting the atomic weight of a substance with its specific heat.

July 19, 1882. Francis Maitland Balfour died.—Killed at the age of thirty-one when climbing Mont Blanc, Balfour had just been appointed to a newly created chair of animal morphology at Cambridge. His "Comparative Embryology" appeared in 1880–81.

July 20, 1819. John Playfair died.—An Edinburgh professor, Playfair's principal contribution to science was his "Illustrations of the Huttonian Theory of the Earth."

July 20, 1866. Georg Friedrich Bernhard Riemann died.—Successor of Dirichlet in the chair of mathematics at Göttingen, Riemann was one of the most profound mathematicians of his time. E. C. S.

Societies and Academies.

LONDON.

Geological Society, June 22.—Mr. R. D. Oldham, president, in the chair.—Dr. C. T. **Trechmann** and L. F. **Spath**: The Jurassic of New Zealand. The Jurassic beds of New Zealand comprise an important set of sediments, probably 10,000 ft. in thickness, exposed at certain points extending over the length of the North and South Islands. They follow the Trias with apparently perfect conformity. The affinities of the fossils from the Lower Lias to the Upper Jurassic formations are with those occurring in the Jurassic of the Argentine Andes, Western Australia, the Sula Islands, the Spiti Shales of the Himalayas, and the Jurassic deposits of Kutch. Descriptions of New Zealand ammonites from the British Museum collections, notably a small fauna of typically Mediterranean aspect, which is referred to the Middle Lias, were given.—F. **Dixey**: The norite of Sierra Leone. The norite of Sierra Leone constitutes a complex of which the oldest and most important member is an olivine-norite. The complex forms the mountainous mass which, with a narrow coastal plane of Pleistocene sediments, makes up the Sierra Leone peninsula. The norite was intruded in the form of a huge stock; it has no marginal or basic modifications, while its junction with older rocks is obscured by the Pleistocene sediments. The complex is probably somewhat later than Pre-Cambrian in age. The main intrusion of norite was invaded in succession by minor intrusions of younger norites, norite-pegmatite, beerbachite, norite-aplite, and dolerite. Features of the older norite are well-developed flow-banding, a series of binary and ternary intergrowths of the common minerals, and metamorphism due to the minor intrusions. Iron-ores occur in the norite as small masses, narrow schlieren, and disseminated grains; they are highly titaniferous. Sulphides and other economic minerals are rare or absent.

EDINBURGH.

Royal Society, July 4.—Prof. F. O. Bower, president, in the chair.—C. T. R. **Wilson**: Recent work on lightning and thunderstorms. A thundercloud may be regarded as a great electrical machine, and suggests such questions as the electromotive force developed by the machine, the current which passes through it, and the external distribution of the current. It is at present mainly from a study of the electric force at the ground during thunderstorms that we obtain information on these points. Records were shown of the changes in the electric field due to thunderstorms at a distance, and of the sudden changes produced by lightning discharges. From the results of automatic records of this kind it is concluded that in an average lightning flash a quantity of electricity amounting to about 20 coulombs passes, and that the potential difference required to cause the discharges is of the order of one thousand million volts. In addition to lightning discharges there may be considerable continuous currents maintained by the thundercloud. The electrical energy going to waste in a thunderstorm may amount to a million horse-power. A large part of the current maintained by the thundercloud may pass through the cloud from the ground to the conducting upper atmosphere, or from the upper atmosphere to the ground, and produce effects which are of importance in connection with the atmospheric electricity of fine weather, and possibly with terrestrial magnetism.—Prof. H. **Briggs**: The adsorption of gas under pressure. The author describes a series of experiments