Calendar of Scientific Pioneers.

May 5, 1859. Peter Gustav Lejeune Dirichlet died.—The successor of Gauss at Göttingen, Dirichlet did original work on the theory of numbers and Fourier's theorem, and wrote on the discoveries of Gauss and Jacobi.

May 5, 1892. August Wilhelm von Hofmann died.—A great leader in the chemical world, Hofmann in 1845, at the age of twenty-seven, through Liebig, became head of the Royal College of Chemistry, London, where many prominent chemists were trained. His work related to many problems in organic chemistry, and especially to the coal-tar industry. Returning to Germany in 1864, the following year he succeeded Mitscherlich in the University of Berlin.

May 6, 1859. Friedrich Heinrich Alexander, Baron von Humboldt died.—Possessing a passion for travel and science, Humboldt during 1799–1804 made a memorable journey with Bonpland in South America. His great scientific work, "Cosmos," was published during 1845–58.

May 6, 1904. Alexander William Williamson died.—Williamson in 1855 succeeded Graham in the chair of chemistry in University College, London. For his work on etherification he was awarded one of the Royal medals of the Royal Society.

May 8, 1794. Antoine Laurent Lavoisier died.—The founder of modern chemistry and one of the most distinguished victims of the French Revolution, Lavoisier perished beneath the guillotine at the age of fifty. In prison he refused poison, saying, "I set no more value on life than you do; and why seek death before its time? It will have no shame for us. Our true judges are neither the tribunal that will condemn us nor the populace that will insult us. We are stricken down by the plague that is ravaging France." One hundred and six years after his death Paris, as the result of an international subscription, erected the monument to Lavoisier which stands behind the Madeleine Church, close to where he once lived.

May 8, 1892. James Thomson died.—The elder brother of Lord Kelvin, Thomson was a distinguished physicist and engineer, and in 1873 succeeded Rankine in the chair of engineering at Glasgow.

May 9, 1850. Joseph Louis Gay-Lussac died.—A professor of chemistry at the Ecole Polytechnique, Gay-Lussac was known principally for his researches into the chemical and physical properties of gases and vapours. In 1815 he isolated cyanogen.

May 10, 1566. Leonhard Fuchs died.—Fuchs is regarded as one of the founders of German botany. His name is perpetuated by the word "fuchsia," first applied to the plant in 1703 by Plumier.

May 10, 1829. Thomas Young died.—A pioneer in physiological optics, the advocate of the undulatory theory, the first to use the term "energy" for the product of mass into the square of velocity, and the introducer of "Young's modulus," Young has been referred to as the most clear-thinking and far-seeing natural philosopher of his age.

May 10, 1910. Stanislao Cannizzaro died.—The greatest of Italian chemists, Cannizzaro held posts at Pisa, Alessandria, Genoa, and Palermo, took part in the liberation of Sicily, and from 1871 was professor of chemistry at Rome. His greatest work was the extension and application of the hypothesis of Avogadro.

May 12, 1871. Sir John Frederick William Herschel died.—By his work in physics and astronomy and by his writings Herschel exerted a great influence on his fellows. His fame was largely enhanced by his astronomical work at the Cape of Good Hope during 1834–38.

E. C. S.

Societies and Academies.

London.

Royal Society, April 21.—Prof. C. S. Sherrington, president, in the chair.—Prof. J. **Joly**: A quantum theory of colour vision. In accordance with the physiological law of nerve impulses, known as the "all-or-none" law, the cone is connected with the optic nerve through a plurality of nerve-fibres, the rod being connected through one fibre only. This is supported by histological evidence. The fundamental colour-sensations may be taken as corresponding to frequencies in the ratio 2 : 3 : 4, and this is the ratio of the energies of the corresponding quanta and of the kinetic energies of the electrons liberated. It is supposed that this is also the ratio of the numbers of fibres activated in the cone. In the case of the rod, quanta can activate but one fibre; hence its achromatic functions. In the case of the cone the activation of two, three, or four fibres evokes the fundamental sensations. White sensation arises when all nine fibres are activated. Colour-sensation curves, colour blindness, and the energy relations of colour sensation and luminous sensation are discussed.—Prof. A. V. **Hill**: The energy involved in the electric change in muscle and nerve. An expression is given for the heating effect in a muscle or nerve of the currents produced by the electric response accompanying the propagated impulse. In a muscle the heat produced is not more than one-hundred-thousandth part of the energy liberated in a twitch; in a nerve it is of the order of size of 3.5×10^{-12} calorie. It is concluded from the smallness of these quantities that no appreciable provision of energy is required in the propagation of the electric response, and that the physico-chemical change producing the response is the only factor involved in the propagated nervous impulse.—H. M. **Kyle**: Asymmetry, metamorphosis, and origin of flat-fishes. The flat-fishes owe their change of form in the beginning to an inherent asymmetry of the abdominal organs, the coil of the gut; other organs develop asymmetrically according to the balance, and persistent flexures convey the asymmetry to the skull. Many normal teleosts form a coil and display the same initial disturbances, but their balance is less defective and the skull escapes deformity in various ways. The metamorphosis of flat-fishes takes place during the pelagic stages; the fish swims and lies on one side because that side becomes the heavier. After the demersal habitat has been attained, changes in fundamental structure are improbable, so essential differences indicate separate origins. The flat-fishes have appeared in phylogeny—that is, the skull became affected by the asymmetry of the body when the coil of the gut was forming and when the caudal region came to occupy more than half the total length. Confirmation of this view is found in the affinity of each group to separate types of normal teleosts ranging from the Macrurids to the Percoids.—T. L. **Prankerd**: Studies in the cytology of the statolith apparatus in plants, viewed in relation to their habit and biological requirements. (1) The reaction to external stimuli of some liverworts. The degree of geotropic irritability corresponds in general with the biological requirements of the plant. The statolith apparatus is usually absent in vegetative thalli where position is of no importance, while it is most strikingly developed in the strongly geotropic gametophores and sporogonia. (2) The movements executed by fern-fronds in response to internal and external stimuli. In fifteen species representative of the Filicales geotropic irritability was always present, though both latent and reaction times are greater than the corresponding periods for Angiosperms, implying physiological