Calendar of Scientific Pioneers.

June 2, 1886. James Apjohn died.—A lecturer and professor of chemistry at Dublin for more than fifty years and a vice-president of the Royal Irish Academy, Apjohn wrote on chemistry, mineralogy, and meteorology, and his name is connected with a formula for ascertaining the dew-point.

June 2, 1901. John Viriamu Jones died.—After a distinguished career at Oxford, Jones in 1881, at the age of twenty-five, became principal of Firth College, Sheffield, and two years later was made the first Principal of University College, South Wales. His principal scientific work referred to accurate determinations of electrical and physical standards.

June 2, 1903. Andrew Ainslie Common died.—An engineer by profession, Common devoted himself to the construction of large reflecting telescopes with silver-on-glass mirrors. Harvard and Lick Observatories possess instruments from his Ealing workshops. He received the gold medal of the Royal Astronomical Society for his photographs of the great nebula in Orion, and in 1895–96 was president of the society.

June 3, 1657. William Harvey died.—Born at Folkestone on April 1, 1578, Harvey was educated at Canterbury, Cambridge, and Padua, and, after graduating in medicine, settled in London. Appointed physician to St. Bartholomew's Hospital in 1609, six years later he became Lumleian lecturer at the College of Physicians, where he first publicly taught the doctrine of the circulation of the blood. His celebrated treatise, "Exercitatio Anatomica de Motu Cordis et Sanguinis," was published at Frankfort in 1628. He was physician to James I. and Charles I. His tomb is at Hempstead, near Saffron Walden.

June 3, 1822. René Just Haüy died.—After many early privations, Haüy became a teacher in the College of Navarre in Paris. An accident to a crystal of calcareous spar led him to the discovery of the law of crystallisation. His first memoir on the structure of crystals appeared in 1784. He afterwards held important official positions, among which was the chair of mineralogy at the Jardin des Plantes.

June 5, 1716. Roger Cotes died.—In 1706, at the age of twenty-four, Cotes became the first Plumian professor of astronomy and natural philosophy at Cambridge. He assisted Newton in the revision of the "Principia," with Whiston gave one of the earliest courses of experimental philosophy, and in Trinity College erected an observatory. A man of exceptional genius, Newton, referring to his work on optics, remarked: "If Mr. Cotes had lived we should have known something."

June 7, 1826. Joseph von Fraunhofer died.—A glass-cutter's apprentice, Fraunhofer in 1804 became associated with Reichenbach, the instrument-maker. A skilful maker of telescopes, he invented the stage micrometer, the diffraction grating, and a form of heliometer. He discovered the dark lines in the spectrum previously seen by Wollaston, and laid the foundations of solar and stellar chemistry.

June 8, 1695. Christiaan Huygens van Zuylichem died.—The greatest of Dutch physicists, Huygens is a connecting link between Galileo and Newton. Born at The Hague in 1629, he spent many years of his life in Paris. He improved the telescope, discovered the first of Saturn's satellites, explained the nature of Saturn's ring, adapted the pendulum to clocks, and advocated the undulatory theory of light. His principal works were his "Traité de la lumière" and his "Horologium Oscillatorum." He is buried in St. Peter's, Leyden

E. C. S.

Societies and Academies.

LONDON.

Royal Society, May 26.—Prof. C. S. Sherrington, president, in the chair.—Sir Alfred **Ewing**: The atomic process in ferro-magnetic induction. The author's modification of Weber's theory of magnetisation is reconsidered in the light of (1) modern views regarding the structure of the atom and (2) the X-ray analysis of crystal structure. The rotatable Weber magnet seems to be an attribute of the atom, probably an electron system within it. Metallic iron is now known to be an aggregate of crystals, in each of which the space-lattice is the centred cube, with its atoms most closely grouped along the trigonal axes. It is along these axes that the Weber elements will point. Consequently an iron crystal is not magnetically isotropic. The small quasi-elastic or reversible part preceding the much larger changes which involve hysteresis corresponds to a reversible deflection of the Weber magnets through a small angle, generally of an order of 1°. The theory of the equilibrium of a row of magnets is considered. Experiments in which rows of Robison magnets with ball ends have their equilibrium upset by an extraneous field confirm the theory. The field which would break up rows of magnets set in the space-lattice close enough together to bring the reversible deflection within the above limit is calculated; it is larger than the field that suffices to produce strong magnetisation in iron, suggesting that the ordinary laws of force between magnetic elements cease to apply at interatomic distances.—C. D. **Ellis**: The magnetic spectrum of the β-rays excited by the γ-rays. The magnetic spectra of the β-rays ejected from various elements by the γ-rays of radium B have been examined by the focussing method. The positions of three strong lines occurring in the magnetic spectrum of radium B depend on the metal target used. Assuming that each of these three lines is due to a definite γ-radiation, it is shown that the energy of the β-rays forming a line is equal to an energy characteristic of the γ-radiation *minus* the work necessary to remove an electron from the K ring of the atom. By application of the quantum theory the frequency of the γ-rays can be determined from these characteristic energies. The natural β-ray spectrum of radium B can be explained in this way, the stronger lines resulting from the conversion of the γ-rays in the K ring, and the weaker lines from a similar conversion of the same γ-rays in the L ring.—S. **Datta**: The spectra of the alkaline earth fluorides and their relation to each other. A survey of the spectra of these compounds has been made and several new bands observed. These helped in the identification of homologous series of bands in the different spectra, and have suggested an empirical relation amongst them, based on the constants of the series equations and the molecular weight or the molecular number of the respective compounds. Starting with the series equation of the band-heads, an explanation has been given of the appearance of a "tail" in some of the bands. It has been shown that the frequency of the "tail" is a maximum or a minimum, and that the difference in wave-numbers of the heads and tails of the similar series is constant for the same compound, but varies from one another in a definite way.—Dr. W. L. **Balls**: A simple apparatus for approximate harmonic analysis and for periodicity measurements. The error involved in the use of this apparatus need not exceed 3 per cent. Its outstanding advantage is the speed with which determinations may be made. Thus in determinations of periodicity some fifty trial periods can be examined in less time than is required for the

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