Calendar of Scientific Pioneers.

January 20, 1907. Agnes Mary Clerke died.—Widely known for her astronomical writings, Miss Clerke, like Mary Somerville, Caroline Herschel, Ann Sheepshanks, and Lady Huggins, was an honorary member of the Royal Astronomical Society.

January 21, 1892. John Couch Adams died.—Few scientific achievements have aroused more interest or more controversy than the discovery of Neptune, and the careers of few astronomers have opened so brilliantly as that of Adams, who simultaneously with Leverrier worked out the calculations demonstrating the existence of this planet. After working at the problem for two years Adams in September, 1845, communicated his results to Challis, and in October to Airy. Leverrier's papers were published shortly afterwards, and Neptune was first seen by Galle at Berlin on September 23, 1846. Adams, who was born in Cornwall on June 5, 1819, became Lowndean professor in the University of Cambridge in 1858, and in 1861 succeeded Challis as director of Cambridge Observatory.

January 22, 1799. Horace Bénédict de Saussure died.—Saussure was the first great explorer of the Alps. A naturalist and a physicist, he has been called "the founder of experimental geology," and he is said to have been the first to place meteorology on a reasonable basis.

January 22, 1840. Johann Friedrich Blumenbach died.—For more than fifty years Blumenbach held the chair of anatomy at Göttingen, and wrote works on physiology, anatomy, embryology, and ethnology which became European text-books.

January 22, 1867. Sir William Snow Harris died.—A prominent worker in electricity, Harris by his new form of lightning conductor added greatly to the safety of ships at sea.

January 22, 1900. David Edward Hughes died.—Son of a bootmaker who emigrated to America, Hughes in 1855 patented his type-printing telegraph, and in 1857 came to England. In 1878 he patented his microphone. Recognised as one of the greatest scientific inventors of the age, he amassed a fortune of nearly half a million sterling, which was given mainly to London hospitals and scientific societies.

January 24, 1877. Johann Christian Poggendorf died.—Poggendorf was for fifty years editor of the *Annalen der Physik und Chemie*.

January 24, 1914. Sir David Gill died.—Astronomer-Royal at the Cape of Good Hope, Gill was one of the best known astronomers of his day. He is especially remembered for his great geodetical operations, his determination of the solar parallax, and his pioneering work in connection with the photographic survey of the heavens.

January 26, 1631. Henry Briggs died.—On the foundation of Gresham College, London, Briggs was appointed to the chair of geometry, the first of its kind in England. He was also the first to hold the Savilian chair of geometry at Oxford.

January 26, 1823. Edward Jenner died.—After twenty years' experimenting, Jenner on May 14, 1796, made his first vaccination. Three years later seventy London doctors declared their confidence in his discovery, which was soon promulgated throughout the world. Parliament acknowledged the country's indebtedness to him by voting him sums totalling 30,000*l*.

January 26, 1895. Arthur Cayley died.—Senior wrangler in 1842, Cayley for many years was a law conveyancer, but in 1863 became first Sadlerian professor of mathematics at Cambridge. E. C. S.

Societies and Academies.

LONDON.

Aristotelian Society, January 3.—The Very Rev. Dean W. R. Inge, president, in the chair.—C. A. **Richardson**: The new materialism. The new materialism takes the form of a denial of anything corresponding to the idea of "mind" or "subject." Unlike the old doctrine, it does not affirm the reality of atoms; its ultimate stuff is sense-material. It reduces the subject of experience to a series of sense-data, and the sense-data are conceived as ontologically independent of the subject. Against this it was argued that the subject of experience is a real metaphysical existence. Experience consists in spiritual activity, and one type of this activity is sense-experience. The content, sense-data, is the particular form the activity assumes, and the form is determined by the interaction of individual subjects. The most pressing philosophical need of the day is to come to an agreement on this point. Until we are agreed as to whether there exists the subject or mind there must be disagreement on the fundamental matter of philosophy, namely, the entities in terms of which theories may be formulated. Without a common platform philosophy will be left behind, a curious relic, by the intuitive wisdom of the vast mass of humanity.

DUBLIN.

Royal Dublin Society, December 21.—Dr. F. E. Hackett in the chair.—J. J. **Dowling** and D. **Donnelly**: The measurement of very short intervals of time by the condenser-charging method. An investigation of the degree of accuracy obtainable in the measurement of short time intervals by a method in which the time interval is determined by observing the charge taken up by a condenser connected to a source of steady electromotive force through a known resistance during the interval in question. It was found possible to measure intervals of thirty millionths of a second with an accuracy of one millionth of a second.—J. J. **Dowling** and J. T. **Harris**: An apparatus is described whereby a spark-gap, included in the secondary circuit of a high-tension transformer, is rendered conducting during one-half of each cycle, thus permitting a current to flow in one direction only. The primary current energises an electromagnet which sets into vibration the diaphragm of a König manometric flame, situated in the spark-gap. A subsidiary winding allows the magnet to be polarised by a steady current so as to cut out each alternate flame oscillation. Various tests of the apparatus are described which indicate that very complete rectification is obtainable.—J. J. **Dowling**: A sensitive valve method for measuring capacities, with some important applications. A steady source of alternating e.m.f. is connected to a circuit consisting of a high resistance in series with a condenser. The drop of potential across the resistance is proportional to the capacity of the condenser. The filament and grid of a three-electrode valve respectively are connected to the ends of the resistance, and variations of the capacity of the condenser thus bring about corresponding variations in the plate current. The greater part of this is balanced by an opposed steady current derived from a battery connected through an adjustable resistance to the galvanometer terminals. Using a galvanometer of high sensitivity, very small variations can be detected. The application of this principle to the construction of an ultra-micrometer and of a micro-pressure gauge are described. Displacements of the order of 10^{-7} cm. are easily measurable. Further work is in progress.