and it is apparent that modern field studies in Ireland will be profitably expanded under his guidance at Trinity College.

Sir Ambrose Fleming, F.R.S. (1849–1945)

NOVEMBER 29 marked the centenary of the birth of Sir Ambrose Fleming, who died as recently as 1945, at the age of ninety-five. Although Fleming is best known to the public for his invention in 1904 of the 'oscillation valve', the forerunner of the modern radio valve, he has other claims to be counted among the pioneers of radio. He was, in fact, the designer of the powerful transmitting station which, in December 1901, sent the first signals across the Atlantic, and, as scientific adviser to the Marconi Co. from 1899 onwards, he made many other important contributions during the early years of wireless communication. To commemorate the centenary of his birth, the Science Museum, South Kensington, London, is exhibiting, for two weeks from November 29, Fleming's original valve, and also on view is a collection of the original lamps and valves which he used in his early researches.

The Atlantic Cable and a Silver Thimble

A SILVER thimble of historic interest has recently been presented to the Science Museum, South Kensington, London, by Mr. R. B. Fitzgerald, nephew of the late Miss Emily Fitzgerald. The latter was the daughter of the Knight of Kerry upon whose land was built the telegraph house in which were terminated the first two Atlantic cables. After repeated failures in 1857 and 1858, the two cables from Valentia in Ireland to Newfoundland were successfully laid, and as an experiment they were connected together in Newfoundland so as to form from the Ireland end a continuous circuit some 3,700 miles in length. A cell was devised by borrowing Miss Fitzgerald's thimble, filling it with a few drops of acid and inserting a zinc wire. The current from this cell, which traversed the Atlantic and returned back again, was sufficiently strong to produce large deflexions on the reflecting galvanometer which had been recently devised by Prof. William Thomson, later Lord Kelvin.

New Satellites of Uranus and Neptune

IN British Astronomical Association Circular No. 312 some details are given regarding the two newly discovered satellites of Uranus and Neptune, respectively. Both were discovered by Gerard P. Kuiper during his search for new satellites with the 82-in. reflector of the McDonald Observatory, University of Texas. The new satellite of Uranus, now named Miranda, was discovered on February 16, 1948, magnitude 17, and is now known to have a period of about 33h. 56m. The motion is approximately circular and in the plane of the other four satellites. Neptune ii, for which the name Nereid has been proposed by the discoverer, was found on May 1, 1949, on plates exposed for forty minutes at the prime focus, with the mirror stopped down to sixty-six inches ($f/5$). Its magnitude was estimated to be 19·5, and later observations show that its period is about two years and that the plane of its orbit is within six degrees of the ecliptic. Kuiper says that, as Neptune could retain satellites nearly ten times as far away as Nereid, with periods up to about fifty years, further work is planned to cover the outer regions of the system.

Indian Dairy Research Institute: Silver Jubilee

THE difficulties of efficient dairying increase rapidly with the ambient temperature, and tropical dairying is beset with hazards which are not encountered in a more temperate climate. If children in hot countries are to be satisfactorily fed, and if, in countries such as India, the predominantly cereal diet of the great majority of the population is to be balanced by a sufficient intake of animal protein, fat, vitamins and lime, then tropical dairying, despite the difficulties, must be effectively practised. This is particularly important in India where religious sentiment is against the consumption of most types of animal food other than milk and dairy products.

What development there has been in dairying and dairy science in India during the past twenty-five years has been, in no small part, the result of the activities of the Indian Dairy Research Institute (formerly the Imperial Dairy Research Institute), which has just published a "Silver Jubilee Souvenir, 1923–1948" (pp. 45; Bangalore, 1948), with an interesting account of its development and progress since its establishment in 1923 at Bangalore. A very large proportion of the technical personnel—still grossly inadequate in numbers—of the Indian dairy industry, both the personnel engaged in improving the milk supply and those dealing with the technical aspects of milk distribution and manufacture, has been trained at this Institute, and most of the dairy research for the whole sub-continent is carried out there. Inadequate though its resources have been, and still are, to meet the enormous needs for development and technical improvement in every direction of Indian dairying, and despite past and present neglect by those in authority, the Institute has kept together a nucleus of well-trained workers and maintained a keen and hopeful spirit. With the solution of some of the most pressing political difficulties of the young Dominion, there can be little doubt that the Government, with the nutritional needs of the Indian people at heart, will support with adequate funds the well-considered scheme, already submitted to it, for the provision of more ample facilities for the future work of this Institute.

German Textile Industries during 1939–45

FOR some years before the Second World War, the German textile industries had been short of natural fibres such as cotton and wool. Substitutes therefore were sought in rayon and staple fibre, cottonized bast fibres (*Flockenbast*), paper and to a small extent in synthetics such as 'Perlon' and 'Pe Ce'. During the War, the difficulties were accentuated, and the chief aim of German textile technologists was to produce materials as similar to cotton or wool as possible and which would permit existing cotton or woollen machinery to be utilized. Rayon staple and, to a point, *Flockenbast* are genuinely useful fibres in their own right; but they were used by the Germans as substitute materials without regard to their inherent properties. The paper yarns were poor substitutes for the genuine article, though they found useful scope in the book cloth and artificial leather trades. These developments are described in a recent B.I.O.S. Overall Report (No. 13; pp. 178; London: H.M. Stationery Office, 1949; 3*s*.) which shows that the volume of fundamental research undertaken was small. There was, however, a high utilization-rate owing to the high level of technical ability among managers. Technical training at all levels was

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