the Congress of Scientific Societies held in France in 1884, and again at the Paris Congress held in 1887 to inaugurate the Astrographic Chart of the heavens. Through him the Vatican Observatory was chosen as one of the eighteen observatories to take photographs for the preparation of the Chart, and in 1890 he was appointed as its director. He died at the Vatican on December 14, 1894, at the age of sixty years. He had been elected an honorary member of the Royal Meteorological Society in 1870, and at the time of his death was president of the Accademia dei Nuova Lincei.

Prof. Ernst Küster

PROF. ERNST KÜSTER, who has been for thirty-one years editor of the *Zeitschrift für Wissenschaftliche Mikroskopie*, has been elected to honorary fellowship of the Royal Microscopical Society. Prof. Küster is professor of botany in the University, and director of the Botanical Institute and Gardens, Giessen. He was previously assistant in the Botanical Institutes at Munich and at Halle, professor of botany in the University of Kiel, and later in the University of Bonn. He is the author of "Pathologische Pflanzenanatomie" (3rd Ed., Jena, 1925), "Anleitung zur Kultur der Mikroorganismen" (3rd Ed., Leipzig, 1921), "Ueber Zonenbildung in kolloidalen Medien" (2nd Ed., Jena, 1931), and other botanical treatises, and of numerous scientific papers.

Economics of Nutrition

In the report of the Committee on Nutrition of the British Medical Association published last winter, the daily requirement of food was assessed at 3,400 Calories, and it was recommended that it should contain 50 gm. of animal or first class protein. These figures differed from those of the Committee of the Ministry of Health, which were 3,000 Calories and 37 gm. of animal protein. A controversy arose as to which set of data was correct. A conference of representatives of the two committees has since met and published a joint report (London : H.M. Stationery Office. 2*d*. net). The Ministry's Committee gave 3,000 Calories as a guide for the energy value for large communities and institutions. The figure of 3,400 Calories of the British Medical Association Committee was meant to apply to families with children with the man performing a moderate amount of muscular work, and to be subject to an allowance of 10 per cent for waste. As was stated in an article discussing the position in NATURE of January 13, p. 53, there is no real difference between the figures. The joint committee points out that no hard and fast line can be taken for differences in age and differences in work, and it gives a scale of Calories for different people. It is agreed that 80–100 gm. of total protein suffices for the daily need, the precise amount depending upon physique, occupation, habits, taste and climate. As regards the amount of animal protein, it is pointed out that there has never been any exact determination of the desirable proportion of animal to vegetable protein, and that 37 gm. is the lowest value obtained from statistics ; 50 gm. is recognised as a good value for families with growing children, who need relatively more animal protein than adults.

Helium and Other Rare Gases

IN the second Research and Development Lecture delivered under the auspices of the British Science Guild at the Royal Institution on May 30, Lord Rutherford said that there is no more interesting story in the history of science than the sequence of events, towards the close of the last century, which led to the discovery and isolation of a new group of rare gases existing in the atmosphere by Lord Rayleigh and Sir William Ramsay. The discovery that argon is present in the air in about one per cent by volume was rapidly followed by the discovery of a whole new group of inert gases, namely helium, neon, krypton and xenon. Neon is present in the air in only about one part in 100,000 by volume, and helium, krypton and xenon are present in still smaller quantities. In the early stages, these gases could only be separated in small quantities after much expense and trouble, and in a sense were regarded as scientific curiosities. The subsequent development of large liquid air plants for the separation of pure oxygen from the atmosphere, in which many thousands of tons of air are liquefied annually, made possible arrangements for the separation of argon and neon in considerable quantities. On account of their characteristic properties, some of these gases have been found exceedingly useful to industry. For example, more than 30,000 cubic metres of argon are used annually in Europe in the production of the highly efficient gas-filled electric lamps. In all, about 45 million of these lamps are made each year, requiring the separation of argon from more than 5,000 tons of air. The ease with which an electric discharge passes through neon, and its characteristic luminosity, have led to a great development in the use of this rare gas for the illuminated signs with which we are so familiar in our cities to-day.

IN some respects, however, the history of the use of helium is still more striking. The presence of this gas was first detected in the sun by Sir Norman Lockyer in 1868, and for this reason he named it 'helium'. The presence of helium on the earth was first observed by Ramsay in 1895 in the gases released from old radioactive minerals. In the course of the next ten years, a few cubic metres of helium were laboriously extracted from radioactive minerals. During the War, the Board of Invention and Research of the Admiralty recognised that it would be much safer if observation balloons and dirigibles could be filled with a light, non-inflammable gas like helium rather than with hydrogen, for there is only eight per cent difference in their respective lifting powers. At the suggestion of the Board, Prof. J. C. McLennan, of the University of Toronto, made a systematic examination of the helium resources of the Empire. It was found that large supplies of helium were available in the natural gas fields of southern Alberta,