

of 120 miles or more. The design, development, supply and firing of the rockets will be carried out by the Ministry of Supply. Five university research groups, from University College, London (Prof. H. S. W. Massey), the University of Birmingham (Prof. J. Sayers), The Queen's University of Belfast (Profs. D. R. Bates and K. G. Emel us), University College, Swansea (Dr. W. J. G. Beynon) and the Imperial College of Science and Technology, London (Prof. P. A. Sheppard), will be initial participants in the scientific programme. The work will be co-ordinated through a special sub-committee of the Gassiot Committee of the Royal Society. The first experiments will include determination of atmospheric temperature and density, the study of the nature of the ionosphere, a search for very fine meteoric dust below 60 miles altitude, and determination of the heights of the regions from which the night air-glow is strongest. While the development of the rockets is proceeding, work on the scientific instruments required will proceed in parallel, so that both should be available at nearly the same time.

Although this programme has been arranged independently of the International Geophysical Year, 1957-58, it is hoped that it will be in operation during this period and add substantially to the British contribution to the Year.

OBITUARIES

Sir Harold Tempany, C.M.G., C.B.E.

SIR HAROLD TEMPANY's forty-three years in the Colonial Agricultural Service (now called the Agricultural Branch of H.M. Oversea Civil Service) stretched a good way on either side of the great changes which followed on the Imperial Agricultural Conference of 1927. These gave the Service the beginnings of a unity, enlarged it in numbers and resources, provided training for its cadets and placed at its head an agricultural adviser to the Secretary of State for the Colonies. The late Sir Frank Stockdale was the first to fill this post (1929). Tempany joined him as assistant adviser in 1936 and, succeeding him in 1940, was in office during the hard years up to his retirement in 1946.

Variety in the earlier half of his career gave width to the knowledge of climates, soils, agriculture and administration on which his success in the diversified tasks of the latter half depended. Soon after graduating at University College, London, where chemistry, always central in his technical thinking, was his main study, he was appointed assistant agricultural chemist, Leeward Islands, in 1903, and a few years later chief chemist and superintendent of agriculture. In Mauritius during 1917-29, as director of agriculture, he was also responsible for the co-operative credit societies, and became the first principal of its College of Agriculture and a member of its Council of Government. Malaya was his next Colony. While director of agriculture for seven years from 1929, he put new life into the investigation of the food crops and livestock of its peasant farming, formerly overshadowed by its great export crop, rubber. The training of local assistants and general agricultural education also profited greatly from his interest.

By 1940, when Tempany became agricultural adviser in the Colonial Office, Stockdale had put new spirit into the whole Colonial Agricultural Service and made the Colonial Advisory Council for Agri-

culture, Animal Health and Forestry an influential body, warm in support of his exertions. Soil erosion throughout the Colonial Territories was, at last, being checked; the basic importance of the peasant economy had become recognized; specialist research had begun to be intelligently related to major problems; and study of husbandry and farming systems to be effectively promoted. Further, it was accepted that agricultural development in a territory could not spring from unconcerned pushing of individual commodities but required a policy based on primary physical and ethnic considerations.

In 1940 Tempany, who in his four years as assistant adviser had had a hand in all these developments, became, as adviser, responsible for doing what was possible to carry them on while also wrestling with the acute war-time food-supply problems of all the Colonial territories.

The Colonial Development and Welfare Act, 1940, greatly enlarged the funds for research, and a committee of the Colonial Advisory Council for Agriculture, Animal Health and Forestry was set up to report on research organization in those subjects. In its prolonged, arduous, discussions it fell to Tempany, particularly, to maintain free scope for technical agriculture and science, while conceding a due authority to administrative control. The present Colonial Agricultural Research Committee was set up, conformably with the recommendations, and the idea of a regional basis for research was also adopted. In 1946, a commission of three, under Tempany, visited East Africa for the conference at which initial arrangements for an East African regional organization were drawn up.

At formal meetings, Tempany's conscientious marshalling of facts sometimes tended to irritate his less-patient colleagues who, none the less, respected his tenacity and his high aims for the Service. It was in travel and when dealing with problems out on the land that he was seen at his best. But, indoors or out, he was unfailingly industrious, conscientious, fair-minded and kindly.

Tempany had periods of service on the board of governors of the Imperial Institute, the governing body of the Imperial College of Tropical Agriculture, the Sudan Government London Scientific Advisory Committee on Agricultural Research, the Chemical Council and the Council of the Royal Institute of Chemistry, and in 1950 he received a silver medal of the Royal Society of Arts. Most of his writing went into official papers: he published "Principles of Tropical Agriculture" (1930: with G. E. Mann); "The Practice of Soil Conservation in the British Colonial Empire" (1949); and "Agriculture in the West Indies" (1942). Leisure for writing, for which he longed, and happy opportunity, came in 1946 when, on retiring, he became editor of *World Crops*.

In 1911 he married Annie Frances Agnes, eldest daughter of Robert Goodwin, of Antigua, who died in 1945; their son died, in Nairobi, only two days before the death of his father in London on July 2. His second marriage, in 1946, was to Kate, youngest daughter of William Welfare. F. L. ENGLEDOV

Prof. R. H. A. Plimmer

THE distinguished biochemist and one of the founders of the Biochemical Society, Robert Henry Aders Plimmer, emeritus professor of chemistry in the University of London, died on June 18 at the age of seventy-eight.

At the time of his death, Prof. Plimmer was a member of the staff of the Department of Biochemistry at the British Postgraduate Medical School, Hammersmith.

Born on April 25, 1877, the eldest son of Alfred Aders, of Manchester, he adopted the name of his stepfather, Henry George Plimmer, F.R.S., an eminent bacteriologist who undoubtedly influenced him in his choice of a scientific career. He was educated at Dulwich College, University College, and in Geneva and Berlin, and obtained his D.Sc. (London) in 1902 and worked in the Lister Institute for two years as a Grocers' Company research student. In 1904 he returned to University College as an assistant in the Department of Physiological Chemistry, his first teaching post. He was to remain at University College for fifteen fruitful years, during which time he became assistant professor and finally reader in physiological chemistry. He was elected a Fellow of the College in 1906. Together with Bayliss and Starling, he helped to plan and equip the new Physiology School, and he reorganized the teaching of physiological chemistry. His well-known text-book, "Organic and Bio-chemistry", dates from this time, as does the valuable series of "Monographs on Bio-chemistry", of which he was co-editor with Hopkins, and to which he contributed "The Chemical Constitution of the Proteins". Protein analysis, which he had studied in Emil Fischer's laboratory at Berlin, became one of his main lines of research, and he was long regarded as a leading authority on this subject.

Biochemistry was just beginning to be recognized as a subject in its own right, and the time appeared to be ripe for the formation of a club or society with the object of encouraging closer co-operation among workers in this field. The lead was taken by Plimmer and J. A. Gardner. They called a meeting at University College in January 1911, which led to the founding of the Biochemical Society with Plimmer as its first secretary; Gardner became treasurer in 1913. The present flourishing, vigorous Society owes much to the initiative and foresight of these two co-founders, who steered it through its difficult early days. Plimmer was made an honorary member in 1943 and later wrote the "History of the Biochemical Society" up to the time of the First International Congress of Biochemistry held at Cambridge in 1949.

During the First World War, Plimmer was attached to the R.A.M.C. and worked for a time at the Army Medical College, Millbank. He was commissioned to assay the energy values of the common foodstuffs—a task which entailed many thousands of analyses. The results of this work were later published by H.M. Stationery Office.

In 1919 Plimmer was appointed head of the Biochemistry Department at the Rowett Institute for Research in Animal Nutrition, Aberdeen. His old school friend, John Q. Rowett, had generously contributed towards the founding of this Institute, and had also financed the last Antarctic expedition of Sir Ernest Shackleton, another old Dulwich College boy. But Plimmer was not happy away from London and, when the opportunity came, he applied for the chair in chemistry at St. Thomas's Hospital Medical School, London, the post he was destined to occupy with distinction for twenty-one years—from January 1922 until December 1942.

At St. Thomas's Plimmer found congenial colleagues and facilities for research. He was a successful teacher, beloved by his students, to whom he gave every encouragement while exercising strict discipline. His

lectures on inorganic and organic chemistry, biochemistry, toxicology, and the Nightingale Lectures in elementary science for nurses, were models of lucidity. Full of energy and drive, he carried out an astonishing amount of research on the nutritive values of foods and their relative vitamin contents. Plimmer's poultry farm on the roof of his department was a source of great interest and, incidentally, many a delicious meal for his colleagues. He was an advocate of the 'balanced diet', and, together with his wife, wrote several popular books on food values. "Food, Health, Vitamins", written by Prof and Mrs. Plimmer, ran through nine editions and contained their famous 'square meal' chart.

Plimmer loved hard work at his laboratory bench; but he also thoroughly enjoyed his leisure hours at home with his wife and family. Always a keen motorist, he toured extensively on the Continent with his family during vacation. He enjoyed watching first-class cricket, loved good music, frequently visited Glyndebourne, and was an ideal host.

On the outbreak of war in 1939, teaching continued at St. Thomas's until the Hospital was severely damaged by bombs in September 1940. The staff and students then moved to the Manor House, Godalming, and were permitted to use the laboratories in the nearby Charterhouse School. While at Godalming, Plimmer reached the age of sixty-five and retired from St. Thomas's in December 1942. He was too full of energy to remain idle for long, and he gladly accepted Prof. E. J. King's invitation to work in the Biochemistry Department of the British Postgraduate Medical School, Hammersmith. Greatly beloved by all his colleagues, he continued actively working there from January 1943 until the end of his life.

The death of his wife in July 1949 was a great blow to him; but he was comforted by the presence of his eldest daughter and her family, who lived with him until a few months before his death.

JOHN LOWNDES

Prof. Gustave Magnel

THE death of Prof. Gustave Magnel on July 5 deprives civil engineering of one of its leading figures. Prof. Magnel had a world-wide reputation as the originator of the Magnel-Blaton system of prestressing concrete, according to which the prestressing wires are formed into a cable of rectangular section by means of spacer grilles, and are anchored by steel wedges hammered into 'sandwich plates'.

Gustave Paul Robert Magnel was born at Esschen in the province of Antwerp in 1889, and graduated in civil engineering in the University of Ghent in 1912. His early working years were spent in England where, during the First World War, he worked as assistant, and later chief engineer, for the firm of D. G. Somerville and Co., of London.

After the War he returned to Ghent, and to his old University, where he became professor of structures and reinforced concrete, and director of the concrete laboratory. Between the Wars he became one of the earliest enthusiasts for prestressed concrete; it was during the Second World War that he developed his own system of prestressing. The system did much to widen the scope of the new and revolutionary technique of prestressing, and has been used in many different countries for bridges, buildings and circular structures such as tanks and silos. Prof. Magnel himself designed most of the early structures