OBITUARIES

Dr. B. G. Gates

DR. BENJAMIN GEORGE GATES, who was the controller of research and development of the Australian Defence Scientific Service in the Department of Supply, died suddenly on December 1, 1964, at the age of sixty. He collapsed at a farewell retirement dinner given by his colleagues at the rooms of the Royal Commonwealth Society in Melbourne. He had a distinguished career in Scientific Research and Development, and for about thirty years was concerned with science in its application to defence.

Gates graduated from the City and Guilds College of the University of London in electrical engineering in 1924, and later was awarded a Ph.D. Between 1924 and 1935 he served with various industrial organizations, including Messrs. Johnson and Phillips, Ltd., London; Metropolitan Vickers, Ltd., Manchester; the British Electric Transformer Co., London; and the British Electrical Research Association. In 1935 he joined the Radio Department of the Royal Aircraft Establishment at Farnborough. In this establishment he first became acquainted with some of the scientific problems peculiar to defence, and soon made his own contribution to their solution.

He was concerned with the provision of reliable radio communication between aircraft and aircraft, and between aircraft and the ground; the comparative ease with which such communication is carried on to-day gives little indication of the magnitude of the problems which had to be overcome. Not the least of these was that of speech modulation of the radio transmitter in the very high noise-levels encountered in aircraft, and it was in this field that he made one of his most noteworthy contributions. Dr. Gates joined the Radio Department of the Royal Aircraft Establishment as a scientific officer, and within a decade he was head of that Department.

In 1950 he joined the Australian Defence Scientific Service as the controller concerned with the management of the Woomera Rocket Range, for which appointment he was specifically, and unequivocally, recommended by the late Sir Henry Tizard. It will be recalled that some three years earlier it had been agreed by the British and Australian Governments that a rocket range should be set up in Australia for the development of a long-range rocket, which would form the basis of a deterrent weapon system. The range at Woomera was planned originally for this purpose, and a rocket based on the German V2 of the Second World War was conceived under the name *Hammer*. Within a year, however, as a result of a change in policy of the British Government, this project was cancelled, and it was decided to proceed with the Woomera Range for the development not of a deterrent weapon system but of a series of ground-to-air and air-to-air weapons for direct defence. Dr. Gates was concerned with the planning and building of Woomera for this modified requirement, and he supervised its growth as a general purpose range capable of handling almost any project requiring space and accurate measurement. So in due course the range was readily adaptable to handle the *Blue Streak* project when, due to another reversal of policy by the British Government, the deterrent weapon project was revived. Again on cancellation of this project as a weapon, in its turn, the range was found to be readily made suitable for the launching of satellites based on the *Blue Streak* rocket, under the auspices of the European Launcher Development Organization of which Australia is a member.

Dr. Gates was concerned, as 'general manager', not only with the scientific and technical requirements for the range itself, but with all the support which such a facility

necessitates. Those supporting facilities included the recruitment of some hundreds of graduate scientists and the further training of many of them overseas for periods of up to two years. The provision of a town with schools, shops, a hospital and so on was necessary to house range staff and their dependants, and a supporting air service had to be arranged in co-operation with the Royal Australian Air Force. Clearly, then, the Woomera Rocket Range owes much to the effective management by Dr. Gates in those early days.

In 1955 he was appointed 'controller of research and development' in the Australian Defence Scientific Service and deputy chief scientist (deputy chief executive), and was involved until his death with the build-up and use of resources capable of providing modern weapons and equipment for the Australian Fighting Services. Partly to train personnel for this purpose, and partly to provide a useful weapon, the British Army's anti-tank weapon *Malkara* was successfully completed.

In addition to the management of these research and development resources for the Australian Services, and the supervising of the Australian Defence Scientific Service as a whole (including the Rocket Range and associated activities) during the absences overseas of the Chief Scientist, Dr. Gates was very closely involved in managing a guided-weapon project, *Ikara*, for the Royal Australian Navy. The successful completion of this sophisticated system, which accurately delivers a self-homing torpedo to a desired location at sea, is due in large measure to Gates's conscientious supervision. Gates had a wide knowledge of those branches of science concerned with defence and, in the field of electrical engineering and electronics, this knowledge was encyclopaedic. He was a most pleasant colleague with whom to work and was unruffled in a crisis; his loss will be deeply felt. He leaves a wife, a daughter and a son.

W. A. S. BUTEMENT

C. S. Franklin, C.B.E.

CHARLES SAMUEL FRANKLIN, one of the greatest pioneers of radio telecommunications, died on December 10, 1964, at the age of eighty-five. He will always be honoured for the prominent part he played in the small band of engineers associated with Guglielmo Marconi in the development of wireless—now radio—communications and associated valve techniques, during the first half of this century.

Franklin was born in 1879 and received his engineering and scientific training at the Finsbury Technical College under Prof. Sylvanus Thompson. After gaining some experience in electrical work, first at Manchester and afterwards with the Norwich Electricity Co., he joined the Wireless Telegraph and Signal Co. in 1899. This organization later became Marconi's Wireless Telegraph Co., with which Franklin remained associated until his retirement in 1939.

After a period in South Africa, where he helped to introduce wireless communication as a military aid during the Boer War, he sailed with Marconi across the Atlantic in 1902 to demonstrate the reception of wireless messages up to a range of some 1,550 miles from the Poldhu transmitting station in Cornwall. This was followed by a long personal association between Franklin and Marconi, during which were laid the foundations of modern world-wide radio communications.

Beginning with specially designed spark transmitters, Franklin was quick to appreciate the possibilities of the thermionic valve as a generator of radio frequency

oscillations, as well as a regenerative receiver of high sensitivity, and as early as 1913 he had filed patents covering techniques in this field. During the period 1916–20, the short-wave beam principle was developed, and one example of this was the rotating parabolic reflector station at Inchkeith, transmitting on a wave-length of 6 metres and demonstrating the possibilities of a radio beacon for navigation purposes. The Franklin master oscillator circuit of high stability formed an essential part of the subsequent development of the short-wave beam communication system.

During 1923–24, he installed a short-wave station at Poldhu, using a wave-length of nearly 100 m and directing the beam towards Marconi's yacht cruising in the South Atlantic. These experiments illustrated the practical possibilities of short-wave radio communication over long distances—by way of the ionosphere as we know to-day. In this connexion the Franklin beam aerial system was designed which, in one form or another, has formed the basis of short-wave world-wide communications, including broadcasting, for the past forty years. A necessary part of such a system was the associated development of the low-loss coaxial cable for the transmission of the very-high-frequency currents to and from the aerial arrays.

Franklin was also closely associated with broadcasting, and assisted in the design and installation of the transmitter and aerial system at London's first broadcasting station, then known as 2LO. Later he designed the transmitters and aerials for the B.B.C.'s station at Alexandra Palace which was used for the world's first regular television service. Although Franklin formally retired in 1939, he remained for some years as a research consultant to the Marconi Co.

Among the awards which came to Franklin in the course of his career were the Morris N. Liebmann Memorial Prize of the Institute of Radio Engineers (N.Y.) in 1922; the James Alfred Ewing Medal of the Institution of Civil Engineers (1936); and the Faraday Medal of the Institution of Electrical Engineers (1949) for "his distinguished work in radio engineering, and more particularly for his development of the beam aerial and other devices that made long-range high-frequency communication a practical possibility". In 1949, also, he was created a Commander of the Order of the British Empire.

Franklin was possessed of a modest and quiet but persistent manner; he was known and respected by all the scientists and engineers connected with the early history of telecommunications in the evolution of which he played such an outstanding part.

R. L. SMITH-ROSE

NEWS and VIEWS

U.K. Atomic Energy Authority Weapons Group:

Mr. E. F. Newley, C.B.E.

MR. E. F. NEWLEY has been appointed director of the U.K. Atomic Energy Authority Weapons Group. Mr. Newley gained the degrees of B.Sc. (Mech. Eng.) and M.Sc. at the University of London, and spent the early part of his career at the Post Office Research Station, Dollis Hill. In 1949 he joined the Admiralty as a senior principal scientific officer, and left in 1955 to take up an appointment as deputy chief engineer at the Atomic Weapons Research Establishment, Aldermaston. Later he became chief of warhead development at Aldermaston and in 1959 was appointed deputy director, which position he has held until now.

Chemistry in Brunel College of Advanced Technology:

Prof. K. S. W. Sing

DR. K. S. W. SING, head of the Department of Chemistry and Biology at Liverpool College of Technology, has been appointed to the chair of chemistry at Brunel College of Advanced Technology. Dr. Sing was educated at Teignmouth Grammar School and the University College of the South West of England (now the University of Exeter). In 1945 he gained a B.Sc. of the University of London in special chemistry with first-class honours, and remained at Exeter for a further three years as a research student studying the thermal decomposition of aluminium hydroxide, under the direction of Dr. S. J. Gregg. Dr. Sing was awarded a Ph.D. by the University of London in 1949 for his thesis dealing with adsorption of porous solids with particular reference to the adsorbents produced by heating gibbsite. After leaving Exeter in 1948, Dr. Sing spent a year in the research department of Imperial Chemical Industries, Ltd., Billingham. In 1949 he joined the staff of the Royal Technical College, Salford, where he was successively lecturer and senior lecturer. In 1956 he moved to Liverpool College of Technology, and under his headship the Department of Chemistry and Biology—already in a thriving condition—increased greatly in size, both in terms of accommodation and staff and student numbers, to the point where it is now one of the major departments of its type in a Regional College. Possibly the most striking development has been the increase in the amount of research carried out in the Department, much of it

sponsored by local industry. Dr. Sing's own research has included perhaps the first systematic attempts to investigate the conditions of formation of silica gel in relation to its surface properties, and investigations of the ageing of precipitated alumina at room temperature. His present interests include gas adsorption and the surface and structural properties of alumina and various mixed oxide catalysts.

Brewing and Applied Biochemistry in the Heriot-Watt College, Edinburgh:

Prof. D. J. Manners

DR. D. J. MANNERS has been appointed to the chair of brewing and applied biochemistry at the Heriot-Watt College, Edinburgh, in succession to the late Prof. I. A. Preece (204, 1033; 1964). Dr. Manners was educated at Fitzwilliam House, Cambridge, where he obtained honours in the Natural Sciences Tripos (Biochemistry) in 1949 and a Ph.D. degree in 1952 for his research on carbohydrate biochemistry. He was appointed to a lectureship in chemistry at the University of Edinburgh in 1952 and to a readership in 1964. Dr. Manners's research interests have included investigations of the molecular structure of glycogen and polysaccharides from protozoa, algae and yeast, on glycogen storage diseases, on starch-degrading enzymes and on enzyme systems in marine algae. On the basis of this work he was awarded the Meldola Medal in 1957, and the D.Sc.(Edin.) degree in 1960. He was elected a Fellow of the Royal Institute of Chemistry in 1958, and has recently been appointed to the Editorial Board of the *Biochemical Journal*. His present research projects include several which are of direct interest to the brewing and related industries, so that the close links already established by Prof. Preece between the Heriot-Watt College and those industries will be maintained. It is expected that the College will attain university status at an early date and that, under the direction of Dr. Manners, the Brewing and Applied Biochemistry Department will take a full part in these developments.

Sociology in the University of Bristol:

Prof. M. P. Banton

THE University of Bristol, the most recent of the established English universities to introduce courses in sociology, has appointed Dr. M. P. Banton to the newly