and not merely in Great Britain alone. A bachelor, he was completely devoted to his College, his pupils, to astronomy and especially to the International Astronomical Union, to his comrades of the First World War, and to his duty wherever he thought it to lie. Personal convenience, comfort or profit came very low indeed on his scale of priorities. He was one of the most generous men I have ever met, and one of the most modest. Astronomer, soldier, don, Unitarian, internationalist, he has left the world greatly in his debt.

R. O. REDMAN

AMONG young intellectuals in the universities, in the years before the First World War, it was commonly regarded as a sign of feebleness of intellect to believe that war was conceivably possible; and indeed as a mark of moral obliquity to take any personal steps to meet such an emergency. Fortunately a substantial minority, in reality no less intelligent, paid rather little attention to the intellectual and moral stigma; and the following short story of a small group of them at Cambridge describes one of the earliest contributions of young scientific men to national preparedness for war.

In 1908, under the Haldane Scheme for the Territorial Army, the Officers Training Corps of the Universities took the place of the earlier Volunteers. In Cambridge, in addition to the previous battalion of infantry, units were established of cavalry, artillery, engineers and medicals. Two years later, under the imaginative leadership of F. J. M. Stratton, a Signal Company was started and before long a wireless telegraph section was formed as part of it. Encouraged by Bertram Hopkinson, professor of engineering, who lent a room in his laboratory, the wireless section began work on the design of sets for field work and it drew in a remarkable group (as it proved) of young scientists for the task. It was not possible in those days to go and buy components from dealers, and radio valves did not exist. Everything had to be built up in workshop, laboratory, or tent, by members of the section itself. Since sets had to be portable, a generator was designed to be fitted to a bicycle, and during 'operations' a member of the section pedalled steadily, if wearily, to provide power for transmission. When communication failed, for example, between Farnborough Common and Eelmore Hill, it was re-established by flag and/or bicycle.

A photograph exists showing the ten members of the section in 1912, together with Captain Stratton commanding the Signal Company and a portable radio set complete with antenna. In it, among others, are Lance Corporal Henry Thirkill, Lance Corporal T. L. Eckersley, Private Harold Spencer Jones and Second Lieutenant A. V. Hill. Those were early days. By 1914 the wireless section had expanded considerably, and since no reserve of regular W/T officers existed when the War broke out, it was natural that members of the section should be drawn into field wireless. In fact, the section provided senior wireless officers for four armies. After the War, the Signal Company was more generously treated by the War Office, and a special research group was formed inside the wireless section.

Prof. (alias Lieut.-Colonel) Stratton recalled that, among the members of his Signal Company, the following could be counted: several who went into industry, one of whom was scientific adviser to Marconi's for twenty-seven years; four vice-chancellors and five masters of Cambridge colleges; nine

professors; nine Fellows of the Royal Society and three Nobel Laureates; one director of scientific research, Admiralty; one chief engineer of posts and telegraphs, India; one secretary of the World Meteorological Organization; three successive secretaries-general of the International Council of Scientific Unions; one Astronomer Royal; two major-generals; [one D.S.O.]; one bishop; one Colonial chief justice; one M.P.; and one Olympic gold medallist. This list, as its author admitted, was rather a fraud, since on the average each person in it occurred twice. Nevertheless, it is rather impressive, particularly when one remembers that two-thirds of these people served in the Signal Company during its initial years 1910-14.

A. V. HILL

Dr. J. Brooks, O.B.E.

DR. JACK BROOKS, principal scientific officer at the Low Temperature Research Station, who died in Cambridge on October 2, was in charge of the work on eggs and poultry.

Brooks joined the scientific staff of the Low Temperature Research Station in 1928 from the Muspratt Laboratory of Physical and Electro-Chemistry of the University of Liverpool, at the invitation of the late Sir William Hardy. From the outset of his career he was an individual worker, belonging to the less-common class of investigator who prefers to do most things for himself in the laboratory. Before the War Brooks made a name for himself in fundamental research, especially in the field of haematin pigments. Quite early in his career he was publishing work in the *Proceedings of the Royal Society* and the *Biochemical Journal*, and up to the outbreak of war he continued to produce a steady series of papers in his particular field of physical chemistry applied to biological systems. He then showed himself equally capable at quite the highest level in applying theoretical results to immediate practical objectives, namely, the dehydration of egg and the storage of dried material.

Brooks held an established position as the leading Government consultant in Great Britain on all matters concerned with the handling and storing of eggs. During the period 1943-47 he was lent to the then Ministry of Food for various periods, in the course of which he visited the Argentine, United States, Canada and Australia in connexion with the Ministry's programme for the manufacture of dried egg and, afterwards, for full-scale trials of sugar-dried egg production. Later he again visited Australia as a member of the British Food Mission. After the War the emphasis of Brooks's work turned from dried to shell eggs, and again his knowledge, skill and personality were called on by the Ministry of Food to help in the solution of problems in countries exporting eggs to Britain. In 1948 and again in 1950, he visited Poland in response to a request from the Polish Government for help in finding a solution to difficulties which had arisen in the preparation of frozen pasteurized egg in fulfilment of orders placed by the Ministry of Food. Brooks was the only person in Britain possessing the specialized knowledge for this task, and he was able to discover the cause of the trouble and suggest a solution completely satisfactory both to the Polish Government and the Ministry.

Although such calls for Brooks's services seriously interrupted his supervision of laboratory investigations, he continued to exercise a firm control over

these and to initiate and maintain lines of research which have been successful in several directions. Some of these lines, such as the storage of oiled eggs, had immediate industrial application. Others were aimed at discovering the mechanism of deteriorative changes which occur during prolonged storage such as, for example, the thinning of the white, the weakening of the yolk membrane, and the production of undesirable changes in flavour due to enzymic oxida-

tion. These were all problems needing deep exploration and a capacity for skilful research of the most fundamental nature. But for his deflexion from 1940 onwards to the more applied aspects of his work, Brooks would almost certainly have established for himself as high a reputation in academic circles as he enjoyed in responsible quarters for his technical skill and knowledge of matters pertaining to eggs.

E. C. BATE-SMITH

NEWS and VIEWS

Air Ministry Appointments :

Mr. Hayne Constant, C.B., C.B.E., F.R.S.

MR. HAYNE CONSTANT has been appointed Scientific Adviser, Air Ministry. As a Fellow of the Royal Society and a member of the Aeronautical Research Council, and as director of the National Gas Turbine Establishment, Pyestock, he has for many years been closely connected with forward thinking in the aeronautical field. Born in 1904 at Gravesend, Kent, he went up to Queens' College, Cambridge, as a scholar in 1924 and graduated with first-class honours in the Mechanical Science Tripos in 1927. After a year's postgraduate research he entered the Royal Aircraft Establishment, and, after work on aircraft vibration and the performance of engines on weak mixtures, he pioneered work on the axial jet engine. His career has been mainly devoted to the advancement of the gas turbine as a prime mover, particularly for aircraft, in which sphere there has been such enormous advance in the past twenty years. In 1941, Hayne Constant was head of the Engine Department of the Royal Aircraft Establishment. In 1944, he linked forces with the Power Jets Whittle team as Power Jets, Research and Development, Ltd., and when that body became the National Gas Turbine Establishment he was deputy director. In 1948, he was elected a Fellow of the Royal Society and in the same year he succeeded Dr. (now Sir Harold) Roxbee Cox as director. In this capacity he was responsible not only for research but also for the centralization of the National Gas Turbine Establishment, bringing the Whetstone (Leicester) Whittle group to Pyestock, and the development of Pyestock into the biggest centre in Britain for gas turbine and ramjet test plant, including the Engine Test Facility. He received the Busk Memorial Prize of the Royal Aeronautical Society in 1932, and the Clayton Memorial Prize of the Institution of Mechanical Engineers in 1947. He was, from its inception in the war years, a member of the Gas Turbine Collaboration Committee with senior representatives of the British aero-engine industry. His views of, and predictions for, the gas turbine are published in his book "Gas Turbines and Their Problems", and in lectures and papers in many scientific and technical journals.

Mr. R. H. Weir, C.B.

MR. ROBERT HENDRY WEIR has been appointed director of the National Gas Turbine Establishment in succession to Mr. H. Constant. Mr. Weir, who has been principal director and director general of engine research and development since January 1, 1954, was born in 1912 and educated at Allan Glens

School, Glasgow, and the University of Glasgow, where he graduated B.Sc. with first-class honours in mechanical engineering in 1933. After an apprenticeship with Wm. Denny and Bros. Ltd., Dumbarton, he joined the Royal Aircraft Establishment in November 1933, where he was a member of the Engine Department until January 1939. He was then transferred to a post at headquarters in London, where he was engaged on aero-engine performance and work on pressurized cabins until December 1940. His next posting was to the Aircraft and Armament Experimental Establishment, Boscombe Down, where he spent a period of eighteen months on aero-engine liaison duties, and then transferred back to Engine Research and Development Headquarters in July 1942, for special duties on gas turbines. Mr. Weir was appointed director of industrial gas turbines in February 1950, and director of engine research and development in August 1952. He was made principal director of engine research and development in January 1954, which post was re-named director general of engine research and development in January 1959.

Ministry of Health :

Sir John Charles, K.C.B.

SIR JOHN CHARLES, chief medical officer of the Ministry of Health, Ministry of Education and Home Office, is retiring on November 30. He is a graduate of the University of Durham, and achieved a high reputation as medical officer of health, Newcastle on Tyne. In addition to competent administration, he made important epidemiological, nutritional and public health inquiries. During the Second World War he was appointed a deputy chief medical officer of the Ministry of Health and in 1950 became chief medical officer. In Sir John's ten years of office he has given much attention to the development and consolidation of the National Health Service. He has seen a further notable decline in tuberculosis and diphtheria, and has encouraged effective vaccination against poliomyelitis. Among many other subjects which have engaged his attention are the mental health services under the new Act, the dental services, care of the aged and the progress of maternity and child welfare work. Sir John has visited various parts of the world in the interests of international health, being also chairman of the Executive Board of World Health Organization and president of the twelfth World Health Assembly. He gave the Bradshaw Lecture in 1948 and the Harveian Oration in 1955 to the Royal College of Physicians. He can look back with satisfaction on his tenure of office as medical adviser to three departments of State ; and in his retirement