

expert interest in particular subjects, as, for example, steam, hydraulics, internal combustion engines, manufacturing, education, and so on. These groups are assisted by the Council in arranging their own meetings and discussions.

Thanks mainly to benefactions by its members, the Council of the Institution now has at its disposal valuable funds for the provision of monetary awards or medals for special lectures or particularly meritorious papers. One of its highest awards is the Watt International Gold Medal, which is bestowed biennially on some distinguished engineer, without regard to nationality, for exceptional services to science or industry. The decision is made by the Council in the light of the opinions of the leading foreign institutions, and the recipients so far have included two Englishmen, two Americans, one Australian and one Swiss. Some of the other prizes are awarded in respect of specified subjects, but in the case of others the Council has a wide discretion. Any person, for example, whether a member of the Institution or not, may be invited to deliver the well-known annual Thomas Hawksley Lecture. Lectures in this series have been delivered by such authorities as the late Sir Alfred Eddington, the late Lord Rutherford and others of similar eminence. In 1945 the Institution received the magnificent bequest of £130,000 under the will of the late Mr. James Clayton, with the condition that at least one quarter of the annual income should be used in providing a "James Clayton Prize" for the best contribution by any member in that year to modern engineering science. The first award under this bequest was made to Air-Commodore Frank Whittle for his development of jet-propelled aeroplanes.

It may fairly be claimed that no other technical organisation has so fine a record as the Institution of Mechanical Engineers in the matter of corporate research work, carried out for the benefit of the profession in general. So long ago as 1875, the Council adopted a policy of giving financial support to engineering research, and in 1879 it appointed a standing research committee to decide on and supervise such investigations as might be desirable from time to time. Very large sums have been spent by the Institution on such work, which has been carried on uninterruptedly ever since. The results of the various investigations form the basis of discussions by the members, and are then published for the benefit of all persons interested. The range of subjects is too great even for a summary here, but mention ought at least to be made of the classical experiments of Beauchamp Tower in 1882, on which the whole of the modern theory of lubrication is based, and of the work of the Alloys Research Committee which was started under the direction of Sir William Roberts-Austen in 1889 and has since been productive of immense advances in metallurgical knowledge. The Institution also took up the question of standardization at an early date, and played an active part in the establishment of the Engineering Standards Committee in 1901, to which body matters concerned with standardization have since been referred.

The Institution Library now comprises more than 35,000 volumes, arranged accessibly for consultation, and also available for loan to members who wish to borrow them. There are, in addition, some two hundred British and foreign current technical periodicals in the Reading Room. Visits to the Library or Reading Room now exceed 10,000 annually. The assistance and advice of the staff are, moreover,

at the disposal of members seeking information either personally or by correspondence, and the necessary searches are carried out for them.

To maintain the high standard of qualifications required for admission to the Institution, after 1912 the election of the younger candidates was made conditional on their passing an examination in general and technical knowledge in addition to the conditions previously demanded, except in cases where the possession of an approved degree or diploma rendered any further examination unnecessary. The interest and the influence of the Institution in engineering education led to its being consulted by the Board of Trade in 1921 when the advisability of revising the old "Science and Art" examinations was under consideration. The outcome of these discussions, largely due to the late Dr. H. S. Heleshaw, was the establishment of the present system of National Certificates in Mechanical Engineering. These are granted on the result of examinations in which assessors appointed by the Institution can set up to 40 per cent of the questions, and can render compulsory any particular questions up to the same percentage of the total. The Institution thus exercises a very strong influence on the type of education given. The certificates awarded bear the signatures of the president of the Institution, of an official of the Board of Trade, and of the principal of the educational establishment concerned. The number of students who sat for these examinations in 1946 was nearly 12,000. The Institution shows its confidence in the scheme by exempting the holder of a Higher National Certificate from further examination in the subjects covered.

In 1929 the Institution of Mechanical Engineers was granted a Royal Charter in recognition of its position as the accepted embodiment of the profession. As such it enjoys the patronage of H.M. King George VI, and, apart from the services of its individual members, it has, in its corporate capacity, rendered invaluable assistance to the Government during and since the War.

OBITUARIES

Sir Granville Orde Browne, K.C.M.G.

SIR GRANVILLE ST. JOHN ORDE BROWNE, who died on May 12, was a pioneer in work for the improvement of labour conditions in the British Colonies, particularly in Africa. Born in 1883, he first went to Africa as an artillery officer in the Zulu War of 1906. In 1909 he joined the administrative service in Kenya; his observations made among some of the minor tribes (Chuka, Embu, Mwimbe, Emberre) were published in 1925 in his book "The Vanishing Tribes of Kenya". Recalled to the colours in 1914, he served throughout the East African campaign, and his experience with native carriers aroused the interest in native labour which dominated the rest of his life.

Orde Browne was posted to Tanganyika in 1920, and in 1926 became labour commissioner, the first holder in Africa of such a post. His "Report on Labour in the Tanganyika Territory", published in that year, was a landmark at a time when many employers still depended on the penal sanction for breach of contract to keep their labourers at work. Most of the points he made have become common-places to-day—the need for acclimatization of the labourer to his new surroundings, particularly where

these involve a radical change of diet, and for an appreciation of the reasons for 'desertion' and for dealing with it by sympathetic discussion of difficulties rather than by penalties. He advocated measures to mitigate the hardships of the long journey on foot to the place of labour, which have still scarcely been taken on an adequate scale.

When in 1931 Tanganyika decided to abolish the Labour Department and add its duties to the responsibilities of administrative officers, Orde Browne resigned from the Colonial Service, but his interest in Colonial labour questions continued. His book, "The African Labourer", published in 1933, discussed the problems of labour welfare and protection from every angle and compared the practice of the different colonial Powers. In 1934 he became a substitute member of the International Labour Organisation's Committee of Experts on Native Labour, and took part in the drafting of the conventions on recruiting and contracts which have been adopted by that body. He supplied the original draft for the chapter on labour in Lord Hailey's "African Survey".

After being commissioned in 1937 to make an inquiry into conditions on the copper belt of Northern Rhodesia, where there had been serious riots, he was appointed labour adviser to the Secretary of State in 1938, and in turn visited and reported on the West Indies, West Africa, Ceylon, Mauritius and Malaya, and East Africa. The creation of a specialist Labour Department in every Colony, which he persistently advocated, is now official policy. He was created C.M.G. in 1942 and K.C.M.G. in 1947.

LUCY MAIR

Prof. Walter Ramsden

PROF. WALTER RAMSDEN, emeritus professor of biochemistry in the University of Liverpool, died on March 26 at the age of seventy-eight. He went to Liverpool from Oxford in 1914, following Benjamin Moore in the chair of biochemistry. The subject was still in its infancy, attracting comparatively few graduates and scarcely any science students. Ramsden's teaching was mainly concerned with medical undergraduates, and for them he introduced for the first time a course of lectures in the subject, together with practical classes. These admirably covered general principles, but did not overburden the student with detail. The result was that when the medical student had passed the second M.B. examination he entered the hospital wards with an interest in the biochemical problems of disease—an approach which at that time was comparatively new and exciting.

Ramsden was a shy, retiring man, and his formal lectures could scarcely be heard beyond the front two rows. Moreover, his tiny handwriting, whether on the blackboard or on paper, was difficult to read. Students often react to this situation by merciless ragging; but his gentleness and old-world courtesy captured them, especially as they appreciated that they were listening to a distinguished scholar and pioneer in his subject. In individual contacts, as when answering questions after the formal lecture, or in the practical class, he was at his best. His nicknames ("Rammer" at Oxford and "Rammie" at Liverpool) revealed the kindly affection with which his students regarded him.

His influence upon the Liverpool medical school and upon the University was that of a gentleman, a scholar and a man of science—quiet, unobtrusive, but far-reaching. He planted seeds, almost by stealth, and left them to grow.

Ramsden's main interests lay in the behaviour of proteins and of surface membranes, yet he always found time for young clinicians and others who were feeling their way towards the answers to varied problems, practical or academic. He entered unselfishly and wholeheartedly into their problems, and gave them the guidance and help of a master. He published comparatively little, though he wrote much that never came to publication, for he was almost exasperatingly modest and meticulous. He was rarely satisfied with what he wrote, and as he was always learning from his researches, he never reached that finality which he felt justified publication.

When he retired from the chair at Liverpool in 1930, and returned to Fellows' Room of Pembroke College, Oxford, his friends hoped that more of the material which he had accumulated would be made available for wider study and appreciation. He continued to follow his bent, bred silkworms and studied silkworm protein; but the papers which might have come never came.

He was a personality, and while he was at Liverpool the University and the medical school felt him to be a rare and distinguished possession. A shy and most courteous host, he had a mellow humour and a fund of good stories.

ROBERT COOPE

Dr. Seymour Hadwen

ISAAC SEYMOUR ANDRÉ HADWEN, who died recently, was born at Lees, Lancashire, in 1877. He obtained the doctorate in veterinary science at McGill University in 1902, and it is of interest to note that he was a member of a small band that studied the subject at McGill. The Veterinary School there owed its development to a considerable extent to Sir William Osler at the time when he was at the McGill Medical School. The School had a very short life, however, and closed soon after Hadwen graduated. Thereafter veterinary education in Canada was maintained on a less ambitious plane for a good many years, until the course at the Ontario Veterinary College was expanded and its graduates were admitted to the doctorate of the University of Toronto.

Hadwen joined the Health of Animals Branch of the Dominion Department of Agriculture in 1904 and worked for a good many years at Ottawa, and also in British Columbia, on a variety of animal health problems important in Canada; for the latter part of that period he held the post of chief pathologist in that Department. In 1920 he left the Department as he felt that the research branch was not developing in the way he considered it should, and joined the United States Bureau of Biological Survey as chief veterinarian and parasitologist, Reindeer Investigation, in Alaska. From 1923 until 1929 he held the post of research professor of animal diseases in the University of Saskatchewan, and in 1929 became director of the Department of Veterinary Science, Ontario Research Foundation, from which he retired in 1942.

Hadwen was an outstanding man with a great deal of the pioneer in his character. He could study minutiae and did so constantly; but it was the wide range of biology that attracted him, the play of the environmental factors, and the struggle of animal life to maintain existence. Most of his personal work centred around parasitology, but many other subjects claimed his attention.