OBITUARIES

Mr. Cecil Warburton

MR. CECIL Warburton died at his home in Grantchester, Cambridge, on October 7 at the age of one hundred and four years and eight months. Although he had lost much of his former physical vigour during the past year or two, he retained to the last his remarkable mental clarity, sense of humour and interest in people and current affairs. Warburton's work as an entomologist and arachnologist was known and respected by several generations of zoologists. His modesty and the charm of his simple and generous personality tended to cloak from those not familiar with his work the solid and enduring value of his scientific achievements.

Cecil Warburton was born on February 6, 1854, at Salford. He was educated at Old Trafford School, Manchester, where he later became second master. He attended classes at Owens College, Manchester, and took a University of London external B.A. degree. He went to Christ's College, Cambridge, in 1886, read for the Natural Sciences Tripos, graduated B.A. in 1889, and took his M.A. degree in 1892.

An early interest in spiders directed his zoological studies towards other Arachnida, and mites and ticks later became his main field of study. His knowledge of general zoology was wide, and he was appointed zoologist to the Royal Agricultural Society in 1893, and from that year until 1940 he wrote an annual report for the Society, dealing largely with economic entomology. At first these reports were addressed from the Department of Zoology, Cambridge, but from 1910 until 1940 they came from the School of Agriculture, where he lectured until his retirement in 1932, thus continuing an association with the teaching of agriculture in the University which had begun as early as 1899–1900 when his name appeared in the list of lecturers for the Board of Agricultural Studies. In 1909 Warburton was the author of Chapters 12–18 of Vol. 4 of the "Cambridge Natural History", which dealt with the Arachnida Embolobrachia (scorpions, spiders, mites and ticks). This was an important and valuable work, and it provided the background to the fruitful association with G. H. F. Nuttall, then Quick professor at Cambridge, beginning in the Quick Laboratory in 1908, continuing in the Molteno Institute from 1921, and lasting until the death of Nuttall in 1937. It was during this period that his main original contributions were published, dealing with mites and ticks and culminating in the publication, by the Cambridge University Press, of "Ticks; a Monograph of the Ixodoidea", by G. H. F. Nuttall, Cecil Warburton, W. F. Cooper and L. E. Robinson. The first volume was written jointly by G. H. F. Nuttall and Cecil Warburton and comprised: Part 1, "The Argasidae" (1908); Part 2, "Ixodidae" (1911); and Part 3, "The Genus *Hæmophysalis*" (1915).

These studies were of great value to all workers in the rapidly developing subject of ticks as vectors of diseases of man and domestic animals, and they still remain standard works on ticks. Their preparation and publication resulted in a voluminous correspondence and the submission of collections of ticks for identification from all parts of the world. Replying to innumerable correspondents and identifying and

reporting upon specimens occupied much of the time and energy of both Nuttall and Warburton for many years. Warburton continued identifying and reporting upon specimens of ticks until 1936, when he was eighty-two years of age; and there can be few, if any, collections of ticks in any country in the world which are not enriched by numerous specimens bearing on the label the words "identified by C. Warburton".

He had been appointed University demonstrator in medical entomology by the Quick professor in 1911, and he retained this post when the Quick Laboratory moved to the Molteno Institute in 1921. Thereafter, until he retired in 1932, his activities were mainly centred on the Institute, and he lectured on parasitic insects and arachnids, and demonstrated to students taking the courses for the diplomas in public health and tropical medicine and hygiene. He retained a keen interest in the Molteno Institute and those who worked in it to the end, and was an occasional visitor until after his hundredth birthday. Not only did he delight in meeting his old friends there, but also he was always pleased to meet new and younger workers, and all were warmly invited to visit him at his home in Grantchester and play croquet, a game at which he excelled until his sight failed in the last couple of years. He never married. All who knew him will feel they have lost a friend who was warm-hearted, generous and of high integrity both in his private and his scientific life.

P. TATE

Prof. Horace B. Dunncliff

THE news of the death on October 8 of Prof. H. B. Dunncliff was received with great regret in India. Dunncliff had been intimately associated with the growth of chemical education of the country for the past fifty years. He came out in 1908 as professor of chemistry of the M.A.O. College, Aligarh, where he taught chemistry until the First World War. In 1914, his services were placed at the disposal of the Khalsa College, Amritsar. In 1917, he was on deputation to the Munitions Board and was transferred to the Cordite Factory, Aravankadu. There he stayed until 1921 and did some very useful work. He was appointed professor of chemistry, Government College, Lahore, in 1922. On the reorganization of teaching of the Panjab University he was appointed University professor of inorganic chemistry. Here, a good school of chemistry was soon founded with the help of the late Santiswarup Bhatnagar. Bhatnagar was in charge of the teaching of physical chemistry and Dunncliff looked after inorganic chemistry.

I was in charge of the organic chemistry section when Dunncliff joined the Panjab University. The success of the Lahore School of Chemistry was largely due to the untiring efforts of Dunncliff to keep the ship on an even keel in the stormy communal waters of the Panjab. He had a keen sense of justice and fair play, which kept the University teaching departments free from communal politics. He was seconded to the Government of India in 1928 with the view of organizing the Central Customs Analytical Laboratories. On his return to Lahore in 1929, his Laboratory acted as the appellate laboratory for all

matters relating to analyses performed by the various customs laboratories of the Indian ports. He was allowed to hold the post of special chemical adviser to the Finance Department of the Government of India in addition to his duties as a professor in the Government College and the University. This was a great strain, but he never grudged the extra burden placed on him. The work in connexion with the Customs Laboratory was not light. I deputized for him for two periods when he was on leave and I can affirm that this work was quite a full-time job. Ultimately his suggestion to have a Central Customs Laboratory at Delhi was adopted, and he finally migrated from Lahore in 1939 as the head of this new Laboratory.

During his tenure as professor in the University of the Panjab, Dunnycliff published a large volume of work in collaboration with his students, which earned for the Panjab University a reputation as an active centre of research work. Many of his pupils now occupy important positions both in India and Pakistan. They are all grateful for the helping hand he lent whenever they met difficulties. His migration to Delhi helped in putting the Central Revenues Chemical Service on a firm footing. During the Second World War I was again associated with him in war work. Owing to the large demand for morphine and codeine, the production at the Ghazipur Opium Factory had to be re-organized. He also designed the present morphine extraction plant at Ghazipur. He had a flair for designing plant and equipment. On his retirement from the Central Board of Revenues Laboratories, he joined the Department of Transport, New Delhi, where he had to design portable producer gas plants for use in lorries and motor-cars in order to minimize the use of petrol.

Dunnycliff presided over the Chemistry Section of the Indian Science Congress in 1934. He was on the Indian Committee of the Royal Institute of Chemistry, and he and the late Prof. Gilbert Fowler did much for the Institute in India.

Dunnycliff was a good singer, and many a pleasant evening was spent by his friends at his home; he was also a proficient amateur actor, and during the summer season he produced many plays at Simla.

Dunnycliff will always be remembered in India as a good Englishman who gave it more than he received from it. Those who knew him recognized him as a giver and not a taker. He lived in India at a critical period of her history. His contribution to the growth of science in India was by no means negligible.

He leaves behind a devoted wife, to whom our sympathy is offered.

J. N. RAY

Dr. S. L. Smith, C.B.E.

By the death of Dr. S. L. Smith on October 27, engineering and in particular shipbuilding research in Britain have lost a prominent figure. Those who had the privilege of working with him will remember him as the most kindly and approachable of colleagues.

Stanley Livingston Smith was born in 1889 and received his technical education at the City and Guilds Engineering College, South Kensington, where he graduated as B.Sc. (London) and Associate of the City and Guilds Institute in 1909. A period of practical training at the Thames Ironworks, Shipbuilding and Engineering Co., Ltd., was followed by

an engineering inspectorship with the Crown Agents for the Colonies. After a varied career during the First World War, including secret work for the Royal Society war committee and service as an engineering officer in the marine training section of the R.A.F., he returned to the City and Guilds College under Prof. W. E. Dalby. Awarded the degrees of M.Sc. in 1921 and D.Sc.(Eng.) in 1923 for his work on elastic hysteresis in steels, he was appointed assistant professor in 1926 and reader in mechanical engineering five years later. He represented the Imperial College of Science and Technology on the Surrey County Council and was appointed chief engineering inspector of technical institutions.

Just before the outbreak of war in 1939, he was appointed superintendent of the Engineering Department of the National Physical Laboratory. During the War he was responsible for the very varied war-work of that Department; to mention only three items, he was particularly concerned with the development of apparatus for rendering unexploded bombs harmless, gun design (he was a member of the Gun Design Committee), and (with the late Dr. G. A. Hankins) the building for external ballistic work of an 11-in. square supersonic wind tunnel, which until late in the War was the only supersonic tunnel of reasonable size available to the United Nations.

Despite these preoccupations, Smith found time for probably his most notable personal research, producing with Dr. W. A. Wood four papers on the application of X-ray methods to the study of the deformation and fracture of metals. It is, however, as an administrator of scientific research that he will be best remembered. In 1944, he became the first director of research of the British Shipbuilding Research Association, a post which he still held at his death. Under his leadership the Association has become the central research organization in Britain for the shipbuilding, ship-repairing and marine engineering industry. He organized the work of the Association in an unusual way; no laboratory was set up, but a wide variety of research contracts was placed with universities, other research institutions and industrial firms. Among many papers by Dr. Smith covering this work may be mentioned his Thomas Lowe Gray Lecture to the Institution of Mechanical Engineers in 1952 on ship research, that on the resistance experiments with the old Clyde steamer *Lucy Ashton*, modified for jet propulsion to avoid propeller drag, and recent papers on nuclear propulsion.

Smith was made C.B.E. in 1951. He had been a vice-president of the Institutions of Mechanical Engineers and of Naval Architects, and a member of many technical committees on marine (including nuclear) propulsion, structural steel, corrosion and other subjects, as well as of committees of other research institutions.

D. G. SOPWITH

Prof. H. J. Logie

PROF. H. J. LOGIE died on November 8 at the age of thirty-nine. His untimely death came at a period when his research had become very productive, and has been a shock and a great loss to all his colleagues and friends. He received his early education at Benoni High School, went to the University of the Witwatersrand as a student in 1936 and graduated bachelor of science in 1938 with firsts in both mathematics and physics. In 1939 he was awarded first-class honours in physics, and in