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, Dunncliff 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.

Dunncliff 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.

Dunncliff 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.

Dunncliff 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

1940 he was appointed a junior lecturer in physics. He soon resigned in order to go on active service, and at the age of twenty-four attained the rank of major in the Special Signals Services (Radar) of the Union Defence Force.

Prof. Logie rejoined the University staff in 1946. Despite the very heavy teaching duties which the staff undertook on account of the large number of ex-Servicemen returning to South Africa, he took part in an active research programme in the recording of the Witwatersrand earth tremors. He was awarded the degree of doctor of science in 1949 for a thesis on this work.

In 1950 the staff of the Department of Physics agreed to form a team working together in the field of the physics of the solid state, and Prof. Logie spent a year studying the physics of metals in the University of Birmingham. On his return he started experimental and theoretical research on internal friction in metals and alloys. He was chosen as the first occupant of the newly established chair of experimental physics. On taking up his new appointment, Prof. Logie assumed responsibility for work on the changes of electrical resistivity produced by plastic strain in alloys, and on the electrical properties of counting diamonds.

In addition to teaching and research, Prof. Logie played a large part in other University activities, while outside the University he found time for many scientific and public services.

For the last seven years of his life he suffered from ill-health, but it was characteristic of the man that he spared himself so little as to make this generally forgotten. Friends will remember his lively wit and his warmth as a family man. F. R. N. NABARRO

Prof. F. A. Paneth, F.R.S.

PROF. H. DINGLE writes: "The obituary notice of the late Prof. F. A. Paneth in *Nature* of November 8 omits to mention one incident which is at the same time so characteristic of the man and so noteworthy in itself as to justify recalling. On his appointment to the chair of chemistry at the University of Durham, Paneth at once began to interest himself in the local scientific associations, and his attention was captured by the then shadowy figure of Thomas Wright, who first discerned the true character of the Milky Way and whose 'Original Theory of the Universe' (1750) was the source of the idea that inspired Immanuel Kant to write his 'Allgemeine Naturgeschichte und Theorie des Himmels'. With his customary energy and enthusiasm, Paneth brought to light a number of forgotten facts and neglected relics of Wright, discovered that two notices in Allibone's 'Dictionary of English Literature', ostensibly relating to two different persons, in fact referred to the same versatile Thomas Wright, and identified Wright's 'observatory'—a round stone tower which he had caused to be erected at Westerton, near Durham, of which the origin had been completely forgotten; it was known locally as the 'Westerton Folly'. Paneth succeeded in arousing public interest, and in June 1950, the two-hundredth anniversary of the publication of the 'Original Theory of the Universe' was celebrated by public meetings at which, among other events, a collection of Wright's memorials was exhibited, a commemorative tablet affixed to the tower was unveiled, and a wreath was laid on Wright's grave. Durham has a special reason to honour Paneth's memory".

NEWS and VIEWS

Physiology at Aberdeen:

Prof. E. W. H. Cruickshank

PROF. E. W. H. CRUICKSHANK, who has recently retired from the regius chair of physiology in the University of Aberdeen, from which he graduated, is the living embodiment of the 'wandering Scot'. He graduated in medicine in 1910, and one year later he was in University College, London, with Starling. There he made the significant discovery that, in pancreatectomized dogs, the cardiac muscle, unlike skeletal muscle, stores glycogen. This work, however, was interrupted by the First World War, and it was not until 1919 that, at the invitation of the Rockefeller Foundation, he returned to academic life in the laboratory of Erlanger in St. Louis. He then went to the new Pekin Union Medical College, where he had his first experience of building up a new department from scratch. Yet he found time to continue his study of cardiac metabolism; he also worked on respiration and on general metabolism.

The year 1924 found him back in Britain, in Cambridge. Under the influence of Sir Joseph Barcroft, he showed that the spleen, in the dog at least, acts as a reservoir of blood. In collaboration with Anrep he put on a quantitative basis the coronary blood flow in relation to the activity of the heart. Then Cruickshank went to India as the first professor to build up a Department of Physiology and Biochemistry in the Prince of Wales

Medical College at Patna. Two years later an invitation reached him to go to Dalhousie University in Nova Scotia. Here he had seven active and happy years devoted largely to research on metabolism of the heart—an authoritative article from his pen is to be found in Vol. 16 of the *Physiological Reviews*. The final 'call' came in 1935 when Cruickshank succeeded his friend, J. J. R. Macleod, in the chair at Aberdeen. Cardiac metabolism continued to be his main preoccupation, although he was also caught up in the general interest in nutrition and wrote a small book on this subject. In his later years, under the auspices of the World Health Organization, he has had the pleasure of visiting many medical schools in parts of the world where he himself had been a pioneer in establishing physiology as an academic discipline.

Prof. J. Laurence Malcolm

PROF. MALCOLM, who has recently succeeded Prof. Cruickshank in the regius chair of physiology in the University of Aberdeen, comes from New Zealand. His first degree was B.Med.Sci. of the University of Otago and he then proceeded to the M.B., Ch.B. in 1938—a proper emphasis on the scientific basis of medicine which unfortunately seems to find less support in Great Britain. While still an undergraduate, Malcolm demonstrated in physiology and studied on rats the goitrogenic action of certain diets. He spent