OBITUARY NOTICES.

GEORGE THOMAS BYRNE.

1885—1944.

NEWS has recently been received of the death of Professor G. T. Byrne while a prisoner in Japanese hands.

George Thomas Byrne was born in Blackburn on June 2nd, 1885. He was educated at the Higher Grade School, Blackburn, and at Manchester University, where he graduated in 1908 with first class honours in chemistry. For the next two years he was private research assistant to Dr. (now Sir Robert) Pickard at Blackburn Technical College. His assistance to Pickard and Kenyon in some of their early work on the resolution of secondary alcohols is referred to in the *Proceedings* (1912, **28**, 42).

In 1910 he began his long career in academic posts overseas. His first post was a science master at St. Mary's School, Cairo. In 1914 he moved to Jamaica as science master first at Wolmer's School and later at Munro College. In 1919 he was appointed Professor of Chemistry at the University of Hong Kong, and this began an association which was to last for 25 years. He became an M.Sc. of Manchester in 1911, A.R.I.C. in 1923, and F.R.I.C. in 1930.

Byrne returned to England in 1929—1930 with a long period of leave and joined Sir Jocelyn Thorpe's research school at the Imperial College. The writer had at that time just begun to investigate the phthalocyanines, and Byrne was his first research collaborator in that field. I have a vivid recollection of Byrne in those highly pigmented days. His laboratory coat became steadily more green and blue, the more immersed he became in the subject. His particular contribution was the early investigation of the formation of phthalocyanines from the interaction of metals (and their derivatives) with the dehydration products of phthalamide and particularly with *o*-cyanobenzamide. This provided the first controlled method for the preparation of metallic phthalocyanines. Byrne pursued this work with relish and a refusal to be daunted by the many peculiarities of the new materials. The results were published in 1934 (*J.*, 1017).

Byrne returned to Hong Kong in 1930. The regard in which he was held is shown by his appointment as Dean of the Faculty of Arts in 1932 (a post he had previously held in 1925); as representative of the University at the Congress of the Universities of the British Empire in Edinburgh in 1931; and as Member of the University Council in 1937.

Byrne had a gentle and kindly nature. He was a very popular member of the Hong Kong staff, and will long be remembered by his students for his conscientious devotion to his department.

His life closed in an atmosphere of violence in sad contrast to the long period of quiet valuable service which had gone before. On Christmas Day, 1941, following the capture of Hong Kong, Byrne was interned by the Japanese. At first he was confined in the University grounds, but later he was transferred to the Civilian Internment Camp at Stanley. There he died on June 1st, 1944, from heart failure, while grinding rice.

I am indebted to Sir Robert Pickard, to the Registrar of the University of Hong Kong, and to the Secretary of the Royal Institute of Chemistry for biographical information.

R. P. LINSTEAD.

DAVID HOOPER.

1858—1947.

DAVID HOOPER was born at Redhill, Surrey, in 1858 and was educated at Chelmsford, to which town his parents moved shortly after his birth. In 1887 he married Miss Hannah Carr Evans, a daughter of the Reverend Thomas Evans, a Baptist minister of Mussoorie, U.P., India, who survives him with three daughters. His two sons pre-deceased him, the elder being killed on active service in France in 1915. Hooper died on January 31st, 1947, at Bromley, Kent, and was buried in Islington Cemetery.

In 1878 Hooper was awarded the Herbarium Bronze Medal presented annually by the Pharmaceutical Society of Great Britain for the best herbarium collected during the year by a pharmaceutical apprentice. This early interest in plants remained with him to the end of

his long life, and, though he regarded himself as a chemist, he might with equal accuracy have been described as an economic botanist. In 1880, as a student at the Pharmaceutical Society's School, he qualified as a pharmaceutical chemist and distinguished himself by winning the Pereira Medal, the highest award the Society can offer to a pharmaceutical student. He then spent three years in the laboratories of pharmaceutical firms in London, gaining experience in the analysis of natural drugs, which was of great value to him in his later career. In 1884 he was appointed quinologist to the Government of Madras, and spent six months in Holland studying records of cinchona planting in Java and Dutch methods of quinine manufacture, before proceeding to Ootacamund, Madras, to take up his official appointment, which he retained until 1896. The first half of the latter year he was Officiating Government Botanist and Director of Cinchona Plantations in Madras, and in the second half he did duty as Officiating Reporter on Economic Products to the Government of India, a post he held again in 1898—99 and 1905. In 1902 he was also for a time Officiating Government Chemist. His own post during this period, 1897—1914, was that of Curator of the Economic and Art Section of the Indian Museum, and the fact that he was so frequently seconded to act for scientific colleagues is a tribute to his versatility and his profound knowledge of plants and their constituents. On his retirement in 1914 he returned to England, and during the first World War was engaged in supervising chemical work under the Ministry of Munitions. After 1919 he worked for a time in the biochemical laboratory at Bristol University. His last important task was the botanical investigation of native drugs and plants from South-Western Asia. The material studied included three collections, one made by Drs. Cowan and Darlington in 1929 (*Kew Bulletin*, 1930, pp. 49—68), a second in 1929 and subsequent years by Captain P. Johnston-Saint of the Wellcome Historical Medical Museum, and a third by Mr. Henry Field, leader of the Field Museum Anthropological Expedition to the Near East in 1934. The results of this study were published by Hooper, Field, and Dahlgren as " Useful Plants and Drugs of Iran and Iraq " (*Field Museum of Natural History, Botanical Series*, 1937, No. 3, pp. 71—241). No new drugs or plants were found, but, like most of Hooper's papers, this one illustrates his flair for eliciting curious, interesting, and suggestive information.

Though Hooper was a prolific writer he published comparatively little original laboratory work, and that was mainly of an analytical type on the constituents of plants alleged to be of therapeutic value or to serve some other useful purpose. There are many papers arising out of his work as a quinologist, including in 1884 a series of analyses of cinchona barks of historical interest, a favourable commentary on the polarimetric method for the analysis of commercial quinine sulphate—a subject on which there was at the time (1886) much discussion among quinologists—and a review of cinchona cultivation in Java from 1872 to 1907. Several papers deal with the work and problems of a quinologist in the Madras Cinchona Plantations and discuss the yields of alkaloid from different species of *Cinchona* and their hybrids, and the effects on yield of age and of variation in conditions of cultivation and harvesting. These papers contain the results of hundreds of analyses of cinchona bark and bear tribute to the industry and scientific enthusiasm of the young quinologist. Mention may also be made of his isolation of the alkaloid vasicine from *Adhatoda vasica*. It was subsequently found by the late Professor Späth in *Peganum harmala* and shown to be of a new type based on a quinazoline nucleus.

Hooper's chief service to science lies in his industrious and meticulously careful collection, arrangement, and publication of information regarding the origin, composition, and uses of plants, especially drugs. He published many notes and papers on such subjects in the *Pharmaceutical Journal*, the *Agricultural Ledger of India*, and the *Journal of the Asiatic Society of Bengal*. His most important work of this kind is his share in " Pharmacographia Indica," a three-volume work prepared in association with two Indian Army surgeons, Drs. Dymock and Warden. Each Indian drug is the subject of an erudite monograph, which includes original medical or chemical observations by the authors. So little chemical work has been done on the constituents of plants that this book published 55 years ago is still useful as a guide in the selection of plant material for chemical investigation. It contains, for example, useful information on *Dichroa febrifuga*, *Dæmia extensa*, *Alangium Lamarckii*, and other plants which have recently been the subject of chemical investigation, as part of what seems to be a minor revival of interest among chemists in the constituents of plants.

Hooper's work was recognised by the award to him of the Hanbury Gold Medal in 1907, of which two previous recipients, Sir George Watt and Dr. Dymock, were his associates in India. In 1914 he was given the honorary degree of LL.D. by the McMaster University of Toronto, and in 1916 he was President of the British Pharmaceutical Conference. He joined

the Chemical Society in 1883; he was also a Fellow of the Royal Institute of Chemistry and of the Linnean Society, and an honorary member of several foreign pharmaceutical associations.

Hooper was a man of untiring industry, and his modesty and pleasant manner won him many friends at whose disposal he was always ready to place his time and his unique knowledge.

He was all his life a total abstainer and an earnest evangelical Christian deeply concerned with all causes making for the moral and spiritual welfare of mankind. He met his future wife while associated with her father in work for the Union Church at Ootacamund, and on his retirement he spent much time in service to religious organisations in the various localities in which he lived.

T. A. HENRY.

GEORGE NEWBERY.

1893—1947.

THE death of George Newbery on June 14th, 1947, at the comparatively early age of 54 years, robbed the country of a research worker of great skill and of the kind of gentle, sympathetic, and co-operative personality that is in danger of being banished by the hurly-burly of competitive industrial research to the retreats of academic life. Newbery was born at Brighton in 1893, and was educated at Brighton Grammar School, whence he obtained a scholarship to the Royal College of Science. He graduated with First Class Honours in Chemistry in 1914, and after a few months spent on the semi-scale manufacture of β-eucaine, novocaine, and phenacetin under Professor Jocelyn Thorpe, he obtained a commission in the Royal Engineers (Water Transport) in 1915, and served in France until he was seriously injured in a motor-cycle accident and was invalided out of the Army early in 1918.

In March, 1918, he joined the staff of May & Baker Ltd., and served under Dr. A. J. Ewins, who, in the previous year, had commenced the task of developing a research laboratory for the Company. Newbery's job was his hobby also; long after the official closing time of the factory, he would be found with a colleague or two working late in the laboratory in search for new therapeutic agents or for a synthetic approach to the constitution of known medicinal chemicals. His early work, prompted by the Company's interest in neoarsphenamine, was concerned mainly with organic arsenicals. Many new compounds were produced and examined, and although few of them proved of lasting value and none of them as epoch-making as " N.A.B.", he never lost his interest in this field, and up to the time of his death he was continually on the look-out for some fresh pointer towards the secret of the relationship between chemical constitution and therapeutic activity.

With the discovery of " prontosil rubrum " by Domagk, followed by the French worker's demonstration of sulphanilamide as the active agent, Newbery's attention was drawn to the sulphonamide group, and he and his colleagues, working under the leadership of Dr. Ewins, embarked on a wide new programme of research. Following close upon the heels of the discovery of " M & B 693 ", he produced and examined " M & B 760 ", or sulphathiazole, and its homologues. In collaboration with Sir Lionel Whitby on the bacteriological side, he established the value of this new sulphonamide, which now outrivals its precursor, thanks to a great extent to American workers who were attracted to this field by the success of the British investigators, and who were untrammelled by the imminent outbreak of the Second World War.

When war broke out in 1939, Newbery was among the first to take up Home Guard duties, and his specialised knowledge fitted him for the post of Battalion Gas Officer. But these extra-mural activities were accompanied by added responsibility in his research work which was greatly increased by the new problems raised by war-time shortages and the urgent problems of changing war needs. The formation of the Therapeutic Research Corporation was an event Newbery hailed with much pleasure, since he felt that here was a chance for the pooling of ideas and the widening of team work to the benefit of the nation and the general furtherance of scientific knowledge. He had long had ideas about attacking the problem of the chemotherapeutic treatment of tuberculosis, and he drew up and instituted a plan of work upon which several member firms of the T.R.C. embarked.

Next came the development of the penicillin discovery, and there was added to his formidably wide field an allotted part of the attack on the chemical synthesis of penicillin. There is no doubt that the war years put upon him a strain which was beyond his physical strength to carry, and his serious breakdown in 1945 was unfortunately only the first attack of the illness to which

he succumbed in 1947. He left much of his work unfinished, as indeed must any investigator, cut off suddenly in the midst of his experimentation.

Much of Newbery's work unfortunately did not lend itself to publication, but he was sole or joint author of several papers published in the *Journal* in 1927—28 dealing with organic mercury compounds, and more recently of a series of papers on aromatic diamidines which have proved of considerable chemotherapeutic interest. In addition, his name is associated with numerous patents taken out in conjunction with May & Baker Ltd. during the last 20 years.

His example of quiet, painstaking devotion to duty, his enquiring mind, his willingness to learn of others, and his ability to impart his ideas to others—these qualities live on in the organisation he has helped to build and are the best memorial to the 30 years he spent in its building.

R. W. E. Stickings.

EDGAR PHILIP PERMAN.

1866—1947.

Edgar Philip Perman came of a scholastic family of Wincanton, Somerset, his father, brother, and sister all in their time having been head-teachers. After passing through his father's school, Perman studied under Sir William Ramsay at University College, London, and was awarded the D.Sc. degree of the University of London. He was elected to the Fellowship of the Chemical Society in 1890, and in 1892 became engaged in teaching and research at University College, Cardiff, where he was appointed Assistant Professor in 1904. Here, except for a period of war service in 1914—1918 when he was associated with T. M. Lowry in London in research on ammonium nitrate, he worked until his retirement in 1932. In 1941, after his house had been ruined during an air-raid on Cardiff, he went to live near Builth. After only four days' illness he passed away at Llanafan Fawr on May 27th, 1947, in his 82nd year.

Perman was a lucid, thorough, and painstaking teacher. Among the public of Glamorgan and Monmouthshire he was held in high esteem as an expositor of scientific subjects, and his popular lectures on spinning tops, soap bubbles, and liquid air were given with a wealth of spectacular experiments. It was, however, for his research students that Perman reserved the best of his attention, and he was worthily helped in his investigations by a succession of devoted and skilful workers.

While with Ramsay, Perman carried out research on the boiling points of the alkali metals, the dissociation of diatomic bromine and iodine, and the adiabatic elasticity of ether, but it was after he moved to Cardiff and became an independent worker that he revealed his full ability as a scientific investigator.

Alone and with students, over many years, he worked on the problems of the escape of gases, particularly ammonia, from their solutions. He measured total and partial vapour pressures of solutions over wide ranges of concentration and temperature, and investigated the effect of the presence of salts and non-electrolytes. From his results he calculated activity coefficients and made estimates of the degrees of hydration or of ammoniation of dissolved salts. In the course of this work Perman greatly improved the air-aspiration method, which he also applied to determine the molecular weight of β-naphthol in solid solution in naphthalene, and the dissociation pressure of sodium sulphate decahydrate.

With his students he made very accurate measurements of heats of dilution of solutions, using an electrical method devised for the purpose. He also carried out measurements of the compressibilities of solutions of several substances over wide ranges of concentration.

Almost as early as Haber, Perman realised the importance of the synthesis of ammonia, and using an iron catalyst he demonstrated the reversibility of the reaction, but, owing to the high temperature which he employed, the yield proved discouraging. Another research on gaseous reactions which Perman undertook was the investigation of the effects of solids and vapours on the rate of decomposition of ozone.

From the time of their discovery, Perman took great interest in *X*-rays and radium; he was one of the first to experiment on the possibility of bringing about transmutation of the elements by the aid of radiations, but he demonstrated its impracticability with the means then available.

At the time when it was carried out, Perman's accurate determination of the density of

ammonia was of great value to chemists, for it gave 14·007 as the atomic weight of nitrogen, and confirmed the value which was then being adopted in place of the Stasian 14·04.

In collaboration with other chemists, Perman carried out extensive phase-equilibrium studies on reciprocal salt pairs consisting of ammonium nitrate with the chloride or sulphate of lithium, sodium, or potassium.

Other investigations in which Perman took part were on the use of borax as a standard in acidimetry, on the determination of nitrates by the use of dehydrated potash alum, on the effect of vapours on the interaction of solid potassium iodide and the chlorides of mercury and lead, and on the colour of iron alum crystals.

In manner Perman was quiet, unassuming, and steady. He was a staunch friend and helpful colleague. Absorbed though he was in scientific investigation, Perman was a man of wide interests. He was fond of music, and played both the violin and the pianoforte. He had travelled extensively in Switzerland, Austria, and Germany. When young he was an ardent walker and Alpine climber, and even in his later years visited Switzerland regularly for the ski-ing. He also was a keen motorist and lover of the countryside, and was author of a useful guide-book for motorists, entitled " Highways and Byways in South Wales ".

W. J. JONES.