OBITUARY NOTICES.

EDWARD GREENHILL AMPHLETT.

1853—1930.

EDWARD GREENHILL AMPHLETT was born at Campbelltown; he was educated at Rugby and at Brasenose College, Oxford, where he obtained the degree of M.A. with Honours in Jurisprudence. He was called to the Bar in 1879, and studied Chemistry under Professor H. E. Armstrong and Professor H. McLeod. He was a senior Magistrate for Sussex, a well-known yachtsman and authority on small-boat sailing. He was elected a Fellow of the Society in 1885.

ROBERT WILLIAM ATKINSON.

1850—1929.

ROBERT WILLIAM ATKINSON was born at Newcastle-on-Tyne; he was educated at Newcastle Grammar School and at University College School, London, where he won scholarships to the Royal College of Chemistry and to the Royal School of Mines. He obtained the degree of B.Sc. (Lond.) with Honours in Chemistry and Physics and was elected a Fellow of the Institute of Chemistry. In 1874 he was appointed to the Chair of Analytical and Applied Chemistry at the University of Tokyo, which he held for seven years. Later, he opened a practice in Cardiff as a consulting chemist to a number of colliery firms and iron and steel manufacturers. He contributed various papers to the *Journal of the Asiatic Society of Japan*, the *Journal of the South Wales Institute of Engineers*, and to *Nature*. He was elected a Fellow of the Society in 1872.

CHARLES JOHN BAKER.

1860—1930.

CHARLES JOHN BAKER, the eldest son of the Rev. John Baker, of Blackburn, was educated at Blackburn Grammar School and later at Manchester Grammar School where he gained a Langworthy Scholarship. He was elected to an open Postmastership in Science at Merton College, Oxford, and was also awarded a Brackenbury Leaving Scholarship. At Oxford he obtained a First Class in the Final Honours School of Natural Science in 1882, and was appointed Demonstrator in Chemistry in the University Laboratory. During his tenure of this post he made an investigation of the combustion of carbon at low temperatures (J., 1887, 249) which was of

outstanding merit. There is no doubt that had he been able to carry on his investigations he would have attained a very high position in chemistry.

In 1886 he was appointed Science Master at the Schools, Shrewsbury, and devoted himself to making the science side a thoroughly successful department of the School, which had previously been almost entirely classical. In 1905 he, in conjunction with Mr. Lloyd Oswell, then the School Architect, was instrumental in getting the new Darwin Buildings erected. They succeeded in establishing most satisfactorily equipped laboratories and lecture rooms. In 1911 the buildings had to be enlarged and now further accommodation is desirable. During the 42 years he was a Master, 54 Natural Science Scholarships and exhibitions were gained, nearly all of them at Oxford and Cambridge. Baker was a house-master from 1906 to 1918, and retired in 1926. He was elected a Fellow of the Society in 1883.

ROBERT BARTON.

1839—1930.

ROBERT BARTON was born at the Royal Mint, where his father was Controller and Deputy Master. He was educated at Bromsgrove School, and was appointed in August 1869 as Assayer at the Royal Mint, Melbourne. In 1887, he became Superintendent of the Bullion Office and eight years later was appointed Deputy Master of the Mint, a position he held until his retirement at 65 years of age. His death took place in Melbourne. He was elected a Fellow of the Society in 1872.

HUGH CHESTER BELL.

1898—1930.

HUGH CHESTER BELL, who became a Fellow on December 15th, 1921, was a son of the late Chichester A. Bell, who taught chemistry at University College under the late Professor Williamson. Chichester Bell was associated with his brother, Graham Bell, and Edison in the elaboration of the phonograph and published some ten papers in the *Journal* of the Society between the years 1874 and 1880.

H. C. Bell's studies at Jesus College, Oxford, were interrupted by the War, during which he served with the Salonika Expeditionary Force as a Lieutenant. On one occasion he was one of the few survivors of a battalion decimated by the Bulgarians.

Bell completed his course at Oxford in 1920, took his degree in

the same year, and commenced research work with Mr. M. P. Applebey. He was appointed Demonstrator in the Chemistry Department of Guy's Hospital Medical School in 1922 and was popular both with the students and with the staff. While at Guy's, he published a paper on " The Solubility of Sodium Chlorate " (J. 1923, **123**, 2713) and, with Professor C. S. Gibson, one on " ββ′-Dichloro- and ββ′-Dibromo-diethyl Selenides " (J., 1925, **127**, 1877).

After a somewhat severe illness, Bell left England in December, 1926, and finally established himself in Vancouver as a technical and consulting chemist.

WILLIAM EDWARD BICKERDIKE.

1843—1930.

WILLIAM EDWARD BICKERDIKE was born in Lancaster and educated at Lancaster Grammar School. He subsequently studied chemistry privately in his own laboratory. Early in his career he was associated with Messrs. Bowdler, Lowe & Graesser, manufacturers of carbolic acid, and with Messrs. Hirst & Brooke, of Leeds. Later he formed, in partnership with Mr. A. C. Bowdler, the firm of Bowdler & Bickerdike, Manufacturing Chemists, at Oswaldtwistle. Consequent on his visit to Berlin in 1872, where he became imbued with the increasing importance of the application of science to industry, Mr. Bickerdike was largely instrumental in founding Blackburn Technical School (now College), which, supported at first by voluntary contributions, was subsequently taken over by the Corporation. He was a member of the Technical Instruction Committee and for 16 years was Vice-Chairman of the Higher Education Sub-Committee. He was an original member of the Chamber of Commerce, of which he became a Vice-President in 1905, and a Justice of the Peace for the county of Lancaster. He was elected a Fellow of the Institute of Chemistry in 1878.

Mr. Bickerdike was elected a Fellow in December, 1865, and attained his diamond jubilee as a Fellow in 1925. At the time of his death he was the oldest Fellow.

CHARLES TAYLOR COCKBURN.

1856—1930.

CHARLES TAYLOR COCKBURN founded the firm of Cockburn & Co., Ltd., Manufacturing Chemists and Druggists, Glasgow. He was a member of the Pharmaceutical Society and a Justice of the Peace for Glasgow. Mr. Cockburn was elected a Fellow of the Society in 1906.

DAVID CORRIE.

1869—1930.

DAVID CORRIE received his chemical training at the Glasgow Technical College. He was appointed to the staff of Nobel's Explosives Co., Ltd., at Polmont in 1888, and was Works Manager at the time of his retirement, owing to ill-health, in 1920. Mr. Corrie was elected a Fellow of the Society in 1890.

WILLIAM DUNCAN.

1860—1929.

WILLIAM DUNCAN was born at Laurencekirk, and served his apprenticeship with Mr. G. Burnett, of Montrose, becoming an Assistant successively with Messrs. Robertson & Co., of Edinburgh, and with Messrs. T. & H. Smith, Ltd. He was appointed Principal of the Royal Dispensary School of Pharmacy in 1886, and held this position until his retirement in 1924. Mr. Duncan was elected a Fellow of the Society in 1896.

MONA ELIZABETH CALLOW ECK.

1900—1929.

MONA ELIZABETH CALLOW ECK was born at Isleworth and was educated privately and at the Chelsea Polytechnic. On the completion of her training, she was attached to the Electrical Measuring Instrument Department of Messrs. Eck & Brook, and subsequently conducted a small factory for radio apparatus and chemical investigations of electrical resistance materials. She was a Member of the Women's Engineering Society, and was elected a Fellow of this Society in 1926.

ALARICK VINCENT COLPOYS FENBY.

1869—1930.

ALARICK VINCENT COLPOYS FENBY was born at Handsworth and was educated at Bishop Vesey's Grammar School, Sutton Coldfield, and at Mason College, Birmingham. He obtained the B.Sc. (London) degree, with first class honours in Chemistry, and the Associateship of the Institute of Chemistry. He held appointments as Science Master at various schools, including Wyggeston School, Leicester, and the Whitgift Grammar School, Croydon. He was elected a Fellow of the Society in 1897 and contributed a paper to the *Journal* on " An Apparatus for demonstrating the Volumetric

Composition of Gases" (J., 1910, **97**, 1200). He also published some papers in technical periodicals.

ALFRED EDWIN GATES.

1884—1929.

ALFRED EDWIN GATES was born at Nottingham. After serving his apprenticeship and qualifying as a Member of the Pharmaceutical Society, he became an Assistant. Later, he was appointed to the firm of Messrs. T. Lye & Sons, of Luton, subsequently becoming Works Manager, a position he held for over eighteen years. Mr. Gates was elected a Fellow of the Society in 1918.

AYERST HENHAM HOOKER.

BORN, 1854; DIED, MAY 6TH, 1930.

AYERST HENHAM HOOKER was elected a Fellow of the Chemical Society on February 7th, 1878; he qualified as Associate of the Institute of Chemistry in the same year and became a Fellow of the Institute in 1883. In order to commemorate his jubilee as a Fellow of the Chemical Society, Hooker, with that generosity which characterised him, presented the Society with a handsome mace, which is now used whenever the Society meets and at all Council Meetings. On account of his illness, from which he did not recover, he was unable to be present at the Hugo Müller Lecture last year when the mace was first exhibited outside the rooms of the Society. An account of the presentation of the mace was published in the *Proceedings* (1930, 1), together with some details of Hooker's remarkable career, which are now supplemented by one who knew him personally during the greater part of his activities in Egypt.

Hooker was one of the oldest and best known Anglo-Egyptians, his connexion with the country dating back to before the British Occupation in 1882. His career falls naturally into three periods. First, as an Egyptian Government official, he held a number of posts and, finally and for many years, that of Director-General of the Salt Department, then an important revenue-producing Government Department. During the second period he was General Manager of The Egyptian Salt and Soda Company, a large industrial concern; and the third period was after his retirement from active affairs.

He was not only a prominent personage in the official and social life of Cairo, but a notable figure in other ways. His unusual height made him conspicuous and also, after others had abandoned

the practice, he followed the old custom of having a groom in gorgeous uniform to run before his carriage. At one time, too, he kept an Irish jaunting car which he drove himself.

Hooker was an example of the best type of Englishman serving abroad. Urbane, yet dignified, he was liked and respected by his staff, his servants (mostly old retainers), and by all who knew him. He was very generous and went out of his way to help lame dogs over stiles. He enjoyed a good dinner, a good cigar, and the telling of a good story. Both he and Mrs. Hooker were most hospitable and at their house one was always certain to meet interesting people and have an enjoyable time. Naturally, from his long residence in the country and his varied experience, his knowledge of Egypt was " extensive and peculiar " and his reminiscences were always worth listening to.

Hooker was a personality, a " white " man and a gentleman, and his loss is felt by those who knew him. The Society has lost a friend and expresses its sincere sympathy with Mrs. Hooker.

A. LUCAS.

ARTHUR HORROBIN.

1877—1930.

ARTHUR HORROBIN commenced his professional career with the Lancashire and Yorkshire Railway, Horwich, and was later in charge of the Tropenas Steel Plant. For two years he was with the Electric Storage Syndicate, Ltd., in charge of the Chemical Forming and Reducing Department. In 1902 he became Steel Chemist in the Carriage and Wagon Department of the B.B. and C.I. Railway, Ajmeer, India, and four years later was appointed by the Home Board as Analytical Chemist, a position he held until his death. Mr. Horrobin was elected a Fellow of the Society in 1908.

JOHN PETTY LEATHER.

1859—1929.

JOHN PETTY LEATHER was born at Hyde and educated at Stramongate School, Kendal, and at Owens College, Manchester, where he undertook a three years' course in Engineering, Physics, and Chemistry. He was appointed Assistant Engineer to the Burnley Corporation Gas Department in 1879, and became Chief Engineer in 1889, a position he held until his retirement in 1924. He was a member of the Institution of Civil Engineers, the Institution of Gas Engineers, and the Ceramic Society, and contributed various papers to *The Analyst*, *Chemistry and Industry*, and the *Journal of the*

Institution of Gas Engineers. He was a Justice of the Peace. Mr. Leather was elected a Fellow of the Society in 1902.

QASIM ALI MANSURI.

1888—1930.

QASIM ALI MANSURI was born at Sevhara, Bijnore district, and was educated at the Mission School, Ambala, and at the Mission College, Delhi. After proceeding to the Muslim University, Aligarh, in 1906, he graduated as B.Sc. in 1908 at Christian College, Allahabad, and as M.Sc. at the Government College, Lahore, two years later. By means of a grant awarded to him in 1918, he was enabled to spend two years at Cambridge University; there he obtained his M.Sc. degree in 1920. He then went to Göttingen University and took the Ph.D. degree in 1923. He returned to Aligarh to take up the position of Professor of Chemistry at the Muslim University, which he held until his death. He contributed papers to the *Zeitschrift für anorganische Chemie* and to the *Journal of the Institute of Metals.*

Mr. Mansuri was a Member of the Academic Council and the Court of the Muslim University, a Member of Council of the Indian Chemical Society, and a Member of the Institute of Metals.

His contributions to the *Journal* consist of four papers describing investigations, of which the earlier ones were carried out under the guidance of Mr. C. T. Heycock, F.R.S., at Cambridge. Mansuri investigated the four systems (*a*) aluminium–arsenic (J., 1922, **121**, 2272), (*b*) tin–arsenic (J., 1923, **123**, 214), (*c*) thallium–phosphorus (J., 1927, 2993), and (*d*) antimony–arsenic (J., 1928, 2107).

It is to be regretted that the work of organisation of his department did not allow of his continuing his investigations more actively. Not the least of his achievements was his establishing the Muslim University Chemical Society and its *Journal.* Mr. Mansuri was elected a Fellow of the Society in 1921.

WILLIAM FREDERICK OAKFIELD.

1862—1929.

WILLIAM FREDERICK OAKFIELD was born in Westminster and educated at the City of London School. He entered the firm of Messrs. Siemens Brothers & Co., Ltd., in 1880 as Assistant, in the Chemical Laboratory, to Dr. Obach, whom he eventually succeeded. He remained with the firm until his death. Mr. Oakfield was elected a Fellow of the Society in 1899.

JOHN HENRY TAYLOR.

1871—1929.

JOHN HENRY TAYLOR was born at Newcastle-on-Tyne and educated at Rutherford College. He served his apprenticeship with Messrs. Brady & Martin, and subsequently was employed by Messrs. Squire & Sons and by Messrs. Parke, Davis & Co., Ltd. In 1917, he returned to Newcastle and took over the business of Messrs. Taylor & Gibson. Mr. Taylor was elected a Fellow of the Society in 1918.

FREDERICK WILLIAM TOMPSON.

1859—1930.

FREDERICK WILLIAM TOMPSON was born at Burton-on-Trent and educated at Woking, Göttingen, and Bordeaux. He entered the firm of Messrs. Bass & Co., Ltd., at 17 years of age and shortly after joined Mr. Cornelius O'Sullivan as Assistant Chemist. In 1893, he became Director of Russell's Gravesend Brewery and The Frank Jones Brewing Co. He was Financial Advisor and a Director of the British Photographic Industries and a Director of other smaller commercial undertakings. Mr. Tompson was elected a Fellow of the Society in 1884 and was joint author with the late Cornelius O'Sullivan of two papers published in the *Journal* (1890 and 1891).

JOHN THOM AINSLIE WALKER.

1868—1930.

JOHN THOM AINSLIE WALKER was educated at Watson's College and at the University of Edinburgh. In 1889 he joined the Scottish Marine Station for Scientific Research; the following year he was appointed Chemist to the Broxburn Oil Co., Linlithgow, and in 1895 he became Chief Chemist to Mr. Murray's Royal Paper Mills in London. From 1902 until 1905 he was engaged in a private consulting practice in London. For the next six years, he was Managing Director, Chief Chemist and Bacteriologist to Jeyes Sanitary Compounds Co., Ltd., and afterwards occupied similar positions in New York with the Barrett Manufacturing Co. (1911—1914) and with the Walker Leeming Laboratories (1914—1917). From 1917 to 1920 he was with the R.A.M.C. in France, being gazetted as Captain and receiving the appointment as Specialist in Bacteriology. Early in his career he was engaged in special investigations on intestinal infection; he returned to this work in 1920. His strong advocacy of the use of disinfectants was never more pronounced than during the epidemic of infantile paralysis in New

York, 1915—1916, and his advocacy of the standardisation of disinfectants led to his joint authorship in the Rideal–Walker and Sommerville–Walker tests which have done so much for the disinfectant industry. He was the author of many articles appearing in American and Canadian medical and technical journals. Mr. Walker was elected a Fellow of the Society in 1888.

SIR DAVID WILSON, BART.

1855—1930.

DAVID WILSON was born in Glasgow on 4th April, 1855, and was educated at the Glasgow Academy and at Glasgow University, where he graduated as M.A. and D.Sc. He farmed his property of 600 acres, did a considerable amount of original investigation in agriculture, and rendered much public service. He was a member of many Government Commissions, Director and Chairman of the Highland and Agricultural Society, Governor (and Chairman) of the West of Scotland Agricultural College, and a Convener of Science and Research Committees. He contributed a paper with the late Professor E. J. Mills on "The Action of Oxides on Salts" to the *Journal* in 1878, and was also the author of many papers appearing in the *Transactions of the Highland and Agricultural Society*. Mr. Wilson was created a Baronet in 1920, and was a Justice of the Peace and Deputy Lieutenant for Stirlingshire. He was elected a Fellow of the Society in 1883.

ALLISTER MACLEAN WRIGHT.

1881—1930.

ALLISTER MACLEAN WRIGHT was born at Palmerston North, New Zealand, and educated at the Boys' High School, Christchurch, and at Lincoln Agricultural College. In 1902, he was appointed Chemist to the Christchurch Meat Co. (afterwards known as the New Zealand Refrigerator Co.), a position he held until his death. In 1916, he received a commission as Bacteriologist attached to the Medical Corps of the New Zealand Expeditionary Force, and ultimately attained the rank of Captain. He was President of the Philosophical Institute of Canterbury in 1911, 1921, and 1922. He was a recognised authority on matters pertaining to the scientific side of the frozen-meat industry, and though specially devoted to chemistry, he was a man of wide scientific sympathies. He contributed many papers, relating mainly to meat and meat products, to *Chemistry and Industry* and the *Transactions of the New Zealand Institute*. Mr. Wright was elected a Fellow of the Society in 1908.

EDWARD ELHANAN BERRY.

1861—1931.

EDWARD ELHANAN BERRY was born at Kingston, Canada. He received his education at The Whitgift Grammar School, Croydon, and at University College, London. He founded the English Agency and Bank at Bordighera, where he resided for 40 years, and acted as British Vice-Consul from 1898—1911. Mr. Berry was an enthusiastic mountaineer and an authority on the Maritime Alps of the Western Italian Riviera. He was a member of various scientific societies and had many interests, including Natural History and Geology. He possessed a remarkable collection of ancient maps of Liguria and was made a member of the Committee of Honour of the IXth Congress organised by the Italian Geographical Society. For many years he was President of the International Library and Bicknell Museum at Bordighera and took a prominent part in all scientific and philanthropic activities in that town.

Mr. Berry was elected a Fellow of the Society on December 7th, 1882.

HENRY BORNS.

1854—1930.

HENRY BORNS was born at Stettin on January 3rd, 1854. He received his general education at Halle, whence he proceeded to the University of Greifswald, at which he obtained his Doctorate of Philosophy. He came to England in the early 'seventies, taking up work as a private tutor and as a scientific journalist. He was a member of many scientific societies and a regular attendant at the meetings of the Chemical Society, of which he was elected a Fellow on March 17th, 1881.

ERNEST OWEN COURTMAN.

1877—1930.

ERNEST OWEN COURTMAN was born in London and educated at the Clapham High School, King's College, and at the Royal School of Mines, where he obtained the diploma of A.R.S.M. He was subsequently appointed to the staff of the Royal School of Mines. For a time he worked at the Evenwood Colliery, Durham, and later became Assistant to Sir William Roberts-Austen at the Royal Mint. Before the war, he served at the "P.S." School of

Military Engineering, Chatham, at the School of Instruction, Chelsea, and as O.C., Engineer Unit, University of London Contingent of the Officers Training Corps. During the war, he held various positions including O. i/c of the School of Instruction for Canadian Engineer Officers; Commandant of the University of London Training Camp and of the R.E. School of Instruction, Esher. He was attached to the General War Office Staff in London, acted as Adviser on Technical Education, receiving Special Mention in Record of War Services, and attained the rank of Major R.E. He devoted a great deal of his time to training boys as scouts and crusaders, and was a keen photographer.

Major Courtman was elected a Fellow of the Society on June 21st, 1900.

ROBERT CHARLES COWLEY.

Robert Charles Cowley was born in the Isle of Man, and served his apprenticeship there. Subsequently proceeding to England, he passed the Minor and Major examinations of the Pharmaceutical Society in 1891. Two years later he became head of the Liverpool College of Pharmacy and retained this position until 1908. He was then appointed Director of the Queensland College of Pharmacy, a position he held until his death in May 1930. Among the many important positions in pharmaceutical circles in Australia held by Mr. Cowley may be mentioned that of Secretary of the Australian Pharmaceutical Conference, Editor of the Australian Pharmaceutical Formulary and of the Australian Journal of Pharmacy, and Secretary and Registrar of the Pharmacy Board and Pharmaceutical Society of Queensland. He also presided over the Pharmacy section of the Australian Association for the Advancement of Science at its meeting in Wellington, New Zealand, in 1923. Mr. Cowley's name will long be associated with a period of important development in Australian pharmacy.

He was elected a Fellow of the Chemical Society on December 3rd, 1908.

FRANK EDWIN DICKINSON.

1890—1930.

Frank Edwin Dickinson was born at Handsworth, Birmingham, and was educated at the Grammar School, Stratford-on-Avon, where he received on more than one occasion the Kendall Science Prize, and was awarded the Charles Flower Exhibition to Birmingham University. Prior to the war he was employed by The Clayton Aniline Company and later by The Gas Light & Coke Company, Ltd. In

1915 he joined the Royal Flying Corps, but early in the following year he was recalled to join the Ministry of Munitions as Chemical Manager to The Trafford Park Chemical Company, Ltd. Subsequently he was transferred to H.M. Factory, Litherland, Liverpool, as Acid Manager, and on the closing down of that factory, was transferred to H.M. Factory, Pembrey, in charge of the ether and solvent recovery plants. Towards the end of 1917 he was transferred to H.M. Factory at Sutton Oak. After the war Mr. Dickinson was employed for a short time by The Salt Union Ltd., Runcorn, and then obtained an appointment with McKnight Ltd., as Works Manager. In 1922 he returned to H.M. Factory, Sutton Oak, as a temporary assistant, and was promoted to the rank of Superintendent of the Research Establishment as it was then called in 1925, which position he held until the date of his death.

Mr. Dickinson was elected a Fellow of the Society on December 3rd, 1925.

JOHN FOGGIE.

1855—1930.

JOHN FOGGIE was born in Dundee and educated at Forgan Public School, Newport, Fife, and at the Technical Institute, Dundee. For 47 years he held the position of Lecture Assistant and Chemical Laboratory Steward in the Chemistry Department of University College, Dundee. During this period he was associated with the five Professors of Chemistry in Dundee, namely Thomas Carnelley, Percy F. Frankland, James Walker, Hugh Marshall, and Alexander McKenzie. For many years during the evenings he taught, in the Technical College, Dundee, various subjects, of which the chief was plumbing. He also lectured to miners on mine gases under the auspices of the Fife County Council. Mr. Foggie was Clerk of Works in University College for twenty years. He was a devoted servant of the College and was held in high esteem by all who were associated with him. He was joint author with Professor Carnelley of a book on "Air of Schools" and contributed papers to "The Plumber."

Mr. Foggie was elected a Fellow of the Chemical Society on December 5th, 1889.

JOHN HODGKIN.

1857—1930.

JOHN HODGKIN was born in Liverpool and educated at Magdalen College School, Oxford, and under the late Professor A. W. Williamson at University College, London. He was a great-grandson of Luke

Howard, F.R.S., founder of Howard & Son, of Ilford, of which firm he was partner for about 15 years. On leaving them, he joined the firm of Herrings & Co., but subsequently retired to take up literary work. For many years he was on the Executive of the British Pharmaceutical Conference, and was a Fellow of the Institute of Chemistry and of the Linnean and Zoological Societies. He had wide general interests and was an authority on English pottery, an accomplished bibliographer, and a prominent Freemason.

Mr. Hodgkin was elected a Fellow of the Society on November 16th, 1882.

JOHN ALBERT HOGG.

1865—1931.

JOHN ALBERT HOGG was born at Buxton, and received his general education at George Watson's College, Edinburgh, proceeding thence to the School of Pharmacy. For some time after qualifying as a pharmaceutical chemist he acted as assistant to a retail pharmacist. He left this to accept an appointment with Messrs. Burroughs Wellcome & Co., Dartford, as head of the Pharmaceutical Department and subsequently became associated with other manufacturing firms. During the last eight years of his life he was with the United Chemists' Association, Ltd., at Cheltenham.

Mr. Hogg was elected a Fellow of the Society on May 1st, 1924.

ALFRED HOLT.

BORN 20th OCTOBER, 1877; DIED 15TH FEBRUARY, 1931.

BY the death of Alfred Holt, Merseyside has lost not only a physical chemist of considerable distinction but also a keen educationalist and a prominent worker in the cause of charity.

He was the youngest son of Alfred Holt, founder of the Blue Funnel Steamship line. After being educated privately and at Pembroke College, Cambridge, where he took the Natural Science Tripos in 1900, Holt went to Paris to work under Prof. Henri Moissan, and in 1902 he published jointly with Moissan two papers on silicides of vanadium.

In 1905 he was elected to an honorary research fellowship in the University of Manchester, and from 1902 to 1912 was an assistant lecturer and demonstrator in that university, receiving the degree of D.Sc. in 1909.

While at Manchester, Holt carried out a great deal of research.

Jointly with C. H. Burgess, a paper was read before the Royal Society on "Some physical characters of the sodium borates, with a new and rapid method for the determination of melting points," and several papers were contributed to the Manchester Literary and Philosophical Society on various subjects, including the borates and the phosphoric acids; in the latter work he was associated with J. E. Myers. A paper on the synthesis of formaldehyde was published in this Journal in 1905, being a record of research carried out with D. L. Chapman, and another, on the decomposition of carbon dioxide by the silent electric discharge, appeared in 1909. Probably Holt's best-known investigations were on the absorption of hydrogen by palladium, in which he was associated with E. C. Edgar and J. B. Firth.

In 1912 he was appointed reader in physical chemistry in the University of Liverpool, and when on the outbreak of war the chemical department of that university became the headquarters in the North Western area for the chemical testing of explosives he rendered very valuable services as chief assistant to the deputy inspector of high explosives.

Mention must be made of Holt's work for the British Association; for a number of years he was recorder of Section B, and when the Association met in Liverpool in 1923 he was one of the honorary secretaries and edited the handbook, entitled "Merseyside," published for that meeting. Another organisation to which he devoted much energy was the Society of Chemical Industry, particularly the Liverpool Section of that Society. For six years he was honorary secretary and for two years chairman, at the same time filling the office of treasurer, and on several occasions he read papers before the section. It was in this branch of his activities that the writer was particularly associated with Holt and he remembers with gratitude the inspiration, the energy and the practical assistance which were freely given over a period of many years.

In educational matters in Liverpool Holt took a leading part; he was a co-opted member of the local Education Committee and was for five years chairman of the Liverpool Education Council, taking a special interest in technical education. Of his work in the cause of charity, Dr. Holt's great services to the Royal Liverpool Children's Hospital deserve special mention.

He married Miss Jean Thomson Clay of Edinburgh in 1917.

E. Gabriel Jones.

WILLIAM HOULDING.

1863—1930.

WILLIAM HOULDING was born at Liverpool and was educated at Liverpool College and at Edinburgh University, where he graduated as B.Sc. He was a barrister-at-law, and was for many years Chairman and Permanent Director of Houlding's Brewery Co., Liverpool.

Mr. Houlding was elected a Fellow of the Society on March 17th, 1887.

DAVID LENNOX.

1858—1931.

DAVID LENNOX was born in Dumfries; he was educated at Edinburgh High School and at Edinburgh University, where he graduated as M.B., and Ch.B. with honours in 1880 and as M.D. (Commend.) in 1884. On leaving Edinburgh, he was for a year Assistant to the Professor of Physiology at Owens College, Manchester; he was then appointed Assistant Physician at the Royal Edinburgh Asylum. Joining the Navy as a surgeon in 1883, he served in the Egyptian War in 1884, receiving the Egyptian Medal and the Khedive's Bronze Star. On retiring from the Navy he was engaged in private practice in Dundee from 1888 to 1922. He was Medical Recruiting Officer in Dundee for over 20 years; held the rank of Colonel in the R.A.M.C.(T.) and received the T.D. medal. He was lecturer in Forensic Medicine and Toxicology at St. Andrews University; he served on the Senate of the University from 1925 onwards and in 1931 was appointed Reader in Forensic Medicine in recognition of his long and distinguished service to the University. His interests were wide and varied. He was a Fellow of the Anthropological Society, the Society of Antiquaries (Scotland), and the Botanical Society (Edinburgh) and was a Justice of the Peace for the City of Dundee. He concerned himself specially with physical training, acting for many years as Medical Director of the Dundee Public Gymnasium. He wrote "The Elements of Physical Education" and many papers for the medical press. He is survived by his widow, two sons and two daughters.

Dr. Lennox was elected a Fellow of the Society on December 1st, 1887.

ARCHIBALD LIVERSIDGE.

BORN NOVEMBER 17TH, 1846; DIED SEPTEMBER 26TH, 1927.

THE late Professor Archibald Liversidge, F.R.S., who occupied the Chair of Chemistry at the University of Sydney for 35 years, was certainly the greatest organiser of science that Australia has seen, and surely no one in that country ever worked more unselfishly or with greater singleness of purpose than he to serve science for its own sake.

He was born at Turnham Green in 1846, and died in his eighty-first year, through heart trouble, at his beautiful home at Fieldhead, Coombe Warren, Surrey.

His early education was gained at a private school, and through tutors for several years, after which he entered the Royal School of Mines and Royal College of Chemistry. There he was inspired by the teaching of Frankland and Tyndall. In 1867 he won an open scholarship in Natural Science at Christ's College, Cambridge. He was one of the first two students to work in Sir Michael Foster's physiological laboratory.

While at Cambridge, where he formed many life-long friendships, Liversidge accepted the position of instructor in Chemistry at the Royal School of Naval Architecture. Possibly it was partly through this early association with the Royal Navy that he came to appreciate so thoroughly the value of method and discipline, both of which played so large a part in his life. It may be mentioned that other members of his family are associated with the Navy, two of his nephews, E. Liversidge and J. G. Liversidge, being rear-admirals.

In 1870 Liversidge was made a demonstrator in Chemistry at Cambridge, in which position he so distinguished himself that in 1873 he was appointed to the Chair of Chemistry at the University of Sydney.

On his arrival in Australia, he threw all the energy of his singularly robust constitution and young mind, yearning for the advancement of science, into the building up of a department of chemistry at the University, while his extra-mural activities at this time were directed to the promotion of technical education, and to the expansion and general improvement of the Australian Museum at Sydney, of which he was a trustee from 1874 to 1908.

Liversidge was an original member of the Board of Technical Education in Sydney, and it was largely due to his efforts, ably seconded by his close friend, a former Government astronomer of New South Wales, H. C. Russell, F.R.S., that technical education was inaugurated in New South Wales and that its teaching, notably

in the department of Chemistry, made such good progress. Liversidge was a Fellow of the Senate of the University of Sydney from 1879 to 1904. There, in 1879, after Homeric battles with the powerful forces of Arts, he succeeded in winning for Science a Faculty of its own.

Later the cause of Science at Sydney was greatly strengthened by the arrival of Professor (now Sir Richard) Threlfall to organise a Department of Physics, and the appointment of the late Professor W. A. Haswell, F.R.S., to the Chair of Biology.

After marshalling and co-ordinating the forces of Science in New South Wales, both within and without the University of Sydney, Liversidge strove to realise his larger vision of performing the same service for all scientific effort throughout the whole of Australia, and with the help of his close friends, Professor F. W. Hutton, F.R.S., and Sir James Hector, F.R.S., he was able to bring New Zealand also into line. This was surely Liversidge's greatest work and was realised through the founding of the Australasian Association for the Advancement of Science in 1885. This Society, built on the lines of the British Association for the Advancement of Science, has grown greatly, and has proved an inestimable boon to scientific workers of Australia and New Zealand.

As one who experienced the limitations and misunderstandings which had been too prevalent in the pre-Association times among our workers, the writer fully appreciates the blessings of friendship, sympathy, collaboration, team work, and inspiration which come from these biennial reunions, and is filled with thankfulness for this enduring work of a great-hearted pioneer. The visit to Australia of the British Association for the Advancement of Science in 1914, though directly organised, so far as Australia and New Zealand were concerned, through Sir David Orme Masson and Dr. A. C. D. Rivett, was indirectly the outcome of Liversidge's welding the whole of Science in Australia and New Zealand into one body.

At the meeting in June, 1930, of this Association in Brisbane, Professor N. T. M. Wilsmore, of the University of Western Australia, delivered the first of the chemical lectures endowed by Liversidge for the above Association, taking as his subject " Chemistry in its Relation to the State." Professor A. Killen Macbeth has this year delivered two of the Liversidge Research Lectures at the University of Sydney, respectively entitled " Research in its Relation to the University " and " Some Problems in Carbohydrate Research." The first two Liversidge Research Scholars in Chemistry have now commenced their work at this University. Liversidge not only worked to establish in Australia the traditions of the British Association for the Advancement of Science, but was an ardent organiser

of work here for the British Science Guild, and a staunch supporter of our Chemical Society.

In his work at the University, Liversidge was always remarkably successful and impressive with his practical demonstrations and lecture experiments. Starting with very small buildings and but little equipment, he was able, when he retired from the chair in 1908, to hand over to his successor, Prof. C. E. Fawsitt, a large and flourishing school provided with laboratories, lecture-rooms, and equipment as up-to-date as could be expected in view of the great distance of Australian universities from centres of science in the Old World.

In spite of the time spent in teaching and organising, Liversidge's output of research work was considerable. His researches were directed chiefly to descriptive and experimental mineralogy. His chief published work was "The Minerals of New South Wales." He did much to stimulate interest in meteorites, collecting, analysing, and describing many Australian specimens. He also published several papers on the origin and precipitation of gold, on the presence of this metal in sea water, on the possible growth of gold nuggets in Australian alluvial deposits, and on residues of gold and silver in various ashes. Altogether, Liversidge contributed to the Chemical Society, the Royal Society of New South Wales, and the Royal Society of London more than one hundred papers, relating chiefly to chemistry and mineralogy. He made a hobby of acquiring minerals and meteorites, and his collections have frequently been displayed at exhibitions in Australia and in the northern hemisphere. After retiring from the chair of Chemistry at the University of Sydney, he continued his researches at London in the Davy Faraday Research Laboratory. He was Vice-President of the Chemical Society (1910—1913), of the Society of Chemical Industry (1909—1912) and of the British Association (1896); and President of the Royal Society of New South Wales (1886, 1890, and 1901) and of the Australasian Association for the Advancement of Science (1888—1890). He was also a member of the Philosophical Society of Cambridge, of the Physical Society, and of the Mineralogical Societies of Great Britain and of France. He was elected a Fellow of the Royal Society of London in 1882. Thirteen honorary degrees, or memberships, were conferred upon him by universities and scientific bodies.

In his retirement Liversidge lived at Coombe Warren, where he loved to entertain many of his old colleagues of the Athenæum, as well as friends from overseas.

For his generous bequests to the University of Sydney, to our Chemical Society here, to the Chemical Society of the Old Country,

and to Christ's College, Cambridge, we are indeed grateful. We rejoice that his ideal for unity and comradeship in science has been measurably realised, and for that work above all we honour our departed comrade.

T. W. EDGEWORTH DAVID.

BENJAMIN LINDLEY MURRAY.

1870—1930.

BENJAMIN LINDLEY MURRAY was born at Ypsilanti, Mich., and received his education at Michigan State Normal School, and at the University of Michigan, where he graduated as B.Sc. Later he received the degree of M.A. at Columbia University. For 34 years he was associated with Messrs. Merck & Co., acting for a great part of that time as Chief Chemist. He was author of "Standards and Tests for Reagents and C.P. Chemicals," and served with distinction on the Committee of Revision of the United States Pharmacopœia X.

Mr. Murray was elected a Fellow of the Chemical Society on February 17th, 1904.

KENNEDY JOSEPH PREVITÉ ORTON.

BORN JANUARY 21ST, 1872; DIED MARCH 16TH, 1930.

BY the death from pneumonia of Kennedy Orton at the comparatively early age of 58, chemistry and ornithology have lost one of their acutest observers and the University of Wales one of its most inspiring teachers and ablest administrators.

Kennedy Joseph Previté Orton, the eldest son of the late Rev. W. P. Orton, was born at St. Leonards-on-Sea. He received his early education at Kibworth Grammar School, 1882–5, and Wyggeston School, Leicester, 1885–8. Of his own volition he chose a medical career and entered St. Thomas's Hospital in 1889. Fortunately for our science, he came under the influence of Bernays, the lecturer in chemistry at St. Thomas's, and having been awarded a W. Tite Exhibition, he entered St. John's College, Cambridge, where in the Natural Science Tripos of 1893, Part I, he took a first class. He now abandoned medicine for chemistry, the strain of work at the microscope being a determining factor. He was keenly disappointed when he obtained a 2nd class in Part II of the Natural Science Tripos in 1895, but he had so impressed his teachers by his ability that the authorities of St. John's College considered him the best candidate for the Hutchinson Research Studentship. In addition he was a

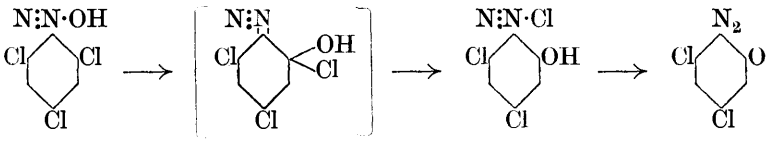
Major Scholar and Exhibitioner of his college and was awarded the Wright's and College Prizes. Having already been initiated into organic research work by Ruhemann—a most inspiring teacher—in the old buildings of the Caius laboratory in Green Street, Orton went to Heidelberg and worked so effectively and industriously with von Auwers on the cryoscopic behaviour of various types of chemical compound in naphthalene that he was awarded his degree of Doctor of Philosophy, *summa cum laude*, this being the first occasion at Heidelberg on which this distinction had been awarded to an Englishman. After a year in Sir William Ramsay's laboratory as a post-graduate research student, he was appointed senior demonstrator in chemistry at St. Bartholomew's Hospital in 1897 and made assistant lecturer in 1903. In the same year, at the age of 31, he succeeded Sir James J. Dobbie as Professor of Chemistry at the University College of N. Wales at Bangor, a post he graced until his untimely death.

To follow in the steps of a man of the calibre of Dobbie was a formidable undertaking, but this Orton attempted and performed with distinction. As a lecturer he was most inspiring, and many are the students who were attracted to chemistry by the famed clarity of his lectures. The writer, whose good fortune it was to come under his influence at Bangor, acknowledges with gratitude that he owes a chemical career to Orton's inspired teaching. Lecture notes were always typed and conscientiously brought up to date the evening before, and their clear delivery with slow repetition of the more important passages or definitions made an indelible impression on the mind of even the dullest student. Historical chemical characters were made to live. Who will ever forget the lecture on Mendeléeff's prediction of the properties of the missing elements and their fulfilment by later discoveries, a discourse largely based on the account in Ida Freund's "The Study of Chemical Composition"—a unique treatise for which Orton had the highest regard. At the time of the writer's sojourn in Bangor, Orton lectured to first, second and third year students daily on general, physical and organic chemistry. The great advantages of the uniform and clear presentation of so wide a field of chemistry by a single master mind were reflected in the achievements of his pupils. In students who took an Honours course, Orton took a special interest. He directed their reading, supervised their essay work, in fact was a personal tutor. He instilled into them something of his own enthusiasm for chemistry, his energy and zest for hard work. Over the slow or backward pupil he took great pains and justified his own claim that he was essentially a teacher. Inefficiency he could not tolerate.

Orton was, however, something more than a teacher. He was a chemist ahead of his time. His numerous original contributions to chemistry amply confirm this and his judgment or opinion on current topics of chemical thought was almost invariably correct.

His output of original publications was considerable and throughout his career he studiously avoided ostentation in the presentation of his results. From 1899 to 1901 in the laboratory of St. Bartholomew's Hospital he assisted Chattaway in laying, systematically and thoroughly, the foundations of the chemistry of substituted nitrogen chlorides and bromides, a class of substance hitherto practically unknown. They prepared a great variety of these in order to study their transformations into halogenated acylanilides. The conclusion was reached that the substitution of chlorine and bromine into anilides was an indirect process, nitrogen chlorides and bromides being first formed which then underwent isomeric change—an intramolecular process—with formation of nuclear-substituted anilides. The same authors in a short note in the Proceedings for 1902 described the effect of temperature, percentage of hydrochloric acid and concentration of acetic acid on the velocity of transformation of acetylchloroamino-*p*-chlorobenzene. This paper was the nucleus of Orton's later classic work on the dynamics of the halogenation of anilides.

To throw further light on the process of substitution in anilines and anilides—a subject which occupied his main attention for the next three decades—Orton now embarked on a study of the action of nitric acid on *s*-trihalogenated anilines and anilides, and discovered a new quantitative process for making *N*-nitroamines by the successive treatment of an *s*-trisubstituted aniline in acetic acid with nitric acid and acetic anhydride. He also discovered a new class of compound, the *s*-trisubstituted *N*-chloronitroaminobenzenes. A novel case of intramolecular change now attracted his attention, that of the transformation of *s*-trihalogenobenzenediazonium hydroxides into quinone-diazides. By addition of sodium acetate or bicarbonate to the aqueous solution of such diazonium sulphates, one halogen atom was eliminated in the ionic state, and for the process Orton suggested the following mechanism :



The discussion which accompanied these communications bears a very modern impress and puts Orton in the front rank of the inter-

preters of chemical mechanism. Incidentally he emerged successfully from a controversy with Hantzsch, showing conclusively that the latter's claim that *s*-tribromophenylnitrosoamine was the product of the action of sodium acetate on a solution of a *s*-tribromobenzenediazonium salt was invalid, the chief crystalline product being the quinone-diazide.

Orton had now taken up his duties in Bangor and in 1904 was appointed Secretary to a British Association Committee to report on "The Transformation of Aromatic Nitroamines and Allied Substances and its Relation to Substitution in Benzene Derivatives." With the assistance of a succession of gifted students, a steady flow of papers, all interconnected, now issued from his laboratory. These show Orton's power of acute observation, but only the more important papers can be mentioned here. With Coates, now Professor of Chemistry at the sister college of Swansea, assisted in part by Miss Burdett, Orton made the striking observation that certain diazonium salts in solution are exceedingly sensitive to light, undergoing a specific transformation; thus *s*-tribromobenzenediazonium bromide in water gave *s*-tribromophenol quantitatively, no other known process giving more than a 2% yield, whilst in methyl or ethyl alcohol and acetic acid, ethers and acetates respectively were formed. With the late Miss A. E. Smith, the transformations of highly substituted *N*-nitroaminobenzenes came under study, the interesting conversion, for instance, of 1-nitroamino-*s*-trichlorobenzene in sulphuric and acetic acid solution into *s*-trichlorophenyliminotrichlorobenzoquinone being recorded and utilised in later work.

In the years 1909 and 1910 there appeared a series of papers by Orton and Jones which marks an epoch in the study of the dynamics of halogenation of anilides. These communications are to be classed with the pioneering work of Harcourt and Esson on the application of the mass law. Although Orton was no expert mathematician, he had his Esson in the person of W. J. Jones, now Professor of Chemistry in the sister college of Cardiff. Jones and Orton showed that the conversion of chloroamines into nuclear-substituted anilides, a reaction considered by Chattaway and Orton to be an intramolecular process, was in reality an intermolecular one and could be summarised in this way :

$$Cl_2 + Ar{\cdot}NHAc \rightleftharpoons \begin{cases} Cl{\cdot}ArNHAc + HCl & (a) \\ Ar{\cdot}NClAc + HCl & (b) \end{cases}$$

In glacial acetic acid, with 2 : 4-dichloroacetanilide—an anilide *C*-chlorinated with difficulty—an equilibrium was established (b) almost entirely in favour of the left-hand side; in 50% acetic acid

the equilibrium was displaced to the right-hand side, only traces of free chlorine being detectable. If, however, *p*-chloroacetanilide was used, where *C*-chlorination (a) is possible, then in glacial acetic acid, where the equilibrated reaction favours the left-hand side, an irreversible *C*-chlorination, the velocity of which was measured, took place, whilst in dilute acetic acid, 50% for instance, simultaneous *C*- and *N*-chlorination took place in the ratio 1 : 1·25. The position of equilibria, in various dilutions of acetic acid, of a variety of anilides, the velocities of the opposing reactions in the equilibrium, the bromination of anilides, and the conversion of bromoamines were all brought under measured control.

The data accumulated enabled the authors to study the complex equilibria existing between chlorine and two anilides; thus a system made up from molecular proportions of *s*-tribromoacetanilide, hydrochloric acid, and acetylchloroamino-*p*-nitrobenzene in 90% acetic acid was found experimentally to contain 59% of the chlorine originally present as chloroamine in the free state, whilst the calculated value was 60%. This was a brilliant demonstration of the correctness of the authors' views and of the application of the law of mass action. This work was extended in 1928 by Orton, Soper, and Williams, who by a new technique measured the velocities of *C*- and *N*-chlorination in 40% acetic acid and found that the ratio of the amounts of chloroamine and chlorinated anilide formed at a given moment was independent of time, thus satisfying Wegscheider's test of simultaneous reactions.

Such velocity experiments incidentally proved the correctness of Armstrong's views, who as far back as 1900 showed, without demonstrating the mechanism, that hydrochloric acid is the catalyst in the transformation of chloroamines, and who also ventured the opinion, now justified, that a study of the velocity of the change under various conditions would yield important information.

The technique evolved by Orton and Jones for the dynamical study of chloroamines was put to sterling use in subsequent years in a study of the influence of constitution on the speeds of halogenation of anilides and ethers. The success which attended these efforts naturally directed Orton's attention to the possibility of applying similar methods to a study of the transformation of *N*-nitroamines. With that end in view, several exploratory papers were published on acetic anhydride, nitric acid and nitroamines. The difficulties to be surmounted were unusually severe, and it was only in 1929 that Orton and Bradfield were able to make effective progress with the dynamics of this obscure transformation. Unlike the transformation of chloroamines, where hydrochloric acid is the only catalyst, the change of nitroamines was catalysed by strong

acids in general. With some hesitation, the authors concluded that the reaction was mainly intramolecular, although extra-nuclear migration of a nitro-group to a foreign aniline nucleus was detected.

Orton's contributions to chemistry were fittingly recognised by his election into the Royal Society in 1921.

As a member of numerous committees, Orton's services were invaluable. The subjects for discussion were always carefully considered in advance, and the conclusions crystallised in his mind. In connexion with the Geological Survey of Anglesea by Mr. Greenly under the auspices of a British Association Committee on which Orton served, he, Orton, suggested the analysis of the great variety of rock-types which was carried out by J. O. Hughes under his supervision. In geological circles, it is recognised that the results are of inestimable value and that few parts of the British Isles have been so carefully studied from the chemical side.

Orton served on the Council of the Chemical Society, 1913–17, 1926–29, on the Council of the Institute of Chemistry, on the General Committee of the British Association, and on the Council for the Preservation of Rural Wales. In addition to acting as a member of the Board of Examiners in Chemistry for the University of Wales, he had been External Examiner for the Universities of Birmingham, Cambridge, and London, and for many years Examiner in Chemistry to the Civil Service Commission, including the examination for entrance into the Indian Civil Service.

In Bangor, the influence of the War was felt in increased numbers of students taking a Science course, and the inadequacy of the old laboratories, housed in a former coaching hotel, became a serious problem. It was fitting, therefore, that the Council of the N. Wales Heroes Memorial decided in 1921 that the best tribute to the fallen should be new Science Buildings. These fine modern quarters, centrally situated, were opened to students in October 1926, and in addition to their avowed object, serve as a visible memorial to the labour and thought spent by Orton in the furtherance of the scheme and in the design of the Chemistry buildings.

Orton's hobbies were rock-climbing and ornithology. He was a member of the British Ornithological Union and of the Climbers' Club and his name is associated with new ascents in the neighbourhood of Ogwen Lake. Although an authority on British birds, on their migration routes, their call-notes and songs, and habits in general, he put little on printed record, his chief concern being lest any of his writings should lead to further depletion of our native avifauna. Nevertheless, he contributed a section on " Birds of Llyn Ogwen " to J. M. Archer Thomson's " Climbing in the Ogwen District," and " Bird Life in the Mountains " to Carr and Lister's

" The Mountains of Snowdonia." He was particularly interested in the hawk tribe, and shared with the writer an intense admiration for that " steel-tinted wedge," the peregrine falcon. His enthusiasm had carried him on a tour of the peregrine eyries round the coast of Britain and for years he had accumulated original data for a treatise on this noble bird. Unfortunately he never lived to see its completion. His strength, overtaxed by never-flagging enthusiasm, was inadequate to withstand the illness which finally struck him down.

He leaves a widow, daughter of the late Rev. W. Clement Ley, who survives him with a son and two daughters.

He was buried, at his own wish, in the Church Cemetery, Llanfair P.G., Anglesea, within sight of a panorama unexcelled in the British Isles in its variety of landscape and in the richness of its avifauna.

H. K.

HENRY HALIBURTON ROBINSON.

BORN FEBRUARY 24TH, 1857; DIED JANUARY 11TH, 1931.

HENRY HALIBURTON ROBINSON, younger son of Colonel Wm. Robinson, R.E., was born at Halifax, Nova Scotia. During his early years his parents transferred their home to Jersey, where he received his early education at the Victoria College. In 1876 he entered Magdalen College, Oxford, and was elected to an open Demyship of the College after a competitive examination in Natural Science. He obtained First Class Honours in Natural Science at the University, graduating as B.A. in 1879 (M.A., 1889).

After leaving Oxford, Robinson continued his studies at the Normal School of Science (later the Royal College of Science), where he headed the list in the examination of 1881. His ability was recognised by Sir Edward Frankland, who stated that " Mr. Robinson distinguished himself so much in my ordinary classes at the Normal School of Science, South Kensington, that I gave him a place in my Research Laboratory, where, in conjunction with Dr. Japp, he made a successful research on the constitution of amarine and lophine." The results of this work were published in the Journal of the Chemical Society (J., 1882, **41**, 323) and in the Berichte (*Ber.*, 1882, **15**, 1268).

In 1882, Robinson was appointed First Assistant to the Professor of Chemistry at the Royal Agricultural College, Cirencester, where he remained for five years, conducting classes in chemical analysis, especially as applied to agricultural products and materials, and giving courses of lectures on mineral chemistry. He also acted as Librarian to the College, and in this capacity prepared a new catalogue which, according to Mr. J. B. McClellan, the Principal of the College, " he compiled with great care and skill."

He returned in 1887 to the Royal College of Science, where he co-operated with Sir Edward Thorpe in an investigation of the active principles of buckthorn (*Rhamnus frangula*), the results of this work being published in a paper on " frangulin " which appeared in the Journal of the Chemical Society (J., 1890, **57**, 38). During this period he compiled certain articles for Thorpe's " Dictionary of Applied Chemistry," among which those on " Waxes " and " Albuminoids " are specially worthy of mention. With reference to the latter Sir Edward Thorpe stated that " at the time of its publication Mr. Robinson's article on the Chemistry of the Animal and Vegetable Albuminoids was regarded as the most complete and accurate digest of what is confessedly one of the most complicated sections of physiological chemistry which had hitherto appeared in our language." At this stage of his career Robinson's skill in the construction and arrangement of apparatus for chemical tuition led to his being selected by the Museum Authorities for the task of reorganising the methods of performing the experimental illustrations required for teaching the courses on inorganic chemistry held in connexion with the Science and Art Department examinations.

In 1889, the Chinese Legation having applied for advice and assistance in the selection of a gentleman qualified to teach chemistry in the Imperial College at Canton, established by H.E. Chang Chih Tung, Viceroy of the Provinces of Hupeh and Hunan, Robinson was recommended as being eminently suitable for the appointment, and was selected by Sir Halliday Macartney. A little later he was transferred to Wuchang, where he organised the Board of Mines College, remaining there as Professor of Chemistry and Physics until April, 1899; he then accepted an invitation to occupy the same position at the Kiangnan Provincial College, Nankin. Before the end of the year, however, the College was summarily closed by the anti-progressive party of the Chinese Government, and Robinson returned to England.

He joined the staff of the Imperial Institute in 1900 as a special research assistant, a position which he occupied until November, 1914. During this time he was engaged in the investigation of plant products, among his principal researches being those on the gum of *Cochlospermum gossypium* (J., 1906, **89**, 1496) and on the constituents of Indian oil of turpentine derived from *Pinus longifolia* (P., 1911, 247).

After leaving the Imperial Institute, Robinson passed the remainder of his life in retirement. During recent years his health gradually failed and he passed away at a nursing home in Ealing in January, 1931, at the age of 73.

Robinson was a very successful teacher and a most conscientious and painstaking investigator. Although of a quiet and retiring

disposition, he was open-hearted, sympathetic and generous. All who came in contact with him were impressed by his high sense of honour and his unvarying courtesy. ERNEST GOULDING.

ARTHUR WILLIAM ROGERS.

1860—1931.

ARTHUR WILLIAM ROGERS was born at Samulcota, Madras Presidency, and was educated at St. Charles College, Bayswater, University College School, and at University College. For 30 years he was connected with the brewing industry, and during the last 18 years of this was Head Brewer and Manager of the Tadcaster Tower Brewing Co. He was a member of the Institute of Brewing, and contributed to the Journal of that Institute.

Mr. Rogers was elected a Fellow of the Society on December 20th, 1883.

CHARLES LEONARD ROYLE.

1874—1931.

CHARLES LEONARD ROYLE was born at Foots Cray and was educated at the Brewers' Company's School and at the City of London College. He was engaged as a Sugar and Agricultural Chemist at Nelli, Upper Madras, for 15 years and subsequently in Peru for a period of about 18 years.

Mr. Royle was elected a Fellow of the Society on December 15th, 1901.

FRED PILKINGTON SARGEANT.

1875—1930.

FRED PILKINGTON SARGEANT was born at Chorley in 1875, and was educated at the Chorley Commercial School, of which his father was headmaster. He was apprenticed to Mr. George Oakes, of Chorley, served as assistant to Mr. C. Richmond of the same town and then as assistant to Mr. J. T. Brierley, analytical chemist and science master at the local Technical School, where he qualified as a teacher. He proceeded to Manchester, passing the "Minor" and "Major" examinations of the Pharmaceutical Society in 1896, and subsequently founded the Leeds College of Pharmacy. In 1912 he served on the Council of the Pharmaceutical Society, becoming President twelve years later. He was called to the Bar in 1924. He contributed articles to the Pharmaceutical Journal and to other periodicals connected with pharmacy.

Mr. Sargeant was elected a Fellow of the Society on February 15th, 1900.

EDGAR SAUNDERS.

1900—1930.

EDGAR SAUNDERS was born at Edgbaston, Birmingham, and was educated at King Edward VII School and at Birmingham University, where he graduated as B.Sc. in Chemistry. At the time of his death on October 13th at the early age of 30, Mr. Saunders was engaged in the Cancer Research Department of the General Hospital, Birmingham.

Mr. Saunders was elected a Fellow of the Society on February 15th, 1923.

WILLIAM HILL SAUNDERS.

1852—1931.

WILLIAM HILL SAUNDERS was born in London in 1852. At the age of 22 he joined his father and brother in the business of Messrs. Ayrton & Saunders, Manufacturing Chemists, of Liverpool. On the firm becoming a limited company in 1903 he was elected Chairman, a position he held until his death in Rangoon, where he was travelling in the interests of the business.

Mr. Saunders was elected a Fellow of the Society on December 2nd, 1920.

ALFRED SOUTHALL.

1838—1931.

ALFRED SOUTHALL was born at Edgbaston, Birmingham, and was educated privately. He joined his father's business, Messrs. J. & W. Southall (afterwards Southall Bros. & Barclay, Ltd.), from which he retired in 1901. He served on the Council of the Pharmaceutical Society from 1886 to 1908. He held for many years the post of Treasurer of the Birmingham Free Church Council, subsequently being elected President. In 1906 he was elected a Justice of the Peace for the City of Birmingham, and served on the Magistrates' Bench for 25 years.

Mr. Southall was elected a Fellow of the Society on May 6th, 1875.

FREDERICK ARNOLD STEAD.

1890—1930.

FREDERICK ARNOLD STEAD was born at Redcar, and was educated at Mill Hill School, and at the University of Durham, Newcastle-on-Tyne. He also received early training in the laboratory of Pattinson and Stead and was a junior partner at the time of his death.

During the War, he served in the Ministry of Munitions, Explosions Inspection Department. He was interested in social welfare work, and held high executive office in the Boy Scout Movement.

Mr. Stead was elected a Fellow of the Society on February 21st, 1924.

JOHN FREDERICK FELIX TROTTER.

1910—1930.

JOHN FREDERICK FELIX TROTTER was born at Wigan, and was educated at Springfield Wycliffe College, Stonehouse, and at the Imperial College of Science, where he graduated as B.Sc. with Hons. in Chemistry and obtained the diploma of A.R.C.S. He was engaged in original investigation under Professor J. F. Thorpe, F.R.S., at the time of his death at the early age of 20.

Mr. Trotter was elected a Fellow of the Society on December 4th, 1930.

EDWARD WILLIAM VOELCKER.

BORN JULY 14TH, 1857; DIED NOVEMBER 22ND, 1930.

CHEMISTRY has lost, by the death of E. W. Voelcker, a man who lived to elevate his profession to a high level; indeed, his untiring energies in that direction achieved so much that his colleagues, who mourn him deeply, will ever remember him as one who set a fine example of what the best type of consulting chemist should be.

He was born at Cirencester, the third son of a distinguished father, the late Dr. Augustus Voelcker, F.R.S., then Professor of Chemistry at the Royal Agricultural College.

On his father's removal to London, the son attended University College School, and, after matriculating at London University, entered, in 1874, the Royal School of Mines, where he studied under Sir Edward Frankland, Professor Percy, and Professor Warrington Smith, gaining the Associateship (A.R.S.M.) in 1877 and the De la Beche medal for proficiency in mining.

After several "prospecting" undertakings, including an exploratory trip to New Guinea and a visit to Australia, he, with his elder brother, was taken into partnership by his father and continued until his death as a member of the well-known firm of Augustus Voelcker and Sons.

During the last year or so of his life his failing health prevented him from attending at his laboratory, but his brain was ever active and alert and it must have been a great satisfaction to him to see his youngest son, Eric, taking his father's place as a partner in his old firm.

Voelcker was Public Analyst for the counties of Bucks Northampton, and Hereford and, jointly with his brother, held various appointments as Official Agricultural Analyst under the Fertilisers and Feeding Stuffs Act.

In spite of all the labour resulting from so many appointments he found time to take an active interest in various scientific bodies, more especially in the Society of Public Analysts and the Institute of Chemistry. He joined the former in 1889, acted as Hon. Treasurer for 16 years, and became President in 1910. Even then fate did not leave him the rest accorded to Past-Presidents, for the war deprived the Society of Mr. Edward Hinks's services from 1916–1920, during which time E. W. Voelcker acted for him as Treasurer.

He became a Fellow of the Institute of Chemistry in 1880 and, having served on the Council for four periods and as Vice-President for two periods, eventually became Hon. Treasurer, and held this office for 6 years up to 1924. He was elected a Fellow of the Chemical Society in 1884 and served on the Council from 1918–1921.

A member of many committees and chairman of not a few, he was known as a tenacious critic who expressed his views fearlessly but with such charm and reason that even those with whom he disagreed liked him all the more for his candour.

In his professional work, though he did but little in the way of writing or direct contribution, he was recognised as one who had a thorough practical knowledge of his subject, and this, coupled with his sound judgment and ability to grasp the essentials of any matter submitted to him, made him universally respected.

Yet this hard-worked man found time for sport; he was a good shot and he could cast a fly. Many are the friends who will think affectionately of his sound judgment, his cheerful personality and that very human touch, seen at its best in the midst of his family.

He leaves a widow, three sons and one daughter.

E. R. Bolton.

GEORGE JOSEPH WARNER.

1850—1930.

George Joseph Warner was born at Chelmsford, and was educated at Colchester Grammar School, Liverpool Institute, and at Owens College, Manchester. For nearly 50 years Mr. Warner was connected with the Fine Chemicals trade, and during this period was associated with Tenant's Chemical Laboratory, Manchester, Messrs. Becker's, of Middleton, and Messrs. Orr's Zinc White, Ltd.

Mr. Warner was elected a Fellow of the Society on December 7th, 1871.

JOHN WATT.

1862—1930.

JOHN WATT was born at Fyvie, Aberdeenshire, and was educated at Old Aberdeen Grammar School, Aberdeen University, and New College, Edinburgh. He graduated in 1884 as M.A. and in 1912 as D.D. at Aberdeen University. In 1888, he took up mission work in the Duff College of the Free Church of Scotland, Calcutta, as Professor of Chemistry, and in 1910 was appointed Principal at the Scottish Churches College, Calcutta, holding this appointment until his retirement in 1928. He was a Fellow of the University of Calcutta, and in 1929 was awarded the Kaisar-i-Hind Medal (1st class) for public service in India.

The Rev. Dr. John Watt was elected a Fellow of the Society on December 3rd, 1908.

WILLIAM ERNEST WILD.

1867—1930.

WILLIAM ERNEST WILD was born at Weaste, and received his education at the Manchester Grammar School and Owens College, Manchester, where he graduated as B.Sc. For five years he was with Messrs. Thomas Hardcastle & Co., of Bolton. He became Assistant Analyst to Messrs. Crace, Calvert & Thompson, of Manchester, remaining with this firm for five years, and subsequently held for twenty-four years the position of Chief Colourist at the Dinting Vale Print Works (a branch of the Calico Printers' Association).

Mr. Wild was elected a Fellow of the Chemical Society on June 16th, 1898.

THOMAS HARRISON WINSTANLEY.

1871—1930.

THOMAS HARRISON WINSTANLEY was born at Wigan and educated at the Wigan Grammar School, subsequently receiving his training as a Pharmacist. He was a lecturer in Pharmacy at the Wigan Mining and Technical College, and Secretary of the Wigan Branch of the Pharmaceutical Society. During the War he acted as Chief Pharmacist to the Wigan and District Red Cross Hospitals. He was keenly interested in Church work, especially in the Church Lads' Brigade, and was a prominent Freemason.

Mr. Winstanley was elected a Fellow of the Society on May 15th, 1913.
