

OBITUARY NOTICES.

JOHN WILLIAM BIGGART.

1854—1934.

JOHN WILLIAM BIGGART was born in 1854, in the parish of Beith, Ayrshire, and died, as the result of an accident, at Greenock, on 27th March, 1934.

Biggart studied chemistry under Professor John Ferguson at Glasgow University and under Professor Bischof in Anderson's College, Glasgow. In 1874, he, along with a partner, formed the firm of McCowan and Biggart, Analytical and Consulting Chemists, Greenock, and it is still carried on under that name, although a few years after starting, McCowan severed his connection to join an industrial concern.

In 1875, Biggart was appointed public analyst for Greenock, and later obtained the appointments for Ayrshire, Buteshire, and some small Burghs, carrying on the work involved until his death. He was also appointed district analyst under the Fertilisers and Feeding Stuffs Act, and was so keenly interested in this branch of his work that he was rightly regarded as an expert.

Biggart did not confine himself to the business of public analyst and district analyst, but had also commercial connections, especially with the analysis of sugar and sugar products, on which subject he was regarded as an authority. His position is evident from the fact that, when the Greenock and Lancashire Sugar Association was formed, he was appointed as their official analyst, and also represented them on the Raffinose Commission at Berlin in 1910. In addition, he was one of the official analysts to the Royal Commission on Sugar Supplies. In all the work he conducted, he was highly appreciated, carrying it out with faithfulness and freedom from bias.

Outside of his professional duties, Biggart was genial in company, and although he was a total abstainer all his life, and had decided views on the temperance question, he never made unkind remarks on those who differed from him. He was also much interested in social work and matters connected with the Church, to which he devoted a good deal of his time. In short, Biggart was a typical Scot of the older school, careful and cautious in his professional and other duties, and his sympathy was more with the ideas of his own early years than with the less conventional ones of the younger generation.

R. T. THOMSON.

FREDERICK WOODWARD BRANSON.

1851—1933.

HAD Frederick Woodward Branson lived until the 6th March, 1934, he would have attained his 83rd birthday. He passed away on November 30th, 1933, at his residence—Wynneholme, Far Headingley, Leeds. He was a native of Buckinghamshire, being born in Hanslope, and served his indentures in the pharmacy of Messrs. Jays in the Drapery at Northampton. He passed the Minor examination of the Pharmaceutical Society in 1873 and the Major in 1878. He was a student at King's College, London, during the session of 1880—1881 and was awarded the Clothworkers Science Prize in 1881. He was with John Bell & Co. in their historic pharmacy in Oxford Street from 1878 to 1881, acting as laboratory assistant to Samuel Gale.

He became a Fellow of the Institute of Chemistry in 1888 and a Fellow of the Chemical Society in 1882.

In 1883 Branson came to Leeds and entered into partnership with Mr. Richard Reynolds and his son, Mr. Fred Reynolds. This partnership carried on the business of wholesale and retail chemists and surgical instrument makers which had been founded in 1816 by Wm. West, F.R.S. Branson developed the scientific apparatus and chemical glassware

side of the business and controlled the analyses undertaken, specialising in water analysis, in which his wide knowledge of the geology of Yorkshire made his interpretation of the chemical results most valuable. During the outbreak of lead poisoning at Morley in 1901 he was called in and his recommendations freed Morley from this scourge. In 1898 the business was converted into a private company, of which Branson was chairman until 1932, when he retired and his son, Mr. F. Hartridge Branson, A.I.C., became chairman and managing director of the Company.

During the war Branson took an active part in endeavouring to standardise the size and shape of chemical glass. He was elected a member of the Society of Glass Technology at its inaugural meeting in November, 1916, and a member of the first council of the Society, holding office until April, 1919. He participated in organising research work with the object of securing the manufacture in Great Britain of glass required for the equipment of munition factories. The efforts of this committee met with considerable success.

Branson contributed a paper on the composition of some types of chemical glassware to the Society of Chemical Industry (*J. Soc. Chem. Ind.*, 1915, **34**, 471) and, in collaboration with his son, a paper to the *Transactions* of the Society of Glass Technology (1919, **3**, 249) "A proposed standard formula for a glass for lamp workers."

Branson was for some years in the last century Chairman of the Leeds and District Chemists Association and President of the Local Section of the Society of Chemical Industry. His services to pharmacy and chemistry were considerable.

In collaboration with A. F. Dimmock, M.D., he contributed to the British Medical Association meeting in 1903 a paper "A new method for the determination of uric acid in urine" (*Brit. Med. J.*, 1903, **2**, 585). For this process he devised a correction scale which was contributed to the British Pharmaceutical Conference in 1904. At the 1905 meeting of the British Medical Association a further paper by these two authors was read, "A rapid and simple process for the estimation of uric acid" (*ibid.*, 1905, **2**, 1104), in which uric acid was precipitated and the precipitate measured in a specially graduated tube. In 1914, in collaboration with Dr. Gordon Sharp, he contributed a paper to the British Pharmaceutical Conference on the activity of *digitalis* leaves and the stability and standardisation of tinctures of *digitalis*.

Branson was a member of the Spectacle Makers' Company and a Freeman of the City of London. He took a very active interest in Leeds Scientific Societies, being a member for over 50 years of the Leeds Philosophical and Literary Society which celebrated its centenary some years back. He was its President in 1928—1929 and 1929—1930.

On coming to Leeds Branson at once joined the Leeds Geological Association. He was its President in 1907—1908 and gave an address on "Radium and Geology" and again in 1908—1909, his address being on radioactive elements and geology. He was also President during the Jubilee Session, 1923—1924, and again in 1924—1925. He took an active share in tracing the course of underground waters of North West Yorkshire in connection with the Yorkshire Geological and Polytechnic Society in 1899, the results of which were published in the *Proceedings* of this Society in 1900.

Through his instrumentality radium was obtained from Madam Curie and exhibited in Leeds soon after its isolation. He was an early worker in radiography and devised an instrument for estimating the amount of exposure to X-rays needed to obtain a fully exposed plate. In a memoir of Wilhelm Conrad Röntgen by Otto Glasser, 1933, Branson's invention of a qualimeter is noticed. Speaking of an attempt made to measure the photographic quality of the Röntgen rays, Glasser stated: "Röntgen had studied carefully the penetration of the roentgen rays through a series of substances and had used for such measurements small ladders of metal of a type which in later years was used generally. This idea was made practical by an English firm, who arranged aluminium in gradations or steps in the shape of a circle so that an aluminium ladder was formed with steps of from 1 to 10 mm. in thickness. With this arrangement the hardness of the rays could be determined on a fluorescent screen as that thickness which could just be penetrated by the rays."

Branson was also a member and past President of the Leeds Photographic Society and Leeds Naturalists Club, to both of which Societies he contributed no small degree of their success.

Branson was a sportsman of no mean character, being an accurate shot and indefatigable in following grouse on the Yorkshire Moors.

He was Secretary to the Yorkshire Anglers, fishing with them for salmon in the River Eden with notable success. He served on the Eden Conservancy Board.

Branson's garden was a joy to him even to the very last. He was happy in it and could therein lay aside business cares and anxieties. He was particularly interested in Alpine plants. His rock garden, the limestone of which he himself collected from the moors round Pateley Bridge, contained many uncommon "Alpines," very skilfully accommodated with an environment adapted to their needs. He was associated in his early career with the late Dr. G. Claridge Druce, M.A., F.L.S.; with him he botanised at Hastings and their friendship continued until death terminated it.

Music was a recreation to Branson—a pianist of no mean ability and an enthusiastic supporter of the Leeds Philharmonic Society.

His wife, Mrs. Rose Branson, who died in 1924, was a well-known member of the Headingley Golf Club, as is also Miss R. M. Branson, his daughter; she and Mr. F. Hartridge Branson are his only children.

J. H. GOUGH.

ALLAN THOMAS COCKING.

1864—1934.

ALLAN COCKING was born at Rotherham in 1864. After leaving school, he entered the office of Mr. C. E. Rhodes, M.I.C.E., and in a few years became his principal assistant. His association with Mr. Rhodes brought him into close contact with mining engineering problems, such as ventilating systems in mines, safety lamps, and explosives. It is in the last field that he eventually specialised and at the early age of 24 he was appointed manager of the Flameless Explosives Company. In spite of his commercial duties he found time for the study of the sciences and lectured at both Rotherham and Sheffield on chemistry and physics. He joined Kynoch, Ltd., as general manager at the age of 29 and was associated with this company for nearly thirty years. In 1896 he was appointed a director. When Kynoch, Ltd., decided to manufacture explosives, the responsibility of finding sites, erecting factories, and organising production fell on Cocking, and the success of the factories established first at Arklow, then at Kynochtown in Essex, and still later at Umbogintwini, South Africa, might be taken as evidence not only of his ability as a business man but also of his expert knowledge of the explosives industry. At the outbreak of war in 1914 the demand for increased output of explosives offered a further opportunity for Cocking to show his energy and organising ability, and the three factories at Arklow, Kynochtown, and Umbogintwini soon increased production very considerably. Prior to 1914, he had set up at Arklow one of the first oleum plants in this country, and the rapid extension of oleum manufacture during the war was much facilitated by the knowledge that Cocking was able to place at the disposal of the Government.

Soon after the conclusion of hostilities, a merger of explosives manufacturers was made, and Cocking was appointed to the board of Nobel Explosives Limited, retiring in 1921. He then associated himself with other interests, including those of the Staveley Coal & Iron Company, Ltd., and Alldays & Onions, Ltd., becoming a member of the Board of each of these companies.

H. W. BROWNSDON.

JOHN WILLIAM EDWARD HEATH.

1856—1934.

At a meeting of the Royal Institution Managers in April, 1880, Professor James Dewar was given authority to obtain more assistance in the Chemical Laboratories. His chief assistant—Gerrard Ansdell—was ordered a sea voyage; and John William Edward Heath, a young assayer (born twenty-four years earlier at 33 Upper Gloucester Place) was brought in to

help, with such success that after January, 1881, his name appeared on the regular salary list of the Institution. He became a Fellow of the Chemical Society in 1891, and his certificate, signed by James Dewar, J. D. Liveing, Roberts Austen, F. Abel, and Ludwig Mond, stated that he had assisted in all the important investigations carried out at the Royal Institution in the previous ten years.

When Heath arrived at the Royal Institution, Dewar was in his fourth year as Fullerian Professor of Chemistry; and it was not until seven years later that Tyndall ceased to be Resident Professor of Natural Philosophy, and accepted an Honorary Professorship. Dewar then became the Resident Professor. So Heath came into the Institution when the memory of Faraday was very clear and vivid, many of his experiments still being in frequent use in the theatre, when Tyndall had several years of activity before him (including his two last courses of Christmas Lectures on "Light and the Eye" and "the Sources of Electricity"), and remained until the end of Dewar's forty-six years' tenure of the Fullerian Professorship, and for two years under Sir William Bragg.

Heath could tell of the times when fifty Bunsen cells had to be recharged twice a day to provide the energy for Tyndall's lantern projection experiments, and when (by Siemens's generosity) the pioneering Royal Institution generated its own electric power for such work, by a dynamo, belt-driven from a primitive gas engine in one of the basement rooms. He saw the whole period of the development of the bulky experimental machinery for Dewar's low-temperature research, when knowledge could be won only through laborious and dangerous experiment, often including much rough handling for the experimenters. Before then he shared a strenuous experience in Dewar's fervent spectrum researches, when J. D. Liveing of Cambridge frequently worked with Dewar in the Royal Institution laboratories—a time when the fireproof "house," erected in the theatre for the projection demonstrations of this work, at times developed an atmosphere more suited to a salamander than to a human lecture assistant. His promptness in the lecture theatre on one occasion enabled him to quench some liquid hydrogen that became ignited by a spark from an induction coil lead, the majority of the audience being unaware of any danger. This was the period when lecture demonstration as well as laboratory enquiry was dependent for success on the good behaviour of compressors and refrigerators developed under experimental conditions and liable therefore to fail at inopportune moments; and Heath was no stranger to the scurry consequent on such failures involving the rearrangement of the whole schedule of demonstrations for an important lecture. In his lecture notebook for January 18th, 1901, he writes: "On this occasion, after a week of disappointment and breakdowns—first the ethylene pump, then the valve of the H coil breaking off short and then the H coil bursting, and finally on the Friday evening it was discovered that the H valve had broken down again and no liquid hydrogen was obtainable—the lecture experiments were re-organised at the last minute."

This is, however, in contrast to an occasion related recently by Professor D'Arcy Thomson, recalling his first visit to the Royal Institution. He then, he said, asked Heath to listen at the back of the theatre while he read over some of the manuscript for the lecture, to test the carrying power of his voice. After some minutes of this he remarked, "I'm afraid you find this rather dull." To which he had reply, with the most reassuring smile, "Oh! they are often dull, Sir."

Doubtless, however, Heath had sufficiently arduous duties in the laboratory to make such an occasion seem dull by contrast. He was, in fact, involved in a nasty explosion while assisting in the purification of some helium on April 4th, 1906. Some marsh gas had accumulated to an unexpected amount in the concentrated helium material, and a large aspirator full became ignited, with shattering results. Lennox and Heath were both badly cut about the face, Heath indeed losing one eye. Within a short time, however, he recovered a great deal of his laboratory usefulness, and his nerve never failed him.

Heath was granted a well-deserved pension on retirement, and a Managers' minute of November 2nd, 1925, records their appreciation of his long and faithful service in the Royal Institution. His tact and good nature in dealing with difficult people and circumstances endeared him to all who met him—his helpful counsel was often sought; and readily given even to the humblest. He left with all the heartiest good wishes of his colleagues.

Heath had for many years been a gas examiner for the London County Council, and now found a congenial occupation as gas examiner for the County of Hertfordshire. This activity he maintained up to a few weeks before he died, following a hæmorrhage which, sad to say, affected the sight of his remaining eye : but many of his friends know that his calm philosophy kept him in cheerful spirits until—following a few days' unconsciousness—the end came on July 25th.

W. J. GREEN.

IVY WINIFRED ELIZABETH ROGERS.

1900—1934.

IVY ROGERS was the only daughter of Mr. E. W. Rogers, public works contractor of Kensington ; she was born on February 14th, 1900, and was educated at Notting Hill High School. In 1918 she came to Bedford College as junior laboratory assistant in the Departments of Chemistry and held this post until, in 1925, she was promoted to senior laboratory assistant. Whilst serving in this capacity, she commenced to read chemistry and botany in her spare time and as a result of her studies she was successful in 1928 in the Special degree examination of London University and obtained a Special B.Sc. degree in Chemistry, as an internal student. She was elected to the Chemical Society in 1926.

Miss Rogers died on June 27th, 1934, as the result of an accident on June 20th in the Chemistry laboratories of Bedford College.

She had a cheerful and bright personality and she carried out the duties of her office with care and skill. She was very popular with the students and with the members of the staff of the departments of Chemistry of Bedford College. She was generous almost to a fault and she was ever ready to assist all who might ask her help. She had many interests outside her academic work, and among her hobbies may be mentioned her practical interest in the culture of fresh-water fish and her great love of dogs.

Bedford College, by her tragic and untimely death, has lost a very willing, faithful and efficient servant and those who knew her have lost a loyal and staunch friend.

JAMES F. SPENCER.

JAMES ALEXANDER SCHOFIELD.

1869—1934.

J. A. SCHOFIELD was born in London on August 14th, 1869. In 1892 he was appointed Demonstrator in the Department of Chemistry at Sydney University, then presided over by Professor A. Liversidge. The appointment was recommended by Professor T. E. Thorpe and Professor William Ramsay, to whom the selection was referred by the University Senate in September, 1891. Then, as now, the Senate often referred its University appointments for advice to a Home (British) Committee.

The title "Demonstrator" hardly indicates the importance of the position to which Schofield was appointed, for the "Demonstrator" in these days was the chief helper of the Professor. Later on, evening lectures in first-year Chemistry were given, and Schofield was given the title "Demonstrator and Evening Lecturer."

Schofield was a well-informed active man, pleasant in manner, and a great favourite with the students. He took no end of pains to help them, so much so that little time was left to him to carry on research work.

Professor Archibald Liversidge left the University at the end of 1907, and the Senate appointed J. A. Schofield and F. B. Guthrie as Acting-Professors for 1908. In 1909 Schofield was given the title of Assistant Professor of Chemistry, and in 1921 the Senate gave him the title of Associate Professor.

In 1926, after 25 years of service with the University, Professor Schofield resigned his University position to engage in commercial pursuits. He became a partner of Mr. Basil

Turner, A.R.S.M., in the Woolwich Chemical Company. This firm manufactured ether for anæsthesia and various collodion products, and was well known and successful. The company later amalgamated with Messrs. Elliott Bros., Ltd., of Sydney to form the Woolwich-Elliott Chemical Company, of which Schofield was a director.

In his earlier days of service Schofield became an outstanding personality in the University, and his name appeared in the "University Anthem." He helped to carry on the good traditions in work of those pioneers who have set a worthy example to the youth of Australia.

He died in Sydney on May 31st, 1934.

C. E. FAWSITT.

ALFRED WALTER STOKES.

1848—1934.

ALFRED WALTER STOKES, who died at his residence at Park Hill Road, Hampstead, London, on the 24th July, 1934, at the age of 86 years, was a well-known public analyst, and a consultant in all matters connected with the dairying industry. After studying under Williamson at University College and under Huxley and Tyndall at the Royal School of Mines, he became an assistant to Sir Thomas Stevenson at Guy's Hospital and subsequently was appointed public analyst for the districts which afterwards became the Metropolitan Boroughs of Paddington, Hampstead and Bethnal Green and the St. Luke's Division of Finsbury—appointments which he held for nearly half a century, until his retirement a few years back. For a long period he was the consultant to the National Federation of Dairy-men's Associations.

In early life, owing to indifferent health, Stokes made a voyage round the world in a sailing ship, which apparently effected a complete cure, and laid the foundation of that indomitable energy and keenness for work which distinguished him all through his later life and without which he could not have conducted his large practice so successfully and with such satisfaction to all his clients.

To those who were privileged to see him in his laboratory Stokes was a revelation in the way in which he linked keen business methods with scientific accuracy. He found time to work out many original methods and improvements in analytical practice, especially those which tended to save time without the loss of efficiency. The results of some of his investigations will be found in the *Analyst* and other journals. Amongst them may be mentioned those which recorded his work on the Werner-Schmidt process, the adulteration of pepper, and the picric acid test for gelatin. Some, unfortunately, were never published, although often communicated privately to his friends. He was a keen microscopist and for some years was the secretary of the Western Microscopical Club, which numbered Sir William Crookes amongst its members, and was one of the Council of the Hampstead Scientific Society.

He had a broad outlook on life and took great interest in music, spiritualism—from the anti-standpoint—and other subjects outside his daily avocations. To those who worked with him in his laboratory he was always ready to give help and took a keen interest in their advancement. Many of his friends will have pleasant recollections of their relations with him, particularly those who asked his advice and assistance in connection with their work. His knowledge and wide experience were always most willingly placed at their disposal.

In his home, Stokes was an entertaining and charming host. He leaves a widow and two sons, one of whom was his partner in practice. Had he lived another year, he would have celebrated his golden wedding.

J. KEAR COLWELL.

MAX TAGG.

1884—1934.

MAX TAGG, who recently died following an operation for gastric trouble while on a tour in Belgium, had been a Fellow of the Chemical Society since 1914.

Following a successful career at King's College, London, where he obtained the B.Sc. degree in psychology, he held teaching posts successively at Bury St. Edmunds, Dartford, Oxford, Hyde, and finally at the Toxteth Technical Institute, Liverpool, where he was senior assistant master.

In 1910 Tagg was appointed as the first Head Master of the Acton Junior Technical School, when it was opened at the Chiswick Polytechnic. From this small beginning it has continually expanded, under Tagg's wise guidance, until it now claims to be one of the largest of its kind in the country.

During the war, Tagg left his school temporarily, to serve in Belgium in the meteorological section of the Royal Engineers. While at the front he was gassed, the effects of which probably resulted in the trouble which led to his death.

Returning in 1919, he resumed his Head Mastership and carried on his work strenuously until 1928. In that year the Junior Technical School was moved to the new Acton Technical College, where new developments afforded even greater scope for his organising abilities.

Tagg's wide range of interests and activities was well recognised and appreciated by all who came into contact with him. His breadth of knowledge, and interest in so many branches of learning, were amazing. For him, the work of educating those under his care went far beyond the walls of his school. Thus it was that the commencement of the summer vacation found him leading a party of his students into Belgium.

His death put the seal on a life which had been spent in the service of others. All who met him could not but be influenced by the loveliness and charm of his character; thoughtfulness for those around him was ever uppermost in his mind.

R. W. MACADAM.

WILLIAM HENRY WATSON.

1859—1934.

WILLIAM HENRY WATSON, who was born in Sellafield, Cumberland, in 1859, was the younger son of Mr. Henry Hough Watson, an analytical chemist, of Bolton, who was a pupil of John Dalton. W. H. Watson followed in his father's profession and at an early age undertook work in connection with the Manchester Ship Canal; he was only 19 when he first gave evidence on water pollution before Committees of the Houses of Parliament.

Watson made a special study of milk analysis in relation to the variation of quality, and when legislation was introduced dealing with the adulteration of milk, he started the practice of taking comparative samples of milk from the herd from which the suspected sample had been obtained. He was associated with a firm of prominent soap makers in Lancashire and with the firm of Edges, dye manufacturers. For many years, Watson devoted much time to scientific research, especially in relation to physiological chemistry and sanitary science. He contributed papers to various scientific journals, including the *Journal of the Chemical Society*, and was the author of "Science Teachings in Living Nature," published in 1879. In later years he confined his scientific work to conducting meteorological observations.

Watson spent much of his leisure in landscape painting, being for many years a member of the Lake Artists' Society. He was also interested in archaeology. He took a prominent part in local government and occupied many public positions. He was a Guardian at Whitehaven for 41 years, served for many years on the Cumberland County Council Education and Standing Joint Committees, and was a Conservator of the West Cumberland Fishery District. He became a Justice of the Peace in 1893 and attended the Court regularly until a month before his death on May 19th, 1934. Mr. Watson was elected a Fellow of the Society in 1876.

EDWARD ESCOTT WOOD.

1878—1934.

ESCOTT WOOD, who was elected a Fellow of the Society in February, 1911, was a prominent figure in the coking and steel industries of the country.

On completion of his studies at Wesley College, Sheffield, he entered the general offices of Messrs. Charles Cammell & Co., Ltd., prior to spending five years in the laboratories of that firm. He then spent three years in the laboratory of Messrs. Sir W. G. Armstrong Whitworth & Co., Ltd., in Manchester.

In 1904 he joined the Brymbo Steel Co., Ltd., and acted as chief chemist and metallurgist. In 1921 he was promoted to general works manager, which position he held until the works closed down in June, 1931.

In November, 1932, he was appointed consulting metallurgist and assistant to the managing director of Messrs. Earl of Dudley's Round Oak Works, Ltd., and acted in that capacity until his untimely death.

His death will be keenly felt by the Coke Oven Managers' Association, of which he was a member of Council, and acted as President during the year 1926—1927. He had the prestige and welfare of the Association greatly at heart.

F. S. SINNATT.