

OBITUARY NOTICES.

SIR HUGH BELL, BART., C.B., D.L., LL.D., D.C.L.

1844–1931.

HAD it ever been written, an autobiography of Sir Hugh Bell, Bart., would have been the fascinating history of a virile but now extinct Victorian race who made the industrial and public life of the North-east Coast 'betwixt Tyne and Tees' what it became during a century of unparalleled development and prosperity, the eclipse of which has been one of the tragedies of post-war days. And to one who knew him well, and to whom for fifty years he was a great figure, the task of giving Fellows of the Chemical Society what can be only the merest outline of his manifold activities is one of well-nigh hopeless difficulty and compression, to be undertaken only as a pious duty with fear and trembling. And as heredity was so big a factor throughout it all, the story must needs take account of three successive generations.

In the year 1808, which witnessed the outbreak of the Peninsular War and the turn of the flowing tide of Buonaparte's power, Thomas Bell (1774–1841) and his wife Catherine (daughter of Isaac Lowthian of Newbiggin near Carlisle) moved from their native Cumberland to Newcastle-on-Tyne in order that he might enter the service of Messrs. Losh & Co., merchants of that city, who were then launching out into the manufacture of both alkali and iron, an enterprise which, not long afterwards led to the founding of the firm of Losh, Wilson, and Bell and in 1827 of the Walker Ironworks, Tyneside.

In 1835 their eldest son, Isaac Lowthian Bell (1816–1904), having undergone a scientific training abroad, joined his father at the ironworks, where had been installed what then was considered a most powerful rolling-mill capable of an output of 100 tons of iron bars per week. Puddling furnaces were added in 1833, and a rail-mill in 1835; finally, in 1842, owing to a shortage of pig iron, a blast furnace for smelting mill-cinder completed the equipment. And it was in this furnace that the first experimental smeltings of Cleveland ironstone (from Grosmont near Whitby) were effected.

Lowthian Bell married Margaret, the second daughter of Hugh L. Pattinson, F.R.S., the well-known chemist, and on 10th February, 1844, their eldest son, Thomas Hugh Bell, was born at Walker-on-Tyne; on 1st August of the same year, Lowthian and his brother Thomas leased from Christopher Blackett a blast furnace at Wylam-on-Tyne, thus inaugurating what afterwards became the famous firm of Bell Brothers.

In 1850, in partnership with his father-in-law Pattinson, Lowthian

Bell started chemical works at Washington near Gateshead, where he also built a house in which he resided during the next twenty years. Here white lead was manufactured by Pattinson's new process, and in 1860 the smelting of aluminium by St. Clair Deville's process was started.

In 1852 Bell Brothers acquired from the Ward-Jackson family a lease of iron-ore supplies at Normanby in Cleveland, and two years later started their Clarence Works on the north bank of the Tees opposite the then small, but rapidly growing, town of Middlesbrough; thus, together with the rival firms of Bolckow Vaughan & Co. and Cochrane & Co., they inaugurated the great Cleveland iron industry. In his treatise on "Cleveland Ironstone," first published in 1861, Joseph Berwick said: "To Messrs. Bell Brothers, more than to any other firm, is due the merit of having more fully and effectually developed, at this period, the ironstone field of Cleveland."

Such being the circumstances of Hugh Bell's early life, he was clearly marked out for leadership in industry; and, with this in view, he was educated first at Murchiston Castle, Edinburgh, and afterwards at both Paris and Göttingen, where he acquired a broad foundation of general scientific knowledge and fluency in both French and German languages. Thus equipped intellectually, he entered upon his destined career, and soon became both his father's right-hand in the subsequent development of Bell Bros. Clarence Works and a leader in the social and public affairs of Middlesbrough and Cleveland, with which he retained the closest connection throughout the more than sixty years of his active life.

A century ago, only a single farm-house (which on a map published in 1610 was marked 'Middleburg,' an old Saxon manor house) stood where Middlesbrough now is. In 1861 W. E. Gladstone, on a memorable visit to Durham and Cleveland, called it an 'infant Hercules'; to-day it has a population of 120,000 and returns two members to Parliament. And Hugh Bell was long its foremost citizen and did more than any other to foster and guide its development.

He entered its Town Council in 1870, and being twice its Mayor (1874 and 1883) he continued thereon until 1908, after which he was made Mayor yet a third time in 1911. As Chairman of its first School Board, he laid the foundation of the town's excellent educational system; and later he made his special care the development of its new High School, which soon acquired a foremost position among the day schools of its class in the North of England. In connection therewith, he established evening classes in science, and became one of the leading promoters of University Extension lectures. He was also Chairman of the Free Library Committee.

His constant aim was to bring learning and culture within reach of the workpeople of the town; and he founded a scholarship scheme whereby their sons and daughters might pass onwards from the elementary school, through the High School, right up to the Universities. From 1910 to 1928 he was Chairman of the Council of Armstrong College (Durham University), Newcastle-on-Tyne. For some years also he represented the Iron and Steel Institute on the Governing Body of the Imperial College of Science and Technology, London, and from 1912 onwards until his death he was Chairman of the Advisory Council for the Science Museum, South Kensington. In recognition of such distinguished services to science and education, he was made an honorary D.C.L. of Oxford and Durham and an honorary LL.D. of Leeds and Sheffield Universities.

One of the major problems of the rapidly developing Tees-side was that of a good and abundant water supply, not merely for the growing populations of Middlesbrough, Stockton, and Thornaby, but also for the iron and steel works all along the river bank; but a long fight ensued before the Tees Valley Water Board was eventually established in 1876 with Sir Hugh Bell as its first chairman, a position which he continued to hold until 1907. At first the Board pumped water out of the Tees some distance above Darlington; but such supply proving liable to sewage contamination, especially during the autumn flood season—to which was probably due a serious outbreak of enteric fever in Tees-side boroughs in the autumn of 1890—it became necessary to go further up the river beyond Barnard Castle, and ultimately comprehensive works, including large reservoirs in the valleys of the Lune and Balder (tributaries of the Tees) and at Long Newton between Darlington and Stockton, were carried out under Sir Hugh Bell's direction.

He was also actively associated with the work of the Tees Conservancy Commission, on which, from 1876 to 1913, he represented first the Middlesbrough Payers of Dues and then the Middlesbrough Corporation; from 1913 onwards he continued as the representative of the Board of Trade, and in 1902 he succeeded the late Sir Joseph W. Pease as its Chairman. It was largely due to his foresight and energy that the Commission successfully overcame the many serious obstacles to the development of the water-way. Vast tracts of bleak water-logged land near the river-mouth were gradually reclaimed and converted into sites fit for industrial works; the navigable channel of the river was deepened and narrowed until it enabled large ocean liners to trade between Middlesbrough and all parts of the world, and the safety of shipping generally in the river was increased.

Such great services on Tees-side by no means exhausted his public activities, which overflowed into the counties of Durham and Yorkshire. He became a Justice of the Peace in both of them, High Sheriff of Durham in 1895 and Lord Lieutenant of the North Riding of Yorkshire in 1906; in the last-named capacity he was amazingly active in raising and maintaining the new Territorial Force and, during the War, in organising new volunteer units for Kitchener's Army and Voluntary Aid Detachments for wounded soldiers. He was also for many years an Alderman of the North Riding County Council.

His numerous industrial and commercial activities included chairmanships or directorships of Dorman Long & Co. (vice-chairman and finally chairman), the Horden Collieries (chairman), Brunner Mond & Co., the Channel Steel Co., the Yorkshire Insurance Co., the North Eastern Railway, the Forth Bridge Co., the Great Eastern Ferries Co., and Wilsons and the N.E. Railway Shipping Co. His long pre-eminence both as an ironmaster and in industrial leadership was recognised by the award in 1926 of the Bessemer gold medal of the Iron and Steel Institute; he had already been president of the Institute in 1908—10, and for some years up to his death he was chairman of the Statistical Committee of the Federation of Iron and Steel Manufacturers.

Politically, while always a staunch Liberal and Free-Trader, he was critical of party views; thus in 1886 he refused to follow Gladstone's lead in regard to Irish Home Rule, and after 1902—4 he differed with the Unionists' educational and fiscal policies. He unsuccessfully contested Middlesbrough as a Unionist in 1892, and the City of London as a Liberal Free-Trader in 1910. In 1928 he declared: "The fact is I have been drummed out of every party in the State . . . and I have always remained a Liberal through it all. I would vote Tory or anything else if I thought I could thereby advance Liberal principles."

Although never in Parliament, he exercised a great influence upon politics outside it, especially in regard to free trade and national economy, being closely associated in later years with Lord Grey and the Liberal Council. In 1919, as president of the Economic Section of the British Association, he delivered a remarkable address on national finance and taxation in relation to industry; and he was chairman of the National Association of Manufacturers to oppose State interference with trade and to remove barriers to international trade. His consistent and powerful advocacy of free trade was the outcome of a singularly intellectual faith which, based upon the principles of individualistic liberty expounded by John Stuart Mill, faced all developments fearlessly and confidently

while contemning all 'protection' as unworthy of a progressive and virile community. As a public speaker he combined fluency with conciseness and penetrative wit, and could be so witheringly clear and ironical in exposing fallacies and casuistry that few ventured to oppose him in debate. On occasion he would devastate an opponent's position in a dozen or two sentences which left nothing more to be said.

Although inheriting his father's scientific temperament and acumen, and familiar with the main developments in physics, chemistry, and geology, he unfortunately never followed up his father's classical researches upon the chemical phenomena of iron smelting and refining, preferring the administrative side of industry, in which he was great leader. Indeed after his father's death in 1904 metallurgical research in this country became almost entirely concentrated upon alloys, including special steels, doubtless with great profit to engineering but with detriment to our former pre-eminence as pioneers in iron smelting and refining. Some thirty years ago he several times discussed with me the possibility of establishing a real research institution in Middlesbrough to grapple with the problems of the Cleveland iron industry; but after pursuing the project for a while, he concluded that for lack of support it was unlikely to prosper and therefore let it drop, so that Cleveland is yet without a research school of metallurgy. It is to be hoped, however, that the recently established Constantine College in Middlesbrough will ultimately be developed so as to make good the deficiency.

Sir Hugh Bell travelled considerably in the East, and took great pride in the work of his distinguished daughter, the late Miss Gertrude Bell, in Syria and Mesopotamia. In 1925, at the age of 81, he visited Australia to witness the foundation-laying of the great bridge built by Dorman Long & Co. over Sydney Harbour; and he always hoped to live long enough to witness its opening, which took place on 20th March, 1932; but it was not to be.

Early in 1929 he underwent an operation in London, but recovered so well from it that his public activities were scarcely curtailed. On being interviewed, at the age of 86, about a proposal that directors of public companies should retire from executive positions at 65 and from boards at 70, he replied:—"I think people live too long, but they have a right to work as long as they can. I should not mind being put down by anæsthesia, but while I am alive I want to work. What are you going to do with the old men, and why select 65 as the age at which their usefulness ceases?" Certainly his own personality was a convincing refutation of any such hard-and-fast notion.

He died in London, after only a few days' illness, on 29th June, 1931, at the age of 87; and on the same afternoon the Archbishop of York, in an address at Dormanstown, described his passing as that of a great public servant who had "maintained his vigour of intellect and his physical powers until a day far beyond the span laid down to most of us, but throughout the whole of the years he was a man who never once failed in absolute integrity and in eager desire for the public welfare." In regard to his views upon religion and the ultimate meaning of life and human destiny, his intimate friend, Sir Alfred E. Pease, has said that, while humbly agnostic, he allowed neither doubts nor disbelief to prevent his using every power and talent given him for the best and highest purposes.

Sir Hugh Bell was twice married, namely, (i) in 1867, to Mary, daughter of the late Mr. John Shields of Newcastle-on-Tyne, who died in 1871 and by whom he had one son, Colonel Maurice Hugh Lothian Bell, who succeeded him in the baronetcy, and a daughter, the late Gertrude Bell (*d.* 1926), distinguished for her work and travels in the Near East; and (ii) in 1876, to Florence Eveleen (*d.* 1930), daughter of the late Sir Joseph Olliffe, who afterwards became distinguished both as a novelist and for her "Life and Letters of Gertrude Bell," and by whom he had a son—the late Rev. Hugh Lothian Bell (*d.* 1926)—and two daughters, one of whom married Vice-Admiral H. W. Richmond and the other Sir Charles P. Trevelyan, P.C.

WILLIAM A. BONE.

M. M. PATTISON MUIR.

1848—1931.

MATTHEW MONCRIEFF PATTISON MUIR, M.A., and also Senior Fellow of Gonville and Caius College, Cambridge, died at his home at Epsom on September 2nd at the age of 82.

He was the son of William Muir, a merchant in Glasgow, and was born in that city on November 1st, 1848. He was educated at the High School, the University of Glasgow, and at Tübingen University. Owing to the outbreak of the Franco-German War the students were dispersed and he had to return to Scotland. From 1871 to 1873 he was Demonstrator in Chemistry at Anderson's College, Glasgow, under the late Professor Sir T. E. Thorpe and proceeded to Owens College, Manchester, where he was Demonstrator and Assistant Lecturer under the late Professor Sir Henry Roscoe. In 1877 he was recommended to the Governing Body of Gonville and Caius College for the Praelectorship in Chemistry by Dr. Rawson, on old Caius on the staff of Owens College. The degree

of Hon. M.A. was conferred on Muir in 1880. In 1881 he was elected a Fellow of the College and at his death he was the Senior Fellow. He was appointed to the Governing Body in 1893 and continued a member until his retirement in 1908 from active work as Lecturer and head of the College Chemical Laboratory.

With a relatively high percentage of medical students in the College Muir's work as a teacher was heavy, especially as for a number of years provision was made by the enlargement of the College Laboratory for the teaching in chemistry of candidates for Honours degrees. During the thirty years of his Praeceptorship hundreds of students were taught by him; with many of these he was in touch even after his retirement and he was very affectionately remembered by them. "Patty" Muir was always a favourite as lecturer and demonstrator. His style was clear and forcible and his Scottish accent was marked when he was emphasising important conclusions. In his lectures, which were well attended, he was always at pains to take a broad view of the subject and to insist on principles rather than details. It is related that after one of his discourses the following lines were found on a scrap of paper left on a desk :

Here is a little lecturer
Quite of the smallest size.
Let's put him in a beaker glass
And bid him generalise.

Muir was elected a member of the Chemical Society in 1871 and served on the Council as an ordinary member from 1890 to 1894. He was elected a Fellow of the Royal Society of Edinburgh in 1873. Between 1876 and 1888 he, either alone or with students, published in the *Journal* eighteen papers on the properties of bismuth compounds. He gave always encouragement to young graduates to undertake chemical research, although at that time there were no postgraduate studentships in chemistry in Cambridge.

Muir was one of the pioneers in the development of the School of Chemistry in Cambridge and was an active supporter of Dr. Ruhemann in the teaching of Organic Chemistry in the University, placing the old College Laboratory at his disposal at a time when there was serious friction between him and the University Chemical Laboratory authorities.

The writer of this notice was fortunate in being associated with Muir both as student and as colleague in the College Laboratory for fifteen years, and it is difficult for him to express adequately his gratitude for the encouragement and sympathy which he received : this feeling must be shared by all who came in contact with Muir. Dominated by his personality, the atmosphere in the Laboratory

was very friendly, and in the small balance room attached to the advanced laboratory he presided every afternoon at tea when teachers and students came together.

The Master of Pembroke College, Cambridge, who was for some years lecturer and demonstrator there, has kindly supplied the following reminiscences : " He had a quaint half querulous, half humorous way of commenting on any breaches of laboratory order ; thus one day, finding a bench in great confusion, his comment, in his characteristic Scottish accent, was ' Dear ! Dear ! What sow has been making this mess ! ' As one of the women students who happened to be within earshot was responsible, the remark was more apposite than polite. Of a student distinguished neither for clear thinking nor for tidy working, he observed ' brains in a muddle, place in a puddle. ' "

Muir took a keen interest in politics and as President of the local Liberal Association he did much speaking and organising work for the cause of the party ; moreover he was an ardent Gladstonian and a strong Home Ruler.

As a writer he was more successful than as a research worker. His greatest success was a treatise on " The Principles of Chemistry," published in 1884, which went to a second edition in 1889. In 1888, in collaboration with Dr. Forster Morley, he published a new edition of Watts' " Dictionary of Chemistry." By a skilful co-ordination of a vast amount of material Muir and Morley presented a valuable and up to date abstract of the science.

Muir was also a pioneer in teaching methods, and his " Elements of Chemistry " with Dr. Slater and " Practical Chemistry " with the late D. G. Carnegie, a former lecturer and demonstrator, and afterwards a brilliant University Extension Lecturer, aroused much criticism among his contemporaries.

As a writer on the history of chemistry and alchemy, his skill is to be seen in " The Alchemical Essence " (1894) and " Roger Bacon, his Relations to Alchemy and Chemistry " (1914).

When the College Laboratory was closed Muir left Cambridge and went to live at Farnham and afterwards at Norwich, where he did literary work, giving lectures and helping the public libraries of the city. In 1924 he published " Men and Women of Letters in Norwich a Hundred Years Ago."

Later he removed to Epsom to be near his elder son. In 1873, Muir married Florence, daughter of Mr. Joseph Haslam, who survives him. They had two sons, both old Caians ; the elder is Vicar of Epsom and the younger is Rector of St. James's, Edinburgh.

Mr. and Mrs. Muir were good friends to the writer and his wife while they were in Cambridge. There was always a kindly welcome

to their home with that freedom and lack of restraint which friendship brings. After the writer had left the town a regular correspondence was maintained and each year up to last Christmas letters were exchanged which showed the happiness of his married life and his courage in facing the trials of old age.

Sir Richard Threlfall, Hon. Fellow of Gonville and Caius College, Cambridge, has contributed the following reminiscences of his old teacher :

“ My first visit to Gonville and Caius College was when I came up as a candidate for a scholarship in March 1880. Mr. Pattison Muir was the examiner both in Physics and Chemistry and later in Chemistry for the Tripos. At that time he was Praelector in Chemistry and had charge of a small laboratory in Green Street belonging to the College. Muir used to lecture industriously. There was a course of lectures addressed primarily to medical students and a more advanced course which was in my time attended by students for Honours Degrees of the College and by a sprinkling of men from other Colleges.

“ Sir William Tilden informed me many years later that at one time Muir had been very active in sending papers to the Chemical Society, mainly concerned with compounds of bismuth, so that he got to be known in chemical circles as ‘ Bismuth Muir.’

“ Muir was also very attentive to the students in the Laboratory, who were mainly engaged in preparation for medical examinations, and he generally had some little bit of work of his own going on, but his chemical aptitude lay rather on the literary side. He was one of the most industrious people reading up the literature that I ever met. My own experience of him as a student was that he was a most kindly, painstaking and hospitable man, and he and his wife, a charming woman, always had a warm welcome for me when I called at 8 Brookside, which was his Cambridge address. In this way I came to know that Muir was a deeply religious man, though his views would probably have lacked acceptance by the authorities of any of the Scottish churches.

“ He was always very interested in new light on any subject and, generally speaking, was a most active-minded man, though in controversy—in which he delighted—his personality sometimes lacked the forcefulness of that of his opponents.

“ I consider that I received the most useful part of my chemical education in Muir’s laboratory. He used to go away in the vacation and leave me with the laboratory boy, the keys, and a set of orders ready signed. My experience was that under this system I was able to do about ten times as much work as I was able to do in the splendid Strasbourg Laboratory. Muir was also very good in

encouraging anybody with any chemical ideas to work in his laboratory; indeed I once assisted him in some work that he was doing himself, but nothing ever came of it.

“I do not think that Muir ever took any exercise except what was involved in walking between Brookside and Green Street and I never heard him admit that he played any games. He was a most loyal, hardworking son of the College, in which he took great pride, and was altogether a most charming, learned and devoted friend and the world is poorer for his death.”

A contribution from another old pupil, Dr. A. P. Laurie, formerly Fellow of King's College, Cambridge, confirms the great influence Muir exerted as a teacher.

“I first met Pattison Muir when I entered as a student at Cambridge, and worked in his laboratory during all the time I was an undergraduate. We soon became close personal friends and his house was always open to his students. To many besides myself Pattison Muir and his wife must be among the pleasantest recollections of their life in Cambridge. The dons' wives were always objects of terror to the undergraduate. Formal calls had to be made with fear and trembling. Pattison Muir's house was a real home to the shy undergraduate. Intellectually Muir, as behoved his Scottish birth, was more a metaphysician than a typical man of test tubes and reagent bottles. His interest in science was philosophical. He was before his time as a man of science, and if he were beginning his career to-day would have attained the necessary mathematical equipment and plunged joyfully into modern physics. He attempted to bring together such generalisations as were possible but there was little for a philosophical mind to feed on. His outlook on life was gentle, brave, humorous, and slightly cynical in the best sense of the word. He never lost his courageous grip on life and his capacity to meet old age and suffering with a bright, slightly amused outlook both on himself and the universe. Of his home life I can only say that when I wrote to tell him that I was getting married he replied that no one knew what love really was until they had been married twenty years.”

R. S. MORRELL.

JOHN BALDWIN SHOESMITH.

1896-1931.

JOHN BALDWIN SHOESMITH, the son of Mr. Frank Shoesmith of Burnley, received his early education at St. Peter's Day School, passing on to the Grammar School in 1913. For some time he was articled to Major Raymond Ross, at the Burnley Public Analyst's

Laboratory, and attended classes at the Municipal College. In 1915 he entered the Honours School of Chemistry in the University of Manchester and took his Honours Degree in 1919, when he was placed second on the list and awarded a graduate research scholarship.

The problems assigned to him at the beginning of his career as an investigator proved to be far more difficult than had been anticipated, but, resisting all temptation to abandon the line of investigation on which he had started, he concentrated his attention on improvements in technique and within two years had not only solved his problems but had also opened up the way to numerous extensions which he afterwards exploited. An immediate outcome of his experiments during this period was the discovery of striking "alternate effects," in the series of methoxybenzyl bromides.

In 1921 he was appointed Lecturer in Organic Chemistry in the University of Edinburgh. To his work in this post he brought the utmost enthusiasm. His zeal both as an investigator and as a teacher was unquenchable, and his success in training post-graduate students in the methods of organic chemical research was conspicuous. The illness of a senior colleague threw an abnormal amount of teaching work on his shoulders during a long period, but this led to no relaxation in hours which he devoted to the prosecution of research.

His investigations led to numerous papers, in many of which his pupils' names appeared as joint authors. The more important of these publications were concerned with "alternate effects" in halogeno-derivatives of the aromatic series, and much of the work demanded great care and patience in the preparation of the compounds required. The full theoretical significance of the regularities observed during its course is not yet clear even from the qualitative aspect.

The visible evidence of his growing constitutional weakness during the past three or four years gave infinite distress to his colleagues and many close friends, and his career, begun with so much promise, ended tragically in the autumn of 1931.

Dr. Shoesmith was for some time a member of the choir at Edinburgh Cathedral. He had a fine tenor voice and sang solos on various important occasions.

He married Ethel Hargreaves, of Burnley, who survives him.

Dr. Shoesmith joined the Chemical Society in February, 1923.

A. L.
