

THE RIGHT HON. LORD KELVIN, President,
in the Chair.

Chairman's Opening Address.

(Read December 4, 1899.)

THE PRESIDENT, on opening the Session, said—During the past Session 62 papers have been read. Of these, 14 belong to the department of Physics, 10 to Mathematics, 6 to Chemistry, 4 to Oceanography, 1 to Geology, 5 to Natural History, 4 to Comparative Anatomy, 3 to Anatomy, 6 to Physiology, 6 to Meteorology, and 1 to Literature.

Since the commencement of the Session 21 Fellows have been added to our numbers. Of these, 3 are Doctors of Laws or Doctors of Science, 5 are Doctors of Medicine, 4 are Professors.

But during the same period 18 Fellows have been taken from us by death. They include :

Sir JOHN FOWLER, who was a representative of modern railway achievement by his works in England, India, and Egypt, and in conjunction with Sir Benjamin Baker designed the Forth Bridge, the greatest railway bridge which the world has yet seen.

Professor ALLMAN, who held the Chair of Natural History in the University of Edinburgh, whose *magnum opus* is on the Gymnoblastic or Tubularian Hydroids.

Professor RUTHERFORD, who for twenty-five years held the Chair of Physiology in the University of Edinburgh, and whose eminence as a teacher of that science was duly recognised, and led to an extraordinarily large attendance at his lectures.

Sir JOHN STRUTHERS, who was appointed to undertake the duties of the Chair of Anatomy in Edinburgh University in the absence of Professor Goodsir, and who afterwards was Professor of Anatomy in the University of Aberdeen.

Dr JOHN MOIR, who discharged the duties of the Chair of Midwifery in Edinburgh University in the interval which elapsed between the death of Professor Hamilton and the appointment

of Sir James Simpson, and was remarkable for his skill as a Physician.

Mr G. F. LYSTER, who was Engineer-in-chief to the Docks of the Mersey, and who designed a system of sluicing for them.

Mr DAVID CHALMERS of Redhall, nephew of the great Dr Chalmers, who was deeply interested in this Society, and was also much occupied with antiquarian pursuits.

Mr ROBERT COX was Member of Parliament for South Edinburgh, took a great interest in Astronomy, and presented several valuable gifts to the Town Observatory.

Professor BLAIKIE, who has shown ability as a biographer, and who wrote a small work, entitled *Better Days for the Working Classes*, of which nearly 100,000 copies have been sold.

Mr JAMES SIMPSON FLEMING, who held the responsible position of Cashier and Manager of the Royal Bank of Scotland.

Professor Ewart has entered into an interesting line of research, and given us several remarkable papers on the effects of the crossing of animals, heredity and reversion, which promise concurrently to settle experimentally the vexed question of telegony.

In Physiology, we have had papers on the metabolism due to Fever, by Dr Noël Paton; on the Organs of *Ceratodus*, by Dr Gregg Wilson; on Changes in the Newt's Stomach during Digestion, by Professor Carlier; on the Life Histories of the Cod and the Whiting, by Dr Masterman; on *Duplicitas Anterior*, by Dr Bryce; on the Development and Morphology of the Marsupial Shoulder Girdle, by Dr Robert Brown; and on the Restoration of Coordinated Movements after Nerve Section, by Dr Robert Kennedy.

Sir John Murray has given papers on the Temperatures over the Floor and on the Surface of the Ocean, and has favoured us with the results of his Bathymetrical Survey of the Scottish Lakes.

We have had from Dr Flett an exhaustive paper on the Trap Dykes of the Orkneys, in which he confirms the views of Sir Archibald Geikie on the same subject; and from Mr A. C. Seward and Mr A. W. Hill, a paper on the *Lepidodendron* Stem from the Calcareous Sandstone of Dalmeny.

The Meteorology of Ben Nevis has been further illustrated by Mr Omond, Mr J. Y. Buchanan, and Dr Buchan.

From Prof. A. Crichton Mitchell we have had a paper on the Convection of Heat.

Professor Little has given us a paper on Knots, which used to be a favourite subject with Professor Tait, and treated non-alternate \pm Knots of the Tenth Order. We are thankful to Professor Little for a paper of this kind, which involves prolonged labour.

From Dr Muir we have had many papers dealing with abstruse theorems in Determinants.

Sir William Turner has given us papers on the Craniology of certain Tribes of the North-East Frontier of India and of Burma, and on the Decorated Skulls from New Guinea, with their mysterious markings.

Dr Baildon has favoured us with a literary paper—and I wish we had more literary papers—on the Modification of Vowel Sounds by the consonants with which they are in apposition, and has illustrated the subject by the Rimes in the Poems of the Scottish poet Dunbar, of whom it may be said, as of another Scottish poet of the same period :—

“ Still is thy name of high account,
And still thy verse has charms.”

The following Address was presented to Sir George Gabriel Stokes, on the occasion of the Jubilee celebration of his appointment as Lucasian Professor of Mathematics in the University of Cambridge :—

“ To Sir GEORGE GABRIEL STOKES, Baronet, Lucasian Professor
of Mathematics in the University of Cambridge.

“ On behalf of the Council of the Royal Society of Edinburgh, we congratulate you heartily on the approaching completion of the fiftieth year of your tenure of the Lucasian Professorship. We desire to express our conviction that much of the great advance in mathematical and experimental development of Natural Philosophy which has been made in the nineteenth century is directly, or indirectly, due to you. Your published writings on Mathematical and Experimental Physics form an imperishable monument

to your persevering devotion of labour and genius to the increase of knowledge during fifty-seven years.

“We rejoice to know that you enjoy good health and undiminished activity in scientific work. We hope that these may be continued to you for many years to come.



(Signed) “KELVIN, *President*.

(„) “P. G. TAIT, *Secretary*.

“May 19th, 1892.”

Three of the Fellows of the Society—Sir John Murray, Professor D’Arcy Thompson, and Mr Walter E. Archer—were appointed representatives of the British Government at the International North Sea Conference on Northern Fisheries.

We have had, at the request of the Council, three Addresses, of which the first was given by Admiral Makaroff on the construction of a ship, said to be the strongest in the world, made for the Russian Government for the purpose of breaking up the ice which for several months of the year blocks the Russian ports, and he insisted on the desirableness of ascertaining the temperatures and currents of the ocean.

Mr Andrews, of the British Museum, delivered the second special Address, in which he described the Geological Structure of Christmas Island, with its rich deposits of phosphate of lime, and several new genera and species of animals which he found there.

Professor Knott gave the third Address, which was on Earthquake Vibrations, their Propagation through the Earth, and their bearing on the Earth’s internal state.

Dr Muir and Lord M’Laren have given Papers developing that branch of Mathematics known as Determinants, and Professor Tait has not been forgetful of Quaternion problems, and has treated of homogeneous strains.

The following brief obituary notices of Fellows of the Society, who have died during last Session, are by no means intended to supersede longer and more complete notices should such be furnished by the relatives and friends of the deceased.

GEORGE JAMES ALLMAN was born at Cork in 1812, and was educated at the Belfast Academical Institution. He took his

degree of M.D. in the University of Dublin, and also in the University of Oxford in 1847. During the year of his graduation he was appointed Regius Professor of Botany in Dublin University, and ten years later he resigned the Dublin chair for that of Regius Professor of Natural History in the University of Edinburgh, with which was incorporated the Keepership of the Natural History Museum. He resigned his Chair in 1870. Allman's first Paper was a botanical one, "On the Mathematic Relations of Cells of Plants." He wrote on the Crinoids, but his greater reputation rests upon his investigations into the Classification and Morphology of the Coelenterata and Polyzoa. His *magnum opus* was on the "Gymnoblastic or Tubularian Hydroids." This monograph ranks among the most perfect and philosophic of all modern zoological treatises. He was one of the most prolific of naturalists, and between the years 1835–1873, and apart from his monographs, produced more than 100 papers. He was elected a Fellow of the Royal Society in 1854, and in 1873 received the Society's Gold Medal. He was elected a Fellow of our Society in 1856, and in 1877 was awarded the Brisbane Gold Medal. In 1878 he was awarded the Cunningham Gold Medal of the Royal Irish Academy, and in 1896 the Gold Medal of the Linnean Society, of which he had been President. He died on 24th November 1898.

Sir JAMES BAIN was a native of Glasgow, and was born in the year 1818. He started ironworks at Whitehaven, but always retained his connection with Glasgow. He was elected Lord Provost of Glasgow in 1874. Sir James interested himself much and successfully in extending the dock accommodation of Glasgow. In 1891 he was returned Member of Parliament for Whitehaven. In 1877 he received the honour of knighthood. He took a great interest in scientific matters, and was a Fellow of the Royal Geographical Society and a Fellow of the Scottish Society of Antiquaries. He was elected a Fellow of this Society in 1875, and died on 25th April 1898.

Dr CAMPBELL BLACK was born in Oban about fifty-five years ago, and loved the Highlands, being at his death President of the Glasgow Gaelic Society, and a member of many other Celtic bodies. He held opinions antagonistic to those of the great majority of medical men, and lost no opportunity of making an

onslaught on what he called Listerism and on Koch's discoveries. One of his favourite sayings was that "Medicine is no more an exact science than millinery." For some years he was Professor of Clinical Medicine in Anderson's College, Glasgow, but owing to his scorn for theories which were held by his colleagues and medical scientists, he was not reappointed in 1897. He was elected a Fellow of this Society in 1896, and died on the 20th December 1898.

Emeritus Professor BLAIKIE was the son of James Blaikie of Craigiebuckler, Aberdeenshire, advocate, and was born at Aberdeen in 1820. His father was Provost of Aberdeen, and inaugurated the scheme for rebuilding Marischal College. The late Professor was educated at the Aberdeen Grammar School and in Marischal College. He was one of the famous Melvin's most brilliant pupils. In his twenty-third year he was ordained minister of the Parish of Drumblade, but in 1844 he undertook the founding of a new Free Church 'charge' at Pilrig, of which he was the successful pastor for twenty-four years. In 1864 the University of Edinburgh conferred on him the degree of D.D., and in 1872 Aberdeen honoured him with the degree of LL.D. In 1868 he was appointed to the Chair of Apologetics and Pastoral Theology in the New College, Edinburgh, a position which he held for twenty years. He is the author of numerous works on theological and philanthropic subjects, among others of *Heads and Hands in the World of Labour*, and *Better Days for the Working Classes*, of which nearly 100,000 copies were sold. From similarity of name he was frequently mistaken for Professor Blackie, the Professor of Greek, and on one occasion, after a speech by the Greek Professor in praise of the Drama, he received a letter from an Irish female correspondent, saying that as he had recommended his divinity students to attend the theatre she would henceforth leave his publications severely alone. He kept up his scholarship to the end, and after his retirement from his chair spent part of his leisure in translating into Latin verse some of our modern hymns. He was elected a Fellow of this Society in 1862, and died on 11th June 1899.

Mr DAVID CHALMERS of Redhall was the son of Mr Charles Chalmers, the founder of Merchiston Castle Academy, and was born at Glasgow in 1820. He was proud of being the nephew of

the great Dr Chalmers. He attended his father's school, and afterwards completed his education at Edinburgh University. He entered into partnership with the Messrs Cowan, papermakers, and subsequently took over the business. He was a Fellow of the Scottish Society of Antiquaries, antiquarian research, indeed, occupying much of his leisure time. He died on 2nd May 1899. He was elected a Fellow of this Society in 1866.

ROBERT COX, M.P., was born at Gorgie House in May 1845, and was educated at Loretto School, afterwards at the College Hall, St Andrews, and the University of Edinburgh. In 1892 Mr Cox stood as candidate for the Kirkcaldy Burghs, but was unsuccessful. In 1895 he stood as candidate for South Edinburgh, and gained the seat. He was a man of wide culture, had a considerable knowledge of mechanics, and his love of music induced him to present St Cuthbert's Church with a magnificent organ. He took a deep interest in the development of the City of Edinburgh Observatory, and presented it with a valuable reflecting telescope of 13 inches aperture, equatorially mounted. He married the daughter of Dr Hughes Bennett, Professor of Medicine in the University of Edinburgh. He died on 2nd June 1899. He was elected a Fellow of this Society in 1879.

Dr JOHN DUNCAN was educated at the High School of Edinburgh, and thereafter graduated with distinction in the University of Edinburgh in 1862. He became a Fellow of the Royal College of Surgeons in 1864, and eventually filled the presidential chair of that body. He was in charge of wards in the Infirmary for twenty years. He gave courses of systematic lectures in the extra-mural school, and finally attracted one of the largest classes of surgery there. He died on 24th August 1899. He was elected a Fellow of this Society in 1870.

JAMES SIMPSON FLEMING. Born at Forfar in 1828, he began business as a solicitor in Glasgow. In 1854 he accepted the appointment of Law Officer of the Western Bank, and subsequently, when only twenty-nine years of age, he was appointed manager *pro tempore* of the bank, which had to close its doors in 1857. He was one of its four liquidators. From 1853 to 1871 he was a partner in the legal firm in Glasgow of M'Gregor, Stevenson & Fleming, and during nearly the whole of that period he was Secretary of the

Glasgow Chamber of Commerce. About the end of 1871 the Directors of the Royal Bank of Scotland invited him to become their Cashier and General Manager. In 1892 he resigned this office. He died on 8th July 1899. He was elected a Fellow of this Society in 1876.

Sir JOHN FOWLER was the eldest son of the late Mr Fowler of Wadsley Hall, Sheffield. His earliest important appointment was on the Stockton and Hartlepool Railway, of which he was resident engineer. At the age of twenty-seven he was selected as engineer for constructing the large group of railways known as the Manchester, Sheffield and Lincolnshire line, which includes tunnels, viaducts and bridges, in addition to a dock, floating pier, large hydraulic works and steam ferry. Of these vast and multifarious works he had the sole engineering charge. A mere catalogue of the works executed by him from this date would occupy more space than can be afforded here. The Forth Bridge was his greatest work, in the construction of which he was assisted by Sir Benjamin Baker. He must have been gratified in his old age in seeing this and his other works, in full operation, ministering to the social and commercial needs of the country.

In 1866 he was elected President of the Institution of Civil Engineers. In 1885 he was created a K.C.M.G., and in 1890 he was promoted to a baronetcy. In recognition of his services to the science of engineering, the University of Edinburgh conferred on him the degree of LL.D. in 1890. He died on the 20th of November 1898. He was elected a Fellow of this Society in 1887.

Dr JOHN MOIR was born in the French prison of Verdun, for it was there that his father, a naval surgeon, taken prisoner during the Napoleonic wars, was joined by his mother, who remained in captivity with her husband until such time as an exchange of prisoners was effected. He graduated as Doctor of Medicine in Edinburgh in 1828, and became Assistant to Professor Hamilton, predecessor of Sir James Simpson, and conducted the class of midwifery in the University between the death of Hamilton and the appointment of Sir James. He was successively President of the Obstetrical Society, the Medico-Chirurgical Society, and the Royal College of Physicians. He died at the age of ninety-two on 14th May 1899. He was elected a Fellow of this Society in 1865.

Professor WILLIAM RUTHERFORD was born at Ancrum Craig, Roxburghshire, on 20th April 1839. He was educated at Jedburgh Grammar School, and went through the medical course of study in the University of Edinburgh. After a distinguished career as a student, he graduated with honours in 1863, and obtained a gold medal for his thesis. He taught Anatomy for a year in Surgeons' Hall under Dr Struthers. Thereafter he studied at the great Medical Schools of Berlin, Leipzig, Vienna and Paris. In 1865, at the age of twenty-six, he was appointed University Assistant to Professor John Hughes Bennett. In 1869, when only thirty years old, he was appointed Professor of Physiology in King's College, London, and during the last three years of his tenure of that chair he was Fullerian Professor of Physiology in the Royal Institution, London. When Professor Bennett resigned the Chair of Physiology in the University of Edinburgh, Professor Rutherford was appointed his successor. He will probably be judged in the future by his ability as a teacher rather than by devotion to original research, though his work on striped muscle attracted attention both in this country and on the Continent. His knowledge of all branches of physiology was encyclopædic. His principal work was entitled *Actions of Drugs on the Secretion of Bile*. He was also the author of *Outlines of Practical Histology* and a *Text-book of Physiology*. He died on 21st February 1899. He was elected a Fellow of this Society in 1869.

Sir JOHN STRUTHERS was born in 1823 at Brucefield, near Dunfermline. He attended the medical course in the University of Edinburgh, and graduated there in 1845. He was Demonstrator of Anatomy in the University, and was subsequently appointed Lecturer on Anatomy in the Extra-mural School. In 1863 he became Professor of Anatomy in the University of Aberdeen. In that capacity he succeeded in increasing the anatomy accommodation; he had new dissecting-rooms built, he secured a new building for an anatomical museum. He prepared and collected museum specimens, dissections, casts, models, and animal skeletons. In his more advanced course of Osteology he expanded his human into comparative anatomy. In 1889 a failing voice and general weakness induced him to give up his professorship. He then returned to Edinburgh, and took a prominent part in the management of the

hospitals both of Edinburgh and Leith. His contributions to Anatomy are numerous. In 1885 Glasgow University conferred on him the degree of LL.D., and in 1898 the Queen conferred on him a knighthood. He died on 24th February 1899. He was elected a Fellow of this Society in 1894.

GEORGE WILLIAMSON, who was elected a Fellow of this Society in 1888, was a member of the Greenock Faculty of Procurators. For over fifty years he performed gratuitously the duties of secretary to the Greenock Infirmary. He was the author of several books dealing with local history, his works entitled *Old Greenock* and *Memorials of James Watt* being his principal productions. He died in his eighty-sixth year.