

CHAPTER XXVI

INFLUENCE OF SCOTTISH GRADUATES OUTSIDE SCOTLAND IN THE NINETEENTH CENTURY

BY the beginning of the nineteenth century the schools of medicine at Edinburgh and Glasgow had reached a stage of development in advance of most of those connected with the London hospitals, and there were as yet few places of medical instruction in the English provinces or colonies.



ROBERT WILLAN (1757-1812)

In Edinburgh especially, the outstanding members of the medical profession devoted much time and energy to the instruction of students. This had the effect both of inducing a large number of Scotsmen to adopt medicine as a profession and also of drawing many young men from various parts of England and from the British dependencies to pursue their studies at Edinburgh, Glasgow and, later in the century, also at Aberdeen.

Many of these men after graduation joined the public services or became distinguished practitioners and teachers of medicine in other parts of the world, so that in the course of the nineteenth century the influence of Scottish medicine was very powerful and widespread.

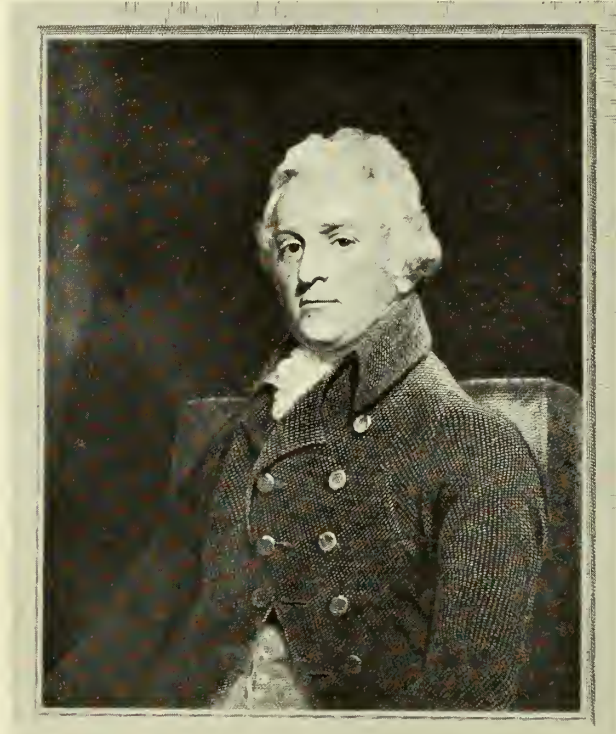
Scottish Medical Graduates' Activity in Other Schools

During the nineteenth century numerous practitioners who attained to eminence in London and English provincial cities had received their medical training in one of the Scottish universities.

Robert Willan (1757-1812), the founder of modern dermatology, graduated M.D. at Edinburgh in 1780. His great work "On Cutaneous Diseases" established a new classification for maladies of the skin, and Willan, by collating the old Greek, Latin and Arabic terms, established a definite classic nomenclature which is still more or less in use.

London
medical
schools

His contemporary, David Pitcairn (1749–1809) was born in Fifeshire, and studied medicine in Glasgow and Edinburgh, though he ultimately graduated at Cambridge. Starting practice in London he became one of the best-known physicians in the metropolis, and acted as physician to St. Bartholomew's



DAVID PITCAIRN (1749–1809)

Hospital. Along with John Abernethy, he is generally regarded as one of the founders of the modern St. Bartholomew's Hospital Medical School.

St. George's
Hospital

He was succeeded in practice by Matthew Baillie (1761–1823).¹ Baillie was born at Shotts, and educated at Hamilton and at Glasgow University, although most of his medical knowledge was derived from the tuition of his uncle, William Hunter. He succeeded, along with Cruickshank, to his uncle's museum and class and, largely through the influence of his other uncle, John Hunter, became physician to St. George's Hospital, where John Hunter was surgeon. His work on "Morbid Anatomy," illustrated with copper plates by William Clift, John Hunter's assistant, was the first attempt to treat pathology as a subject by itself, describing the appearance of the morbid organs in a systematic manner as in the modern text-book. Baillie had an extensive aristocratic and royal practice.

¹ Wardrop: "Works of Matthew Baillie," London, 1825.

Henry (later Sir Henry) Halford (1766-1844) studied at Edinburgh and was later physician to Middlesex Hospital; after the death of Matthew Baillie he is said to have had the largest practice in London. James Hope (1801-1841) studied at Edinburgh, where he graduated M.D. in 1825; he became physician to St. George's Hospital; wrote on heart diseases, and was



MATTHEW BAILLIE (1761-1823)

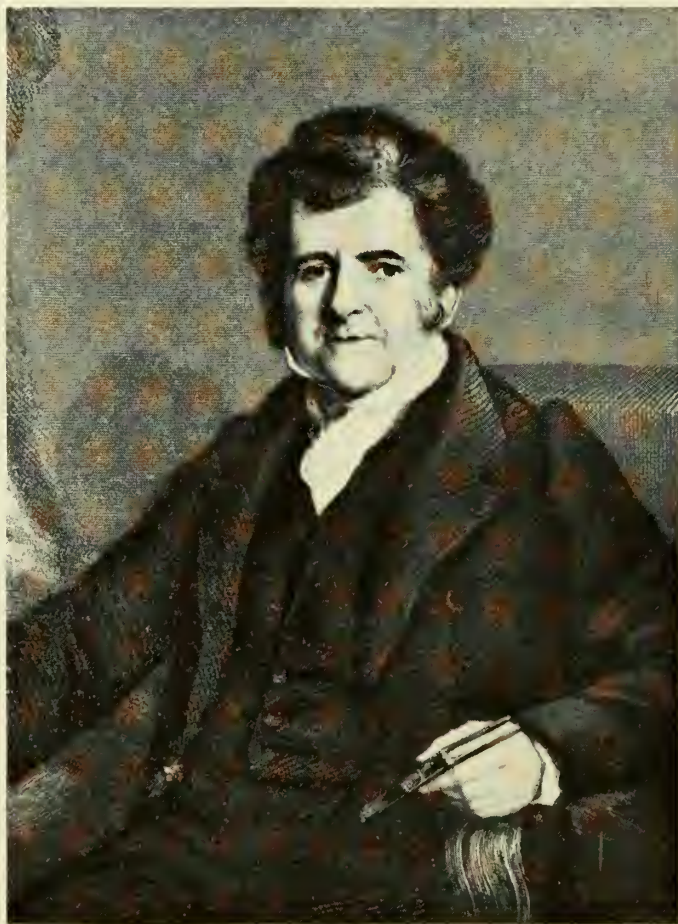


JAMES COPLAND (1791-1870)

a pioneer on auscultation. Neil Arnott (1788-1874) was born at Arbroath and graduated M.D. at Aberdeen in 1814; he practised in London and is believed to have been the first, in 1832, to introduce the water-bed; he wrote various works dealing with physics, and, along with Lord Brougham, Sir Charles Locock, Sir James McGrigor, Sir James Clark and others, was one of the founders of London University.

A prominent feature of medical work in the early part of the nineteenth century was the publication of systems and encyclopædias of medicine. One of the first and most remarkable of these was the "Dictionary of Practical Medicine," compiled entirely by James Copland (1791-1870). He was born in Orkney, and had graduated M.D. at Edinburgh in 1815, settling a few years later in London, where he had a considerable practice. The dictionary was described by Sir Norman Moore as a marvel of industry, whose 3509 pages in double column, if placed end to end, would have been more than a mile long, and is likened by him to the "Continent" of Rhazes.

Thomas Bradley (1751-1813) graduated M.D. at Edinburgh in 1791, and became physician to Westminster Hospital. William Richard Bashan (1804-1877) studied at Edinburgh and graduated M.D. there in 1834; he became physician to Westminster Hospital and a well-known authority upon renal diseases.



RICHARD BRIGHT (1789-1858)

Guy's
Hospital

At Guy's Hospital, Richard Bright and Thomas Addison were Edinburgh graduates who attained great distinction as teachers and investigators. Richard Bright (1789-1858) graduated M.D. at Edinburgh in 1812, and as a physician at Guy's Hospital is said to have spent about six hours daily in his wards, post-mortem room and lecture theatre. He was the leading London consultant in his day, and his most celebrated work is the "Reports of Medical Cases" (1827) containing his original description of nephritis. Thomas Addison (1793-1860) graduated M.D. at Edinburgh in 1815. He lectured on materia medica at Guy's

Hospital, attracting a large class, and was physician to the hospital from 1837, as well as joint lecturer on medicine with Bright. His best-known work is the monograph "On the Constitutional and Local Effects of Disease of the Suprarenal Capsules." He had also published a text-book "Elements of the Practice of



THOMAS ADDISON (1793-1860)

Medicine" (1836), in which several diseases were for the first time described from his own observation.

Another early physician to Guy's Hospital and lecturer on chemistry was Alexander John Gaspard Marcet (1770-1822), who had graduated M.D. at Edinburgh in 1797. James Curry (*ca.* 1763-1819) studied at Edinburgh, where he graduated M.D. in 1784; he practised in London, and became physician to Guy's Hospital, where he was familiarly known as "Calomel" Curry. Astley (later Sir Astley) Cooper (1768-1841) studied for a time at Edinburgh and later

in London; he acted as surgeon to Guy's Hospital. James Blundell (1790-1877) graduated M.D. at Edinburgh in 1813, and was later a lecturer on obstetrics at Guy's Hospital.

Among the early London surgeons of Scottish extraction were Robert Liston and Sir William Fergusson. Robert Liston (1794-1847), a pupil of John Barclay the anatomist, was a celebrated lecturer on anatomy and surgery in the extra-academical school at Edinburgh, as described in Chapter XXIII. He became professor of clinical surgery in University College, London, in 1835. Here he introduced many novelties in surgery, such as his method of flap amputation, devices for reducing dislocations, and new methods of crushing and cutting for stone. He was an early pioneer in laryngoscopy, and his work on "Practical Surgery" (1837) passed through many editions. In 1847, when Liston died, James Syme was appointed as his successor in University College, but he held the position for only a few months and returned to Edinburgh. William (later Sir William) Fergusson (1808-1877) was born at Prestonpans, and after training as a pupil of Robert Knox, the anatomist, acted as an extra-academical lecturer on anatomy and surgery at Edinburgh. In 1840 he was appointed to the chair of surgery at King's College, London, where he became for some thirty years one of the best-known surgeons. He was specially noted for his conservative attitude towards operations and for his skill in such delicate operations as those for hare lip and cleft palate. His Edinburgh period has been mentioned in Chapter XXIII. James Wardrop (1782-1869) was another Scotsman who, after training in Edinburgh, settled in London in 1809, and is celebrated as having introduced the method of treating aneurism by ligature on the distal side of the swelling.

University
College

The high repute of Middlesex Hospital was greatly advanced by Sir Charles Bell (1774-1842), who was appointed surgeon to this hospital in 1812. In 1826 he became head of the new medical school established at University College. His career and works have been described in Chapters XIV and XXIII.

George Birkbeck (1776-1841) studied at Edinburgh, where he graduated M.D. in 1799; he became immediately afterwards professor of natural philosophy in the Andersonian University, Glasgow, where he delivered free lectures to the working classes. In 1804 he settled in London as physician, and along with Brougham and others, founded the Mechanics' Institute, of which he was chosen president for life; he was also a founder of University College, London. John Elliotson (1791-1868) studied at Edinburgh and graduated M.D. there in 1810. He was one of the founders of University College Hospital and professor of medicine at University College; he was also greatly interested in the study of hypnotism, to which James Esdaile had been directing attention a few years earlier in India, and he founded a mesmeric hospital in 1849.

John Conolly (1794-1867) had an important influence upon the development of treatment for the insane in the early half of the 19th century. He studied medicine at Edinburgh, where he graduated M.D. in 1821. Here the recently opened asylum for the more humane treatment of the insane was in his student

days attracting great attention, and his mind was powerfully stirred by this subject as was evidenced by his graduation thesis "De Statu Mentis in Insania et Melancholia." After a few years of practice in English provincial towns, Conolly became, in 1827, professor of the practice of medicine in University



JOHN CONOLLY (1794-1867)

College, London, and in 1839 was appointed resident physician to the Middlesex County Asylum at Hanwell, where he immediately abolished all mechanical restraint of the patients. He continued to agitate throughout his life for the non-restraint system, for the instruction of medical men by clinical lectures on lunacy, for better organisation of asylums, and for the special training of mentally defective persons. His successful work on these lines and his "Annual Reports" had the greatest possible effect in widening knowledge regarding insanity and in the improvement of lunacy administration.

Another important early teacher in University College was William Sharpey (1802-1880), who was born at Arbroath, became L.R.C.S. Edinburgh in 1821, and M.D. in 1823, subsequently lecturing on anatomy in the Edinburgh extra-academical school. He taught physiology at University College from 1836 to 1874, served on various Royal commissions, and was joint editor of several editions of Quain's "Anatomy." Another distinguished teacher of physiology was Thomas Wharton Jones (1808-1891), who was born at St. Andrews and studied in the University of Edinburgh. After acting for a time as lecturer on physiology at Charing Cross Hospital and Fullerian professor of physiology in the Royal Institution, he devoted himself to ophthalmic surgery, and was professor of this subject in University College. Various physiological discoveries were recorded by him in the *Philosophical Transactions*.



CHARLES MURCHISON (1830-1879)

Middlesex
Hospital

James Moncrieff Arnott (1794-1885) studied at Edinburgh and graduated M.D. there in 1813; he practised as a surgeon in London, and was one of the founders of the Middlesex Hospital medical school. Thomas (later Sir Thomas) Watson (1792-1882) studied at Edinburgh, though he did not graduate there; he became physician to Middlesex Hospital and professor of medicine at University College and King's College. He was the author of the well-known text-book "Lectures on Practice of Physic."

Charles Murchison (1830-1879) became L.R.C.S. Edinburgh in 1850, and graduated M.D. in the following year. After a short period in the Bengal Medical Service, he resigned and became lecturer on medicine in the Middlesex, and afterwards St. Thomas's, Hospital, London; his "Treatise on Continued Fevers of Great Britain" (1862) was a celebrated work in its time, and his "Diseases of the Liver" (1867) was the first comprehensive account of the disorders to which this organ is liable.

London
Hospital

Andrew (later Sir Andrew) Clark (1826-1893)¹ was one of the best-known physicians of the London Hospital. He was born at St. Fergus, Aberdeenshire, and served an apprenticeship of four years to Dr. Alexander Wilson, surgeon in Dundee. Later he studied medicine at Edinburgh, where he became demonstrator in anatomy with Dr. Knox and assistant to Hughes Bennett, professor of

¹ *British Medical Journal*, 1893, Vol. II., p. 1055.

physiology. The latter exercised a great influence over Clark, especially in regard to the application of the microscope to pathological and clinical studies. At this early stage of life Clark suffered from advancing phthisis with repeated hæmoptysis, and joined the Royal Navy with the object of leading a professional



SIR ANDREW CLARK (1826-1893)

(Original by G. F. Watts, R.A., in National Portrait Gallery)

life suited to this disability. As his health improved, he was appointed pathologist at Haslar Hospital, where he came under the influence of Sir John Richardson. In 1853 he resolved to take up work in London and, leaving the Navy, became curator of the museum at the London Hospital, where he may be said to have introduced microscopic and chemical methods into clinical investigation, and where he succeeded Dr. W. B. Carpenter as lecturer on physiology.

After graduating M.D. at Marischal College, Aberdeen, in 1854, Clark became assistant physician, and from 1866 served a term of 20 years as physician to the London Hospital. During this period his practice as consulting physician was steadily growing and he is said to have carried on ultimately the hardest consulting practice and earned the largest professional income of any London physician. He took a special interest in phthisis, from which he had himself suffered, and did much to advance the knowledge of this disease and to render its treatment more successful. A large part of the great professional success to which he attained is credited to an idea, which he had, that all diseases are the outcome of constant and apparently unimportant violations of the laws of health, and that to restore the patient to health no details are too trivial for the physician's attention. As a result, his cases were investigated with meticulous care and minute instructions were given for the patients' treatment and regime. It is said that no other man of his time had a greater influence on contemporary opinion regarding the laws of health or in changing the habits which then prevailed in regard to excessive eating and drinking. This secured for him a wide popularity and the firm confidence of his patients, so that his death, which occurred with some suddenness, was regarded as a public misfortune.

He is sometimes confused with another Scottish physician, James (later Sir James) Clark (1788-1870), who was born at Cullen, Banffshire, studied medicine at Edinburgh, served for some six years as a naval surgeon, and in 1826 settled in London. He was physician-in-ordinary to Queen Victoria, and published various works on "Climate," "Phthisis," and other medical subjects.

John Richard Farre (1775-1862), after practising for some time in Barbados, studied medicine for two years at Edinburgh and graduated M.D. at Aberdeen in 1806; he practised in London and was co-founder of the first eye hospital in London, at Moorfields.

Henry (later Sir Henry) Wentworth Ackland (1815-1900) studied medicine at Edinburgh, where he was a favourite pupil of Alison, though he afterwards graduated M.D. at Oxford. He held the regius chair of medicine at Oxford from 1858 to 1894.

John (later Sir John) Scott Burdon Sanderson (1828-1905), after graduating M.D. at Edinburgh in 1851, settled as a physician in London and was for a time physician to the Middlesex Hospital. He was a lecturer successively at St. Mary's Hospital and at University College. Determining to devote himself to science, he became professor-superintendent of the Brown Institution in 1871, and was employed on various investigations into cattle plague, cerebro-spinal meningitis, the health of miners, etc. In 1895 he was appointed regius professor of medicine in the University of Oxford, and was the virtual founder of the modern medical school in this university.

Modern neurology owes much to David (later Sir David) Ferrier (1843-1928)¹ Neurology who was born at Aberdeen and graduated M.B. at Edinburgh in 1868. Here he took the M.D. degree in 1870 with an elaborate thesis on the Corpora Quadrigemina. In the same year he became lecturer on physiology at the Middlesex Hospital school



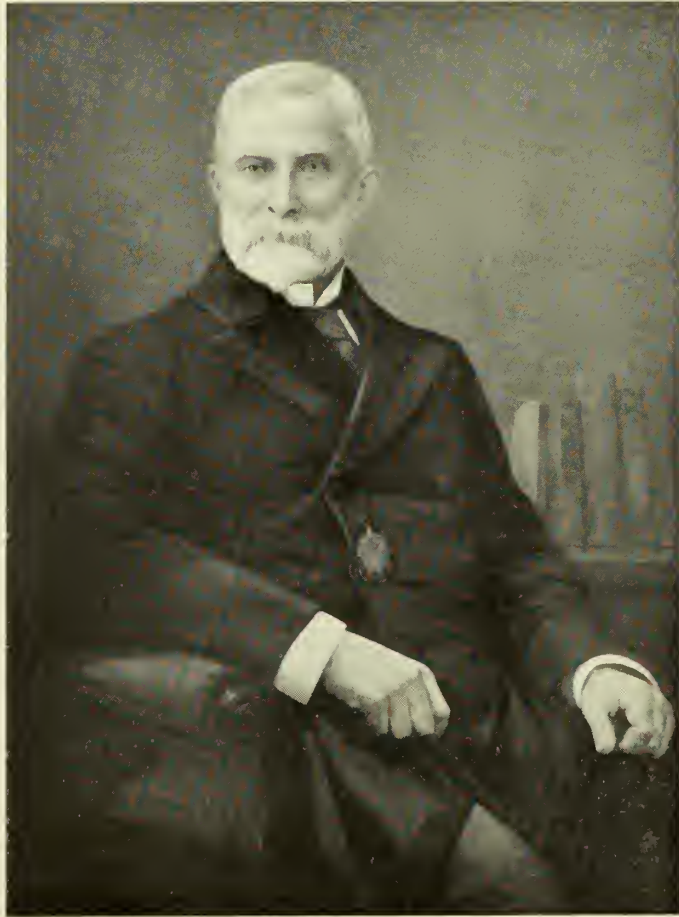
SIR DAVID FERRIER (1843-1928)

and a year later demonstrator of physiology to King's College Hospital, where he was made successively professor of forensic medicine and professor of neuropathology. In 1873, he contributed an important paper on "Experimental Researches in Cerebral Physiology and Pathology" to the reports of the West Riding Asylum, where a pioneer school of neurology had been founded in 1871 by another Scotsman, Sir James Crichton-Browne (M.D. Edinburgh, 1862). In 1874-75, Ferrier, in his Croonian lectures on Localisation of Function in the Brain, described the results of his experiments which extended the preliminary investigations made shortly before by Fritsch and Hitzig, and showed that definite areas on the surface of the brain were associated with definite movements

¹ *British Medical Journal*, 1928, Vol. 1, p. 525.

on the opposite side of the body. His work formed the basis of modern neurological practice. He afterwards became greatly sought as a consultant in the metropolis.

Another Aberdonian physician was John Mitchell Bruce (1846-1929),¹ who was born in Aberdeenshire, and after studying at the University of Aberdeen,



SIR THOMAS LAUDER BRUNTON (1844-1916)
(From the original oil painting in The Wellcome Historical Medical Museum)

graduated M.B. of London University in 1870. He was appointed a lecturer on physiology and pathology and physician to Charing Cross Hospital, and he also acted as physician to the Brompton Hospital. His best known works were a text-book on "Materia Medica and Therapeutics" and one on "Principles of Treatment." John Milne Bramwell (1852-1925) was born at Perth and graduated M.B. at Edinburgh in 1873. After a period of study in France he

¹ *British Medical Journal*, 1929, Vol. II., p. 77.

devoted himself largely to the investigation of hypnotism, extending the work previously done by two other Scotsmen, Braid and Esdaile. He practised this department of medicine for many years in London, and wrote extensively on the subject.

Among the physicians at St. Bartholomew's Hospital, Thomas (later Sir Thomas) Lauder Brunton (1844-1916)¹ had been born in Roxburghshire and graduated M.B. at Edinburgh in 1866. Whilst a house physician in the Royal Infirmary of Edinburgh, he introduced nitrite of amyl as a remedy for high blood-pressure. For a time he was lecturer on materia medica at Middlesex Hospital, but the greater part of his active life was spent in connection with St. Bartholomew's, and he contributed many important papers to the literature of pharmacology, dealing with such subjects as digitalis, the action of nitrites, and the nature of enzymes. His "Text-book of Pharmacology and Therapeutics" (1885) occupied an important position as the first complete text-book on this subject written from a physiological standpoint, and it was translated into several languages. Another physician at St. Bartholomew's Hospital was Dyce (later Sir Dyce) Duckworth (1840-1928),² who graduated M.B. at Edinburgh in 1862, and after a short time in the Royal Navy settled in practice in London. He became a popular consultant and lecturer, and is well-known for a volume of collected addresses called "Views on some Social Subjects."

St.
Bartholo-
mew's
Hospital

In obstetrics and gynæcology, Charles (later Sir Charles) Locock (1799-1875) was lecturer for a time in the medical school of St. Bartholomew's Hospital. He had graduated M.D. at Edinburgh in 1821, settled in London and devoted himself to midwifery. He obtained a wide and influential practice and attended Queen Victoria at the birth of all her children. Another obstetrician connected with St. Bartholomew's Hospital was James Matthews Duncan (1826-1890),³ who had been educated at Aberdeen and graduated M.D. at Marischal College in 1846, afterwards studying for a time at Edinburgh and Paris, and in 1847 becoming assistant to Sir James Y. Simpson, with whom he was associated in the early chloroform experiments. After a period as lecturer in the extra-academical school at Edinburgh, when he was regarded as the leading obstetrician in Scotland, he was in 1877 offered the chair of midwifery in the medical school of St. Bartholomew's and became obstetric physician to this hospital. He was for many years one of the best-known obstetricians in the metropolis, and his work, "Clinical Lectures on Diseases of Women," had a great reputation in its time.

Obstetrics

Robert Ferguson (1799-1865) studied at Edinburgh and graduated M.D. there in 1823; he afterwards practised in London, where he founded the *London Medical Gazette* in 1827, and became the first professor of midwifery in King's College in 1831.

¹ *Dict. Nat. Biog.*

² *British Medical Journal*, 1928, Vol. 1, p. 161.

³ *Edinburgh Medical Journal*, 1890, Vol. 1, p. 392.

An obstetrician connected with King's College Hospital was William Smoult Playfair (1835-1903), who had graduated M.D. at Edinburgh in 1856, and after some seven years in the Bengal Medical Service resigned and devoted himself to obstetrics, becoming physician to King's College Hospital, London. He served through the Indian Mutiny, but is chiefly known for his important contributions to obstetrics; his treatise on "The Science and Practice of Midwifery" (1876) passed through many editions, while his work on "The Treatment of Hysteria" and the "System of Gynaecology," published in conjunction with Sir Clifford Allbutt, are well known. Also connected with King's College Hospital was William (later Sir William) Overend Priestley (1829-1900), who had graduated M.D. at Edinburgh in 1853. Settling in London as a physician, he became for a time lecturer on midwifery at Middlesex Hospital, and in 1862 professor of obstetrical medicine in King's College. He was the author of various works dealing with the pathology of his subject and joint editor of Sir J. Y. Simpson's obstetrical works. He also represented the universities of Edinburgh and St. Andrews in Parliament.



WILLIAM SMOULT PLAYFAIR (1835-1903)

Liverpool
medical
school

At Liverpool, Joseph Brandreth (1746-1815) was a distinguished physician early in the nineteenth century; he had studied at Edinburgh, where he graduated M.D. in 1770. John Rutter (1762-1838), who graduated M.D. at Edinburgh in 1786, was, at the beginning of the nineteenth century, regarded as the head of the profession in the city; he founded the Liverpool Athenæum and the Liverpool Medical Institution. James Carson (1772-1843) had graduated M.D. at Edinburgh in 1799, and afterwards practised in Liverpool; his graduation thesis, "De Viribus Quibus Sanguis Circumvehitur," indicated the trend of his mind, and he became a recognised authority on the forces of the circulation and on respiration; he was one of the first to suggest and practise the production of pneumothorax in order to rest a diseased lung. Thomas Stewart Traill (1781-1862) was born at Kirkwall and graduated M.D. at Edinburgh in 1802; he practised at Liverpool from 1803 to 1832, and during this period founded the Literary and Philosophical Society of Liverpool, the Royal Institution of Liverpool, and the Liverpool Mechanics' Institution; his career in Edinburgh is mentioned on page 625. At a later date, William (later Sir William) Mitchell Banks (1842-1904), who was born in Edinburgh and graduated M.D. there in 1864, became professor of

anatomy in the Royal Infirmary medical school, which, in 1881, was converted into the medical faculty of University College, Liverpool; he was, later, surgeon to the infirmary and one of the founders of the Liverpool Biological Association. He is regarded as one of the principal men who raised the Liverpool medical school from a small provincial school to be the medical faculty of a well-equipped university, and he had much to do with the re-building of the Royal Infirmary.

Among the earlier practitioners of Manchester was Charles White (1728-1813), Manchester who had studied at Edinburgh and afterwards became a surgeon of eminence in Manchester, where he assisted in founding the Manchester Infirmary and the Manchester Lying-in Hospital. William Henry (1774-1836) studied at Edinburgh, where he graduated M.D. in 1807; prior to studying medicine he had acted as assistant to his father, a well-known chemist in Manchester, who invented a mode of preparing calcined magnesia; he became physician to Manchester Infirmary and devoted himself to chemistry; his "Experimental Chemistry" had reached an 11th edition by 1829.

At Birmingham an old Annandale family named Johnstone produced several Birmingham distinguished members of the medical profession. Edward Johnstone (1757-1851), after studying at Edinburgh, graduated M.D. there in 1779; he is regarded as the founder of the Birmingham medical school, of which he was president, and he was the first principal of Queen's College, Birmingham. Robert Lawson Tait (1845-1899) was born at Edinburgh and qualified L.R.C.S. there in 1866; he took up practice in Birmingham, where he became distinguished as a successful operator in gynaecological conditions during the early days of antiseptic surgery; he became professor of gynaecology in Queen's College, Birmingham, and wrote extensively on this subject, his best known work being "Diseases of Women" (1877).

At Sheffield, the Royal Infirmary was founded through the exertions of Sheffield William Younge (1762-1838), who had studied in Edinburgh and graduated there in 1786. Arnold (later Sir Arnold) Knight (1789-1871) studied at Edinburgh, where he graduated M.D. in 1811; he became a well-known Sheffield physician and wrote on "Knife Grinders' Phthisis."

John Yellowly (1774-1842) studied at Edinburgh and graduated M.D. there in 1796; he was a well-known physician of Norwich and one of the founders of the Royal Society of Medicine of London.

In the foundation of the medical school at Dublin, Scotsmen and Irishmen who had graduated at Scottish universities played a very important part.¹ Of these, one of the earliest was Patrick (later Sir Patrick) Dun (1642-1713), who was born at Aberdeen, settled in Ireland where he attained to the positions of physician to the Lord-Lieutenant, physician-general to the forces and president of the Royal College of Physicians. At his death he bequeathed property which founded an Dublin medical school

¹ See Cameron: "History of the Royal College of Surgeons in Ireland and of the Irish Schools of Medicine," Dublin, 1916.

incomplete medical school in connection with the College of Physicians. In 1711, the first anatomical hall and chemical laboratory were established in Trinity College, and here George Cleghorn (1716-1789) was appointed professor of anatomy and surgery in 1761. He was born near and studied medicine at Edinburgh, served in the army, and published a book on the "Epidemic Diseases in Minorca." His teaching was highly successful and several of his pupils became anatomical teachers in Dublin and in the provinces.

In 1800 the two medical schools in Dublin were united. Towards the end of the 18th century and during the first quarter of the 19th century very few Irish students graduated in medicine at the University of Dublin. During this period the Edinburgh University degree became the most sought by Irishmen, and the following figures show the large proportion of Irishmen studying medicine there. The graduates in the last quarter of the 18th century numbered 800, of whom 237 were Irish, 217 English, 179 Scots and 167 colonists and foreigners. Many of the Edinburgh graduates returning to practise in Ireland became the most distinguished members of the medical profession in that country.

Among the early surgeons were the following: George Renny (1757-1848) was born at Falkirk, received his medical education at Edinburgh, and after some years in the army, settled in Dublin. He became surgeon and later physician to the Royal Hospital, Kilmainham, and he rendered important services as a member of a board to investigate the causes of the epidemics which devastated the country from time to time, as a member of the Lunatic Asylums Board, and as a governor of the Foundling Hospital.

Abraham Colles (1773-1843), after some preliminary study in Dublin, went to Edinburgh, where he graduated M.D. in 1797 with a thesis on Venesection. Returning to Dublin, he became professor of anatomy, physiology and surgery to the College of Surgeons, and was twice president of the College. His description of the fracture which bears his name was originally published in the *Edinburgh Medical and Surgical Journal* for 1814.



ABRAHAM COLLES (1773-1843)

Philip (later Sir Philip) Crampton (1777-1858) studied in Glasgow, Edinburgh and London, and graduated M.D. at Glasgow in 1799. Returning to Dublin, he opened a private school for teaching anatomy and surgery, and speedily became one of the best-known surgeons in Ireland. He takes rank with the greatest surgeons which that country has produced, being sagacious in diagnosis, ready in resource, dexterous in the use of instruments, and sympathetic in his treatment of his patients. He was appointed surgeon-general to the Forces and surgeon-in-ordinary to George IV. and Queen Victoria, and he was four times elected president of the Royal College of Surgeons.

James O'Beirne (1787-1862), after an apprenticeship in Dublin, studied at Edinburgh University, where he graduated M.D. in 1818. He was surgeon to several of the Dublin hospitals, and a prolific writer on surgical subjects such as "Tobacco in Tetanus," "Hydrocele of the Neck," "Retinitis," "Tumours in the Orbit," and "Strangulated Hernia." Thomas Edward Beatty (1800-1872) was born in Dublin and graduated M.D. at Edinburgh in 1820. He published a book of "Contributions to Medicine and Midwifery" in 1866. George Hugh Kidd (1824-1895) was of Scottish extraction, and graduated M.D. at Edinburgh in 1845. He was master of the Coombe Hospital from 1876 to 1883, and a well known obstetrician. For many years he



SIR PHILIP CRAMPTON (1777-1858)

acted as editor of the *Dublin Quarterly Journal of Medical Science*, and was mainly instrumental in the foundation of the Stewart Institution for Imbecile Children. Alfred Henry M'Clintock (1822-1881) graduated M.D. at Glasgow in 1844, and was master of the Rotunda Hospital from 1854 for the usual period of seven years. His "Clinical Memoirs on the Diseases of Women" (1863) and "Practical Observations on Midwifery" (1848) were standard works.

Among the physicians who founded the Dublin school of medicine were several men of Scottish origin or who had studied at Scottish universities. John Cheyne (1777-1836) was born at Leith and graduated M.D. at Edinburgh in 1795 with a thesis on Rickets. After some time spent in the army and at Edinburgh, where he devoted himself to the study of pathology and became a friend of Charles Bell, he settled in Dublin in 1809, and was shortly afterwards appointed physician to



SIR DOMINIC JOHN CORRIGAN (1802-1880)



WILLIAM STOKES (1804-1878)

the Meath Hospital. In 1813 he became professor of medicine to the College of Surgeons, and he was celebrated for introducing in Ireland the method of regarding diseases from the pathological point of view rather than as groups of symptoms, which had been the fashion up to his time. His writings, which were numerous, included "Essays on the Diseases of Children," "On Bowel Complaints," "On Acute Hydrocephalus," "The Pathology of the Membrane of the Larynx and Bronchia," "On the Comatose Diseases," and "On Partial Derangement of the Mind."

Dominic (later Sir Dominic) John Corrigan (1802-1880), after spending a short time at Sir Patrick Dun's Hospital, studied medicine at Edinburgh and graduated M.D. there in 1825. Returning to Dublin, he became physician to several of the hospitals, and a lecturer on practice of medicine. He made numerous original contributions to medical science, but the best known of these is his paper, published in the *Edinburgh Medical and Surgical Journal* for April, 1832, entitled "On the Permanent Patency of the Mouth of the Aorta." In this he was the first to show the effects produced by insufficiency of the aortic valve, the peculiar nature of the pulse associated with the condition, which after him became known as "Corrigan's pulse," and the appropriate means for treating the condition. He also wrote on "The Treatment of Fevers."

The leaders of the Dublin school in the first half of the 19th century were, however, Graves and Stokes. Robert James Graves (1797-1853) studied medicine at Edinburgh, but returned to graduate at Dublin in 1818. He had a good knowledge of foreign languages, and after 1824 he epitomised for the *Edinburgh Medical and Surgical Journal* the papers in relation to medicine and its allied sciences published in the German journals. In 1832 he founded and edited the *Dublin Journal of Medical and Chemical Science*, and in this the greater number of his papers appeared. His most celebrated work was his "Clinical Lectures on the Practice of Medicine" (1843), which were admittedly based upon the Edinburgh style of clinical teaching and obtained a very wide circulation, and for which Trousseau, a great clinician of a later time, expressed his admiration.

William Stokes (1804-1878) was the son of Whitley Stokes, professor of medicine to the College of Surgeons in Dublin, but received his medical training in Scotland, first for a short time at Glasgow University, and afterwards in the University of Edinburgh, where he graduated M.D. in 1825. Laennec's celebrated treatise on auscultation had appeared a few years previously, and while Stokes was still a student, he wrote a small work on the stethoscope, which obtained a wide circulation. Immediately after graduation he settled in Dublin, and at once commenced to give clinical lectures. He was a frequent contributor to the *Dublin Quarterly Journal of Medical Science*, and in 1837 published a "Treatise on Diseases of the Chest," which for many years was considered the best manual on this subject. In 1854 he published his treatise on "Diseases of the Heart and Aorta," in which occurs a minute description of Cheyne-Stokes respiration, which he showed to be a symptom of certain conditions of the heart. Many

celebrated articles issued from his pen, such as an account of the Stokes-Adams disorder of the heart, contributed in 1846 to the *Dublin Quarterly Journal of Medical Science*.

As regards the western hemisphere, the foundation of the earlier medical schools owes much to Scottish influence and inspiration. Many Scotsmen trained in medicine emigrated to America and Canada in the latter part of the 18th and earlier part of the 19th centuries, while in the same period numerous persons, born west of the Atlantic, came to Scottish medical schools, especially Edinburgh, to receive a medical education, and afterwards returned to their homes where they founded medical schools.¹

Philadelphia
medical
school

The first American colonial who graduated M.D. at Edinburgh University was Thomas Jarvis, from the island of Antigua, in 1744.² For the next 20 years almost every session saw at least one American graduate, including such men as William Shippen, John Morgan and Benjamin Rush, all of Pennsylvania. These men played a great part in the early medical school of Philadelphia, Morgan holding the first medical professorship in North America, which was established on May, 3rd 1765. After 1764, students came in greater numbers, and in the next hundred years 650 students from the Americas graduated at Edinburgh. This does not include many who came for a year or two to take some classes, nor those who contented themselves with a licence from the Royal College of Surgeons. The total number of the Americans who studied at Edinburgh should probably be at least twice as great. Out of the 650, those colonies which became the United States furnished 180. As regards Canadians, 104 Canadian-born students had graduated M.D. at Edinburgh by 1867.

At the less well known University of Glasgow in the same period there graduated 85 students from the Americas. Of these 13 were Canadians, including such well-known names as those of Le Baron Botsford from New Brunswick in 1835, and William Johnston Almon from Nova Scotia in 1838.

Montreal
medical
schools

The first Canadian medical school was founded as follows: Just before the American revolution, a youth of some 30 years, James McGill, emigrated from Glasgow and settled in Montreal when it was a little town of 9000 inhabitants. He had studied for one year at the University of Glasgow, and being impressed by the necessity for the advancement of learning in Canada, he left a share of his fortune, when he died in 1813, to found a university to be named the McGill College. Its medical faculty was admittedly founded as to its organisation and methods of teaching on the Edinburgh school.³

In 1822, Dr. A. F. Holmes, who had graduated at Edinburgh in 1819, and Dr. John Stephenson, a native of Montreal, who had graduated at Edinburgh in 1820, were appointed by the medical officers of the Montreal General Hospital

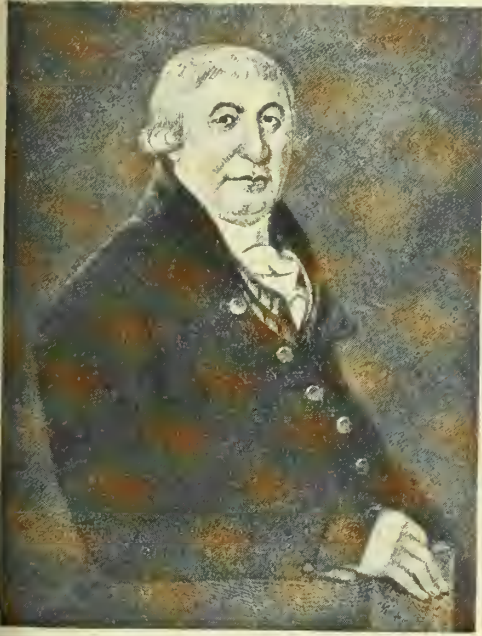
¹ See Morgan: "Discourse upon the Institution of Medical Schools in America," Philadelphia, 1765, p. 29.

² It is stated in several biographical works that the first medical graduate at Edinburgh University was Cadwalader Colden (1688-1776), who was born at Duns, Berwickshire, studied at Edinburgh, and became surveyor-general of the colony of New York. This is erroneous, as he graduated A.M. at Edinburgh in 1705, but not in medicine.

³ Shepherd: "The First Medical School in Canada," *Canadian Medical Association Journal*, April, 1925.

to draw up a statement setting forth the difficulties of the students of Canada, and the necessity of establishing a medical school. This school received the approbation of Lord Dalhousie, and, under the name of the Montreal Medical Institution, was opened on November 10th, 1824, with 25 students. Dr. Stephenson was to teach anatomy, physiology and surgery; Dr. Holmes was assigned chemistry, pharmacy and botany; Dr. William Robertson, another Edinburgh graduate, who had been born in Scotland, and had served as a military

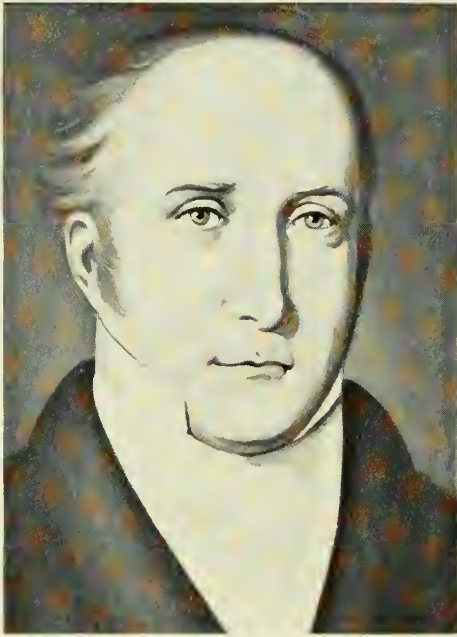
surgeon and emigrated to Canada, was to teach midwifery and diseases of women; Dr. William Caldwell, who had been born in Ayrshire, Scotland, had studied at Edinburgh and been a military surgeon, was to profess the practice of physic.



JAMES MCGILL (1744-1813)

The officers of this Montreal Medical Institution were afterwards constituted the Medical Faculty of McGill, and in the year 1832 obtained a Royal charter. The professor of medicine, elected in this year, was Thomas Fargues, an Edinburgh graduate of 1811. From this small beginning the University of McGill College rapidly increased, so that it numbered 108 medical students in the year 1860, and ultimately became one of the most famous schools of the western hemisphere.

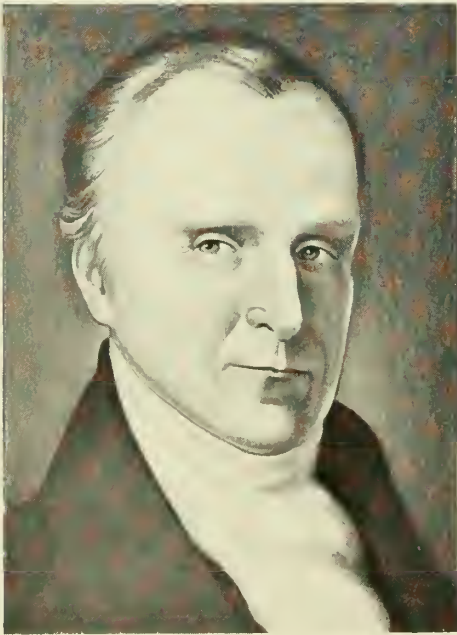
L'Université de Montréal, which was incorporated in 1920, was the product of the union of L'École de Médecine et Chirurgie de Montréal, the first French medical school to be established in Montreal, and of L'Université de Laval de Montréal, which was originally a branch of L'Université de Laval de Québec. L'École de Médecine et de Chirurgie had been founded in 1843 by a group of medical practitioners, Drs. Arnoldi, Francis Badgley, Munro, Sutherland and McNider. Dr. Francis C. T. Arnoldi, the first president of the school, had graduated M.D. at Edinburgh in 1827. Dr. Francis Badgley had graduated M.D. at Edinburgh in 1829. Dr. Pierre Munro was of Scottish descent, from the family of Munro of Foulis, and his ancestors had been in Canada since the conquest. Dr. William McNider had graduated M.D. at Edinburgh in 1836, and in addition to lecturing on obstetrics in L'École de Médecine, was one of the founders of the old Lying-in Hospital, now called the Montreal Maternity. Dr. Hector Peltier, who had graduated M.D. at Edinburgh in 1845, was later, in 1847, appointed professor of the institutes of medicine.



JOHN STEPHENSON



ANDREW HOLMES (1789-1860)



WILLIAM ROBERTSON (1784-1844)



WILLIAM CALDWELL (1782-1833)

As regards medical teaching in Quebec, a meeting of medical students of the Marine Hospital in this city was held as far back as 1835 to discuss the question of medical education, and they recommended that a school of medicine should be established. The Marine Hospital was founded by, and the first president of this school was, Dr. Joseph Morrin. He had been born in Dumfriesshire, Scotland, in 1794, brought by his parents at an early age to Canada, and had afterwards returned to Edinburgh to study medicine. In 1852 the teachers in the Incorporated School of Medicine were formed into the Medical Faculty of Laval University. Out of the original faculty of five professors, one, J. A. Sewell, was an Edinburgh graduate, and became professor of internal pathology and special therapeutics.

Quebec
medical
school

With regard to the early development of medicine in Upper Canada, or Ontario, the increase of population following the advent of the Loyalists in the year 1784 occasioned a great shortage of physicians. A medical board was set up in 1819, of which the senior member was Dr. James MacAulay, a native of Scotland who had studied at Edinburgh. He was one of the pioneers of York (as Toronto was then called), and took an active part in the development of this town.

The influence in founding the medical schools at Toronto, however, was mainly English. Heagerty gives a list of 28 medical practitioners residing in Toronto about the year 1850,¹ of whom six were Edinburgh men, several being concerned with one or other of the medical schools.

Queen's College, Kingston, established a medical faculty in 1855 after some two years of discussion. Six professors were appointed, of whom three had received their medical training in Scotland. Dr. John Robinson Dickson, professor of surgery, had taken a medical qualification in Glasgow; Dr. John Stewart, professor of anatomy and physiology, was a native of Perthshire and had taken the L.R.C.S. at Edinburgh, where he had studied under Dr. Knox; Dr. Fife Fowler, professor of materia medica, had been born at Elgin, Scotland, and after being apprenticed to Professor Pirrie of Marischal College, Aberdeen, graduated M.D. there in 1843.²

Kingston
medical
school

In Nova Scotia, Edinburgh men predominated. Out of 14 practitioners at Halifax in 1845, no fewer than 13 had studied at Edinburgh. The first proposal to establish a medical school was made by the governors of Dalhousie University in 1863. It was strongly advocated by Dr. (later Sir) Charles Tupper, who had graduated M.D. at Edinburgh in 1843. A medical faculty was shortly afterwards formed, and a medical course was inaugurated in 1867. The president of this faculty was William Johnston Almon, a graduate of Glasgow University.

Halifax
medical
school

Dr. Tupper had been born at Amherst, Nova Scotia, in 1821, and proceeding to Edinburgh, took the degree of M.D. with a thesis on "The Mechanism and Management of Parturition, illustrated by a Report of 116 cases." It shows extraordinary energy that a youth of 22 should have already attended 116

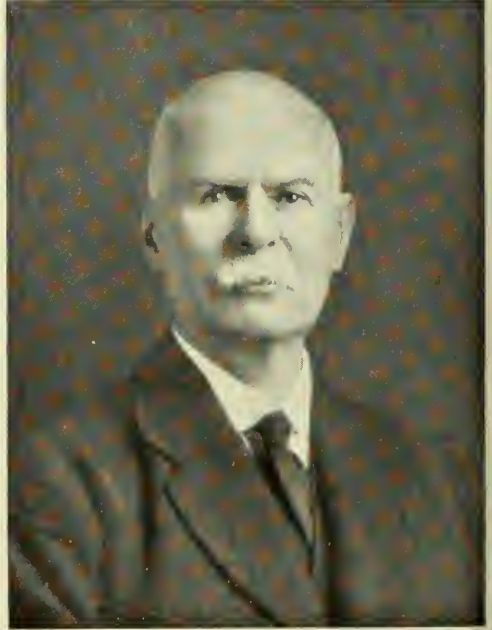
¹ Heagerty: "Four Centuries of Medical History in Canada," Bristol, 1928, Vol. I., p. 244.

² Gibson: "A Short Account of the Development of Medical Teaching at Kingston, Ont.," *Canadian Medical Association Journal*, Vol. XVIII., 1928, pp. 331-334 and 446-451.

obstetric cases. Before leaving Edinburgh, he also took the licentiatehip of the Royal College of Surgeons, an alternative qualification which many Edinburgh students took in those days without graduating at the university. As early as 1855, he was a member of the Nova Scotia Assembly. In 1862 he was governor of Dalhousie College, Halifax, and in 1867 was president of the Canadian Medical Association. He gradually drifted into politics, was prime minister of Nova Scotia in 1864, and took a great part in the arrangements which resulted in Canadian union, later becoming Premier of the Dominion in 1896.

Canadian
medical
societies

In the founding of early Canadian medical societies Edinburgh men seem to have played a special part. The Quebec Medical Society was inaugurated in 1826 with Dr. Joseph Morrin, an Edinburgh man, as president. The Medico-Chirurgical Society of Montreal, formed in 1846, had for its first president A. F. Holmes, M.D. of Edinburgh, and for one of its vice-presidents Francis Badgley, who had graduated at the same university. It is of special significance that when the Canadian Medical Association was formed in 1867, Dr. James A. Sewell, M.D. of Edinburgh, who was president of the Quebec Medical Society, presided at a meeting in Laval University, to which every practitioner in Canada had been summoned, and the first office-



FREDERICK LE MAITRE GRASSET
(1851-1930)

bearers of this association to be elected included as president Dr. Charles Tupper, M.D. of Edinburgh, and among the four vice-presidents two Edinburgh graduates in the persons of Dr. Hector Peltier, of Montreal, and Dr. R. S. Black, of Nova Scotia, with a Glasgow graduate, Dr. Le Baron Botsford, of New Brunswick.

One more advance in medicine which came from Scotland to Canada remains to be mentioned. This was the introduction of antiseptic surgery. Joseph Lister was professor of surgery at Glasgow from 1860 to 1869, and in 1868 his house surgeon was Archibald Edward Malloch, of Hamilton, Ontario, who had graduated M.B. at Glasgow in 1867; he subsequently introduced antiseptic surgery into Canada. While Lister was professor of clinical surgery at Edinburgh from 1869 to 1877, numerous Canadians studied in his wards, and assimilated his methods. These included Dr. (later Sir) Thomas G. Roddick, who brought them to Montreal, Dr. John Stewart, who returned to Halifax, and Dr. Frederick le

Maitre Grasset (1851-1930), who was house surgeon at Edinburgh with Lister in 1874, and returned to Toronto.

In Australia the foundation of the medical school at Sydney was particularly the work of men who had obtained their medical training in Edinburgh. In Sydney medical school



SIR THOMAS ANDERSON STUART (1856-1920)

In the 'seventies and 'eighties of last century the establishment of a medical school had been discussed by several members of the governing body of the university. These specially included Arthur (later Sir Arthur) Renwick (M.D. Edinburgh, 1861) and Henry Normand (later Sir Normand) Maclaurin (M.D. Edinburgh, 1857), who was afterwards chancellor of the university.

The outstanding figure in this connection, however, was that of Thomas (later Sir Thomas) Anderson Stuart (1856-1920),¹ a man of great force of character,

¹ *Prince Alfred Hospital Gazette*, April, 1920, p. 15.

ambition and organising capacity. He was born at Dumfries, Scotland, and, after a distinguished course in medicine at Edinburgh, graduated M.B., C.M., there in 1880. After graduation he acted as assistant to the professor of physiology in Edinburgh University, and in 1883 was offered the double appointment as professor of physiology and anatomy in the new medical school about to be created at Sydney. He began the medical school with four students, but by 1920, when he died, the number of medical students was 847. In 1891 he superintended the erection of the present medical school buildings, and later founded the dental school at Sydney. Throughout his life in Sydney he was a director of the Royal Prince Alfred Hospital, and for nearly 20 years acted as its chairman, the institution becoming under his organisation the largest general hospital in Australasia. He was also a member of the Board of Health and adviser to the Government of New South Wales, and took an active part in the organisation of many other medical institutions. Among these was the Australasian Institute of Tropical Medicine.

Among Anderson Stuart's early colleagues at the beginning of the Sydney medical school were several Scottish graduates. James Thomas Wilson (M.B. Edinburgh, 1883) took up the teaching of anatomy in 1887 at Sydney, and later became professor of anatomy at Cambridge, England. William A. Haswell (B.Sc. Edinburgh, 1878) was lecturer in biology and later became professor of zoology. Alexander (later Sir Alexander) MacCormick (M.B. Edinburgh, 1880) was demonstrator in physiology and assistant surgeon to the Prince Alfred Hospital, later becoming one of the chief surgeons in Australia. Robert Scot Skirving (M.B. Edinburgh, 1881) was one of the physicians to the Prince Alfred Hospital, and for many years one of the outstanding teachers of clinical medicine in Australia. Thomas Dixson (M.B. Edinburgh, 1877) was for long lecturer in materia medica and pharmacology. James (later Sir James) Graham (M.B. Edinburgh, 1882) was demonstrator of anatomy for a brief period, and later lecturer in obstetrics, a post in which he was succeeded by S. H. MacCulloch (M.B. Edinburgh, 1877). At a much later period, in 1902, the former lectureship in pathology was made into a professorial chair, and filled by the appointment of David Arthur Welsh (M.B. Edinburgh, 1893).

Foundation of the Naval Medical Service

Sir Gilbert
Blane

Gilbert (later Sir Gilbert) Blane (1749-1834)¹ continued the work of James Lind, and indeed these two are the great names in the history of the Naval Medical Service. Blane was born in Ayrshire, and entered the University of Edinburgh with the intention of coming out for the church. Although he studied under Cullen and the other lights of the medical faculty in Edinburgh, and although he was a president of the Medical Society in 1775, he ultimately took the M.D. degree at Glasgow in 1778. Through the good offices of Matthew Baillie, he obtained an introduction to Sir George Rodney, whom he accompanied as private physician

¹ Rolleston: *Journal of the Royal Naval Medical Service*, 1916, p. 72.

on the expedition to raise the siege of Gibraltar in 1779. In the same year he was officially appointed physician to the fleet. When Sir George Rodney returned to England in the autumn of 1781, Blane accompanied him and laid before the Board of Admiralty a memorial pointing out the medical wants of the



SIR GILBERT BLANE (1749-1834)

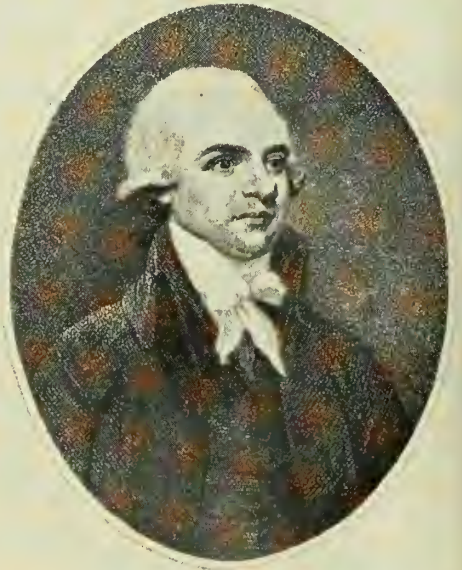
(From an unfinished portrait by Sir Martin Archer Shee, in the Royal College of Physicians, London)

navy, which, however, at that time received no attention. He afterwards proceeded with Admiral Rodney to North America, and remained on service till the declaration of peace in 1783.

On his return to London, he became a physician to St. Thomas's Hospital. In the later part of his life, while continuing to practise, he was frequently consulted by the Government on various aspects of public health, especially those connected with the navy.

In 1785 he had published a work on "Observations on the Diseases of Seamen." In 1795 he was appointed one of a commission designed to improve the sanitary conditions afloat, and he was now able to urge upon the Admiralty the reforms which he had vainly tried to introduce 15 years earlier. An Admiralty order was issued enjoining the use of lemon juice in the navy, and scurvy was immediately banished. This was really the culmination of the work of his predecessor, James Lind. Other beneficial measures introduced by him were the promotion of cleanliness and ventilation on ships, which did much to diminish the prevalence of infection; a free issue of soap to sailors, which had a similar effect; and a gratuitous issue of all medicines to naval surgeons, a measure which he effected in 1804.

In 1809, Blane was charged by the Government with the special commission of inquiring into the prevalence of disease among the troops on the island of Walcheren, and as a result of his report, the island was abandoned. He made many other contributions to medical literature, dealing chiefly with diseases affecting sailors and their treatment, almost up to the time of his death in 1834. He was endowed with a somewhat reserved cold manner, which earned for him among naval officers the nickname of "chilblain."



THOMAS TROTTER (1760-1832)

Thomas
Trotter

Another naval surgeon who rendered great services to the navy by his work and his personality was Thomas Trotter (1760-1832).¹ Like his contemporary Blane, he was a Scotsman, born at Melrose, and afterwards a student at Edinburgh. In 1779, he became a surgeon's mate in the "Berwick," and on a voyage to the West Indies made an intimate acquaintance with dysentery and scurvy among the crew. After the American War was over, he found himself unemployed, and made a voyage to the Gold Coast. Returning to Edinburgh, he published "Observations on Scurvy" (1786), and took the M.D. degree. After further service in the navy under Lord Howe, he published his "Medicina Nautica, or the Diseases of Seamen" (1791), with a second volume in 1799. Ultimately he took up practice as a physician in Newcastle. The "Medicina Nautica" is a collection of articles on naval medicine, including numerous cases and extracts

¹ Rolleston: *Journal of the Royal Naval Medical Service*, 1919, p. 412.

from previous publications. While in charge of the fleet under Lord Howe (1794-1802), Trotter did his utmost to raise the standard of diet and hygiene for the seamen, and constantly strove to obtain an increase in the pay of naval surgeons so as to place them on an equality with those in the army. He was



SIR WILLIAM BURNETT (1779-1861)

a far-seeing and clear-headed reformer who deserved well of the medical department of the navy for his tenacity and energy.

William (later Sir William) Burnett (1779-1861),¹ the first medical director-general of the Royal Navy, was a Scotsman, born at Montrose. After serving an apprenticeship to Dr. Hunter of Montrose, he studied in Edinburgh, and in 1795 was appointed an assistant-surgeon in the navy. He saw much service,

Sir William
Burnett

¹ Rolleston : *Journal of the Royal Naval Medical Service*, 1922, p. 1.

being present at the battles of St. Vincent, the Nile and Trafalgar. He appears to have shown great efficiency, especially as a surgeon, and was selected as physician and inspector of hospitals to the Mediterranean fleet, and, as an outcome of this post, he published "A Practical Account of the Mediterranean Fever." Later



SIR JOHN RICHARDSON (1787-1865)

he published an account of "A Contagious Fever among the Prisoners of War at Chatham."

On his appointment as medical commissioner to the navy in 1822, Burnett called for returns from the medical officers of all hospitals and ships to show the prevalence of diseases, just as Sir James McGrigor had done in the army a few years earlier. In the same year he founded museums and libraries at Haslar and Plymouth. It was due to his advocacy that a naval hospital was opened at Chatham. There was great difficulty in his day in obtaining a sufficiency of

medical officers for the naval service, and he did much to improve the general conditions under which these officers worked. His name is at the present day preserved chiefly by the disinfecting fluid consisting of chloride of zinc which he introduced as a preservative, disinfectant and deodorant.

A celebrated contemporary of Sir William Burnett and Sir James McGrigor was John (later Sir John) Richardson (1787-1865).¹ He was born at Dumfries, and, after serving an apprenticeship of three years in Dumfries, went at the age of 14 to study medicine at Edinburgh University. In 1804, he became house surgeon at the Dumfries and Galloway Infirmary, and two years later returned to Edinburgh where, however, he did not graduate till 1816, after he had been for some time an assistant-surgeon in the navy. He was in the Naval Medical Service for 48 years, went on three Arctic expeditions, twice with and once in search of Franklin, was justly famous as a zoologist and naturalist, and during 17 years at Haslar, as physician and medical inspector, played a part in the training of several afterwards distinguished men.

Sir John
Richardson

Among the latter was Joseph (later Sir Joseph) Dalton Hooker (1817-1911), who was educated at Glasgow University and graduated M.D. there in 1839; he was the son of Sir William Jackson Hooker, professor of botany at Glasgow and later director of the Royal Gardens at Kew. Joseph Hooker accompanied the Antarctic expedition (1839-1843) of Sir James C. Ross, and, on his return, issued his important work, "Flora Antarctica." He made various botanical exploratory journeys in Africa, India and the United States and wrote numerous botanical works; on the death of his father, he became director of the Royal Gardens at Kew.

Arctic
exploration

Another of Richardson's assistants at Haslar was Andrew (later Sir Andrew) Clark (1826-1893), who was born in Aberdeenshire and graduated M.D. at Marischal College in 1854; after a short time in the navy, he entered practice in London, and was physician to the London Hospital, becoming later for many years the leading physician of the metropolis.

Richardson's great work, "Fauna Boreali-Americana," described in four volumes the objects of natural history collected in the expeditions under Sir John Franklin. He also published numerous memoirs on the zoological material brought back to this country by other surveying ships and expeditions.

An associate of Sir John Richardson in Arctic exploration was John Rae (1813-1893). He was born in Orkney and studied medicine at Edinburgh, where he qualified from the Royal College of Surgeons in 1833. Joining the service of the Hudson's Bay Company as a surgeon, he carried out important geographical work in the north of Canada, and in 1847 joined Sir John Richardson's expedition in search of Franklin. In charge of a later expedition in 1853, he was successful in discovering the fate of Sir John Franklin's expedition, and he carried out an immense amount of surveying work in regard to the northern coasts and territories of Canada.

¹ Rolleston: *Journal of the Royal Naval Medical Service*, 1924, p. 161.

Army Medical Service

Many Scotsmen served in the Army Medical Service from its commencement towards the end of the 17th century up to the formation of the Royal Army Medical Corps in 1898.¹ In the early days of regimental surgeons, hospital mates and surgeons' mates, it is difficult to do more than guess at the origin of these from their names. By the beginning of the 19th century, however, when the Scottish universities were regularly turning out graduates in large numbers, there is a more definite indication of the schools to which they owed their early training.

Robert
Jackson

Robert Jackson (1750-1827), who was born at Stonebyres, Lanarkshire, and took the M.D. degree of Leyden, was a notable reformer of the Army Medical Service, and author. He had been a regimental medical officer, head of the Army Hospital at Chatham, had seen service in the West Indies, and had been through the American War of Independence. Being promoted physician to the army on the Continent by the commander-in-chief without the approval of the Army Medical Board, he was in a state of constant friction with the latter. This was increased by Jackson's freedom in pointing out abuses in the Army Medical Service in such works as "Remarks on the Constitution of the Medical Department of the Army" (1803). The quarrel was brought to a head when Jackson thrashed the surgeon-general in the street with his cane, and being brought



ROBERT JACKSON (1750-1827)

before a civil magistrate and charged with assault, was sentenced to six months' imprisonment in the King's Bench Prison. The Walcheren fiasco of 1809, when some 7000 men died of malaria and some 17,000 were permanently invalided by the same cause, fully justified the strictures of Jackson, and the Army Medical Board was abolished. Jackson was again employed as inspector of hospitals, and went to Spain and the Levant to study yellow fever and plague. He was a prolific writer and produced some 23 books and pamphlets. Of these, his work entitled "A Systematic View of the Formation, Discipline and Economy of Armies" (1804) became a military classic, and his "Sketch of the History and Cure of Febrile Diseases" (1817) was of great value in its time.

¹ Johnston: "Roll of Commissioned Officers in the Medical Service of the British Army," Aberdeen, 1917.

James (later Sir James) McGrigor (1771-1858) was born at Cromdale, Inverness-shire, and after taking an M.A. degree at Marischal College, Aberdeen, studied medicine at Edinburgh and graduated M.D. at Marischal College in 1804. He entered the army in the same year as surgeon of the 88th regiment, with which

Sir James
McGrigor



HENRY MARSHALL (1775-1851)
(Original in Scottish National Portrait Gallery)

he served on the Continent, in the West Indies and later in India and Egypt. In 1804 he published "Medical Sketches of the Expedition to Egypt from India," which gave a valuable account of the diseases from which the army had suffered, based upon the reports by medical officers. After serving through the Walcheren campaign, he joined the staff of Wellington's army in the Peninsula in 1812 as principal medical officer, and was present throughout the subsequent campaigns. These campaigns, from a medical point of view, were extraordinarily successful in that for nearly a year, without reinforcements from England, the army was kept

practically at full strength by the return of convalescents to the ranks. In 1815 he was appointed director-general of the Army Medical Department, and at the end of the war, Wellington, referring to his services, stated: "He is one of the most industrious, able and successful public servants I have ever met with." His tenure of office as director-general was associated with great benefit to the army; he started a system of medical reports and returns from all military stations which formed the basis of the "Statistical Reports of the Health of the Army"; he founded the Museum of Natural History and Pathological Anatomy at Fort Pitt, afterwards removed to Netley and to Millbank; he also started two army medical benevolent funds which still exist. His early connection with Aberdeen has been mentioned in Chapter XXI.

Henry
Marshall

A contemporary of McGrigor was Henry Marshall (1775-1851).¹ He was born at Kilsyth, Stirlingshire, and after a year as surgeon's mate in the navy, he became an assistant surgeon in the army. He has been described as "the father and founder of military medical statistics," and indeed his whole life was devoted to working at the medical statistics of the army and the bearing that they had upon the improvement and efficiency of the soldier. His studies ranged from the statistics of diseases in the army to the comparative health of different military stations, and the effects of ill-usage, punishment, crime, etc., on the efficiency and cost of the army. His first book, "Notes on the Medical Topography of the Interior of Ceylon, and on the Health of the Troops Employed in the Provinces During the Years 1815-1820, with Brief Remarks on the Prevailing Diseases" (1821), contained numerical statistics regarding the mortality and diseases of the troops; this was a completely new feature in medical works at the time it was published. Other publications were "Observations on the Health of the Troops in North Britain," "Practical Observations on the Inspection of Recruits, including Observations on Feigned Diseases," "Hints to Young Medical Officers on the Examination of Recruits," "Observations on the Pensioning of Soldiers," etc. His "Observations on the Abuse of Spirituous Liquors by the European Troops in India" led Lord Hardinge to abolish the indiscriminate issue of spirit rations to soldiers on board ship and at foreign stations. In 1835, a report



SIR GEORGE BALLINGALL (1780-1855)

¹ Brown: "Horæ Subsecivæ," First Series, p. 135.

by him and Sir A. M. Tulloch, laid before Parliament, led to revolutionary reforms in the treatment of soldiers in the Tropics. His "Military Miscellany," published in 1846, produced a great impression on the public, and had wide-reaching effects in ameliorating the conditions of service in the army and improving the efficiency of the soldier.

George (later Sir George) Ballingall (1780-1855), after serving for twelve years in the Army Medical Service, graduated M.D. at Edinburgh in 1819, and shortly afterwards became professor of military surgery at Edinburgh. In addition to his work "Outlines of Military Surgery," which went through five editions, he wrote "Observations on the Diseases of European Soldiers in India," and "The Site and Construction of Hospitals." He has been mentioned in Chapter XIX.

Andrew (later Sir Andrew) Halliday (1781-1839) graduated M.D. at Edinburgh in 1806, and after serving through the Peninsula and Waterloo, became domestic physician to William IV. He was a voluminous writer, but is chiefly noteworthy for numerous publications between 1808 and 1829 dealing with the state of lunatic asylums and the treatment of lunatics, for whom humane treatment was at that time just being introduced.

A remarkable figure in the Army Medical Service was that of James Miranda Stuart Barry (*ca.* 1790-1865). This person graduated M.D. at Edinburgh in 1812 with a thesis "De Meroccele," and in the following year joined the military service as a hospital mate. After an extended service at the Cape of Good Hope, Jamaica, St. Helena, the West Indies and the Crimea, Barry, in 1857, became inspector-general of military hospitals in Canada, living sometimes at Montreal and sometimes at Quebec. Barry appears to have had a high, sharp voice, was barely five feet in height, very thin, with no hair on the face, had a manner of considerable asperity and was very sensitive to ridicule or to any want of the respect due to rank, an attitude which involved Barry in two duels. On several occasions during 46 years of war service, Barry is said to have displayed signal bravery. Barry retired on half pay in 1859 and died in London in 1865, and it was only after death that the body was discovered to be that of a woman. The only person who appears to have known this previously was Surgeon-General Sir Thomas Longmore, who, while serving as a subaltern at Trinidad in 1844, attended Barry for an illness and accidentally discovered her sex. He was sworn to secrecy and never mentioned the fact during her lifetime. Barry was, so far as known, the first woman medical graduate in Britain.

First woman
medical
graduate

Thomas Shortt (1789-1843), who graduated M.D. at Edinburgh in 1815, was P.M.O. at St. Helena from 1815 to 1821, during the imprisonment of Napoleon, and was one of the five army medical officers present at his autopsy.

Robert Knox (1791-1862), after graduating M.D. at Edinburgh in 1814, joined the Army Medical Service and was sent to Brussels, where he attended the wounded after Waterloo. He also served at the Cape of Good Hope, where he made valuable zoological and geographical researches. Retiring in 1820, he became a distinguished teacher of anatomy in Edinburgh, and has been noticed in this connection in Chapter XIX.



SIR ANDREW SMITH (1797-1872)
(Original in R.A.M.C. College, London)



SIR JAMES MCGRIGOR (1771-1858)
(Original by Sir David Wilkie in R.A.M.C. College, London)

John Thomson (1765-1846) was another of those who attended the wounded at Brussels a few days after the battle of Waterloo. His writings and professorial appointments in Edinburgh have been noticed in Chapter XIX.

Andrew (later Sir Andrew) Smith (1797-1872) was born at Hawick and joined the Army Medical Service after Waterloo. Returning to Edinburgh, he graduated M.D. in 1819, and later became a distinguished naturalist. During service in South Africa, he made several important journeys of exploration, and his "Origin and History of the Bushmen" was the first important account of this people. He became director-general of the Army and Ordnance Medical Departments in 1853, and wrote numerous papers upon subjects dealing with natural history and disease.

Thomas (later Sir Thomas) Galbraith Logan (1808-1896) graduated M.D. at Glasgow in 1828 and, joining the Army Medical Service, served through the Crimean War as P.M.O. of the Highland Division. He later became director-general of the Army Medical Service from 1867 to 1874.

Thomas Alexander (1812-1860) was born in East Lothian and studied at Edinburgh, where he became a licentiate of the Royal College of Surgeons in 1831. After acting for a time as prosecutor to Dr. Knox, he joined the army in 1834, and had a long course of foreign service in Jamaica, Nova Scotia, Canada and the Cape. He served through the Kaffir and Crimean wars, and, after being inspector-general in Canada, was recalled in 1857 to sit upon a Royal Commission which investigated the shortcomings of the Army Medical Department in the Crimean War. In 1858, he was appointed director-general to carry out the recommendations of the Commission, and sweeping changes in the medical service were initiated during his term of office. The pay and relative rank of army medical officers were improved; definite rules were laid down for promotion; entry into the service was in future to be determined by competitive examination; the Army Medical School at Fort Pitt was founded; military hospitals were improved and the Royal Victoria Hospital at Netley and the Herbert Hospital at Woolwich were built; and the medical statistical and sanitary departments at the War Office were placed on a better foundation. As a result probably of the strenuous work entailed on him, he died within two years of his appointment as director-general. Measured by the results of his work, he was probably the greatest director-general that the Army Medical Service has had.

Thomas
Alexander

William (later Sir William) Mure Muir (1818-1885), after graduating M.D. at Edinburgh in 1840, joined the Army Medical Service, and after serving through the Crimea, visited the U.S. army during the Civil War and reported on its medical and surgical arrangements. He ultimately became director-general, and during his term of office the unification of the medical service as the Army Medical Department was accomplished. He wrote on various subjects dealing with his experiences in the army, such as "A Medical History of the War in the North of China," "Sherman's March: a Sketch illustrative of Field Service," and "Remarks on the Regimental Arrangements in India."



THOMAS ALEXANDER (1812-1860)
(Original bust by W. Calder Marshall in R.A.M.C. College, London)



SIR THOMAS GALBRAITH LOGAN (1808-1896)
(Original by Sydney Hodges in R.A.M.C. College, London)

Thomas (later Sir Thomas) Crawford (1824-1895) graduated M.D. at Edinburgh in 1845, and serving through the Crimean War and the Indian Mutiny, became P.M.O. in India, where he was instrumental in the introduction of the station hospital system. Later, becoming director-general, he was responsible in 1884 for important changes by which the Army Hospital Corps were reorganised as the Medical Staff Corps, and the commands of the latter given to officers of the Army Medical Service.

Anthony (later Sir Anthony) Dickson Home (1826-1914) was born at Dunbar and graduated M.D. at St. Andrews in 1847. He served through the Crimea and the Indian Mutiny, gaining the Victoria Cross in the defence of Lucknow. He was for several years head of the statistical branch of the Army Medical Department.

William (later Sir William) Alexander Mackinnon (1830-1897) was born in the Isle of Skye, and qualified L.R.C.S. at Edinburgh in 1851. Joining the Army Medical Department, he served through the Crimea, the Indian Mutiny and the wars in New Zealand and Ashanti. He became director-general of the Army Medical Department in 1889, and was recognised as a Gaelic scholar. He gave £2000 to the University of Glasgow to found scholarships.

Francis Steven Bennett François de Chaumont (1833-1888) was born at Edinburgh, where he graduated M.D. in 1853. He served through the Crimea, and edited several editions of Parkes's "Manual of Practical Hygiene." Stewart Aaron Lithgow (1833-1899) was born at Dundee and graduated M.D. at Edinburgh in 1876. He served through the Indian Mutiny and Sudan campaigns, and was the first person to receive the D.S.O. in 1886. He was an assiduous student of the subject of heraldry, and the result of many years' laborious research by him is included in Alexander Nisbet's "Heraldic Plates," published at Edinburgh in 1892.

James Jameson (1837-1904) was born at Kilbinnie, Ayrshire, and graduated M.D. at Glasgow in 1857. He became director-general in 1896, and his term of office, which was associated with the early part of the South African War, was memorable for the foundation of the R.A.M.C.

William Gerard Don (1836-1920) was born at Stracathro, Forfarshire, and graduated M.D. at Edinburgh in 1857. He served through the Indian Mutiny, and later edited the Army Medical Regulations in 1885.

William (later Sir William) Taylor (1843-1917) graduated M.D. at Glasgow in 1864, and joined the Army Medical Service in the same year. After an extensive service in Ashanti, Canada and Burma, he became P.M.O. in India, and ultimately director-general in 1901. During his term of office the reforms indicated necessary by the South African War were carried out; the Army Medical School was removed from Netley to London; post-graduate courses of instruction for promotion were instituted; specialist sanitary officers were appointed to commands, and specialists in various subjects to hospitals; the R.A.M.C. fund was instituted, and the *Journal of the R.A.M.C.* started publication.

Sir William
Taylor



SIR WILLIAM MURE MUIR (1818-1885)
(Original by W. R. Symonds in R.A.M.C. College, London)



SIR THOMAS CRAWFORD (1824-1895)
(Original by M. Murray Cookesley in R.A.M.C. College, London)

William (later Sir William) Boog Leishman (1865-1926)¹ was the son of the professor of midwifery in the University of Glasgow, and from him inherited a natural bent towards the scientific side of medicine. He graduated M.B. at Glasgow in 1886. Joining the Army Medical Service, he rose finally to be its director-general and honorary physician to H.M. the King. During his service, he devoted himself especially to microscopic pathology, and was for eight years professor of pathology in the Royal Army Medical

Sir William
Leishman



SIR WILLIAM BABBIE
(1859-1920)

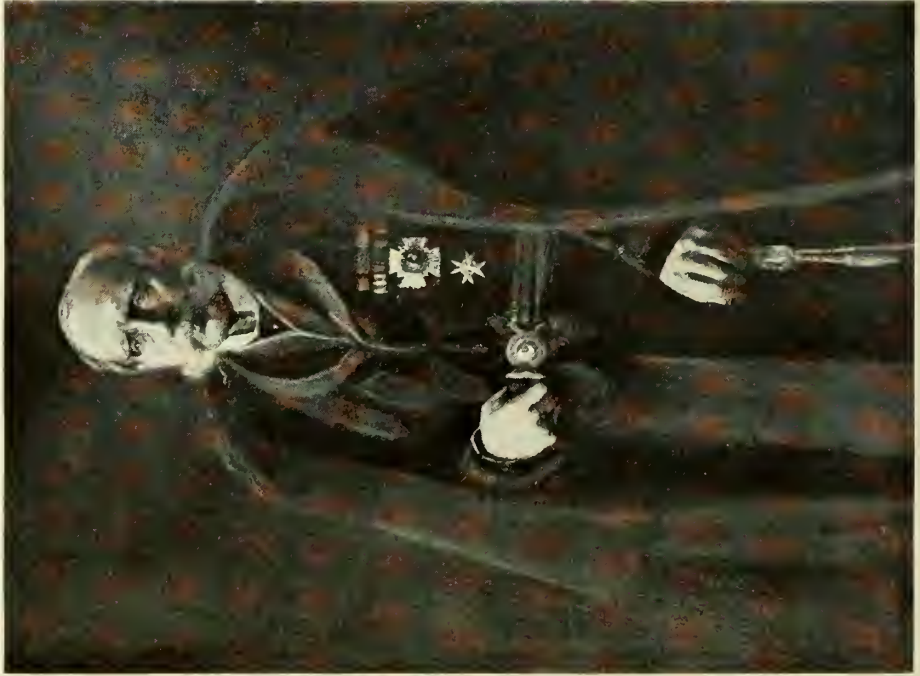


SIR WILLIAM GRANT MACPHERSON
(1858-1927)

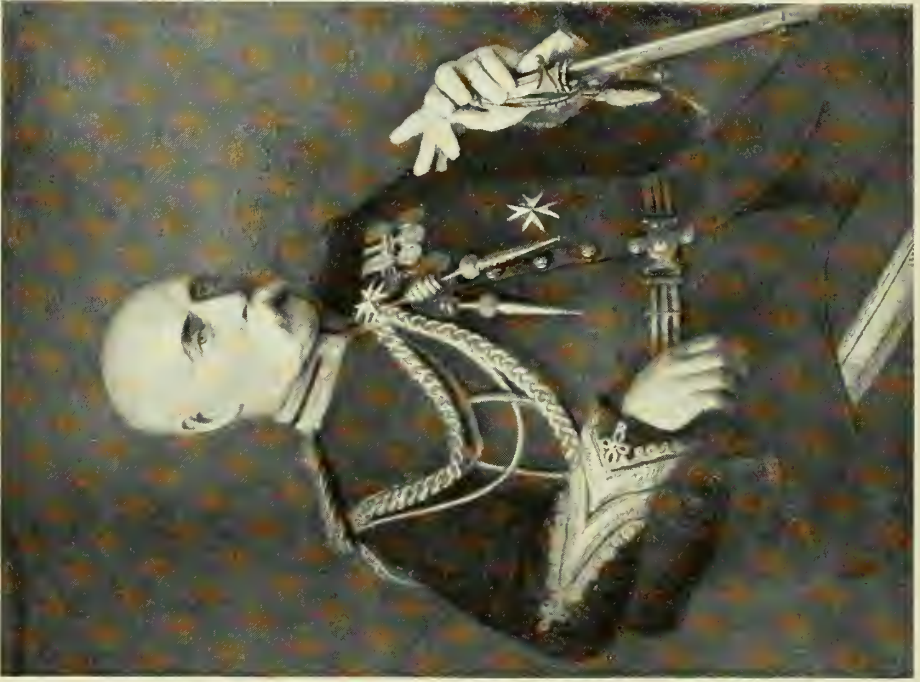
College. His researches upon the parasites of kala-azar and Delhi boil, which bear his name, are well known. Of more practical importance were his researches into the question of the efficiency of anti-typhoid inoculation, which were recorded in several "Reports on Experiments in connection with Anti-Typhoid Vaccine." It was due largely to his insistence that this method of preventive treatment was universally used during the Great War, a proceeding which was in all probability responsible for preventing any serious epidemic of this disease, and thus saving many lives.

Peter Shepherd (1841-1879) was born in Aberdeenshire, graduated M.B. at Aberdeen in 1864, and joined the Army Medical Service in the same year. He was the author of the first handbook on first aid, written for the St. John Ambulance Association, which has gone through many editions. He was killed in action at Isandula while rescuing a wounded comrade. William Johnson

¹ *Glasgow Medical Journal*, 1926, Vol. CVI., p. 114.



SIR WILLIAM ALEXANDER MACKINNON (1830-1897)
(Original by L. Koy, in R.A.M.C. College, London)



JAMES JAMESON (1837-1904)
(Original by W. R. Symonds, in R.A.M.C. College, London)

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(1843-1914) was born in Aberdeen and graduated M.D. at Edinburgh in 1865. To his indefatigable exertions is credited the conferring of substantive rank upon medical officers. He published a "Roll of the Graduates of Aberdeen University, 1860-1900," and prepared the "Roll of Commissioned Officers in the Medical Service of the British Army, 1727-1898."

William (later Sir William) Babbie (1859-1920) was born at Dumbarton and graduated M.B. at Glasgow in 1880, joining the Army Medical Service in the following year. He served through the South African War, where he gained the Victoria Cross, and he was later deputy director-general, director of medical services in India, and held a similar post in the Mediterranean during the War of 1914-1918.

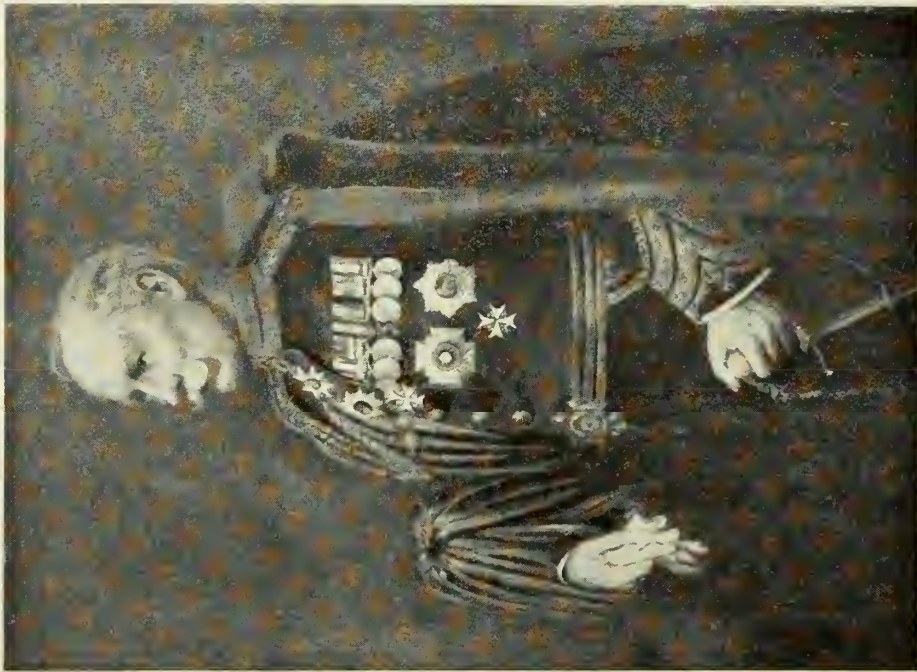
William (later Sir William) Grant Macpherson (1858-1927) was born at Kilmuir, Ross-shire, and graduated M.B. at Edinburgh in 1882. He joined the Army Medical Service in 1883, and was attached to the Japanese forces during the Russo-Japanese War. Later he accompanied British missions to Morocco, and was one of the British plenipotentiaries at the conference for the revision of the Geneva Convention in 1906. He was the author of numerous contributions to the *Journal of the Royal Army Medical Corps*, dealing chiefly with medical organisation in the British and other armies. His chief work consisted in editing the "Medical History of the Great War."

David (later Sir David) Bruce (1855-1931) graduated M.B. at Edinburgh in 1881, and joined the Army Medical Service in 1883. He was specially promoted for service in the South African War, but his chief work has lain in the investigation of the cause of various tropical diseases. In 1886 he discovered the *Micrococcus melitensis* as the cause of Malta fever, and thus enabled measures to be taken for the eradication of this disease. He was a member of the commission appointed to investigate conditions in South Africa in relation to dysentery and enteric fever in 1900-1901; and, in 1903, he visited Uganda as the director of a commission for the investigation of sleeping sickness. He was successful in proving this disease to be due to a trypanosome spread by the bite of the fly, *Glossina palpalis*. He had previously, in 1894-1896, investigated nagana, the tsetse fly disease in Zululand, and discovered its cause to be the *Trypanosoma brucei*, spread from one animal to another by the fly *Glossina morsitans*. He has been the author of over 100 contributions to scientific literature, dealing especially with Malta fever, tsetse fly disease, sleeping sickness and trypanosomiasis in animals and man.

Charles Henderson Melville, born 1863, graduated M.B. at Edinburgh in 1885, and joined the Army Medical Service in the following year. He devoted his attention chiefly to sanitation, and was a member of the Royal Army Medical Service Advisory Board, as well as professor of military hygiene at the Royal Army Medical College from 1908 to 1912. He was a member of a committee which investigated the physiological effects of food, training and clothing on soldiers, and published numerous articles and books dealing with venereal diseases, military hygiene, etc.



SIR WILLIAM BOOG LEISHMAN (1865-1926)



SIR WILLIAM TAYLOR (1843-1917)
(Original by Goldberg Anderson in R.A.M.C. College, London)

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Indian Medical Service

With regard to medical service in India, Scotsmen were found holding positions under the East India Company and in the service of native potentates even before the foundation of the Bengal Medical Service in 1764. During the first half of the 19th century fully half the Indian Medical Service, according to Crawford, was composed of Scotsmen.¹ The Medical Services in the Presidencies of Bengal, Madras and Bombay were amalgamated in 1896, and up to that time some of the most distinguished Scotsmen engaged in the Service were as follows:—

Bengal Presidency.

John Crawford (1783–1868) was educated at Edinburgh University, and was concerned in various embassies to Siam, CochinChina and Java, of which he wrote important accounts. Nathaniel Wallich (1786–1854), although a Dane, graduated M.D. at Aberdeen in 1819, and joined the Bengal Medical Service; he was a distinguished botanist at a time when botany occupied a more prominent position than it does at present; his "*Plantæ Asiaticæ Rariores*" was a celebrated work. James Adair Lawrie (1801–1859) graduated M.D. at Glasgow in 1822, and after serving for some eight years in the Bengal Medical Service, returned to Glasgow, where he became professor of surgery. Duncan Stewart (1804–1875) was an L.R.C.S. of Edinburgh, and graduated M.D. at Aberdeen in 1824. He was well known as the author of "*A Practical Arabic Grammar*." William Lewis MacGregor (1801–1853) graduated M.D. at Edinburgh in 1825, and published "*Observations on Diseases of Soldiers*," "*A History of the Sikhs*," and "*The Medical Topography of Loodiana*."

Donald Alexander MacLeod (1801–1872), after a medical course at King's College, Aberdeen, joined the Bengal Medical Service, and afterwards the Army Medical Service; he was the author of "*Medical Topography of Bishnath*." Kenneth Mackenzie MacKinnon (1804–1861) graduated M.D. at Edinburgh in 1826, and was the author of "*Medical Topography of Tirhut*" and of a treatise on "*The Public Health and Diseases of Bengal*." Archibald Campbell (1805–1884) graduated M.D. at Edinburgh in 1826 and, after serving for some time on the north-east frontier, was the author of "*Routes from Darjiling and Thibet*." Thomas Alexander Wise (1802–1889) graduated M.D. at Edinburgh in 1824, and was the author of numerous books such as "*The Pathology of the Blood*," "*The Hindu System of Medicine*," "*Diseases of the Eye*," "*Cholera*," and "*The History of Medicine*." Robert Hamilton Irvine, born 1806, graduated M.D. at Edinburgh in 1828, and was the author of "*Medical Topography of Ajmeer*," and of a work on "*The Native Materia Medica of Patna*." Hugh Falconer (1808–1865) graduated M.D. at Edinburgh in 1829, and was the author of a work on "*Fauna Antiqua Sivalensis*." John MacCosh (1805–1885) graduated M.D. at Edinburgh in 1841, and was the author of numerous works, including "*Topography of Assam*," "*Medical Advice to the Indian Stranger*," and "*Advice to Officers in India*."

¹ Crawford: "*Roll of the Indian Medical Service, 1615–1930*," London, 1930.

Hypnotism

James Esdaile (1808-1859) was born at Montrose, graduated M.D. at Edinburgh in 1829, and shortly after his arrival in India, became attracted by the possibilities of hypnotism, or as it was then known, mesmerism. The subject had already been investigated by James Braid (1795-1860), another Scotsman settled in Manchester, who, inquiring into the claims of professional mesmerists, discovered that a genuine self-induced sleep could be brought about by a fixed stare at a bright inanimate object. He had proved thus that the mesmeric influence was entirely subjective or personal, and had published an important treatise on the subject, entitled "Neurypnology, or the Rationale of Nervous Sleep" (1843). Esdaile, about two years later, began to try hypnotism as a means of producing anæsthesia for operations on Hindu convicts. It should be remembered that this was prior to the discovery of anæsthesia by volatile substances. He published "Mesmeric Facts" (1845), "Mesmerism in India and its Practical Application to Surgery and Medicine" (1846), "A Record of Cases Treated in the Mesmeric Hospital" (1847), and "Practical Application of Mesmerism in Surgery and Medicine" (1852). He had a record of 261 painless operations on natives anæsthetised by this means, but on returning to Scotland, he found that mesmerism, which had been so successful as an anæsthetic among the Hindus, was of little avail in the case of his self-contained countrymen.

Henry Ives Hurry Goodeve (1807-1884) graduated M.D. at Edinburgh in 1829. He was the first professor of medicine in the Calcutta Medical School, and was the author of "Hints on Children in India" (1844), which has gone through some 11 editions. John Murray (1809-1898) graduated M.D. at Edinburgh in 1831, and was the author of "Topography of Meerut," "Treatment of Epidemic Cholera," etc. George Charles Wallich (1815-1899) was the son of Nathaniel Wallich, and graduated M.D. at Edinburgh in 1836; he was a celebrated zoologist, and after serving on a survey of the Atlantic bed, he wrote "The North Atlantic Seabed" (1862). William Jameson (1815-1882) was an L.R.C.S. of Edinburgh in 1836, and was greatly interested in the introduction of tea planting from China in 1845; he published numerous contributions dealing with the cultivation of tea and forestry. John MacPherson (1817-1890) graduated M.D. at King's College, Aberdeen, in 1845, and was a prolific writer upon dysentery, insanity among Europeans in Bengal, mineral waters of India, cholera, etc. Thomas Thomson (1817-1878) graduated M.D. at Glasgow in 1839, and was the author, with Sir J. Hooker, of "Introductory Essay to Flora Indica" (1855). Frederick John Mouat (1816-1897) graduated M.D. at Edinburgh in 1839, and, after 30 years in the Bengal Medical Service, became a medical inspector to the Local Government Board of England. He was a prolific author, having produced "A Hindustani Version of the London Pharmacopœia" (1845), "A Manual of Anatomy" (1849), "The British Soldier in India" (1859), "The Andaman Islands" (1859), and a work on "Hospital Construction and Management." Alexander Grant (1817-1900) became an L.R.C.S. of Edinburgh in 1838; he was surgeon to the governor-general, Lord Dalhousie, and author of "A Guide to the Domestic Medicine Chest in India" (1852), and "Hill Diarrhœa and Dysentery" (1853).

Norman Chevers (1818-1886) graduated M.D. at Glasgow in 1839, and joined the Bengal Medical Service some nine years later; he was an early sanitarian at a time when the importance of public hygiene was beginning to receive greater attention; he was the author of numerous works, as "Medical Jurisprudence for India," "Diseases of the Heart and Aortic Aneurysm," but especially on sanitary subjects such as "Public Health in India" (1854), on "Preserving the Health of European Soldiers in India," on "Preservation of the Health of Seamen," and a "Commentary on Diseases of India."

Joseph (later Sir Joseph) Fayrer (1824-1907) joined the Bengal Medical Service in 1852, but afterwards graduated at Edinburgh in 1859; he saw much service in Italy and Burma, and in the Indian Mutiny he rendered important service at the defence of Lucknow. He was the author of numerous works, such as "Clinical Surgery in India" (1866), "European Child Life in Bengal" (1873), "The Climate and Fevers of India" (1882); but his most outstanding work was that on "The Thanatophidia of India" (1884), which was the first comprehensive account of the poisonous snakes of that country.

Lindsay Stewart (1831-1873) became L.R.C.S. Edinburgh and graduated M.D. at Glasgow in 1853; after passing through the Indian Mutiny, he devoted his attention to botany and forestry, upon which he published several important works, such as his "Report on Forests in Punjab" (1868). David Boyes Smith (1833-1889) became L.R.C.S. Edinburgh and graduated M.D. in 1855. After passing through the Indian Mutiny, he became the first editor of the *Indian Medical Gazette* in 1866; later he was professor of military medicine in the Army Medical School at Netley. William Wotherspoon Ireland (1832-1909) graduated M.D. at Edinburgh in 1855, and after a short period in the Bengal Medical Service devoted his attention to lunacy, becoming superintendent of the Scottish National Institution for Imbecile Children at Larbert; in addition to numerous contributions to general literature, he wrote an important work on the mental affections of children.

James Edward Tierney Aitchison (1835-1898) graduated M.D. at Edinburgh in 1858; he was the author of "A Classified List of Diseases in English and Urdu," but was specially distinguished as a botanist and zoologist. Kenneth



SIR GEORGE KING (1840-1909)
(Original in the Herbarium, Royal Botanic Gardens, Kew)

Macleod (1840-1922) graduated M.D. at Edinburgh in 1861, and while serving in India, interested himself greatly in veterinary medicine; he published a manual of "Diseases of Cattle" and one on "Sanitary Treatment of Epizootics" in 1869; he was successful in the establishment of a veterinary school in Bengal, upon which he reported in 1883; he edited the *Indian Medical Gazette* for 20 years from 1871 to 1891, and afterwards became professor of military medicine in the Army Medical School at Netley.

Sir George
King

George (later Sir George) King (1840-1909) graduated M.B. at Aberdeen in 1865, and, devoting himself to botany, published "Annals of the Royal Botanic Gardens, Calcutta," seven volumes, in 1889, and afterwards became director of the Royal Botanic Gardens at Kew; at a time when the government was attempting to produce quinine in India, he brought out a "Manual of Cinchona Cultivation in India" (1876). David Douglas Cunningham (1843-1914) graduated M.D. at Edinburgh in 1867. He carried out important pathological researches, especially in regard to fungus disease of India. Alexander Crombie (1845-1906), who graduated M.B. at Edinburgh in 1867, was for a time editor of the *Indian Medical Gazette*, and conducted important researches into such subjects as sprue and hill diarrhoea. He later became lecturer on tropical diseases in the Middlesex Hospital.

Cinchona

Edward Lawrie (1846-1915) graduated M.B. at Edinburgh in 1867, and published the results of the Hyderabad Chloroform Commission in 1894; this was an important inquiry which had been financed by the Nizam of Hyderabad for the purpose of determining the relative safety of different anæsthetics. Laurence Austin Waddell, born 1854, graduated M.B. at Glasgow in 1878, and had a long service on the north-west frontier of India. He devoted himself to ethnographical studies, upon which he published several important works, such as "The Buddhism of Thibet" (1895), "The Tribes of the Brahmaputra Valley" (1900), "Excavations at Pataliputra" (1903), "Lhasa and its Mysteries" (1905); he was editor of the *Indian Medical Gazette* for several years, and was professor of Tibetan at University College, London, from 1906. David (later Sir David) Prain, born 1857, became L.R.C.S. Edinburgh in 1883, and in the same year graduated M.B. at Aberdeen; after over 20 years in the Bengal Medical Service, during which he published several important works on botany, he became director of the Royal Botanic Gardens at Kew. Patrick (later Sir Patrick) Hehir, born 1859, became L.R.C.S. Edinburgh in 1883, and after service in Burma and on the north-west frontier, was P.M.O. at the defence of Kut in the Great War; he published several works dealing chiefly with preventive medicine, such as "Sanitation for Indian Schools" (1890), "Hygiene and Sanitary Science" (1894), "The Medical Profession in India" (1923) and "Malaria in India" (1927).

Charles (later Sir Charles) Henry Bedford (1866-1931) graduated M.B. at Edinburgh in 1887; he published several important works, such as "The Enteric Fever of India" (1893), "Elementary Hygiene" (1903), and was for a time editor of the *Indian Medical Gazette*. He was professor of chemistry at Lahore

and Calcutta, and in 1906 became director of the Central Excise Laboratory for India. Charles John Milne (1872-1911) graduated M.B. at Aberdeen in 1893; he published "A Report on Epidemic Cerebro-Spinal Meningitis in India" (1906), and "The Bengal Lunatic Asylums Manual" in 1910.

Madras Presidency.

James Anderson (1738-1809), after studying at Edinburgh, entered the Madras Medical Service in 1762; he became the first president of the Medical Board with the title of physician-general in 1786; he was the author of several important letters dealing with the commerce of India, such as on cochineal, coffee, silk and minerals. William Roxburgh (1751-1815) graduated M.D. at Marischal College in 1790. He was the author of several important works dealing with forestry. John Leyden (1775-1811) was originally a minister in the Church of Scotland, and a man of considerable literary attainments; later taking to medicine, he became L.R.C.S. Edinburgh in 1802, and joined the Madras Medical Service in the following year (see page 770).



GEORGE BIDIE (1830-1913)

Robert Wight (1796-1872) became L.R.C.S. Edinburgh in 1816, and graduated M.D. in 1818; he devoted his attention to botany, and published several large works on this subject. Alexander Turnbull (1801-1832) graduated M.D. at Edinburgh in 1820, and was the author of "Observations on the Nature and Treatment of Cholera." John Grant Malcolmson (1802-1844), after a period in the Madras Medical Service, resigned and graduated M.D. at Edinburgh in 1839; he was the author of an important work on "The History and Treatment of Beri-beri" (1835), and also wrote "Observations on Rheumatism in India," and on "The Effects of Solitary Confinement on Health of Soldiers in Warm Climates." Duncan Macpherson (1812-1867) graduated M.D. at Edinburgh in 1835, served through the Chinese War, and published an account of "The War in China" (1842). Edward Green Balfour (1813-1889) became L.R.C.S. Edinburgh in 1833, founded the Government Central Museum at Madras in 1850, and was the author of various works, including "An Encyclopædia of India," in five volumes, and some treatises on forestry.

William Campbell Maclean (1811-1898) was born at Ayr, became L.R.C.S. Edinburgh in 1832, and graduated M.D. in the following year. Joining the

Madras Army in 1838, he became residency surgeon at Hyderabad, where he organised the vernacular medical school. He wrote a treatise on small-pox, and contributed articles dealing with tropical diseases to several collected works on medicine. Afterwards, on returning to England, he became professor of



SIR JOHN MCNEILL (1795-1883)

(Original by Thomas Phillips, R.A., in possession of Dr. T. M. Guthrie)

military medicine in the Army Medical School, first at Fort Pitt, and later at Netley. Hugh Francis Clarke Cleghorn (1820-1895) graduated M.D. at Edinburgh in 1841; he became conservator of forests in Madras and wrote several important works upon forestry, especially one upon the Indian guttapercha tree (1858). George Bidie (1830-1913) became L.R.C.S. Edinburgh in 1853, and graduated M.B. at Marischal College in the same year. He served through the Indian Mutiny, and ultimately attained the rank of surgeon-general; he

George
Bidie

was a man of encyclopædic knowledge, for he wrote upon natural history, botany, economic products, and coinage, and his report on the ravages of the borer insect on coffee estates (1869) was of great importance in saving the coffee plantations of south India. In the domain of medicine, his work was of special importance in showing how the spread of cholera was linked up with human intercourse and due to the pollution of water by infected cholera discharges; he also introduced the humane treatment of the insane into India, and he instituted, in 1886, the systematic medical inspection of schools throughout the Presidency of Madras.

William Burney Bannerman (1858-1924) graduated M.B. at Edinburgh in 1881, and was especially distinguished for his work on plague in connection with the Bombay plague committee, which discovered the transmission of this disease by the rat flea; he was the author of "The Plague Prophylactic" (1905).

Bombay Presidency.

John (later Sir John) McNeill (1795-1883) graduated M.D. at Edinburgh in 1814, and after serving for some 20 years in the Indian Medical Service, during which he was attached to various missions and embassies, resigned and became chairman of the board of supervision to administer the recently passed Scottish Poor Law Act in 1845; he was the author of a work on "Progress and Present Position of Russia in the East" (1836), "Correspondence Relating to Persia and Afghanistan" (1839), etc. Alexander Gibson (1800-1867) became L.R.C.S. Edinburgh in 1819, and was appointed conservator of forests in Bombay Presidency; he was the author of "Forest Reports," "Bombay Flora," and other works on botany and forestry. Charles Morehead (1807-1882) became L.R.C.S. Edinburgh in 1827, and graduated M.D. there in 1828; he was the first principal and professor of medicine in Grant Medical College, Bombay, 1845, and the first professor of military medicine in the Army Medical School at Fort Pitt, Chatham, 1860. He was the author of various medical works.

John Forbes Watson (1827-1892) graduated M.D. at King's College, Aberdeen, in 1848. He became director of the India Museum at the India Office, and was the author of various important works dealing with textile manufactures in India, the food grains of India, the cultivation of tobacco in



SIR GEORGE C. M. BIRDWOOD (1832-1917)

India, and other commercially important Indian products. George (later Sir George) Christopher Molesworth Birdwood (1832-1917) became L.R.C.S. Edinburgh in 1854, and graduated M.D. there in the same year. He became a special assistant in the revenue department of the India Office, and was the author of various important works dealing with the products of India, such as "Vegetable Products of Presidency of Bombay" (1862), "The Industrial Arts of India" (1880), and "The Indian Fauna and Flora" (1888).

Foundation of Imperial Russian Medical Services

While Scotsmen were largely responsible for the improvement of hygiene in the British navy and army at the beginning of the 19th century, a somewhat similar part was played by men of this nation in the Russian Empire. In conformity with the political complexion of Russia, all advances in medicine necessarily emanated from officials employed in one or other of the Russian services. A number of Scotsmen had joined the Russian navy and army during the 18th century.

Early
physicians
in Russia

One of the most notable of these 18th century Scots in Russia was James Mounsey (*ca.* 1700-1773).¹ He was born at Skipmire in the parish of Trailflat, Dumfriesshire, and went to Russia in 1736 as "lekar" in the naval hospital at St. Petersburg. He became a close friend of another Scot in the Russian service, James Keith, who later became field-marshal under Frederick the Great. Mounsey attended Keith when the latter was seriously wounded, and accompanied him to Paris for an operation. While in France, he took the opportunity to graduate M.D. at Rheims in 1740. In 1742, in the war against Sweden, Keith appointed Mounsey physician to the Russian headquarters at Abo. In 1754, Mounsey married Jean, the daughter of Dr. James Grieve, who was physician to the Empress Elizabeth. He also was a Scot, having been born in Roxburghshire and graduated M.D. at Edinburgh in 1733. Two years later Mounsey gave up the army for practice in Moscow, at which he made a fortune, and in the same year he was appointed archiater or chief royal physician to the Empress Elizabeth. He held the same position under the Emperor Paul, but when the latter was succeeded by the Empress Catherine II., Mounsey applied for leave on the ground of failing health, and returned to Scotland in 1762. He had been elected a Fellow of the Royal Society, and made several communications to this body. The most important of these was a description of *Rheum palmatum*; he had brought some of the seeds home with him and given them to Dr. Hope, professor of botany at Edinburgh, who for the first time in Britain successfully produced from them the rhubarb plant. Various important decrees and reports regarding medical affairs in Russia were drawn up by Mounsey.

John Grieve (*ca.* 1750-1807), who was brother-in-law to Mounsey, graduated M.D. at Glasgow in 1777, and, going to Russia, became physician to the Emperor Paul.

¹ Innes Smith: *Edinburgh Medical Journal*, 1926, Vol. XXXIII., p. 274.

John Rogerson, a nephew of Mounsey, was born in Dumfriesshire, graduated M.D. at Edinburgh in 1765 with a thesis *De Morbis Infantum*, and next year went to Russia. He stayed in that country for 50 years, and during the reign of the Empress Catherine II. he was one of her most trusted advisers,



SIR JAMES WYLIE (1768-1854)

accompanying her on her tours through the Empire and giving advice in regard to administrative changes.

The founder of modern Russian military medicine was James (later Sir James) Wylie (1768-1854),¹ who was born at Kincardine-on-Forth and graduated M.D. at King's College, Aberdeen, in 1794. For 25 years he was the head of the Army Medical Department in Russia, and he became the first director of the Academy of Military Medicine in St. Petersburg. He had gone to Russia first in 1790, and in 1800 he took the foremost part in founding the

Sir James
Wylie

¹ *Lancet*, 1897, Vol. II., p. 343.

Medical Academy of St. Petersburg and Moscow, of which he was for 30 years the president. In 1811, when a Medical Department of the War Ministry was instituted, Wylie was appointed its chief, and held this appointment till 1836. He maintained a close relationship as physician and adviser with several successive czars, and took a prominent part in the campaigns of 1812 and 1813. He was an energetic surgeon, and after the battle of Borodino in 1812, he is said to have performed over 200 operations on the field. In 1814 he became physician-in-ordinary to the Emperor Alexander I., whom he accompanied to England. Here he was created a baronet by the prince regent. During his directorship, he did a great deal to improve the Russian hospital system, and when he died, most of his property was left to erect a hospital in St. Petersburg. He published several medical books in Russian upon such subjects as plague and ophthalmia, and he drew up a Russian field pharmacopœia.

Sir
Alexander
Crichton

Alexander (later Sir Alexander) Crichton (1763-1856) was a contemporary of Wylie in Russia, and played a similar part in the organisation of civil medicine to that discharged by Wylie in regard to the army. Crichton was born and educated at Edinburgh, where he served an apprenticeship to Alexander Wood, the surgeon. Later, going to London, he became physician to Westminster Hospital in 1794, and in 1798 he published a work on "Mental Derangement," which gained him a great reputation both at home and abroad. In 1804 he was offered the post of physician-in-ordinary to the Emperor Alexander I., which he accepted, and a few years later he was appointed head of the Civil Medical Department, in which he was responsible for the organisation of medical services to the civilian population throughout the Empire. In this position he was much consulted by the Dowager Empress in the construction and organisation of many charitable institutions which were then being founded. He retired in 1819, and returned to England, although once again for a short time he busied himself in Russia. He published various works, chiefly on the treatment of consumption and on geological subjects.

Contributors to General Literature

John Aikin (1747-1822) studied at Edinburgh, though he afterwards graduated at Leyden; he became later a well-known essayist and biographer, and his "General Biography" (10 vols.) and "Evenings at Home" (6 vols.) were widely read. James (later Sir James) Edward Smith (1759-1828) studied at Edinburgh under Professor John Hope and afterwards became a distinguished botanist; he founded the Linnæan Society in 1788, and produced numerous botanical works of high value, including his "English Botany" in 36 volumes.

James Currie (1756-1805) was born in Dumfriesshire and began life by emigrating to Virginia, where he passed several years of great hardship. Returning to Edinburgh, he studied medicine there and graduated at Glasgow in 1780. He then settled in Liverpool, where he obtained a large practice and became celebrated for his publication in 1797 of "Medical Reports on the effects of Water, Cold and Warm, as a Remedy in Fever and Febrile Diseases." This, the earliest important treatise on hydrotherapy, was supported by carefully

calculated thermometric observations. He was also celebrated for a "Life of the Poet Burns," and as the first editor of a collection of his poems. His work in regard to water treatment was continued later by James Manby Gully (1808-1883), who graduated M.D. at Edinburgh in 1829. Gully, shortly after



SIR JAMES MACKINTOSH (1765-1832)

(Original by Sir Thomas Lawrence, P.R.A.)

graduation, settled in London and devoted himself largely to literary work, becoming editor of the *London Medical Journal* and the *Liverpool Medical Gazette*. In 1846, he published "The Water Cure for Chronic Disease," and in 1863 "The Water Cure in Acute Disease."

James (later Sir James) Mackintosh (1765-1832) was educated at Aberdeen and Edinburgh and graduated M.D. at Edinburgh in 1787. Settling in London, he became a contributor to periodicals and interested himself

Sir James
Mackintosh

greatly in the politics of the French Revolution. His "*Vindiciæ Gallicæ*" was written in opposition to Burke's "*Reflections on the French Revolution*." Subsequently, taking to law, he became a barrister in 1795 and, later, a judge in Bombay and professor of law and politics at Haileybury College; he became celebrated as a lawyer and politician and published various historical works.

John
Leyden

John Leyden (1775-1811), a shepherd's son, born at Denholm, Roxburghshire, became a well-known poet and orientalist. After education at Edinburgh University, he was licensed as a preacher, and helped Sir Walter Scott to gather material for his "*Border Minstrelsy*." Later, taking to medicine, he became L.R.C.S. Edinburgh in 1802, and in the following year sailed for India as an assistant-surgeon at Madras. He had already published "*Discoveries of Europeans in Northern and Western Africa*" (1799), while his poems in "*The Edinburgh Magazine*" had attracted much attention. In India he was surgeon and naturalist on the survey of Mysore and Travancore in 1804, and held several other important positions. He had a great linguistic facility; translated the Gospels into five languages, and is said to have known 34 languages or dialects. He was the author of several important works dealing with the language of Indo-Chinese nations, such as "*A Malay Grammar*," "*A Prakrit Grammar*," etc. He died of fever at Batavia in 1811, but several of his works were issued after his death, such as "*Poetical Remains*" (1819), "*Poems and Ballads*" (1875), "*Poetical Works*" (1875); and many of these are still sung and quoted.

Nathan Drake (1766-1836) studied medicine at Edinburgh, where he graduated M.D. in 1789. He practised in Suffolk and was an early advocate of digitalis, but he is chiefly known as a Shakespearean scholar. His "*Shakespeare and his Times*" (1817) and "*Memorials of Shakespeare*" (1828) are still well-known works. David MacBeth Moir (1798-1851), after an apprenticeship, commenced in 1816 to practise as a surgeon in his native place of Musselburgh. He was well known as a minor poet and as a contributor to periodicals, especially to "*Blackwood's Magazine*," under the nom-de-plume of "*Delta*." His best-known work is the "*Autobiography of Mansie Waugh*" (1828).

John (later Sir John) Forbes (1787-1861) was born in Banffshire and graduated M.D. at Edinburgh in 1817. After a period in the Navy he practised in London and, by translating Laennec's *Treatise* in 1821, introduced auscultation to English medicine. He edited the "*Cyclopædia of Practical Medicine*" and the "*British and Foreign Medical Review*," as well as being the author of numerous medical works.

Henry (later Sir Henry) Holland (1788-1873) studied at Edinburgh and graduated M.D. there in 1811; he became a well-known London physician, and published volumes of "*Essays*" and "*Recollections*." Marshall Hall (1790-1857) studied at Edinburgh and graduated M.D. there in 1812; he practised for a time

in Nottingham, and afterwards in London; the discovery of reflex action is generally credited to him, and he devised a well-known system of resuscitation for the apparently drowned.

Charles Robert Darwin (1809-1882), like his grandfather Erasmus Darwin (1731-1802), studied medicine for two years at Edinburgh; in his Edinburgh period he had already devoted himself chiefly to studies in natural history, although his main inspiration as a biologist was later drawn from Cambridge; his best-known work, "The Origin of Species by means of Natural Selection," was published in 1859. Erasmus Darwin had been celebrated for his poetry, especially the "Loves of the Plants," and for his biological works, such as "Zoonomia," in which he, to a certain extent, anticipated the views of his distinguished grandson.

William Benjamin Carpenter (1813-1885) graduated M.D. at Edinburgh in 1839, and, after practising for a short time at Bristol, devoted himself to scientific and literary pursuits in London. His best known work was the "Principles of General and Comparative Physiology," and he was largely responsible for the organisation of the "Challenger" expedition.

William Beattie (1793-1875), a native of Dumfriesshire, graduated M.D. at Edinburgh in 1818, and settled in London, where he devoted himself to general literature. Various historical works issued from his pen, and he was the literary executor of the poet Campbell.

John Beddoe (1826-1911) graduated M.D. at Edinburgh in 1853, and served on the medical staff during the Crimean war, afterwards practising at Clifton and being physician to the Bristol Royal Infirmary. He was specially well known for his researches upon anthropological subjects and works such as the "Stature and Bulk of Man in the British Isles" and the "Anthropological History of Europe."

Benjamin (later Sir Benjamin) Ward Richardson (1828-1896) studied medicine at Anderson's University, Glasgow, and took the M.D. of St. Andrews in 1854. He was distinguished about the middle of the 19th century as an essayist on medical and literary subjects. He is credited with having introduced the freezing method for local anæsthesia by means of the ether spray. He originated, and for some years edited, the *Journal of Public Health* and the *Social Science Review*. The quarterly journal, *Asclepiad* (established 1884), was written entirely by himself, and his "Disciples of Æsculapius" was an interesting collection of medical biographies.

Samuel Smiles (1812-1904) was born at Haddington, where he practised for some time as a surgeon, but abandoned medicine on becoming editor of the *Leeds Times*, and afterwards secretary of the South-Eastern Railway Company. He was celebrated as an essayist and for his work on general literature, such as

Samuel
Smiles

a "History of Ireland," "Lives of the Engineers," "The Huguenots," etc. His book, "Self Help" (1859), has been translated into a score of languages.

James Macauley (1817-1902) was born at Edinburgh, where he graduated M.D. in 1841, and betook himself to literature. In 1850, he became editor of the *Literary Gazette* and later of *The Leisure Hour* and *Sunday at Home*. His most notable work was the founding of the *Boys' Own Paper* and later of the *Girls' Own Paper*. He wrote numerous books of biography, travel and adventure, many of them intended for juvenile reading.

James Hutchison Stirling (1820-1909) was born at Glasgow, where he graduated in medicine. After holding various professional appointments, he retired from practice in 1851 and devoted himself to literature and philosophy. His work "The Secret of Hegel" (1865) was important as marking the commencement of the study in Great Britain of German philosophy. His translation of Schwegler's "History of Philosophy" went through many editions, and he was the author of numerous other works in philosophy and general literature.

Charles Creighton (1847-1927), after graduating M.B. at Aberdeen in 1871, became demonstrator of anatomy at Cambridge, and wrote on various pathological subjects; his "History of Epidemics in Britain" (1891-1894) is a standard historical work.

Sir Arthur
Conan
Doyle

Arthur (later Sir Arthur) Conan Doyle (1859-1930) graduated M.B. at Edinburgh in 1881. He had already, as a student, contributed short stories to periodical publications, and during his early days in practice in Southsea he began his successful career as an author, with "A Study in Scarlet," "Micah Clarke," "The Sign of Four" and "The White Company." The success of the last-named work led him to abandon medicine, and in 1891 he sprang into fame with his collection "The Adventures of Sherlock Holmes" a character which he founded upon his old teacher at Edinburgh, Dr. Joseph Bell.

Another Edinburgh medical graduate who attained an early reputation as a writer of fiction was Andrew (later Sir Andrew) Balfour. He produced several romances which attained a great popularity, and of which the best known are "By Stroke of Sword" (1897), "To Arms" (1898), and "The Golden Kingdom" (1903), but he abandoned novel writing when he became immersed in work as a sanitarian and authority on tropical medicine (*see page 785*).

Scottish Medical Graduates in Politics

In the domain of statesmanship and politics several Scottish medical graduates played an important part, especially in distant regions of the Empire. The work of African explorers, such as Mungo Park, David Livingstone and Sir John Kirk is mentioned elsewhere. Many Scotsmen in the Medical Services, such as Sir John McNeill and Sir William McGregor, as well as practitioners in various colonies, became important Empire builders.

Among the latter, Sir Charles Tupper (1821-1915), who graduated M.D. at Edinburgh in 1843, has been mentioned in connection with medical development in Canada, and he played an important part in the Canadian union of 1864, which resulted in the formation of this Dominion. Indeed, it has been said of

Sir Charles
Tupper



SIR CHARLES TUPPER (1821-1915)

him that he was the most fearless and constructive statesman whom Canada has produced, that without him the Canadian Dominion could not have been formed, and without him Canada would almost certainly have had neither a national policy nor the Canadian Pacific Railway.

In the political unrest of China that took place in the latter half of the 19th century, and especially in its relations to British diplomacy, two Edinburgh medical graduates rendered invaluable services. Samuel Halliday (later Sir Halliday) Macartney (1833-1906) was born at Dundrennan and studied medicine

at Edinburgh. In 1856, whilst a medical student, he joined a contingent of volunteers and served in the Turkish army through the Crimean war. Returning to Edinburgh, he graduated M.D. in 1858, and afterwards joined the Army Medical Service and was sent to China. Here he took service under the Imperial Government in 1862, and was closely associated with General Gordon in the organisation of a Chinese army. Being sent to England on a mission, he became English secretary to the Chinese Legation in London, while his unrivalled knowledge of the Chinese language, customs and policy were of the greatest importance in establishing close relations between England and China.

“Chinese
Morrison”

A later Edinburgh medical graduate to form important relations with China was George Ernest Morrison (1862–1920), *The Times* correspondent at Peking. Although born in Australia, he studied at Edinburgh and graduated M.B. there in 1887. He became a daring traveller, walking across Australia from the Gulf of Carpentaria to Melbourne in 1882–83, and some 12 years later crossing overland from Shanghai to Rangoon. As special correspondent for *The Times* he undertook many important travels in China and Siberia (1896–97), and frequently sent home messages from which the British Government was glad to draw information. So famous did he become at this time, and so intimately was he involved in the political relations of China, that he came to be known by the sobriquet of “Chinese Morrison.”

In the early development of South Africa, William (later the Hon. Sir William) Bisset Berry (1839–1922) played an important part. He was born at Aberdeen, where he graduated in 1861. Shortly afterwards he established himself in practice in Cape Colony, and, being elected to the Cape Legislative Assembly, became its Speaker. He was a supporter of the policy of Cecil Rhodes. Another Scotsman connected with Rhodes who had much to do with the development of the chartered territories was Leander (later the Rt. Hon. Sir Leander) Starr Jameson (1853–1917). He was a native of Edinburgh but a graduate in medicine of London University.

The Right Hon. Robert Farquharson (1835–1918) was born at Edinburgh, where he graduated M.D. in 1858. After serving for nine years in the Army Medical Service, he resigned and became assistant physician and lecturer on materia medica to St. Mary's Hospital. He is chiefly memorable as having been M.P. for West Aberdeenshire from 1880 to 1906, and because in Parliament he constantly took a special interest in medical affairs.

Sir Charles
Hastings

Charles (later Sir Charles) Hastings (1794–1866) was a distinguished medical politician in a different sense. After graduating M.D. at Edinburgh in 1818, he settled in practice at Worcester, where he became a physician to the infirmary. In 1832 he called a meeting of medical practitioners in the board-room of the Worcester Infirmary, at which the British Medical Association was organised. Transactions of this society (1832–1853) and the *Provincial Medical and Surgical Journal* (1840–1853), succeeded by the *Association Medical Journal* (1853–1857) were the organs of this body of medical practitioners until the *British Medical Journal* was founded in 1857. This association, founded by Hastings, has in the

100 years of its existence played an important part in the development of British medicine, particularly in regard to medical reform.

Robert Bannatyne Finlay (later Viscount Finlay) (1842-1929) was born at Edinburgh and graduated M.B. at the university there in 1864. Shortly after

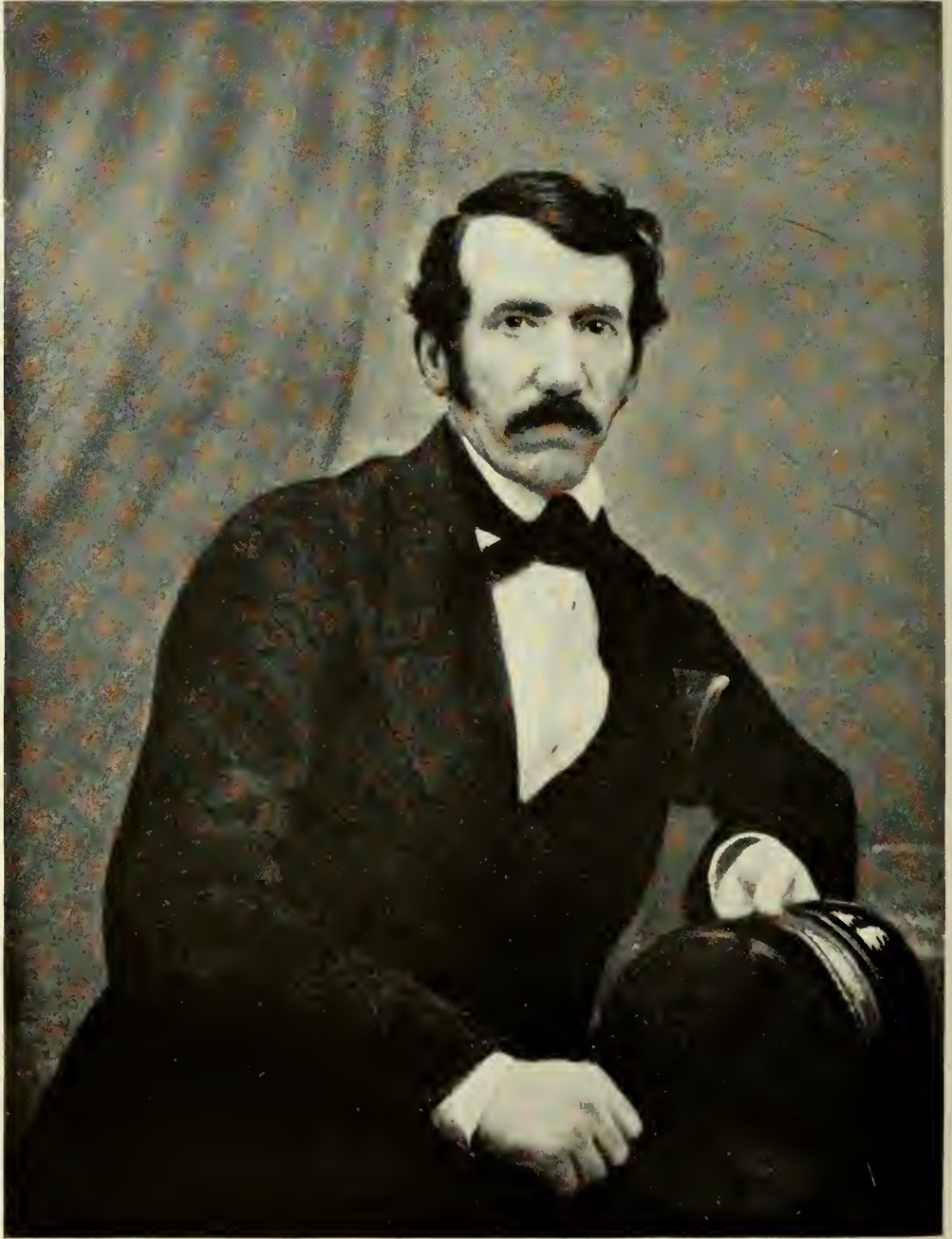


JAMES LIND (1716-1794)
(Original in Royal Haslar Hospital)

graduation in medicine he was attracted to the study of law and joined the English bar. After a distinguished practice at the bar he represented Edinburgh and St. Andrews Universities in Parliament from 1910 to 1916, and in the latter year became Lord Chancellor of England.

Contributors to Tropical Medicine

During the 19th century the part played in developing the knowledge and the treatment of tropical diseases by Scotsmen and men who had been trained at the Scottish medical schools, especially that of Edinburgh, was very great.



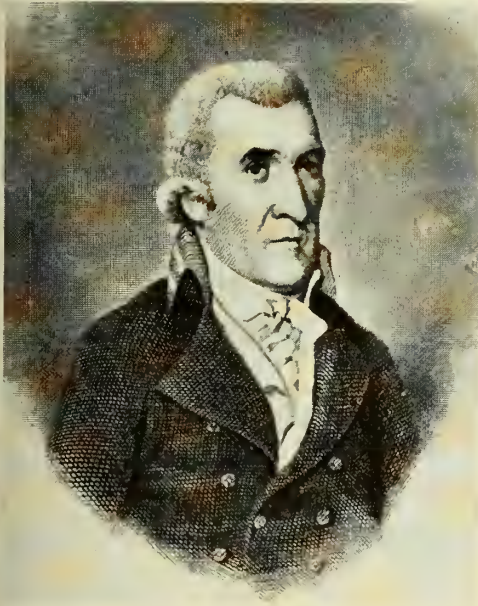
DAVID LIVINGSTONE (1813-1873)
(Original in possession of the Royal Geographical Society, London)

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In the preceding century, James Lind (1716-1794), a native of Edinburgh and graduate of its university, had produced in his "Essay on Diseases Incidental to Europeans in Hot Climates" (1768), what was virtually the first manual on tropical diseases. James
Lind

The West Indian colonies were of great importance in the 18th century, and were a fruitful field for the young practitioner. An important pioneer in the investigation of diseases which were then rife in this district of the world was James Grainger (1721-1766), of St. Kitts. He was born at Duns and

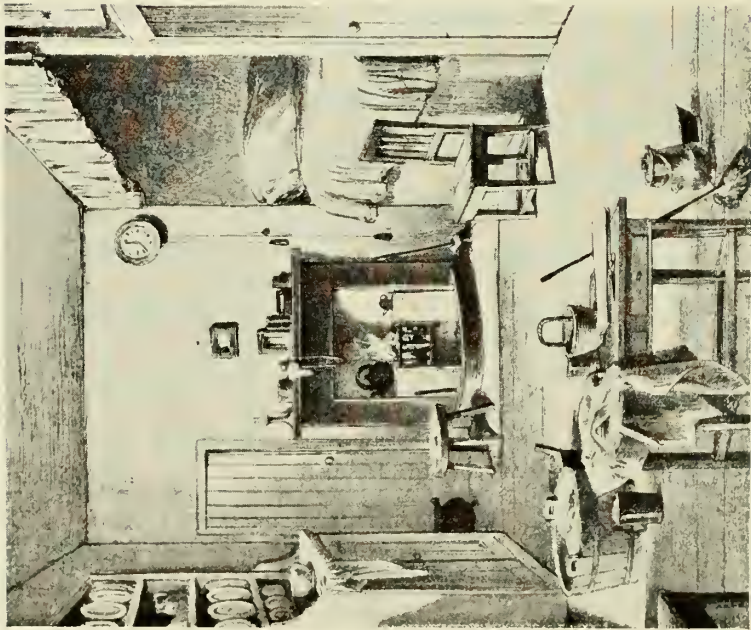


WILLIAM WRIGHT (1735-1819)

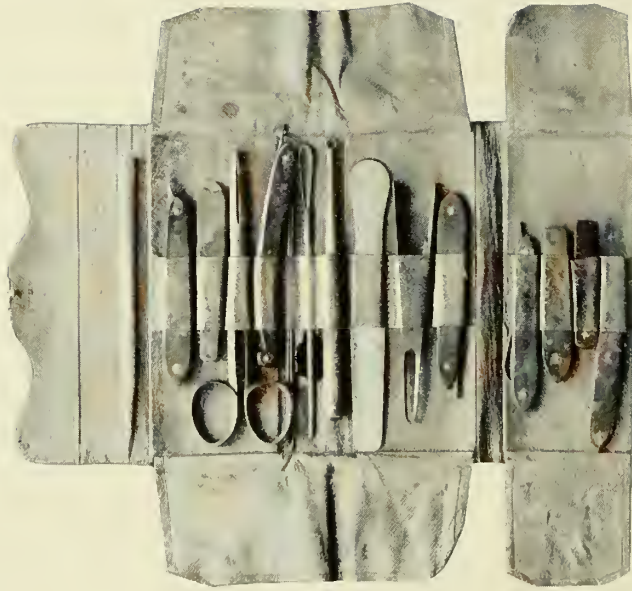
graduated M.D. at Edinburgh in 1753. After acting as an army surgeon and trying practice in London for a time, he embarked for St. Kitts in 1759, and in 1764 produced "An Essay on the more common West Indian Diseases, and the remedies which that country itself produces. To which are added some hints on the management of the negroes." He had been a friend of Dr. Samuel Johnson in London, and devoted some time to poetry. His book is in advance of its day, and he wrote well and learnedly on the diseases of negroes and hygiene of negro slaves. He distinguishes two distinct types of dysentery, concerns himself with the question of "Sick Houses" or estate hospitals, and actually advocates the provision of isolation and venereal wards.

Wright (1735-1819). Born at Crieff, he served an apprenticeship to a surgeon at Falkirk, studied medicine at Edinburgh, made a voyage to Greenland, and joined the Naval Medical Service. After this he had an adventurous career, and saw service in the West Indies. Leaving the navy, he settled in private practice for a time in Jamaica, where he had great opportunities for studying the diseases of this island. Returning to England, he became a regimental surgeon and, being captured by the French, was a prisoner for some time in Spain, where he practised his profession among the Spaniards. Again he sailed for Jamaica, returned home, proceeded to Barbados, where he had charge of the military hospitals, and finally retired to Edinburgh, where he died. He was a prolific writer and lecturer, being elected a Fellow of the Royal Society, to which he made several communications. Among these was an important one describing the *Cinchona jamaicensis* which he had discovered and believed to be three times as strong as the *Cinchona officinalis* for the treatment of malaria. He wrote an

A more important writer upon the diseases of the West Indies was William William
Wright



DAVID LIVINGSTONE'S BIRTHPLACE AT BLANTYRE
LANARKSHIRE



DAVID LIVINGSTONE'S INSTRUMENT CASE
*(Original in the Hall of the Royal Faculty of Physicians and Surgeons
Glasgow.)*

account of yaws, which he distinguished from syphilis, while his "Practical Observations on the Treatment of Acute Diseases of the West Indies" was a valuable record of his own experiences.

David Livingstone (1813-1873) was a distinguished student of the Glasgow school in the early half of the 19th century, whose career, though better known than that of others, was typical of many students at the time. The son of parents possessed of only moderate means, he worked from the age of 10 in a cotton factory at Blantyre, near Glasgow.¹ Possessed of a craving for education, he purchased "Rudiments of Latin" with a part of his first week's wages and pursued the study of this language for many years at evening classes. The many-sidedness of his intellectual interests is indicated by the fact that much of his spare time was spent in scouring the country for botanical, geological and zoological specimens.

David
Livingstone

About the age of 20 he determined to become a medical missionary, and in the winter of 1836-37 betook himself to Glasgow to attend theological and medical classes, mainly in Anderson's College. He secured lodgings in the High Street at the modest rate of half-a-crown weekly, and pursued the plan frequently followed by Scottish students at that time of working in the cotton factory in summer in order to support himself at classes in the winter session upon the money thus earned. His application to the London Missionary Society having been provisionally accepted in September, 1838, he afterwards went to London, where he prosecuted medical and scientific studies, returning to Scotland in November, 1840, for the examination of the Faculty of Physicians and Surgeons at Glasgow. He successfully passed the examination, although it is recorded that he very nearly failed on account of some unorthodox views regarding the use of the stethoscope.

Leaving England for Africa in the end of 1840, he spent the next 30 years almost constantly engaged in missionary work. In this his knowledge of medicine was of the greatest advantage, and he established a type of work which has been widely followed.

He was one of the earliest practitioners (1842) to make systematic clinical observations with the thermometer in cases of malarial fever, using for this purpose a large ordinary thermometer.² He was also one of the early advocates of the wet pack for the treatment of fever,³ and in the treatment of malaria with quinine, of which he had a great experience in Africa, he was the first to point out that the action of this remedy is enhanced when it is combined with purgative drugs.⁴

His medical
work

It is unnecessary here to refer to his work as an explorer, but the training he had early obtained for himself in botany and other branches of science enabled him to make observations which have proved of incalculable benefit to medicine as well as to commerce in Africa.

¹ Blaikie: "The Personal Life of David Livingstone," London, 1880, p. 11.

² Livingstone: "Missionary Travels and Researches in South Africa," London, 1857, pp. 194 and 509.

³ Livingstone: *Op. cit.*, p. 195.

⁴ Livingstone: "Narrative of an Expedition to the Zambesi," London, 1865, p. 73.

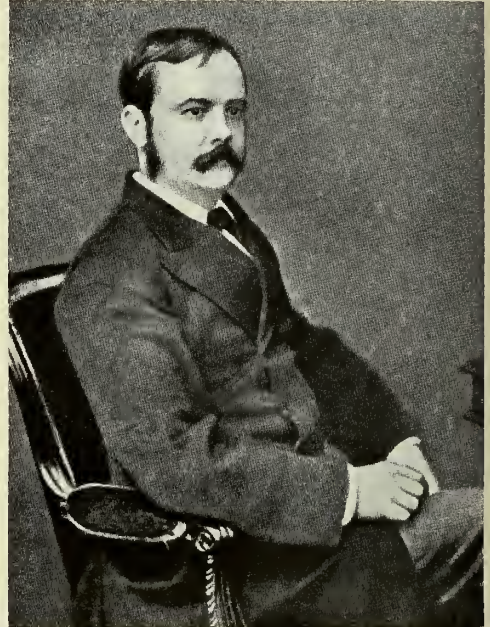
The case of surgical instruments used by him on his travels is preserved in the Hall of the Faculty of Physicians and Surgeons at Glasgow.

Sir John
Kirk

An associate of Livingstone was John (later Sir John) Kirk (1836–1922). He was born in Ayrshire and graduated M.D. in 1854 at Edinburgh, where he had early distinguished himself in botany and other departments of natural history. After serving on the civil medical staff during the Crimean war, he became chief officer and naturalist to Dr. Livingstone's second exploring expedition from 1858 to 1864. Later he became consul and political agent at Zanzibar, where



THOMAS SPENCER COBBOLD
(1828–1886)



TIMOTHY RICHARD LEWIS
(1841–1886)

he obtained a great personal influence with the Sultan. By his own exertions and help afforded to other explorers, Kirk greatly assisted the progress of geographical discovery in East Africa. His great achievement, however, was the almost complete suppression of the slave trade in this part of the world, which was due to the exercise of his strong personality in Zanzibar.

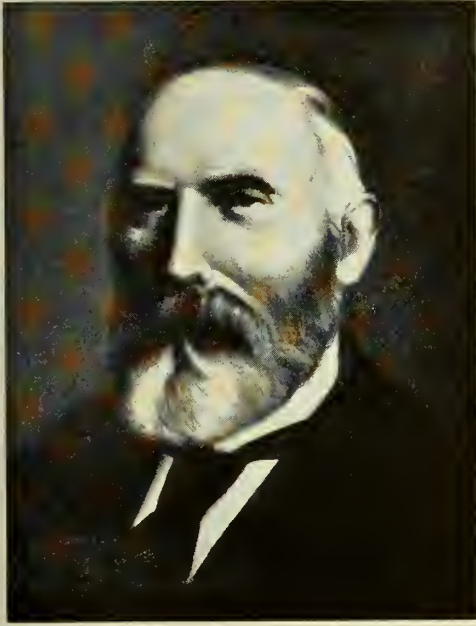
Parasitology

In the domain of parasitology, several Edinburgh men played an early and important part.¹ Thomas Spencer Cobbold (1828–1886), who graduated M.D. at Edinburgh in 1851, was one of the earliest investigators to give a complete account of the parasites infesting man. His published work included "Entozoa" (1864); "Worms: A Series of Lectures Delivered at the Medical College of

¹ See Balfour: "Some British and American Pioneers in Tropical Medicine and Hygiene," *Trans. Roy. Soc. Trop. Med. and Hyg.*, Vol. XIX., No. 4, Oct. 1925, pp. 189–229.

the Middlesex Hospital" (1872); "The Internal Parasites of our Domesticated Animals" (1873); "Parasites: A Treatise on the Entozoa of Man and Animals" (1879); and "Human Parasites: A Manual of Reference to all the Known Species of Entozoa and Ectozoa which are found infesting Man" (1882).

Timothy Richard Lewis (1841-1886) was a Welshman who graduated at Aberdeen University in 1867, and entered the Army Medical Service. He pursued Cobbold's line of research along microscopic lines, and gave the first authentic account of amœbæ from the human intestine. His name is better known in connection with the parasites of the blood, for he discovered the *Filaria sanguinis hominis*, and in 1878, in his famous memoir on "The Microscopic Organisms Found in the Blood of Man and Animals and their Relation to Disease," he described the trypanosome which bears his name. In the later years of his life he acted as assistant professor of pathology in the Army Medical School at Netley.



ANDREW DAVIDSON (1836-1918)

David Douglas Cunningham (1843-1914) was a friend and co-worker of Lewis. Born at Prestonpans, he studied medicine at Edinburgh, and gave the first accurate description of *Entamoeba coli*, *Trichomonas intestinalis*, and other microscopic internal parasites. For many years he acted as professor of physiology and pathology in Calcutta Medical College.

Andrew Davidson (1836-1918) was born at Kinneff and studied medicine at Edinburgh University. He began his tropical career in 1862 as resident medical officer to the Royal Court in Madagascar. Here he established the first hospital, and prepared text-books in Malagassy for the native students of medicine. Two standard works on tropical diseases issued from his pen—one on "Geographical Pathology," and another on "Hygiene and Diseases of Warm Climates." The latter was for many years the standard text-book upon tropical diseases. He was for a time in later life lecturer on tropical medicine in the University of Edinburgh.

Andrew Davidson

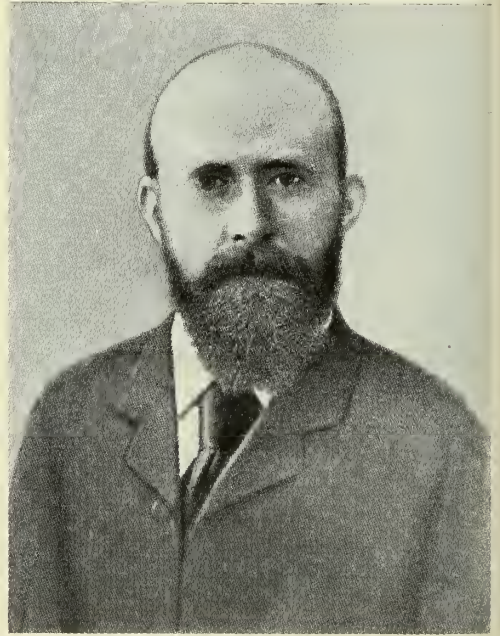
A great medical administrator who, though he did not contribute to medical literature, exercised a profound influence on the early development of tropical medicine, was William (later Sir William) Macgregor (1846-1919). Born at Towie, Aberdeenshire, he studied medicine at Anderson's College, Glasgow, supported by his own endeavours, and graduated at Aberdeen University in 1872. After a period

Sir William Macgregor

in the Colonial Medical Service at Seychelles and Mauritius, he became chief medical officer at Fiji, and shortly afterwards transferred to the administrative department. He was successively administrator of Fiji, high commissioner for the Western Pacific, lieutenant-governor of British New Guinea, governor of Lagos, governor of Newfoundland and governor of Queensland. He was a pioneer in the advancement of the cause of tropical medicine and hygiene in the colonies, especially because he early realised the necessity of providing facilities for training natives in medicine. Sir Ronald Ross has described him as "the only high British official who ever grasped the real importance of the general anti-malaria scheme which I proposed in 1899."

Sir Patrick
Manson

Patrick (later Sir Patrick) Manson (1844-1922)¹ has been called the "father of tropical medicine," to which he devoted his life's work. Patrick Manson was born at Old Meldrum, Aberdeenshire, entered the University of Aberdeen in 1860, the year of its foundation, and supplemented the medical course there by spending the summer sessions at Edinburgh University, graduating M.B. at Aberdeen in 1865. He obtained a post as medical officer for Formosa to the Chinese Imperial Customs. Later he occupied a similar post at Amoy, and here, in the mission hospital, he had much practice, both medical and surgical.



SIR WILLIAM MACGREGOR (1846-1919)

Here, too, he was greatly engaged in researches upon elephantiasis, the cause of different forms of ringworm, which he did much to elucidate, and malaria. Lewis, in 1870, had observed the *Filaria sanguinis hominis* in the blood, and Bancroft, in 1876, discovered the adult filaria in a lymphatic abscess. It remained for Manson, in 1877, to prove the connection between the embryos and the adult worm and the relation of both to the disease elephantiasis, which was extremely prevalent in Amoy. He next carried out the laborious task of showing that the embryo filariæ went through a process of development in the mosquito, *Culex fatigans*. This process of development in an intermediate host was a new principle in parasitology, and for its first recognition Manson deserves the credit. The application of the principle in malaria and other tropical diseases was later worked out by Sir Ronald Ross,

¹ Manson-Bahr: "Life and Work of Sir Patrick Manson," London, 1927.

G. C. Low and others. Manson's constant interest in microscopic work led incidentally to the discovery of the ova deposited in the lung by a distoma as a cause of endemic hæmoptysis in Formosa, to the recognition of an intermediate stage of *Bothriocephalus mansonii*, etc.

In 1883, Manson left Amoy and took up private practice at Hong Kong. Here he was elected dean of the proposed College of Medicine for the Chinese, and he was joined in practice by Dr. James (afterwards Sir James) Cantlie. After five years of hard professional work in Hong Kong, Manson decided to retire, and, in 1890, he took up work as a consultant in London. His appointment as physician to the Seamen's Hospital afforded him an opportunity to continue the study of tropical diseases. Here he demonstrated the life-history of the guinea-worm, and began to lecture upon tropical diseases. His work

The plasmodium of malaria had been observed by Laveran in 1880, but little had been discovered regarding its transmission and propagation till Manson, in 1894, evolved his mosquito-malaria theory, which insisted that the flagellæ thrown out by the parasite were intended to preserve its species outside the body, and that these were the precursors to further development in the mosquito. The actual work upon the multiplication of the malaria parasites in the stomach of the mosquito was later carried out by Sir Ronald Ross at Manson's instigation. Manson subsequently organised two experiments which proved conclusively the rôle of the mosquito as the transmitter of the malaria parasite. He had some anopheles mosquitoes infected with benign tertian parasites brought from Rome to London, where they were set to bite two healthy Londoners—one of them Manson's son; after the due period of incubation, both of these developed typical malaria. Conversely, he organised an expedition to the Roman Campagna with the object of showing that people who were well protected from the bite of these insects could live with impunity in a malarious country. In a hut protected by mosquito-proof gauze, Dr. George C. Low (graduated at Edinburgh, 1897), Dr. L. W. Sambon and Signor Terzi lived during four months of the malaria season without developing the disease, in striking contrast to unprotected persons outside.

Among Manson's other contributions to medical science were the discovery in 1891 of two new species of filaria in patients from West Africa, his confirmation of the development of the guinea-worm embryo in water-fleas, and his confirmation of Dr. Dutton's observation of *Trypanosoma gambiense* as the cause of trypanosomiasis, with the successful treatment of this disease. To him, also, is mainly due the organisation in 1897 of the London School of Tropical Medicine, and its establishment in 1920 on its present site. London
School of
Tropical
Medicine

James (later Sir James) Cantlie (1851–1926)¹ was born at Dufftown and graduated M.B. at Aberdeen University in 1873. After acting for some years as demonstrator of anatomy and assistant-surgeon at Charing Cross Hospital, Sir James
Cantlie

¹ *Lancet*, 1926, Vol. 1., p. 1121.



SIR JAMES CANTLIE (1851-1926)
(From the original oil painting in the Wellcome Historical Medical Museum)



SIR PATRICK MANSON (1844-1922)

he proceeded to China in 1887, where he joined Manson in practice and became one of the founders of the College of Medicine at Hong Kong, in which he taught for some seven years. Later he was engaged in the Egyptian cholera expedition of 1883, and on an enquiry into the distribution of leprosy in the East Indies. Returning to London, he became surgeon to the Seamen's Hospital at the Royal Albert Docks, where Manson was physician. Later, in 1898, he inaugurated the *Journal of Tropical Medicine*, of which he became joint editor, and during this period of his life hardly a year passed without some substantial contribution from his pen to medical science, such as on "The Treatment of Sprue," "The Prevalence of Tropical Abscess," "The Cause of Yellow Fever," and the like. He was mainly instrumental in the foundation in 1914 of the College of Ambulance in London, of which the training proved of inestimable use in the War.

William (later Sir William) John Ritchie Simpson (1855-1931) graduated M.B. at Aberdeen in 1876; he played an important part in developing the knowledge of tropical diseases. Devoting himself to public health, he became medical adviser of health at Calcutta in 1886, and when Sir Patrick Manson was forming the London School of Tropical Medicine in 1899 he joined its staff as a lecturer on tropical hygiene; afterwards he became director of tropical hygiene at the Ross Institute. During his career he acted on many committees and commissions of enquiry regarding tropical diseases, such as yellow fever, plague and cholera. He was editor of the *Indian Medical Gazette* from 1886 to 1899 and later of the *Journal of Tropical Medicine*, and in 1916 published an important text-book on "Maintenance of Health in the Tropics."

Andrew (later Sir Andrew) Balfour (1873-1931)¹ was born at Edinburgh and graduated M.B. there in 1894. After a short time in practice, he decided to devote himself to public health, and served through the South African war. At this period he attained considerable success as a writer of romances, and might have made a great name in general literature if he had not abandoned this for more serious work in tropical medicine. In 1902 he was appointed director of The Wellcome Tropical Research Laboratories at Khartoum. Here, as sanitary adviser to the Soudan Government, he carried out for 11 years the great work of transforming Khartoum from a collection of hovels to a modern city, and succeeded in banishing from it all traces of malaria, which had previously been a very fatal malady. The four volumes of Reports of this laboratory, which were issued between 1904 and 1911, formed a magnificent record of research in tropical medicine.

Sir Andrew
Balfour

An associate of Balfour at Khartoum and, like him, a graduate in medicine of Edinburgh, was A. MacTier Pirrie (1882-1907) who made a remarkable journey into the almost unknown Burun country lying between the White Nile and Abyssinia. In addition to anthropological investigation, Dr. Pirrie was able to furnish the Government with useful intelligence and prepared maps and plans

¹ *British Medical Journal*, 1931, Vol. I, p. 245.

of considerable value. This expedition proved fatal to him, as he contracted infection with kala-azar and died after an illness of several months' duration.

In 1913, Balfour returned to London as director of The Wellcome Bureau of Scientific Research. On the outbreak of war, his intimate knowledge of



SIR ANDREW BALFOUR (1873-1931)

sanitary and tropical medicine was utilised by the military authorities, and he became military sanitary adviser successively in France, Salonica, Mesopotamia, East Africa and Egypt. In 1923 he became director of the London School of Tropical Medicine and Hygiene, and was responsible for the organisation of this School in an extended form and in the new buildings which it now occupies. He was an indefatigable worker, and many books, reports and addresses on subjects connected with tropical medicine and public health stand to his credit.