

GROUP OF EDINBURGH PROFESSORS, ABOUT 1850

es, reading from left to right, are—Back Row: James Miller (surgery), John Hutton Balfour (medicine and botany), John Hughes Bennett (institutes of medicine). Front Row: James Young Simpson (midwifery), Robert Jameson (natural history), William Pulteney Alison (medicine), and Thomas Stewart Traill (medical jurisprudence)

CHAPTER XVI

EDINBURGH MEDICINE TO THE MIDDLE OF THE NINETEENTH CENTURY

UP TO the early years of the 19th century, Edinburgh had been specially distinguished as a school of physic, and had been a resort of students from a distance, who came to hear this side of the healing art expounded by Rutherford, Cullen, Black, Hope and Gregory. It had also become a celebrated school of anatomy

under the second Monro, and this aspect of its teaching had been still further improved by the brothers John and Charles Bell, and the surgeon anatomists who followed in their footsteps. Just as the great development of anatomy in London in the hands of the brothers John and William Hunter in the latter half of the 18th century had been followed by a great improvement in surgery with exponents like Sir Astley Cooper and Sir Benjamin Brodie, so in the Edinburgh school, a great development of surgery appeared about the third decade of the 19th century.

A Chair of Military Surgery was founded in 1806 by King George III., who three years earlier

had instituted the Chair of Clinical Surgery. The need for teaching military surgery at Edinburgh had first been advocated by John Bell in a memoir to Earl Spencer, then First Lord of the Admiralty. Some years, however, were allowed to elapse, and in 1806 John Thomson (1765-1846), was



JOHN THOMSON (1765-1846)

(Original in the Royal College of Surgeons, Edinburgh)

appointed as the first occupant of this Chair. He had commenced life as an apprentice to his father in the silk-weaving trade, and later had been apprenticed to Dr. White of Paisley, and studied medicine at the Universities of Glasgow and Edinburgh. He afterwards spent some time in London, working especially under Sir Everard Home, the brother-in-law of John Hunter, and here particularly laid the basis of a sound knowledge of pathology. Returning to Edinburgh in 1793, he joined the College of Surgeons, and in 1800 was one of the six surgeons selected by the Managers of the Royal Infirmary as its surgical staff. When the professorship of surgery established by the Royal College of Surgeons was founded in 1804, Thomson was selected as the first professor. In 1806, he was chosen by the Crown to be the first incumbent of the newly-established Chair of Military Surgery, which he held for sixteen years. At a later date he was appointed as the first occupant of the Chair of Pathology, established in 1831.

The fact that he was the first holder of no fewer than three professorships led Robert Knox to refer to him with sarcastic humour as "the old chair-maker."¹ Thomson held the Chair of Military Surgery during the important period when the Peninsular War and the other operations which culminated in the battle of Waterloo, were raging. After the battle of Waterloo he proceeded to Belgium to study the treatment and progress of the wounded.

When he resigned the Chair in 1822, Dr. (afterwards Sir George) Ballingall, was appointed professor. He had seen considerable service in the East, and threw himself into the duties of the Chair with enthusiasm. The Royal College of Surgeons of Edinburgh, in 1829, passed a regulation permitting candidates for their diploma to take a course of military surgery in place of one of the two courses of surgery prescribed, and this action of the College was followed by the medical departments of the Army and the Navy for candidates entering these services. Ballingall published "Outlines of Military Surgery," a work which ran through four editions, and also "Practical Observations on the Diseases of the European Troops in India." He died in 1855, and, owing to the changed circumstances of the times, the Chair of Military Surgery was abolished in the following year.

In 1807, the Crown decided to establish a Chair of Medical Jurisprudence or Forensic Medicine in the University. It had been represented by Dr. Andrew Duncan (*senior*) that professorships in this subject existed in many Universities on the Continent, although there was no such Chair at the time in Great Britain. Dr. Andrew Duncan (*junior*) (1773-1832), who has already been mentioned as the first editor of the *Edinburgh Medical Journal*, was the first incumbent of the new Chair. He was the son of Andrew Duncan (*senior*), had been apprenticed to Alexander Wood, and had studied in London under Matthew Baillie, as well as at various foreign Universities. After holding this Chair for twelve years, he

¹ Lonsdale: "A Sketch of the Life and Writings of Robert Knox the Anatomist," London, 1870, p. 201.

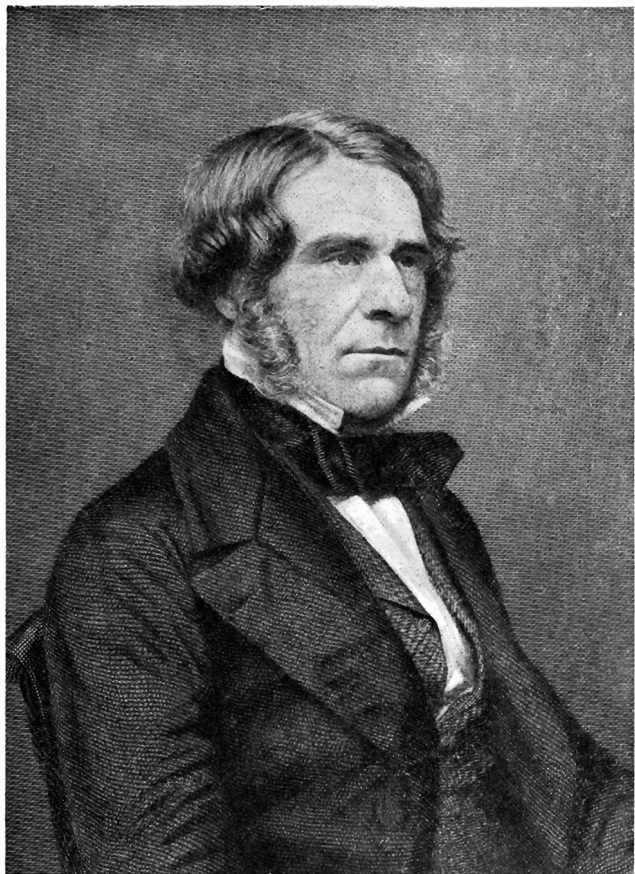
was appointed Professor of Institutes of Medicine in 1819, and in 1821 became Professor of *Materia Medica*, holding the latter post till his death in 1832. The Chair of Forensic Medicine was afterwards filled for a year by Dr. William Pulteney Alison, who, in 1821, followed Dr. Andrew Duncan (*junior*) in the Chair of Institutes of Medicine, and held this till 1842, when he was in turn transferred to the Chair of Medicine. The Chair of Forensic Medicine in the first twenty years of its existence seems to have been regarded as a stepping stone to other professorships, and Alison was succeeded in this Chair, in 1822, by Dr. Robert Christison, who in 1832 was transferred to the Chair of *Materia Medica*.

The latter was then succeeded in the Chair of Forensic Medicine by Dr. Thomas Stewart Traill (1781-1862). Traill had graduated M.D. at Edinburgh in 1802, and immediately settled in practice at Liverpool. He became notable in Liverpool as a lecturer, and, as the first secretary, founded the Literary and Philosophical Society of that city, as well as taking a large part in the foundation of the Royal Institution and Liverpool Mechanics' Institution. He edited the eighth edition of the "Encyclopædia Britannica." After his appointment to the Chair of Medical Jurisprudence in Edinburgh at the age of fifty-one, he prepared the "Outlines of a Course of Lectures on Medical Jurisprudence," which was published in 1836, and went through several editions. He contributed over seventy papers on scientific subjects to various journals, and, on his death in 1862, was succeeded in the Chair by Dr. (later Sir Douglas) Maclagan.

In the Chair of *Materia Medica*, Andrew Duncan (*junior*) was succeeded by Dr. (later Sir Robert) Christison (1797-1882), who held it till 1877. He was the son of the Professor of Latin in Edinburgh University, and had graduated M.D. at Edinburgh in 1819. Thereafter, he studied in London and in Paris, where he paid especial attention to chemistry under Robiquet, and to toxicology under Orfila. Returning to Edinburgh in 1822, he was immediately appointed Professor of medical jurisprudence, and to this developing subject he applied the scientific principles of Orfila's great work. He speedily attained a reputation as a medical witness of great precision, and in 1829 published his celebrated "Treatise on Poisons."

A contemporary says of him: "As a witness, he was remarkable for a lucid precision of statement, which left no shadow of doubt in the mind of court, counsel, or jury, as to his views. Another noteworthy characteristic was the candour and impartiality he invariably displayed." For many years he was medical adviser to the Crown in almost all important cases. His investigations on bruising of the living body, conducted with reference to the trial of Burke and Hare, and on burns sustained before and after death, belong to the classics of this subject. In this case, his experiments, which showed that bruises cannot be inflicted after death, formed the crucial point for the conviction of the murderers.

In toxicology, his work on the effects of oxalic acid, on the action of water on lead, and on cases of arsenic poisoning, was of great value. Christison had spent a period of his early life in study, mainly chemical, at Paris, where Magendie was then introducing the subject of experimental pharmacology and Orfila was busy with toxicology. His partiality to chemical and toxicological



SIR ROBERT CHRISTISON (1797-1882)

science is shown in the "Dispensatory," which he published in 1842; this was founded to some extent upon the Dispensatory of his predecessor in the Chair of Materia Medica, Andrew Duncan, and constituted a kind of commentary upon the pharmacopœias of Edinburgh and other places, containing also records of Christison's own experiments and observations. This work prepared the way for the first Pharmacopœia of Great Britain and Ireland, issued in 1864 by a Committee of the General Medical Council, of which Christison acted as Chairman.

Among his best known pharmacological discoveries were that of conine, the active principle of hemlock (1836), of the action of Calabar bean (1855), and of the therapeutic

uses of digitalin (1855); for though he did not originally isolate this active principle, he was the first in this country to point out its valuable properties, especially as a diuretic. Christison's work on the action of conine is interesting as being one of the earliest pharmacological experiments to be done in this country. He showed that it acted by abolishing the functions of the spinal cord, the action being "the counterpart of the action of nux vomica and

its alkaloid strychnia." Other active drugs investigated by Christison were Calabar bean, coca leaves, and especially the effects and properties of opium from various sources, and of different kinds of wine. He also made an important contribution to medicine in his work on "Granular Degeneration of the Kidneys" (1839), and his biography forms a valuable source of information regarding the Edinburgh Medical School as it existed in his earlier years.¹

The Chair of Surgery was founded in the year 1831 under the conditions mentioned in the last chapter. The first incumbent was Dr. John William Turner (1790-1835) who had been assistant to Dr. John Thomson, and had afterwards succeeded him as Professor of Surgery to the Royal College of Surgeons. His tenure of the Chair was short, for he died at the age of forty-six, after a chill contracted in the course of his Infirmary duties. On his death, the Chair was offered to Sir Charles Bell (1774-1842), who had made a great reputation as an anatomist and scientist in London. On Bell's return to Edinburgh, after an absence of thirty-two years, he stepped into a completely new life. His previous work in connection with anatomy has been mentioned on *page 245*.

In 1830, Bell had published his "Nervous System of the Human Body," in which he described his famous researches on the nerves of the face and respiration, and gave the first account of the effects produced by paralysis of the seventh nerve (Bell's palsy) as follows:—

"It appears that whenever the action of any of the muscles of the face is associated with the act of breathing, it is performed through the operation of this respiratory nerve, or *portio dura*. I cut a tumour from before the ear of a coachman. A branch of the nerve which goes to the angle of the mouth was divided. Some time after, he returned to thank me for ridding him of a formidable disease, but complained that he could not whistle to his horses."

Bell acquired a considerable practice among the nobility of Scotland, but he appears at the time to have been in failing health. In 1838, he published his "Institutes of Surgery," and in 1841 a volume of "Practical Essays," and he conducted the routine work of the surgical class and of his wards in the Royal Infirmary. During the spring vacation of 1842, while on the way to pay a visit in London, he was seized with an attack of *angina pectoris*, and died at Worcester.

Sir Charles Bell was succeeded in the Chair of Surgery by James Miller (1812-1864), who had studied at St. Andrews and Edinburgh, taking the licentiate-ship of the Royal College of Surgeons in 1832. He had been assistant to Robert Liston, succeeding to the practice of the latter when he went to London. In addition to his skill as a surgeon, Miller was celebrated as an orator, and at the Disruption of the Scottish Church in 1843, he rendered great service to the Free Church of Scotland both by speech and pen. He was also well known for his speeches as a temperance reformer. The same qualities stood him in good stead

¹ "The Life of Sir Robert Christison, Bt.," Edinburgh, 1885.

in his lectures on surgery, which were illustrated by anecdotes and illuminated by flashes of wit. His most important contributions to surgical literature were his "Principles of Surgery," published in 1844, and "Practice of Surgery," published in 1846, which, after several editions, were amalgamated in 1864 into a "System of Surgery." This book had a great sale in America as well

as in Britain. When Miller died in 1864, he was succeeded by Mr. James Spence.



JAMES MILLER (1812-1864)

The extra-mural teachers, about the third and fourth decades of the 19th century, did much more to develop surgery and to increase the fame of the Edinburgh school than did the University. It has been mentioned that the agitation for a special Chair in Surgery and the first appointment of a Professor of Surgery originated with the College of Surgeons. Several young men followed in the steps of John and Charles Bell as exponents of surgical anatomy. Among these may be specially mentioned John Lizars (1794-1860), William Fergusson (1808-1877), Robert Liston (1794-1847), and James Syme (1799-1870).

The deficiencies of Monro (*tertius*) induced most of the medical students in the early years of the century to take out the anatomical classes of John Barclay and his successor, Robert Knox; and their dissecting-rooms in Surgeons' Square formed the training-ground for most of the surgeon-anatomists, who first acted as assistants to Barclay, and afterwards conducted classes of their own in the immediate neighbourhood. In 1826, the practical study of dissection was made

compulsory on all candidates for degrees, so that accommodation and "subjects" had to be provided for about 1000 students in Edinburgh. The Resurrectionist activities to which this gave rise have already been mentioned.

John Lizars was Professor of Surgery to the College of Surgeons from 1831 to 1839, and had also been a popular teacher of anatomy. He was a bold and

fearless operator, and enjoys the reputation of having been the first person to ligate the innominate artery for aneurysm, an operation which he performed with the assistance of Fergusson in 1837. His "Observations on Extraction of Diseased Ovaria,"¹ dealing with four cases, was the first description in Britain to place the operation within the bounds of regular surgery, although the operation had been performed and described more than a century earlier by Houston, in Glasgow. He was also the first Scottish surgeon to remove the jawbone for sarcoma.² He published a "System of Practical Surgery," and is celebrated for a life-long contention with Syme. His brother,

Alexander Jardine

Lizars, who had also been a lecturer on anatomy at Edinburgh, became Professor of Anatomy at Marischal College, Aberdeen, in 1841.

William Fergusson was a pupil and assistant of Knox, and a dissector of extraordinary skill. His dissections of the blood vessels in various parts of the body



SIR WILLIAM FERGUSSON (1808-1877)

¹ *Edinburgh Medical and Surgical Journal*, July, 1825.

² *Edinburgh Medical and Surgical Journal*, October, 1826.

are still shown among the most valued preparations in the Museum of the Royal College of Surgeons at Edinburgh. Following in the footsteps of John Bell, he began a course of demonstrations on surgical anatomy in 1829, and in 1839 he was appointed a surgeon to the Royal Infirmary in succession to Liston. Although an active teacher and operator in Edinburgh, his professional life in

this city was short, for in 1840 the Chair of Surgery at King's College, London, was offered to him, and the greater part of his life's work is associated with London.¹



ROBERT LISTON (1794-1847)

Richard James Mackenzie (1821-1854) was another surgeon-anatomist of great promise, who had a short professional life in Edinburgh. He had graduated at Edinburgh and studied surgery in various Continental schools. Returning to Edinburgh in 1844, he became a Fellow of the Royal College of Surgeons, and in 1848 was elected an assistant surgeon to the Royal Infirmary. In the following year he commenced to lecture on surgery at Surgeons' Hall, and he published papers on "A Successful Ligation of the Subclavian Artery," "Excision of the Knee-joint," and "Amputation at the Ankle by an Internal Flap." Having volunteered for service with the Army in the Crimea, he died there of cholera in 1854. His death was regarded as a great loss to the Edinburgh

¹ Miles: "Edinburgh School of Surgery before Lister," p. 132.

Surgical School of the day,¹ but it virtually made room in Edinburgh for Lister, who succeeded to his lectureship.

Much romance centres around the name of Robert Liston (1794-1847), who is generally associated with his contemporary and relative, James Syme. He began the study of medicine in Edinburgh at the age of sixteen, as a pupil of John Barclay, under whom he devoted himself enthusiastically to the study of anatomy, and was one of the great Resurrectionist figures of the time. Later he became a student under Blizard and Abernethy in London, and, in 1818, he became a member of the Royal Colleges of Surgeons both in Edinburgh and in London. In this year he began to lecture upon anatomy, with James Syme as his demonstrator and assistant, to a class of sixty students. He very quickly became famous as a surgeon possessed of unusual initiative and dexterity in operations.

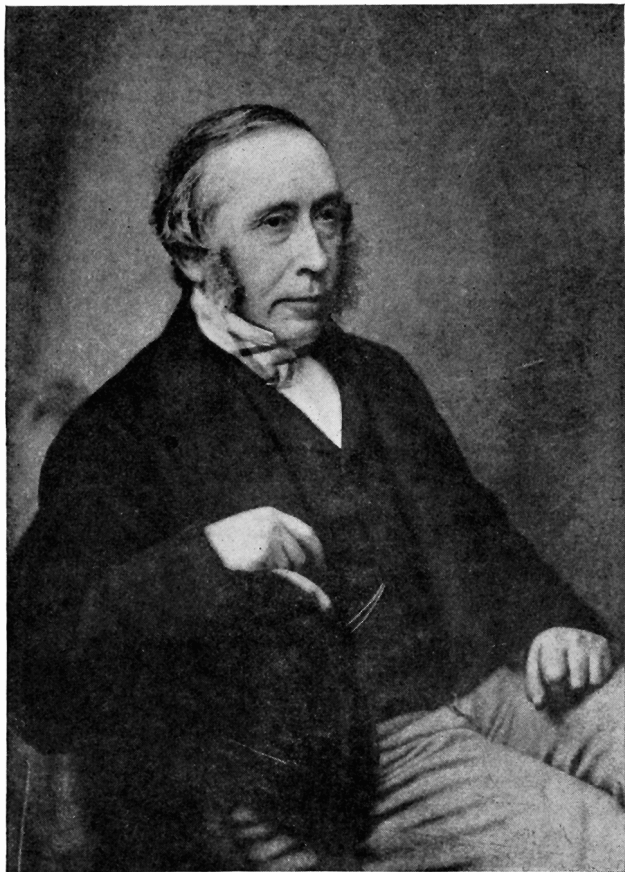
Partly, no doubt, because of his uncompromising manner and partly by reason of the jealousy of his seniors, he was accused to the Managers of the Royal Infirmary of criticising the practice of the hospital in such a way as to diminish its reputation with the public, and in 1822 the Managers passed a resolution prohibiting Mr. Liston from entering the wards or operation-room of the Royal Infirmary at any time, or on any pretence whatever. Liston defended himself in an open letter to the Lord Provost,² and at the present day the unprejudiced reader almost inevitably takes the side of Liston. Five years later, however, Liston was appointed one of the surgeons to the Infirmary, and his temporary exclusion from the institution does not appear to have had any great effect in diminishing his reputation or retarding his career.

One of his earliest contributions to surgery was a dissertation read before the Royal Medical Society in 1820, on "Fracture of the Neck of the Femur," and in the same year he published a series of five cases of aneurysm, which are celebrated in surgical annals and which formed the beginning of his great reputation. About this time he introduced the bone-pliers with which his name is specially associated, and which, though designed to facilitate the cutting of small bones, are said to have been used in Liston's powerful hand for re-section of the femur. In 1823 (during his period of exclusion from the Royal Infirmary) Liston performed an operation which caused a great sensation at the time. It was the removal of an enormous tumour of the nature of elephantiasis, weighing 44½ lbs. The flow of blood during the operation was compared by those present to the discharge of water from a shower-bath, but in three weeks the patient was able to walk about. In this operation Liston says: "I had the valuable assistance of my friend, Mr. Syme, without which the result might have been less favourable."³

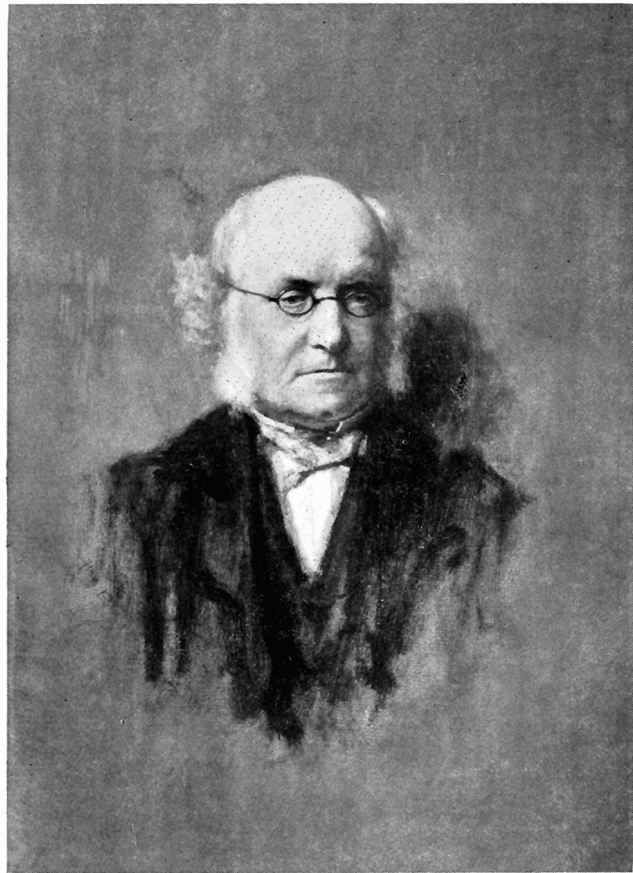
¹ Miles: "Edinburgh School of Surgery before Lister," p. 140.

² "Letter to the Rt. Hon. the Lord Provost of Edinburgh," by Robert Liston, Edinburgh, 1822.

³ *Edinburgh Medical and Surgical Journal*, October, 1823, p. 566.



JAMES SYME (1799-1870)



JOHN BROWN (1810-1882)

An idea of the great importance attaching in these pre-anæsthetic days to rapidity of operation, as well as of Liston's great strength and self-confidence, is gained from his "Observations on Amputation."¹ Referring to the tourniquet, he says that in his opinion it is in many cases worse than useless, and he describes how, when no proper assistance was available, he has repeatedly compressed the femoral artery with one hand while with the other he removed the limb "with the loss of much less blood than if I had followed the ordinary mode." Another glimpse of his rapidity in operation is obtained from his "Remarks on the Operation of Lithotomy,"² in which he says: "Should there be but one or two stones of a moderate size (under the size of a hen's egg), the incisions and extraction should not occupy more than two or three minutes at most."

About the year 1823, Liston and Syme, who up to this time had taught together and had helped one another in their operations, became less cordial. Their differences proceeded to such a height, and they raised so much acrimony between their opposing factions, that when Syme applied for the surgeonship of the Royal Infirmary, the Managers declined to appoint him lest he and Liston should quarrel openly in the institution, and their rival students disturb its peace. The culmination of their quarrel occurred in 1833, when Syme defeated Liston, after a bitter contest, for the Chair of Clinical Surgery in the University. Two years later, however, in 1835, Liston was offered the Chair of Clinical Surgery at University College, London, which he accepted. The remainder of his career, including the first major operation performed under an anæsthetic in England, at University College Hospital, in 1846, belongs to London.

James Syme, who has been called by Miles "the Napoleon of surgery," was born at 56, Princes Street, Edinburgh, in 1799.³ As a boy he spent much of his spare time in the company of Robert Christison, working at chemical experiments. They, and about a dozen fellow-students of Dr. Hope's chemistry class, founded a Chemical Society, which met once a week to repeat the professor's experiments. Arising out of this, Syme discovered, at the age of eighteen, a solvent for indiarubber, and a process by which cloth might be impregnated with this substance and so attain waterproof properties. He published his discovery,⁴ but he never got the credit for it. Mr. Macintosh, a manufacturing chemist of Glasgow, heard of the discovery, took out a patent for it and made a fortune, as well as getting his name permanently associated with the useful garment made from the material first prepared by Syme.⁵

Syme spent two years at the Arts classes of the University, and in 1817 began his medical studies by joining the anatomy class of Dr. John Barclay,

¹ *Edinburgh Medical and Surgical Journal*, January, 1824, p. 42.

² *Edinburgh Medical and Surgical Journal*, January, 1825, p. 26.

³ Miles: "Edinburgh School of Surgery before Lister," p. 174.

⁴ Thomson's "Annals of Philosophy," 1818, Vol. XII, p. 112.

⁵ "Life of Sir Robert Christison," Vol. I, p. 62.

where Liston was at the time the principal demonstrator. In 1818, when Liston commenced lecturing on his own account, Syme joined him as demonstrator and, later, assistant, and in 1823, when Liston gave up teaching anatomy, Syme took over the class, after joining the College of Surgeons as a Fellow. In 1821, he read a dissertation at the Royal Medical Society "On Caries of the Bones," which indicated one of the important lines of his later work. In 1822, along with his friend Sharpey, he visited Paris to attend the clinics of Dupuytren, and to take a course of operative surgery under Lisfranc.

On returning to Edinburgh, one of his earliest major operations was to amputate at the hip-joint the lower limb of a lad, William Fraser, aged 19, who had suffered from necrosis of the thigh-bone for three years. This was the first occasion on which this operation had been performed in Scotland, and Syme was assisted by Liston, who controlled the bleeding in the manner which he favoured, by pressure of his hands. The operation was successfully performed, and did much to establish Syme's reputation as a surgeon. In 1826, he excised the head of the humerus for tuberculous disease of seven years' duration, and in 1828 he published a famous case of excision of the lower jaw for sarcoma. The tumour was of enormous size, and the operation lasted twenty-four minutes, and, at a time when anæsthesia was unknown, must have been a terrible ordeal for the patient. Five weeks later, however, the patient was quite well and thinking of resuming his occupation.

Syme's disappointment in being refused the surgeonship of the Royal Infirmary, in 1829, on account of his quarrel with Liston, has been mentioned. Most of his operations up to this time had been carried out in the homes of patients, often in the most unsuitable surgical surroundings. His reputation, however, had become very great, both with the public and with the students, and he conceived the bold idea of establishing a surgical hospital for himself. In 1829, a surgical hospital was opened by him in Minto House, an old mansion which stood in a position that is now on the north side of Chambers Street. Here patients applied for admission in great numbers, and seventy patients were admitted within the first three months. Very soon this surgical hospital had to be extended, and its reputation came to rival that of the Royal Infirmary.¹ This small hospital has been immortalised by Dr. John Brown in "Rab and his Friends."

One of the landmarks in Syme's career was the publication, in 1831, of his "Treatise on the Excision of Diseased Joints," a type of operation which he was the first to place on a successful basis. In the same year, Syme brought out his "Principles of Surgery." In 1833, Professor Russell vacated the Chair of Clinical Surgery, and, after a sharp contest between Liston and Syme, the latter was appointed his successor and now became one of the surgeons to the Royal

¹ Miles: "Edinburgh School of Surgery before Lister," p. 188.

Infirmary. Here he introduced a new method of teaching clinical surgery, instead of the dissertations on allied groups of cases which had been previously delivered by Professor Russell.

His method may be described in his own words :—

“ . . . to bring the cases one by one into a room, where the students are comfortably seated, and if the patients have not been seen previously by the surgeon, so much the better ; then ascertaining the seat and nature of their complaints, and point out their distinctive characters.

“ Having done this, so that everyone present knows distinctly the case under consideration, the teacher, either in the presence or absence of the patient, according to circumstances, proceeds to explain the principles of treatment, with his reasons for choosing the method preferred, and, lastly, does what is requisite in the presence of pupils.

“ The great advantage of this system is that it makes an impression at the same same time on the eye and ear, which is known from experience to be more indelible than any other, and thus conveys instruction of the most lasting character.”¹

Syme's activities in Edinburgh were interrupted for a time, when on the death of Liston, in 1847, he accepted the professorship of Clinical Surgery at University College, London. Here he remained from February to July, 1848, but found the conditions of tenure unsatisfactory and the surroundings uncongenial, and his Edinburgh Chair being still vacant, he was reinstated in it after an absence of less than six months.

During the thirty-six years through which Syme held the Chair of Clinical Surgery, he became easily first among the surgeons of Edinburgh, and many of his operations and other contributions to surgical practice have become classics of the art of surgery. About one half of this period belonged to the days before anæsthetics, but, fortunately, this great boon to mankind was introduced about the middle of Syme's period of activity. The amputation at the ankle-joint, which goes by his name, was first performed in 1842, and was intended to replace the amputation below the knee in suitable cases. His investigation “On the Power of the Periosteum to form New Bone,” in 1837, was an important contribution to surgical pathology. His operation for external urethrotomy, first performed in 1840, gave rise to a great deal of acrimonious discussion among surgeons of the time, which it is difficult now to understand. The treatment of aneurysm, which appears to have been a much more frequent disease in the early 19th century than it is to-day, received a great deal of attention from Syme. Several daring operations were performed by him for the cure of this condition, and greatly increased his already high reputation.

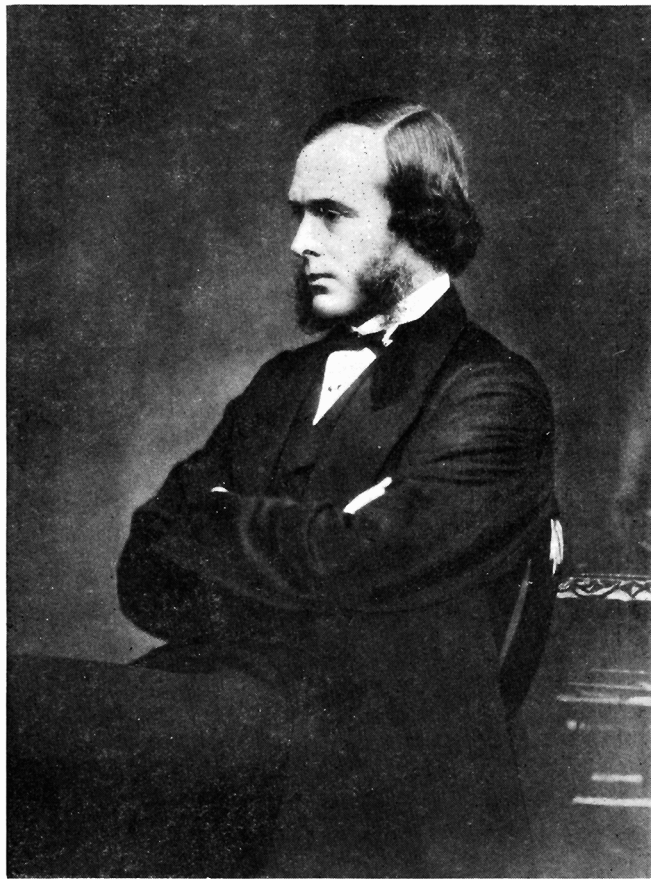
Syme's acrimonious disposition has been mentioned in connection with his bitter quarrel with Liston. Five years after Liston left Edinburgh, he made overtures of friendship to Syme, which, fortunately, were eagerly accepted, and the

¹ *The Lancet*, October 1st, 1864.

I had quite forgotten its existence; but my butler has shown me today a ^{brief} copy which he has had in his possession for many years; and from it I learn that it was taken in Edinburgh by Annon of Calton Hill Stair. This shows that the photograph must have been taken during the period when I was an extra-academical lecturer in Edinburgh, the period during which I was engaged in physiological & pathological work long anterior to antiseptic days.

PAGE FROM LETTER BY LORD LISTER

Indicating the date of the accompanying photograph



JOSEPH LISTER (1827-1912)

Photograph taken during his first Edinburgh period, 1853-1860, as indicated by the accompanying letter in his handwriting.

old friendship was renewed and maintained till Liston's death. Syme's defeat, in 1831, by Lizars for the professorship of Surgery in the College of Surgeons was a cause of perpetual enmity between the two. Simpson, too, offended him because he, an obstetrician, ventured to recommend acupressure as a means of controlling surgical hæmorrhage, and Syme's adoption of anæsthesia was delayed for a time for the same reason. Syme's rejection of acupressure was dramatic. Entering the operating-theatre with Simpson's pamphlet, soon after its appearance, he called for an operating-knife, cut the pamphlet to shreds before the assembled students, threw the remains into the sawdust below the operating-table, and remarked to the class: "There, gentlemen, is what acupressure is worth." He also quarrelled with his fellow-members of the General Medical Council, and even on one occasion, in regard to the law of evidence, with the judge who was trying a case in which he was a witness.

In the last year of Syme's tenure of the Clinical Surgery Chair, he spoke of the beginning of the antiseptic principle in surgery, which, he said, "is certainly destined in no small degree to revolutionise the practice of surgery." In 1868 he had an apoplectic seizure and resigned the Chair, where he was succeeded by his son-in-law, Joseph Lister.

Referring to the year 1853, when Lister arrived in Edinburgh to work under Syme, the following picture of Syme is given by one of his house-surgeons, the late Dr. Joseph Bell: "His hospital life was on this wise,—two clinical lectures a week, operations two days more (perhaps three), a ward visit when he wished to see any special cases; he spent generally about two hours in the hospital. Driving down in his big yellow chariot, with footman, hammercloth and C-springs, with two big, rather slow and stately white or grey horses, he used to expect his house surgeon to meet him at the door and move upstairs with him to his little room, where he at once took up his post with his back to the fire and his hands under the flaps of his swallow-tail coat. In this little room he generally held a small *levee* of assistants, old friends, practitioners wanting to arrange a consultation, old pupils home on leave; and before this select class he examined each new and interesting case that could walk in. The new cases had been collected, sifted and arranged by the dresser in a little room on the stair, irreverently known as 'the trap,' and Mr. Syme then and there made his diagnosis, which to us young ones seemed magical and intuitional, with certainly the minimum of examination or discussion. One was sent off with a promise of a letter to his doctor, another was fixed for to-morrow's lecture or next day's operation. Then, if it was lecture day, a tremendous rush of feet would be heard of the students racing to get the nearest seats in the large operating theatre where the lecture was given. Chairs in the arena were kept for colleagues or distinguished strangers; first row for dressers on duty; operating table in centre; Mr. Syme on a chair on left centre. In his later days it was a fine cushioned chair called the 'chair of clinical surgery.' (In 1854 it was a meek little wooden chair

without arms). House surgeon a little behind, but nearer the door; instrument clerk with his well-stocked table under the big window. He comes in, sits down with a little, a very little, bob of a bow, rubs his trouser legs with both hands open, and signs for the first case. The four dressers on duty, and in aprons, march in (if possible in step), carrying a rude wicker basket, in which, covered by a rough red blanket, the patient peers up at the great amphitheatre crammed with faces. A brief description, possibly the case had been described at a former lecture, and then the little, neat, round-shouldered, dapper man takes his knife and begins; and the merest tyro sees at once a master of his craft at work—no show, little elegance, but absolute certainty, ease and determination; rarely a word to an assistant—they should know their business if the unexpected happens; his plans may change in a moment, but probably only the house-surgeon finds it out; the patient is sent off, still anæsthetised, and then comes a brief commentary, short, sharp and decisive, worth taking verbatim if you can manage it; yet he has no notes, a very little veiled voice and no eloquence.”¹

Into this atmosphere Joseph Lister stepped in 1853. Lister's medical education had been gained at University College Hospital, London, where one of his teachers had been William Sharpey, Professor of Physiology. Sharpey, at an earlier stage of his career, had been an extra-mural lecturer upon anatomy in Edinburgh in association with Allen Thomson, who lectured upon physiology. Both these teachers had been intimate friends of Syme during his student days. Lister had studied under another teacher of Edinburgh origin in the person of Robert Liston, and had been present on the historic occasion when the first operation under ether in England was performed by him in December, 1846, at University College Hospital.

Lister now came to Edinburgh bearing a letter of introduction from Sharpey to Syme, who received him cordially, offered him the chance of assisting with private operations, and set him to work at the hospital. He appears to have been one of the very few of Syme's immediate associates with whom Syme never quarrelled. Two months after his arrival in Edinburgh, Lister was appointed Syme's supernumerary house-surgeon, and when Dr. Dewar, Syme's house-surgeon, left in December, 1853, Lister took over his duties and continued in this post till February, 1855.

Lister occupied a somewhat unusual position. He was already a Fellow of the Royal College of Surgeons of England, and Syme apparently gave him to understand that he might consider their mutual relations were those of surgeon and consulting surgeon, so that Lister was allowed the exceptional privilege of deciding as to which of the cases admitted during the night he should himself operate upon.² Syme treated him with

¹ "Edinburgh Hospital Reports," 1893, Vol. I, pp. 22 and 23.

² Godlee: "Lord Lister," London, 1917, p. 36.

great affection, and Lister became a constant visitor at Syme's house of Millbank, pleasantly situated in the Grange suburb of Edinburgh. This was the period of the Crimean War, and Dr. R. J. Mackenzie, an Edinburgh surgeon of great promise, had volunteered for service in the Crimea as an operating surgeon. He had intended to be back in Edinburgh by November, 1854, to resume his winter course of lectures on surgery, but in October, 1854, he died of cholera, and Lister's friends at once suggested that he should continue Mackenzie's lectures and apply for his post as assistant surgeon at the Infirmary.

With the advice of Syme, Lister took Mackenzie's lecture-room at No. 4, High School Yards, was elected a Fellow of the Royal College of Surgeons of Edinburgh, and took lodgings at No. 3, Rutland Street, in the spring of 1855. At the same time he became engaged to Syme's eldest daughter, Agnes, to whom he was married in April, 1856. He began his course of lectures upon the principles and practice of surgery on 7th November, 1855, to a class of twenty-three students. In the following year, after a tour on which he visited various Continental surgical centres, he returned to Edinburgh in October, 1856, and took the house, No. 11, Rutland Street, being elected in the same month assistant surgeon to the Royal Infirmary.

Before Lister came to Edinburgh, he had done several valuable pieces of research, including his work on the muscular tissue of the iris, and upon the involuntary muscular fibres of the skin. In Edinburgh, although he was busy helping Syme in his operations and in teaching, he was also occupied in writing. During 1855, he sent to *The Lancet* weekly summaries of Syme's lectures, and prepared records of some of Syme's cases for the press. In 1856, a paper was read before the Royal Society of Edinburgh on "The Minute Structure of Involuntary Muscular Fibre."¹ He very soon began his celebrated investigations regarding the nature of inflammation, and, in 1857, read a paper on "The Early Stages of Inflammation" before the Royal Society of London.² Two other papers on cognate subjects were also read before the Royal Society of London in the same year: "An Enquiry regarding the Parts of the Nervous System which Regulate the Contraction of the Arteries,"³ and "On the Cutaneous Pigmentary System of the Frog."⁴

In 1856 he started his experiments upon the coagulation of the blood, a subject which was exciting a considerable amount of controversy at the time, and in 1858 he read a paper on "Spontaneous Gangrene" before the Medico-Chirurgical Society of Edinburgh. During the next year, he was mainly occupied with teaching, hospital work, and the practice which he had been successful in attracting through Syme's influence. In 1860, on the death of Professor James Lawrie, of the Chair of Surgery in Glasgow,

¹ p. 15, ² p. 209, ³ p. 27, ⁴ p. 48: "Lister's Collected Papers," Vol. I.

Lister was nominated by the Crown to this post. He was inducted to it on 9th March, 1860, and in May of the same year he commenced his summer course of lectures to 182 students. He was not, however, appointed surgeon to the Glasgow Royal Infirmary till 5th August, 1861. The later researches on inflammation, and especially those on antiseptics, date from 1864 onwards.



SIR JAMES YOUNG SIMPSON (1811-1870)

The outstanding figure of Edinburgh medicine about the middle of the 19th century was Sir James Young Simpson (1811-1870). He was born at Bathgate, being the youngest of seven sons of a baker in this town, and he went to school at the precocious age of four, being even at this early stage remarkable for the aptitude he showed for lessons. Entering the University of Edinburgh at the age of fourteen, he graduated M.D. in 1832. Settling in the Stockbridge district, he quickly attracted a large practice, and in 1840 he was appointed to the Chair of Midwifery in succession to Professor James Hamilton, at the early age of twenty-eight. His residence in later years was at 52, Queen Street, and here

the early experiments on anæsthetics, for which he is especially renowned, were carried out. In 1846, when news of the first trials of sulphuric ether as an anæsthetic reached Scotland from America, Simpson wrote: "It is a glorious thought, I can think of naught else." An account of the way in which Simpson conducted his experiments, and of the discovery of the anæsthetic powers possessed by chloroform, a substance of which a small supply had been sent to him by

Mr. Waldie, a chemist of Liverpool, has been given by his colleague, Professor Miller, and may be quoted here:—

“Late one evening—it was the 4th of November, 1847—on returning home after a weary day’s labour, Dr. Simpson, with his two friends and assistants, Drs. Keith and Matthews Duncan, sat down to their somewhat hazardous work in Dr. Simpson’s dining-room. Having inhaled several substances, but without much effect, it occurred to Dr. Simpson to try a ponderous material, which he had formerly set aside on a lumber-table, and which, on account of its great weight, he had hitherto regarded as of no likelihood whatever. That happened to be a small bottle of chloroform. It was searched for, and recovered from beneath a heap of waste paper. And, with each tumbler newly charged, the inhalers resumed their vocation. Immediately an unwonted hilarity seized the party; they became bright-eyed, very happy and very loquacious—expatiating on the delicious aroma of the new fluid. The conversation was of unusual intelligence, and quite charmed the listeners—some ladies of the family and a naval officer, brother-in-law of Dr. Simpson. But suddenly there was a talk of sounds being heard like those of a cotton-mill, louder and louder; a moment more, then all was quiet, and then—a crash. On awaking, Dr. Simpson’s first perception was mental—‘This is far stronger and better than ether,’ said he to himself. His second was to note that he was prostrate on the floor, and that among the friends about him there was both confusion and alarm. Hearing a noise, he turned round and saw Dr. Duncan beneath a chair; his jaw dropped, his eyes staring, his head bent half under him; quite unconscious, and snoring in a most determined and alarming manner. More noise still, and much motion. And then his eyes overtook Dr. Keith’s feet and legs, making valorous efforts to overturn the supper-table, or more probably to annihilate everything that was on it. . . .”¹

The various steps in the introduction of the practice of anæsthesia have been much confused, but the matter is clearly stated in a paper by Simpson himself, written just before his death in 1870, as follows:—

“If we try to put into a summarised form the data which we have been discussing regarding the introduction of anæsthesia in America and this country, it appears to me that we might correctly state the whole matter as follows:—

“1. That on the 11th December 1844, Dr. Wells had, at Hartford, by his own desire and suggestion, one of his upper molar teeth extracted without any pain, in consequence of his having deeply breathed nitrous oxide gas for the purpose, as suggested nearly half-a-century before by Sir Humphry Davy.

“2. That after having with others proved, in a limited series of cases, the anæsthetic powers of nitrous oxide gas, Dr. Wells proceeded to Boston to lay his

¹ James Miller: “The Principles of Surgery,” Philadelphia, 1852, p. 701.

discovery before the Medical School and Hospital there, but was unsuccessful in the single attempt which he made, in consequence of the gas-bag being removed too soon, and that he was hooted away by his audience, as if the whole matter were an imposition, and was totally discouraged.

“3. That Dr. Wells’s former pupil and partner, Dr. Morton of Boston, was present with Dr. Wells when he made his experiments there.

“4. That on the 30th September 1846, Dr. Morton extracted a tooth without any pain, whilst the patient was breathing sulphuric ether, this fact and discovery of itself making a NEW ERA in anæsthetics and in surgery.

“5. That within a few weeks the vapour of sulphuric ether was tried in a number of instances of surgical operations in Boston—Dr. Morton being generally the administrator—and ether vapour was established as a successful anæsthetic in dentistry and surgery.

“6. That in January, and the subsequent spring months, 1847, the application of sulphuric ether as an anæsthetic in midwifery was introduced, described in our medical journals, and fully established in Edinburgh, before any case with it was tried in Boston or America.

“7. That on the 15th November 1847, the anæsthetic effects of chloroform were discovered in Edinburgh, and that it swiftly superseded in Scotland and elsewhere the use of sulphuric ether, and extended rapidly and greatly the practice of anæsthesia in surgery, midwifery, etc.”¹

Apart from the introduction of anæsthesia, which at first met with great opposition, requiring a man of Simpson’s prominent position to overcome, his chief work was in the domain of gynæcology and obstetrics. In this department he published many valuable writings upon such subjects as version in deformed pelves, and on puerperal diseases. His teachings included much practical work in regard to the use of obstetric forceps, of which he introduced a new long variety, in the improvement of methods of ovariectomy and similar subjects. He was also distinguished for his writings in regard to general literature, and especially archæology.

His archæological essays, dealing chiefly with subjects bearing on Scottish history, were published after his death, in two volumes. His collected papers include “Obstetric Memoirs and Contributions,” published in 1855; “Selected Obstetric and Gynæcological Works,” published after his death in 1871; “Anæsthesia, Hospitalism, and other Essays,” in 1871; and “Clinical Lectures on the Diseases of Women,” published in 1872, under the editorship of his nephew, Professor A. R. Simpson, who succeeded him in 1870.

¹ Simpson: “History of Modern Anæsthetics—a second letter to Dr. Jacob Bigelow,” Edinburgh, 1870, p. 15.

Simpson appears from the accounts of those who knew him to have possessed a magnetic personality, to have been a great and overpowering controversialist, and a physician who was able to inspire his patients with the highest degree of confidence.

The Chair of Pathology was founded in the University in 1831. In the early years of the century, the teaching of pathology had been part of the duties of James Russell, Professor of Clinical Surgery, who had duly included information upon this subject in his somewhat systematic "clinical" lectures. The subject, by 1831, had developed so far as to be one of practical importance, and the Town Council decided to appoint a professor. Dr. John Thomson, who had studied this subject under Sir Everard Home, in London, and was regarded as a repository of the Hunterian traditions, was the first incumbent of the Chair. He has already been mentioned as Professor of Military Surgery, and is apt to be confused with his two distinguished sons, Allen Thomson, who was successively professor of anatomy at Aberdeen, professor of physiology at Edinburgh, and professor of anatomy at Glasgow, and William Thomson, who was professor of medicine in Glasgow. John Thomson also wrote the standard biography of Cullen.

He held the Chair of Pathology till 1842, when he was succeeded by William Henderson (1810-1872). Henderson graduated M.D. at Edinburgh in 1831, and next year was appointed physician to the fever wards and pathologist to the Royal Infirmary. He was one of the first to apply the microscope to the study of the organs in disease, describing (1841) the minute appearances of the lung in pneumonia, and other pathological conditions. He is credited with the merit of having been the first person to distinguish, in 1843, between typhus and relapsing fevers, both of which were very important diseases of the time.

At the present day, he is chiefly remembered by the storm he raised in 1845, when he announced his adherence to the system of homœopathy by publishing "An Enquiry into the Homœopathic Practice of Medicine." He resigned his appointment at the Infirmary, and his colleagues, headed by Syme, endeavoured to oust him from the Chair of Pathology, but, failing in this, attempted to make attendance on the class of pathology not obligatory on students. A long controversy, mainly with Syme and Simpson, who for once were united against a common enemy, lasted until about 1853. Henderson's pamphlets, in reply to these attacks, are models of reasoning, irony and banter, and although the system is now completely discredited, Henderson certainly, with tact and skill, made out a good argument in its favour. He resigned the Chair in 1869, when he was succeeded by Professor W. R. Sanders, and died in 1872.

The Chair of Institutes of Medicine was one of the original professorships of the Medical Faculty. At the beginning of the century it was held by Andrew Duncan (*senior*), who, in 1819, retired in favour of his son, Andrew Duncan (*junior*). He held the Chair for two years, when he was transferred to that of

Materia Medica and was succeeded by William Pulteney Alison. Alison in turn held the Chair from 1821 to 1842, when he passed to that of Medicine, and was succeeded in the professorship of Institutes of Medicine by Allen Thomson.

Allen Thomson (1809-1884) was the son of Professor John Thomson and brother of Professor William Thomson of Glasgow. He graduated M.D. at Edinburgh in 1830, and from 1831 to 1836 conducted a conjoint extra-mural class at 9, Surgeons' Square with William Sharpey—Thomson lecturing on physiology and Sharpey on anatomy. In 1837, he left Edinburgh to become private physician to the Duke of Bedford for two years, and, in 1839, became professor of anatomy at Marischal College, Aberdeen.

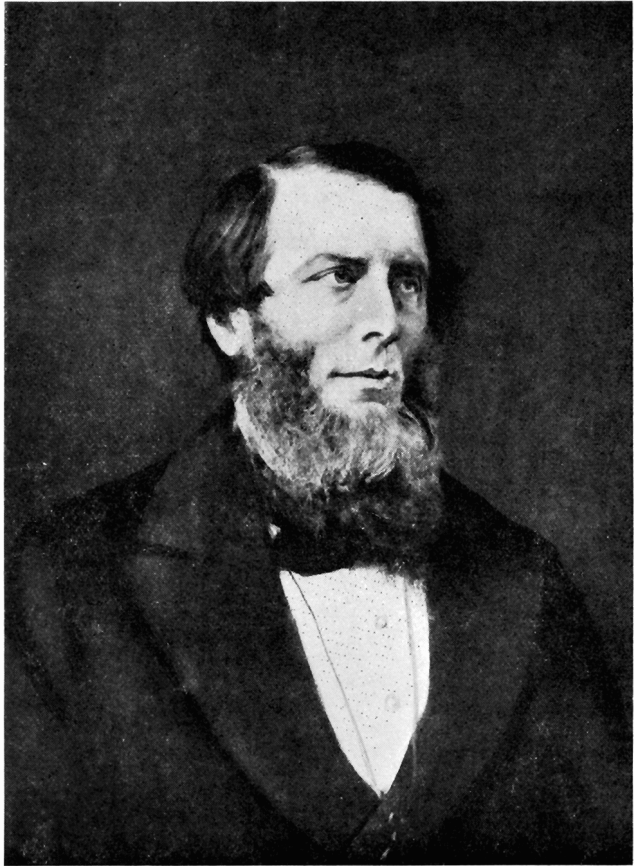
When, in 1842, he came to Edinburgh as Professor of Physiology, he instituted a celebrated course on microscopic anatomy, which was then quite a new subject. His researches on embryology, while an extra-mural lecturer, had already made him famous. The subject of microscopic anatomy had recently received an enormous impetus from Johannes Müller, who, working in Berlin with the recently-improved achromatic microscope, had, along with Henle and Schwann, made many notable discoveries in the minute structure of the body. This line of research was taken up by Allen Thomson in the domain of normal anatomy, and by William Henderson and Hughes Bennett in the field of pathological anatomy. Thus a great deal of credit for extending this aspect of medical knowledge belongs to the Edinburgh Medical School in the 'forties of last century. The natural historian of earlier times came, at this period, to be replaced by the biological teachers of the present day, and Allen Thomson was one of the leaders of the movement. He took up the professorship of anatomy at Glasgow in 1848.

John Hughes Bennett (1812-1875), who succeeded him, graduated M.D. at Edinburgh in 1837. During his student days his intimate associates had included the Goodsirs, Edward Forbes, John Hutton Balfour and John Reid, all of whom became distinguished biologists of the new school. After graduation, Bennett spent two years in Paris at clinical work, and two years in Germany devoted to research. On his return to Edinburgh, in 1841, he published a treatise on "Cod-Liver Oil as a Therapeutic Agent." This substance had long been used by the fisher population of Scotland, but following Bennett's advocacy, it now came into general vogue as a remedy. In 1845 he published a case of "Hypertrophy of the Spleen and Liver," the first recorded case of leucocythæmia. In accordance with the views of the time, institutes of medicine was regarded as a subject intimately connected with clinical medicine rather than one of abstruse scientific interest, and Bennett, like his predecessors, was elected one of the physicians to the Royal Infirmary.

He was a great teacher of clinical physiology. He taught physiology and medicine for over a quarter of a century and published a text-book on medicine which was widely read, but the chief scientific achievements associated with his name

are his original description of the disease leucocythæmia and the great change to which his investigations led in the current treatment of pneumonia. Leucocythæmia was the first disease of the blood to be described (1845), and its recognition opened up an entirely new branch of medicine. (Addison described pernicious anæmia four years later, in 1849.) The question of priority in the discovery of leucocythæmia is sometimes debated, for, like other discoveries in medicine, it was made simultaneously by different men, three cases of leucocythæmia being independently recorded for the first time in the year 1845. Hughes Bennett's history of the matter, given in his treatise on "Leucocythæmia," in 1852, shows that the credit of priority belongs to him.

Bennett's treatise on "The Restorative Treatment of Pneumonia," published in 1865, when he was Professor of the Institutes of Medicine, belongs to a type of medical research much more difficult to appraise. The practice of bleeding had come down from the eighteenth century as a moderate method, and had been developed



JOHN HUGHES BENNETT (1812-1875)

by the French School of Broussais, by Gregory of Edinburgh, and others, into a powerful weakening or "antiphlogistic" régime, which was supposed to be requisite in order to abort the fever. Hughes Bennett's treatise is a masterly survey of different methods then in vogue for treating pneumonia, which he compares by means of the statistical plan of Louis. By showing that the method of profuse bleeding was followed by death in one case out of three, while of one hundred and twenty-nine cases treated by him on the "restorative"

principle, only four had died, he did more than anyone else to banish excessive bleeding as a routine method of treatment. Bennett was an indefatigable writer, and produced some hundred and five papers. He was also the author of an "Introduction to Clinical Medicine," of a work on "Outlines of Physiology" (1858), and of a celebrated text-book, "Lectures on Clinical Medicine" (1856),

of which many later editions, and various translations into foreign languages, subsequently appeared. He held the Chair till 1874, when he was succeeded by William Rutherford.



WILLIAM GREGORY (1803-1858)

In the Chair of Chemistry, Thomas Charles Hope continued to teach for almost half a century, till he was succeeded in 1844 by William Gregory, the fourth son of James Gregory, the late Professor of Medicine. William Gregory had graduated M.D. at Edinburgh in 1828, and in 1831 made a discovery which has been found of the greatest commercial importance in the manufacture of the active principles of drugs. In 1816, the Hanoverian, Sertürner, had discovered the alkaline base "mor-

phium" in opium, and in April, 1831, Dr. Gregory published, in the *Edinburgh Medical and Surgical Journal*, his valuable discovery of the preparation of hydrochlorate of morphia without the use of alcohol or any other solvent than water.

Morphia, till then used in the form of acetate, had made little progress in Britain, because too expensive, and probably also by no means always pure. But Gregory's process supplied a soporific dose of morphia at no

greater cost than the equivalent dose of laudanum, and in a state of great purity. As is well known, the hydrochlorate, and the subsequently prepared sulphate of morphia, have largely superseded in use the other purified galenical preparations of opium. As a development of this discovery, Edinburgh has become one of the chief commercial centres in the United Kingdom for the manufacture of the active alkaloidal principles derived from numerous plants.

As a corollary to Gregory's discovery, mention may be made of a minor, though far-reaching, contribution to practical medicine, by a member of the Edinburgh School. Alexander Wood, an extra-mural lecturer on medicine at Edinburgh, was the first person in Britain to use the hypodermic syringe, though priority of discovery cannot be claimed for him, since Pravaz had already used this form of medication in 1851, and published a description of his syringe in 1853. The idea of administering morphia hypodermically for the relief of pain appears to have occurred independently, in 1853, to Wood, who constructed a small syringe on the plan of the "sting of a bee," for this purpose. Subsequently he extended its application to the administration of atropine and other substances in his "New Method of Treating Neuralgia by the Direct Application of Opiates to the Painful Points" (1855). He enjoys, at all events, the merit of having been the first to introduce this now universal method into Great Britain.

William Gregory had successively held the posts of lecturer on chemistry at the Andersonian College in Glasgow, and at Dublin, and of professor of medicine and chemistry at King's College, Aberdeen. He published his "Outlines of Chemistry" in 1845, and was greatly interested in the subject of animal magnetism, but was better known on account of his translations of German works. About this time, Liebig had been conducting his celebrated researches upon chemistry in connection with animal bodies, and Gregory translated his "Animal Chemistry" and other works into English. When Gregory died, his successor, Lyon Playfair, was even more distinguished in the same direction.

Lyon Playfair (1819-1898), had studied at St. Andrews, Glasgow and Edinburgh, and had worked at chemistry with Thomas Graham at University College, London, and with Liebig at Giessen. He had been influenced by Liebig to turn his attention to the applications of chemistry to agriculture and plant physiology, a subject which at the time became of great social and commercial importance. In 1845, he had been appointed chemist to the Geological Survey, and had conducted researches into the type of coal best suited for steam navigation. He was the discoverer of nitro-prussides, and, along with Bunsen, investigated the gases developed in blast furnaces. His most important activity had been the part he took in 1850 in the organisation of the Great Exhibition promoted by the Prince Consort, and, as a sequel to this, in the development of technical instruction and in the various applications of science to industry. Even after his appointment to the Chair of Chemistry at Edinburgh, in 1858, he was still occupied on many Royal Commissions and



ALEXANDER WOOD (*secundus*) (1817-1884)
(Original in the Royal College of Physicians, Edinburgh)



ORIGINAL HYPODERMIC SYRINGE OF
DR. ALEXANDER WOOD

THE FIRST USED IN GREAT BRITAIN

The syringe is 90 mm. in length, and the barrel, which has been broken towards its base, is 10 mm. in diameter. The piston is wrapped round at its extremity with cotton wick to make the plunger fit the barrel. At its apex the barrel is drawn into a conoidal extremity which fits a metal nose cap. The cap is of curious construction and consists of one inner filler-shaped part which fits closely to the diminishing portion of the glass barrel and ends in a pointed extremity, which is threaded externally, to allow a hypodermic needle to be screwed on. The filler-part is grasped by a metal arrangement, whose apex is tightly applied to it at the screw. It is prolonged upwards by two lateral metal strips, bound by a circle round the middle of the inner cap, and prolonged upwards further by the two lateral bands, to end in a ring, which does not touch the barrel, and may have been used to steady the syringe and prevent the metal cap being forced off during administration of a hypodermic injection.

(Preserved in the Museum of the Royal College of Surgeons, Edinburgh)

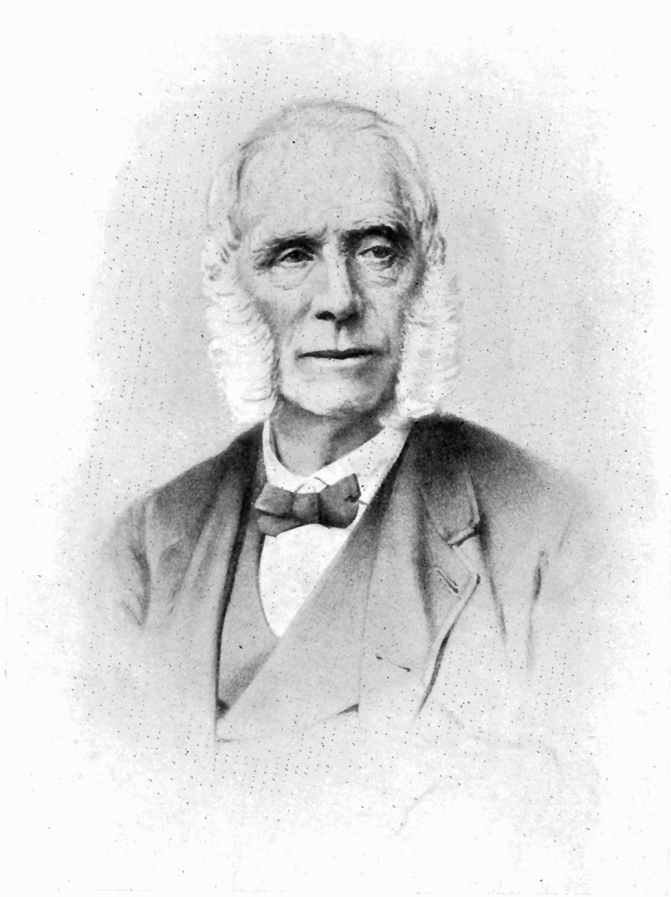
other forms of public work. He held the Chair till 1869, when he became Member of Parliament for the University and removed to London. He was succeeded by Alexander Crum Brown.

Despite the fact that by the middle of the 19th century, Edinburgh had become a great surgical school, the fame which had accrued to it through the teaching of Cullen and James Gregory, was still continued in medicine. James Home, who has been mentioned as a successful professor of materia medica, held the Chair of Medicine from 1821 to 1842, when he was succeeded by Professor Alison, who had previously taught medical jurisprudence and institutes of medicine.

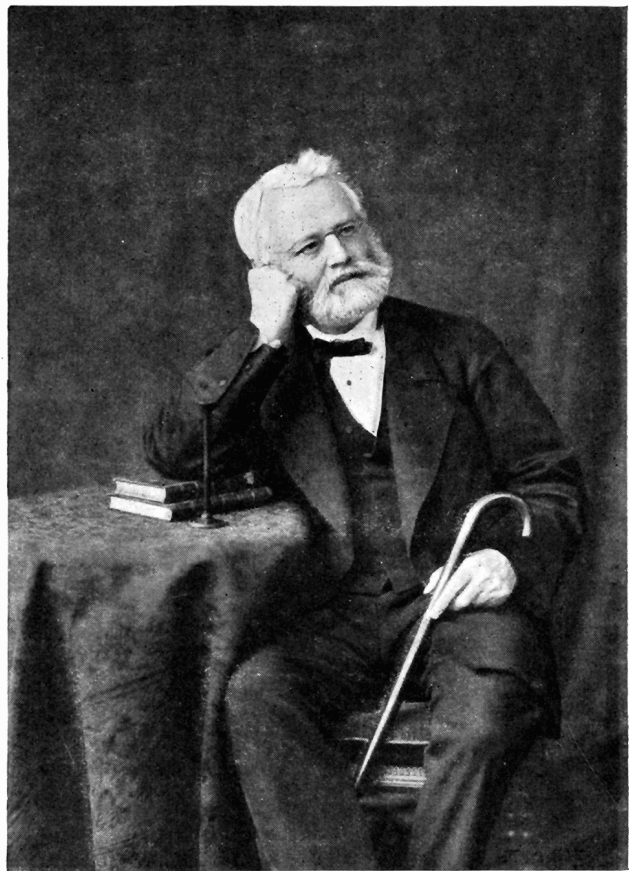
William Pulteney Alison (1790-1859) was a brother of Sir Archibald Alison, the historian, and a grandson of John Gregory. He graduated M.D. at Edinburgh in 1811, and in 1815 was appointed Physician to the New Town Dispensary, where he made a special study of the fevers then prevalent in the city. His quarterly reports, published in the *Edinburgh Medical Journal* from 1817 to 1819, were important contributions to the knowledge of fevers, and especially his description of smallpox as modified by vaccination, which was then a novel mode of treatment. In 1820, while Professor of Medical Jurisprudence, he also assisted his uncle, James Gregory.



WILLIAM PULTENEY ALISON (1790-1859)



SIR DOUGLAS MACLAGAN (1812-1900)



THOMAS LAYCOCK (1812-1876)

From his early experience among the poor, he had been impressed by the manner in which poverty and unfavourable social conditions assisted the spread of disease, and in 1840 he published an important pamphlet entitled "Observations on the Management of the Poor in Scotland, and its Effects on the Health of the Great Towns." The poor in Scotland were at that time largely dependent on charity administered through the Kirk Sessions, and Alison advocated an approach to the English system, with relief for the poor on a basis of assessment. A Royal Commission was appointed to investigate the subject in 1844, and the Poor Law passed in 1845 embodied much that Alison had recommended. He was celebrated for benevolence and kindness of manner, and the social work which he did in this respect has been of enormous advantage up to the present day.

In 1831, Alison had published "Outlines of Physiology," a work which included much of his philosophy in regard to the vital attraction and repulsion which he considered to be characteristics of life as exhibited by the tissues. He wrote various articles dealing with subjects such as vital affinity and inflammation. Although he conducted a large consulting practice, he found time for much public activity, especially on subjects connected with the amelioration of the conditions under which the poorer classes lived. He acted as President of the British Medical Association when it met in Edinburgh in 1858, and he died in the following year.

He was succeeded in the Chair of Medicine by Thomas Laycock (1812-1876). Laycock was an Englishman, had qualified as M.R.C.S. in 1835, and had graduated M.D. at Göttingen in 1839, and studied under Lisfranc and Velpeau at Paris. In 1840 he had published "A Treatise on Nervous Diseases of Women, comprising an Enquiry into the Nature, Causes and Treatment of Spinal and Hysterical Disorders." This was the result of much profound observation, and to a great extent it anticipated the similar work done by Charcot and other French observers. In 1844, in a paper read before the British Association at York, he had formulated the theory of reflex action of the brain, by which he accounted for the phenomena of delirium, dreams and somnambulism. In 1855 he succeeded William Pulteney Alison in the Chair of Medicine at Edinburgh, and in 1856 published his "Lectures on the Principles and Methods of Medical Observation and Research." His "Mind and Brain" (1859) prepared the way for the study of unconscious cerebration, to which he afterwards chiefly devoted himself, and in which he described mental phenomena that have received due recognition only in the last few years, in connection with the great numbers of nervous cases arising out of the War. He was a prolific writer, and some three hundred papers on medical subjects emanated from his pen. He died in 1876, and was succeeded by Sir Thomas Grainger Stewart.

In addition to those who held professorial Chairs during the earlier half of the 19th century, many of the well-known Edinburgh physicians and surgeons

acted for some years as extra-mural lecturers connected either with the College of Physicians or College of Surgeons, while others became celebrated for the development at an early stage of certain special branches in medicine or surgery.

Dr. John Robertson, who practised in St. James's Street, Edinburgh, at the beginning of the century, published a "Treatise on Medical Police," in 1809. This was the first notable treatise in English upon the subject of public health. Johann Peter Frank had directed attention to the importance of this subject in his "Complete System of Medical Polity," published at Mannheim in 1777, and Robertson was the next writer after him to pursue this subject. He devotes one book to discussing the causes of diseases in Edinburgh, and another to those in London. The subject of public health came to be regarded as part of the duties of the professorship of medical jurisprudence, founded in 1807 at Edinburgh.

The practical side of public health was greatly developed at a later date by Dr. Henry Duncan (later Sir Henry) Littlejohn. Graduating M.D. in 1847 at Edinburgh, he began, in 1855, to lecture on medical jurisprudence in the Extra-Mural School, and took much interest in matters affecting the health of the city. He was later appointed Medical Officer of Health for Edinburgh, and many of the early improvements dealing with drainage, water-supply, and overcrowded localities were suggested by him. He succeeded Sir Douglas Maclagan as professor in 1897, the Chair being now known as Forensic Medicine, and Public Health being erected into a separate professorship in 1898.

Dr. John Abercrombie (1780-1844) was one of the most eminent among the Scottish physicians of the first quarter of the 19th century. He laboured hard at pathological anatomy in its connection with clinical research, but it is a singular fact that he remained to the last unconnected officially with any hospital or even with the Medical School. He was, however, constantly surrounded by pupils in dispensary practice, and conducted what is known in Germany as a "poliklinik" long before this method of teaching was introduced in the latter country.¹ He was a voluminous writer on clinical and pathological subjects, especially in connection with diseases of the nervous system. His general eminence in medicine was recognised by his election, in 1835, as Lord Rector of the University of Marischal College, Aberdeen. On this occasion he delivered an address upon "The Culture and Discipline of the Mind," which has been often reprinted.²

The subject of midwifery had been greatly developed in the previous century by Professors Gibson and Young, and in the early years of the 19th century by Professor James Hamilton, while Sir James Y. Simpson made the Edinburgh

¹ "Life of Sir Robert Christison," Vol. II, p. 121.

² "Fasti Academiae Mariscallanae Aberdonensis," Vol. II, p. 22.

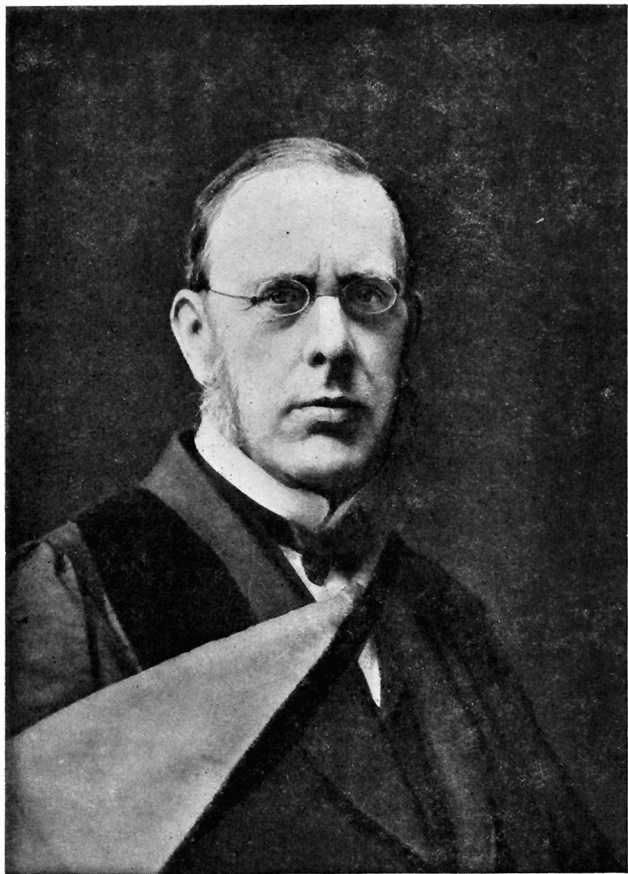
School specially distinguished in regard to this department of practice. While Simpson was lecturing in the University, Dr. William Campbell founded a school of obstetrics known as Queen's College, connected with the Royal College of Surgeons. This was largely attended by students, to whom Campbell issued diplomas after examination, in which he was assisted by Dr. Robert Knox. Dr. Campbell was also the first person in Edinburgh, for some years before and after 1840, to give a full course of lectures upon diseases of children. Partly in consequence of the interest created by these lectures, the idea of founding a hospital for sick children came into being about 1856. Dr. Campbell was assisted and, later, succeeded by his son, Dr. Alexander Dewar Campbell, and he in turn was succeeded, in 1853, as lecturer in midwifery at the Royal College of Surgeons, by Dr. Alexander Keiller (1811-1892).

In 1851, Dr. Keiller was elected one of the ordinary physicians to the Royal Infirmary, and, during the fifteen years for which he held this post, he arranged with Dr. W. T. Gairdner and Dr. J. Warburton Begbie, who were physicians to the hospital, that he should institute a course of clinical teaching on the diseases of women. Some years after this, an extra ward was set apart for Keiller's course on the subject, and this was the beginning of gynæcological teaching in the Edinburgh Medical School.

James Matthews Duncan (1826-1890), after taking the Fellowship of the Royal College of Surgeons in 1851, became a lecturer in midwifery in the Extra-Mural School, and was appointed physician for diseases of women to the Royal Infirmary in 1861. His connection with Simpson in the discovery of the anæsthetic properties of chloroform has been mentioned. He afterwards went to London and became attached to St. Bartholomew's Hospital in 1877. During his Edinburgh period a considerable number of papers dealing with obstetric subjects, and with the advancement of education in midwifery in Scotland emanated from his pen.

Thomas Keith (1827-1895) was apprenticed to Professor James Y. Simpson in 1845, and afterwards was house surgeon to Syme. He conducted a large practice along with his brother, Dr. George Skene Keith, but was particularly attracted to obstetrics and the developing subject of gynæcology. His first operation for ovariectomy was performed in 1862, and his celebrated series of 136 operations with 81 per cent. of recoveries was performed in the next ten years. He formed one of the famous chloroform party in Simpson's dining-room already mentioned. His successful results appear to have been obtained in part by a scrupulous attention to cleanliness in all the surroundings of his operations, but they began before the antiseptic era, and he found that antiseptics, as used in the early days of their employment, interfered with the success of his results.

Among the early physicians to the Infirmary may be mentioned the following: Dr. Thomas Spens, son of Dr. Nathaniel Spens, whose portrait in the uniform of



WILLIAM TENNANT GAIRDNER (1824-1907)



JAMES WARBURTON BEGBIE (1826-1876)

a Royal Archer is generally regarded as Raeburn's chief masterpiece, translated Richter's "Medical and Surgical Observations," in 1794.

Dr. David Craigie, another of the physicians to the Infirmary, who was a great linguist and a voluminous writer upon clinical and pathological subjects, has been already mentioned in connection with the subject of anatomy, which he taught for several years.

Dr. Robert Spittal (1804-1852) was one of the earliest physicians to introduce the methods of Laennec to Edinburgh practice, and, in 1830, issued "A Treatise on Auscultation, illustrated by cases and dissections."

Dr. J. R. Cormack (1815-1882) graduated at Edinburgh in 1837, and became one of the physicians to the Infirmary, but in later life practised in London and in Paris, eventually becoming Sir John Rose Cormack.

Sir William Tennant Gairdner (1824-1907) was one of the most distinguished of the younger physicians to the Royal Infirmary about the middle of the 19th century. As pathologist to the Royal Infirmary in 1848, he entered upon a career of great scientific energy, and in 1853 became physician to the Royal Infirmary, at the same time lecturing upon medicine in the Extra-Mural School. Meanwhile, he was engaged on the preparation of his classic work on clinical medicine, and his notable volume on "Public Health in Relation to Air and Water," which were published after he had gone to Glasgow as professor of medicine. In a series of early papers, "Contributions to the Pathology of the Kidney" (1848), he supplied an early description of waxy disease, and in the "Pathological Anatomy of Bronchitis and Diseases of the Lung connected with Bronchial Obstruction" (1850), he was one of the earliest observers to describe the condition of bronchiectasis.

James Warburton Begbie (1826-1876) was the son of Dr. James Begbie, also an Edinburgh physician. About 1852 he settled in Edinburgh, becoming in 1854 physician of the (temporary) Cholera Hospital, and in 1855 physician to the Royal Infirmary, and lecturer on medicine in the Extra-Mural School. Here also he gave a short annual course of lectures on the history of medicine. In middle life he was generally regarded as the most popular and highly esteemed physician in Scotland, and it has been said that for some years no one could die happy in Scotland without having been seen by Begbie in consultation. He wrote numerous short memoirs, but his best-known work was "A Handy Book of Medical Information and Advice by a Physician," published anonymously in 1860.

Among the surgeons of this period were the two brothers Lizars, both of whom lectured upon anatomy in the College of Surgeons. The work of John Lizars (1794-1860) has been mentioned in connection with the teaching of anatomy. He was also a surgeon to the Royal Infirmary. Alexander Jardine Lizars has been mentioned as professor of anatomy at Marischal College from 1841. He was

succeeded as professor of anatomy in the University of Aberdeen in 1863 by John Struthers, who had been a lecturer on anatomy in Edinburgh from 1847, and surgeon to the Royal Infirmary for a year before he went to Aberdeen. During his Edinburgh period, Struthers published important anatomical and physiological observations, and he had taken a considerable part in the agitation for improving the teaching in the Scottish Universities. His "Historical Sketch of the Edinburgh Anatomical School" forms a valuable account of the teachers in anatomy before his time.

Alexander Watson was surgeon to the Royal Infirmary in 1837, and devoted a good deal of attention to diseases of the eye, having published a treatise on this subject in 1830. He afterwards, on succeeding to a property, changed his name to Watson Wemyss.

John Argyll Robertson, a lecturer on surgery in the Extra-Mural School, had at an early date, devoted himself chiefly to ophthalmic surgery. He died in 1855, but his work in this special department was continued by his son, D. M. C. L. Argyll Robertson, who was the first to describe the phenomenon connected with the pupil, which now goes by his name. The subject of ophthalmology, in consequence of the new operations introduced by von Graefe and the invention of the ophthalmoscope by Helmholtz, developed into an important specialty shortly after the year 1850. This new development was speedily recognised by the management of the Royal Infirmary, and William Walker, a surgeon who had given much attention to ophthalmology, was the first ophthalmic surgeon on the staff of this institution, elected in July, 1855, to take office on the 1st September following. He was succeeded by D. M. C. L. Argyll Robertson.

Peter David Handyside (1808-1881) was one of the surgeons to the Royal Infirmary about 1840, but was better known as a teacher of anatomy, a subject on which he lectured for many years, and in regard to which he published a large number of contributions. James Duncan (1812-1866) was a pupil of Liston, and later surgeon to the Infirmary.

Andrew Douglas Maclagan (1812-1900) was for some years, about 1848, surgeon to the Royal Infirmary. Afterwards he was a lecturer on *materia medica* in the Extra-Mural School, and in 1862 was elected professor of medical jurisprudence in the University of Edinburgh, later becoming Sir Douglas Maclagan.

James Spence (1812-1882) became surgeon to the Royal Infirmary in 1854 in the absence of Mr. R. J. Mackenzie in the Crimea. He also lectured on surgery, and in 1864 became professor of surgery in the University, in succession to James Miller. He was known to a later generation of students as "dismal Jimmy," and is best remembered by his "Lectures on Surgery" (1868), which formed one of the chief text-books on this subject for some twenty years.