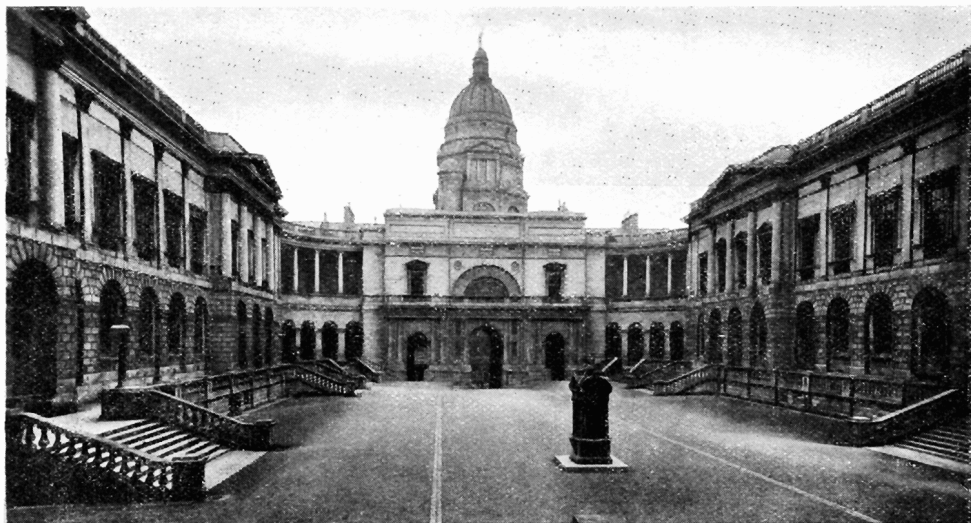


CHAPTER XV

MEDICINE AT EDINBURGH SHORTLY AFTER 1800

DURING the last decade of the 18th century most of the professors in the Medical Faculty were changed. At Cullen's death, in 1790, his place in the Chair of Medicine had been taken by James Gregory, son of John Gregory, an earlier occupant of the Chair. His fame as a teacher lives still, inferior in importance only to that of Cullen. When he walked he carried a stout cane held over his shoulder or at the trail, as if ready for action, and he had the curious habit of wearing



VALENTINE

OLD QUADRANGLE, EDINBURGH UNIVERSITY

(Begun 1789, completed 1828)

Compare this (taken towards the end of the 19th Century) with the views on *page 30* and *page 182*

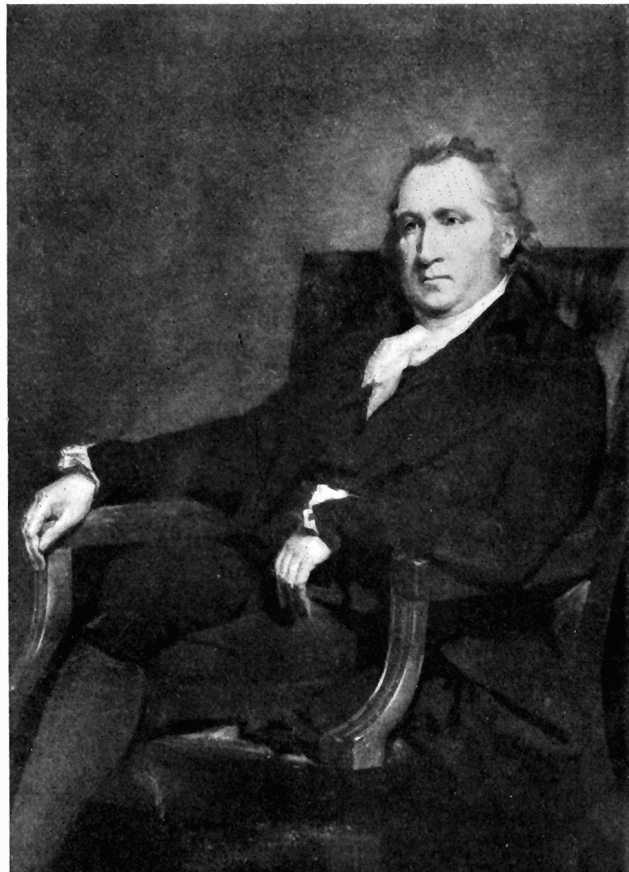
his hat throughout his lectures, after an apology to the students for doing so.¹ His most abiding monument in the temple of fame is a powder containing rhubarb, magnesia and ginger, which has been perhaps more universally employed than any other pharmacopœial preparation. He was brilliant and witty as a teacher, and one of the the great polemic writers of his day, so that Lord Cockburn,² who admirably sums up the characters of many contemporary worthies in Edinburgh, says of Gregory: "He was a curious and excellent man, a great physician, a

¹ "Life of Sir Robert Christison," Edinburgh, 1885, Vol. I, p. 79.

² Henry Cockburn: "Memorials of his Time," Chap. II, p. 97.



JOHN GREGORY (1725-1773)



JAMES GREGORY (1753-1821)

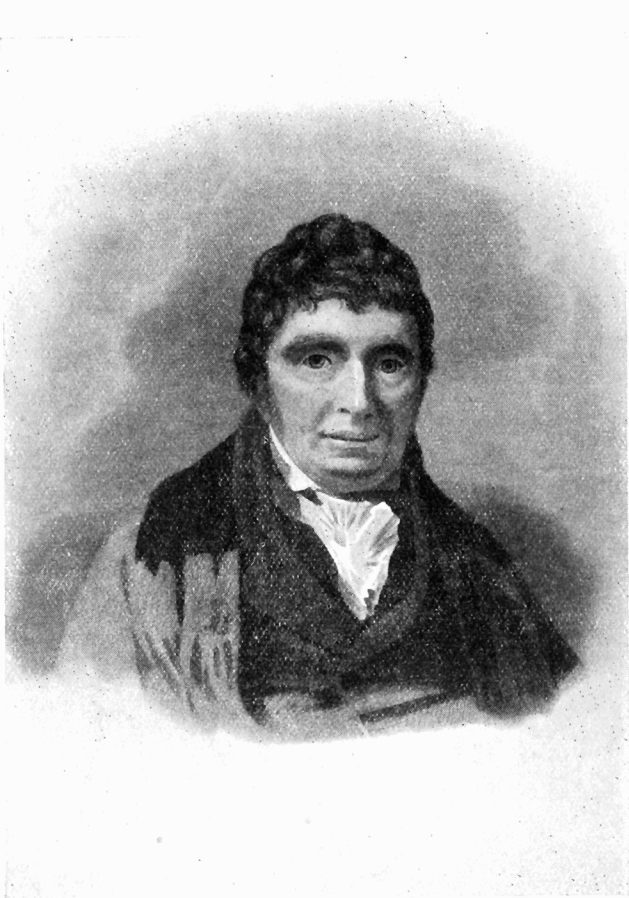
great lecturer, a great Latin scholar, and a great talker ; vigorous and generous ; large of stature, and with a strikingly powerful countenance. The popularity due to these qualities was increased by his professional controversies, and the diverting publications by which he used to maintain and enliven them. The controversies were rather too numerous ; but they never were for any selfish end, and he was never entirely wrong. Still, a disposition towards personal attack was his besetting sin."

This disposition got him into trouble with his colleague, Professor James Hamilton. Hamilton was a successful teacher and writer, but he is even better known as one of the most contentious of a singularly pugnacious professoriate. There had appeared anonymously in 1792, "A Guide for Gentlemen Studying Medicine at the University of Edinburgh," which reflected injuriously on a number of the professors. Professor Gregory having charged him with writing it, Hamilton produced a spirited and abusive reply, which provoked Gregory to beat him with his walking-stick. For this, Hamilton brought an action against Professor Gregory, and received £100 by way of damages. Gregory is said, on paying the damages, to have remarked that he would willingly pay double for another opportunity.

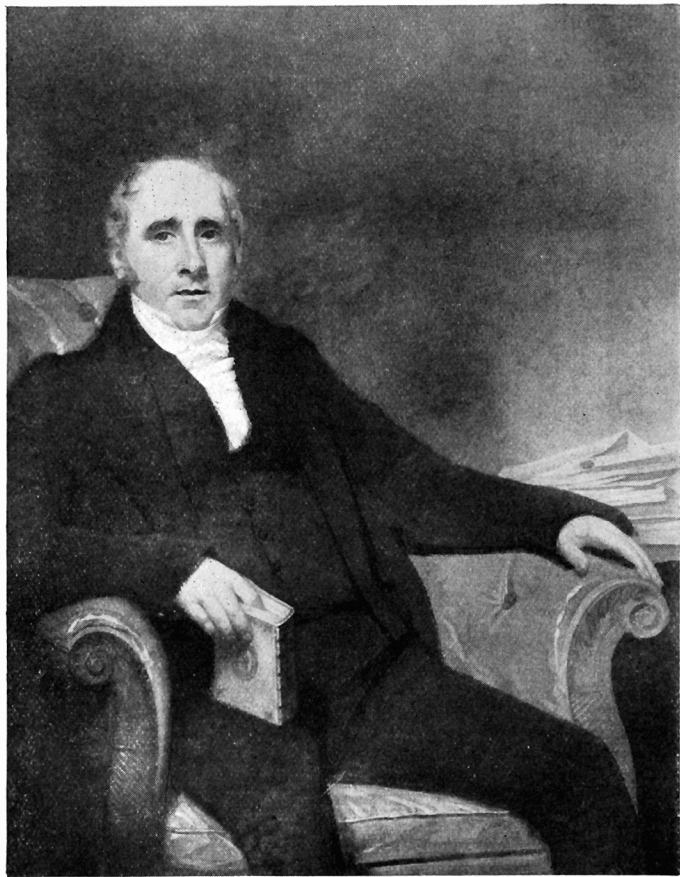
Hamilton, however, was a notorious litigant, for he also had lawsuits with Professors Andrew Duncan and Hope, while one with Sir Robert Christison was narrowly averted. In the case of Professor Hope, the cause of the trouble had been that Hope, after a long course of bickering, had used regarding Hamilton the words of Dr. Samuel Johnson on a like occasion : "The fellow lies, and he knows that he lies." Hamilton brought an action against Hope for defamation of character, and, after a prolonged hearing, the jury found a verdict in favour of Hamilton with one farthing damages. The public at large were greatly delighted with the legal proceedings and verdict, and Hope received from his friends a shower of letters enclosing farthings, one of which he sent to Hamilton, demanding a receipt.

Gregory's measures for the cure of disease were sharp and incisive, and there was no question of expectant treatment with him. Disease, according to Gregorian physic, was to be attacked vigorously by free blood-letting, the cold affusion, brisk purging, frequent blisters and vomits of tartar emetic. Since Edinburgh during his régime was frequented by students from all quarters of the British Islands and the Colonies, these measures came to rule medical practice for many years all over the world. His "*Conspectus Medicinæ Theoreticæ*" was regarded as a model of exactness and completeness in its time, and it remained for long a standard text-book. The rest of his writings are all connected with various disputes about Infirmary management and similar subjects.

Andrew Duncan became Professor of the Institutes of Medicine in 1789. One of his first acts on being made professor was to agitate for the erection of a



ANDREW DUNCAN (1744-1828)



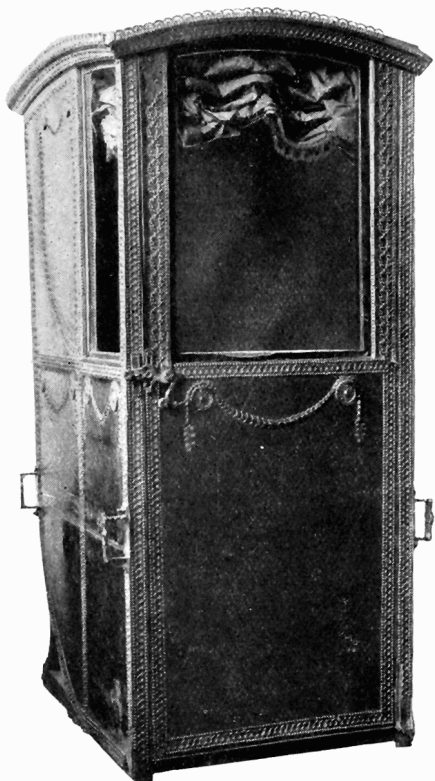
THOMAS CHARLES HOPE (1766-1844)
(After a painting by Raeburn)

public lunatic asylum in Edinburgh, which was finally opened in 1813. He was celebrated for his pleasantness of manner and kindness of disposition, and he had a hobby for founding convivial societies, of which the Harveian and Æsculapian Societies still exist as dining-clubs. His activities in obtaining Royal Charters for no fewer than four Societies, and his founding of the Medico-Chirurgical Society of Edinburgh, in 1821, were of more importance in this direction. The four Royal Institutions which owe their Charters largely to him are the Royal Medical Society, the Royal Public Dispensary, the Royal Caledonian Horticultural Society, and the Royal Edinburgh Asylum for the Insane. He was a great friend of promising young men, among whom his early patronage of the painter, Sir Henry Raeburn, was the most successful. A singular fatality appears to have overtaken many of his protégés, and an interesting and pathetic spot in Edinburgh is the grave of Andrew Duncan in Buccleuch Burying-ground, where his tombstone is seen within a high-walled enclosure, surrounded by small stones which he erected to the memory of various students who had died under his care, and to whose remains he had accorded this posthumous hospitality.

Thomas Charles Hope had been appointed colleague and successor to Joseph Black in the Chair of Chemistry in 1795, having come like Black from a professorship in the University of Glasgow. Chemistry, at the beginning of the 19th century, had developed into a very important subject, and his class numbered over 500 students. Sir Robert Christison records that his lectures were characterised by "uncommon clearness of exposition, and unexampled splendour and success in experimental demonstration," for not a single failure to attain exactly what he announced occurred during all the experiments of a session.¹ His work in pure chemistry included "An Account of a Mineral from Strontian, and of a Peculiar Species of Earth which it contains," in which he announced the discovery of a new "earth"—strontia. He is better known by his experiments made about 1800 in connection with the fact that water expands as it freezes, and his determination of its point of maximum density. His lawsuit with Professor Hamilton has been mentioned.

The Chair of Midwifery was filled from 1800 onwards by Dr. James Hamilton, son and successor of Dr. Alexander Hamilton. He was reputed to be a man of great energy and alertness, and a powerful lecturer. His quarrelsomeness has been already noticed. A three months' course of lectures was given by him thrice annually, and he maintained the lying-in hospital as a school for practical instruction. A course in this subject was, however, still optional for students, although Hamilton's lectures were almost universally attended. He was wont to visit his patients in a Sedan chair, a mode of conveyance which he used up to 1830, being the last person in Edinburgh to employ such a vehicle.

¹ "Life of Sir Robert Christison," Edinburgh, 1885, Vol. I, p. 57.



SEDAN-CHAIR OF
PROFESSOR JAMES HAMILTON
The last used in Edinburgh
(Preserved in the Royal Scottish Museum of Antiquities)

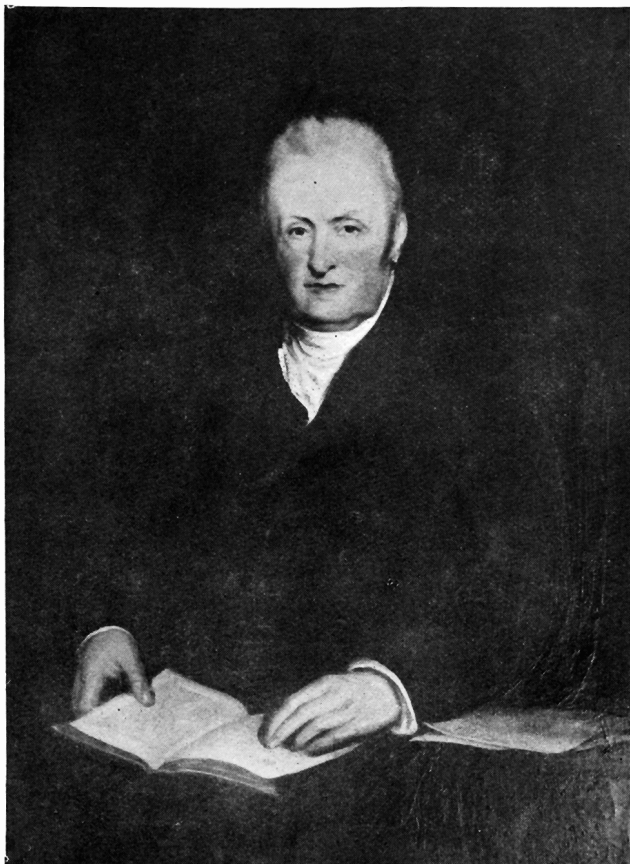


JAMES HAMILTON (The Younger)
Died 1839
*(From a silhouette by Edouart, in the Royal
Scottish National Portrait Gallery)*

The class of midwifery, conducted by James Hamilton (died 1839), son of Professor Alexander Hamilton, after being carried on by him with great success for some years, was made compulsory for the attendance of students after 1833, at the same time that attendance on practical anatomy, clinical surgery, medical jurisprudence and natural history became obligatory classes for all candidates for the degree of Doctor of Medicine. James Hamilton is sometimes known as James Hamilton (*the younger*) to distinguish him from James Hamilton (*senior*) (1749-1835), one of the physicians to the Royal Infirmary. The latter was celebrated for his recourse in treatment to strong purgative medicines, and a pill of aloes and colocynth is still known as "Hamilton's pill." James Hamilton (*senior*) was painted by Raeburn, and he was also known to his intimates as "Cocky" Hamilton, in allusion to the fact that he wore a three-cornered hat long after this article of apparel had ceased to be fashionable.

Dr. James Home succeeded his father, Francis Home, in the Chair of Materia Medica in 1798. Christison speaks of him as being so

popular as a lecturer that his class-room was crowded every morning in the dark winter session, notwithstanding his early hour of 8 a.m. In 1821, on the death of Professor James Gregory, he was translated to the Chair of Practice of Physic, where, curiously enough, according to the same authority, he failed from the first as a lecturer, his class-room "becoming a scene of negligence, disrespect, noise, and utter confusion, for a few years before his death in 1842." According to Christison, his success in one



JAMES HOME (1758-1842)

Chair and his failure in another was occasioned by the difficulty of following so consummate a professor and so eminent a physician as Dr. Gregory, and also by the error of the Town Council in failing to appoint Dr. Abercrombie, a noted consulting physician of the town, who had given proof by his writings of his high ability.¹

Towards the end of the year 1798, Monro *secundus* petitioned the Town Council to appoint as his colleague and successor his eldest son, Alexander, then twenty-five years old, afterwards known as Monro *tertius*. The Town Council, after some demur, agreed, and the two Monros held the Chair of Anatomy conjointly for the next ten years, Monro *secundus* retiring in 1808. Monro *tertius* held the Chair till 1846, thus continuing the régime of his family through the long period of 126 years. The experiment of slipping a son in early life into the position of colleague, to become later sole professor, had been very successful as between Monro *primus* and Monro *secundus*, but on the second occasion, as between Monro *secundus* and Monro *tertius*, it proved a lamentable failure.



ALEXANDER MONRO (*tertius*) (1773-1859)

(From "Modern Athenians")

lectures written about a century before; and even the shower of peas with which the expectant students greeted his annual reference, 'When I was a student in Leyden in 1719,' failed to induce him to alter the dates."² Charles Darwin, who studied medicine at Edinburgh from 1825 to 1827, but afterwards forsook medicine for natural history, in his autobiography gives him the following testimonial, which is amusing as a comment by a student upon his professor: "Dr. ——— made his lectures on human anatomy as dull as he was himself, and the subject disgusted me."³ The chief regret about

¹ "Life of Sir Robert Christison," Vol. I, pp. 76-78.

² "Edinburgh University: A Sketch of its Life for Three Hundred Years," Edinburgh, 1884. Quoted in the "Edinburgh School of Surgery before Lister," Miles, London, 1918, p. 84.

³ "Life and Letters of Charles Darwin," 1887, Vol. I, p. 36.

Monro's appointment is that one or other of two brilliant brothers might have been secured, and if the appointment had been made open, either John or Charles Bell, with the advantages of position and wealth which the Town Council conferred upon Monro *tertius*, would undoubtedly have reflected great lustre upon the Edinburgh Anatomical School.

It has been mentioned that the first two Monros lectured on surgery as a small part of their course on anatomy, and, in 1772, the College of Surgeons had recognised Mr. James Rae as a lecturer on this subject. In 1776, they had approached the Magistrates to establish a professorship of surgery within the University, but the proposal was so vigorously opposed by Monro *secundus* that it failed, and instead Monro received a new commission in 1777, appointing him professor of medicine, and "particularly of anatomy and surgery." In 1804, the College of Surgeons decided to take the matter into their own hands, and they accordingly appointed one of their Fellows, John Thomson, to be "professor of surgery of the Royal College of Surgeons."

The University, through the Town Council, opposed the establishment of a professorship outside its own walls, but after all, the word "professor" only means "teacher" and has never been the monopoly of a university, so that Thomson continued to lecture with success as a professor outside the walls, and in spite of the opposition of the University. Two years later, Thomson was appointed by the Crown professor of military surgery in the University, but he continued, by permission of the College, to perform the extramural duties of the professor of surgery. In 1821, he resigned the College appointment, in which he was succeeded by Mr. John William Turner. Ten years later, in 1831, the Crown, on the recommendation of the Town Council, decided to establish a Chair of Systematic Surgery within the University, and offered the appointment to Professor J. W. Turner.

The College of Surgeons thus, after a controversy lasting fifty-five years, gained its point. Mr. John Lizars was now appointed professor of surgery to the College of Surgeons, and held the post for eight years, but on his resigning in 1839, the College decided to discontinue their professorship in view of the fact that the Chair of Surgery within the University had now been established.¹

It had been decided by the Crown, before 1803, to establish a Chair of Clinical Surgery, which was at first endowed with a stipend of £50 per annum. The person selected to fill the Chair was James Russell (1755-1836). His father had been a surgeon-apothecary in Edinburgh, but had relinquished medical practice to become professor of natural philosophy in 1764. James Russell had been one of the six surgeons selected by the Managers of the Royal Infirmary, in 1800, to take charge of the surgical patients in this institution when the old agreement of 1738, that all the members of the Incorporation of Surgeons should act in turn on

¹ Miles: "Edinburgh School of Surgery before Lister," p. 79 *et seq.*

the staff, became unmanageable. All six surgeons were given the power in 1804 to deliver clinical lectures in the Infirmary.

In 1814, Professor Russell retired from the Infirmary, but the Managers granted him a life privilege of delivering clinical lectures on surgery in the hospital.¹ He had thus no hospital beds or cases of his own, but lectured upon the cases of the other surgeons. Under these difficult and somewhat delicate conditions, he appears to have avoided giving offence, and to have conducted well-attended classes. He

is described as a tall, thin gentleman of the old school, who wore a red wig, was always dressed in black with a white neckcloth and a broad frill on his shirt breast. He also adopted the style of knee-breeches, silk stockings and shoes.² An old pupil says of him: "I must say he was a somnolent lecturer, a quality which was fomented by an evening class-hour, and betrayed by an inveterate habit the professor had of yawning while he spoke, and continuing to speak while he yawned."³ Russell held the Chair till the age of seventy-eight, and when he resigned in 1833, he made it a condition that his successor should pay him the sum of £300 a year for the period of his lifetime. He was succeeded by James Syme and lived three years after his retirement.



ANDREW DUNCAN (SENIOR)
(1744-1828)

(From Kay's "Portraits")

An important adjunct was made to the Edinburgh Medical School with the institution, in 1805, of the *Edinburgh Medical and Surgical Journal*. The full title of this periodical was "The Edinburgh Medical and Surgical Journal:

Exhibiting a concise view of the latest and most important discoveries in medicine, surgery and pharmacy." It was issued under the editorship of Andrew Duncan (*junior*), and continued and embodied four periodicals which had previously appeared in the Edinburgh Medical School. These had been "Edinburgh Medical Essays," first issued in 1731 (six volumes); "Essays Physical and Literary," first issued in 1754 (three volumes); "Medical and Philosophical Commentaries by a Society in Edinburgh," from 1773 to 1795 (twenty volumes); and "Annals of Medicine," which had been issued in 1796 under the editorship of

¹ "The Royal Infirmary of Edinburgh: Notes and Excerpts from the Minutes," 1728-1908, p. 7.

² Miles: "The Edinburgh School of Surgery before Lister," p. 101.

³ "Life of Sir Robert Christison," Vol. 1, p. 89.

Andrew Duncan (*senior*), and Andrew Duncan (*junior*).¹ The last was directly continued by the *Edinburgh Medical and Surgical Journal*, which still survives as the *Edinburgh Medical Journal*.

We must now consider the extra-academical teachers of Anatomy. The teaching of this subject began with the Guild of the Surgeons and Barbers long before the Town's College was founded. The capable brain of Dr. Archibald Pitcairne, about 1680, conceived the idea of founding a medical school in Edinburgh; he was one of the three Professors of Medicine appointed in 1685 to the Town's College or University as it then began to be called; and in the combined anatomical demonstrations of the Surgeons' Incorporation after his return from the Leyden professorship, he was, in 1702 and 1704, as we have seen, the guiding spirit.

During the first sixty years of the Monro régime, the University had a monopoly of anatomical teaching, but it is a significant fact that though the first two Monros lectured on Surgery, neither was an operating surgeon, and



JOHN BELL (1763-1820)

(Original in the Wellcome Historical Medical Museum, London)

the second was a consulting physician with large practice. Anatomy in their hands, though brilliantly taught, naturally tended to become a formal systematic subject, and in 1786, John Bell, returning to Edinburgh and becoming a Fellow of the College of Surgeons, saw a great chance. In his "Letters on the Education of a Surgeon," published in 1810, he says: "In Dr. Monro's class, unless there be a fortunate

¹ For Index to these publications, see *Edinburgh Medical Journal*, Vol. XX, 1824.

succession of bloody murders, not three subjects are dissected in the year. On the remains of a subject fished up from the bottom of a tub of spirits, are demonstrated those delicate nerves which are to be avoided or divided in our operations; and these are demonstrated once at the distance of 100 feet!—nerves and arteries which the surgeon has to dissect, at the peril of his patient's life."¹

John Bell, therefore, began to lecture, and so successful was he in attracting students that, in 1790, he built an anatomical school adjoining on the east the Hall of the Surgeons in what was later called Surgeons' Square. He was not only an expert anatomist, but a good classical scholar, a skilful draughtsman and etcher, a ready speaker and a polished writer. It is no exaggeration to say that he founded the subject of Surgical Anatomy. The works and atlases of the great anatomists in the 18th century, *e.g.*, Cheselden, Albinus, Haller, Winslow,

Scarpa, Soemmering, even the Hunters, all treat the subject from the purely structural point of view. By these men the various systems and organs are correctly described and often beautifully figured, but the engravings of John Bell, and later of his brother Charles, have a teleological significance, their aim being not so much correctness, as utility to the operating surgeon. This feature is readily seen in John Bell's "Engravings of the Bones, Muscles and Joints," drawn and engraved by himself (1794).

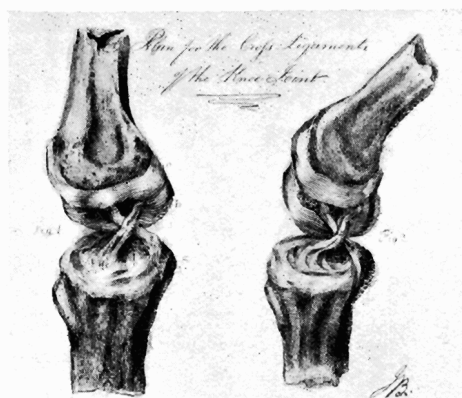


PLATE ENGRAVED BY JOHN BELL
Showing the knee joint

Bell was essentially a surgeon, and his only other anatomical work was the "Anatomy of the Human Body," published Vol. I, 1793; Vol. II, 1797;

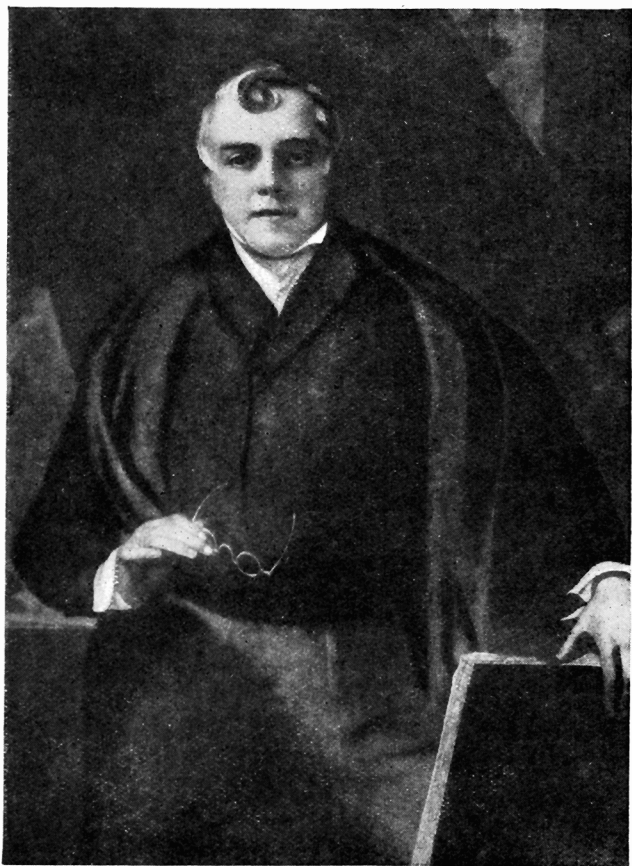
Vol. III, 1802. He taught anatomy for thirteen years and gave it up under peculiar circumstances. So successful had his anatomical classes proved, that a combination led by Dr. James Gregory, Professor of the Practice of Medicine in the University, was formed against him, and he was pursued in a manner which for audacity, if not for bitterness, would be wellnigh impossible at the present day. The attack opened with a pamphlet addressed to students warning them against attending Mr. Bell's lectures. It was followed by a "Review of the Writings of John Bell, Surgeon in Edinburgh, by Jonathan Dawplucker" (Professor Gregory). This malignant attack was, as Bell states, "Stuck up like a Play-Bill in a most conspicuous and unusual manner, on every corner of the city; on the door of my

¹ John Bell: "Letters on the Education of a Surgeon," Edinburgh, 1810, p. 579.

lecture-room, on the gates of the College, where my pupils could not but pass, and on the gates of the Infirmary, where I went to perform my operations."

As an example of the personal abuse to which Gregory descended may be cited: "Any man, if himself or his family were sick, should as soon think of calling in a mad dog, as Mr. John Bell." Bell, at a later period, replied to these attacks pungently and effectively, in a voluminous collection of "Letters."¹ But Gregory's party having secured his exclusion from the hospital, there was nothing to be gained by Bell from further teaching. He therefore ceased to lecture in 1799, confining himself to surgical practice, in which he was for about twenty years the leading operator and consultant throughout Scotland.

Charles Bell was younger than his brother John, by eleven years, and was trained by him in anatomy and surgery. In this there is a sort of comparison with the brothers William and John Hunter, half a century earlier. Charles Bell began to assist in the anatomical class while still comparatively a boy, and, like John Bell, he had a genius for anatomical delineation. The same teleological tendency is seen in his drawings, directed in his earlier works, like that of his brother, towards surgery. These earlier works were a "System of Dissections" (published 1792-1803), and "Engravings of the Arteries, of the Nerves, and of the



SIR CHARLES BELL (1774-1842)

¹ John Bell: "Letters on the Education of a Surgeon," Edinburgh, 1810, pp. ix and 503.

Brain" (published 1801 and 1802), while his "Anatomy of Expression," though not published till 1806 in London, was mainly composed in Edinburgh. After the withdrawal of John Bell from teaching, Charles took over the anatomy class in 1799, but the opposition to his brother militated against his success and he never attracted more than ninety students. He determined, therefore, in 1804, to remove to London, where, in 1811, he took over the old Hunterian Anatomical School in Windmill Street, and where he spent thirty-two busy and eventful years. The Edinburgh School made some amends to Bell and to its own reputation by offering him the Chair of Surgery in 1836, when the Gregory faction had passed away. We are not concerned here with his London period, but one important field of his activities must be mentioned, to which he had been directing attention in the early Edinburgh days, and upon which his fame largely rests. Since the days of Whytt and Haller, the minute ramifications of the nervous system had been a matter of common knowledge; but the nerves were regarded as merely exerting some vague influence over the parts to which they were distributed, and effecting a sympathy between different regions of the body. Whytt, in 1755, was ahead of his time in expressing the opinion that "the power of motion, when stimulated, proceeds from the nerves, or is at least immediately dependent on their influence."¹ Charles Bell was the first to whom it occurred that definite nerves have a definite course from some part of the brain to a certain portion of the periphery, and, further, that different nerves have quite distinct functions. This led to his "Idea of a New Anatomy of the Brain," printed for distribution in 1811, but often mentioned by him before that time. This publication included the specific instance of the motor function of the anterior nerve roots, first discovered by him. It led to the more complete demonstration of motor and sensory nerves by Magendie in 1822, to the localisation of the *nerf vital* by Flourens in 1837, and to the great subsequent developments in mapping out nerve paths and centres in the brain and cord.

Charles Bell, like Harvey, was thus a pioneer in scientific medicine, and it gives no cause for wonder that on one occasion when Bell was visiting Paris, Roux dismissed his class without the lecture for the day with the words: "C'est assez, Messieurs, vous avez vu Charles Bell."²

The episode of surgical anatomy in Edinburgh ended for a time when Charles Bell shook off the dust of this city from his feet in 1804, but this branch was revived some twenty years later by a brilliant group of surgeon anatomists, including Lizars, Liston, Syme and Fergusson.

An important place as a teacher of anatomy was filled by John Barclay, who having originally studied for the Church, took the M.D. degree at the somewhat ripe age of thirty-six, and became an assistant to John Bell. In 1797, he began to teach anatomy on his own account, and, in 1804, when Charles Bell departed

¹ "Works of Robert Whytt," 1768, p. 324.

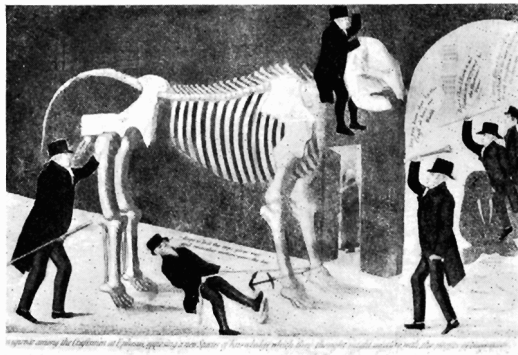
² J. Struthers: "The Edinburgh Anatomical School," Edinburgh, 1867, p. 54.

for London, his course of lectures was "recognised" by the College of Surgeons. After the year 1808, the retiral of Monro *secundus* and the ineptitude of the third Monro helped Barclay's class, which gradually rose to 300 students, the University class sinking from 400 under Monro *secundus* to 200 by the year 1821. Barclay had taken a house on the west side of Surgeons' Square (No. 10, next door to the Royal Medical Society's premises), which had been used for lectures by Andrew Duncan, senior, and which he fitted up as an anatomical school.¹ Here he collected a valuable museum of human and comparative anatomy, and lectured twice daily.

We have seen that Monro *secundus* took considerable interest in the subject of comparative anatomy, and Barclay now greatly developed it. He also made a considerable reputation by the publication of several valuable works, especially his "New Anatomical Nomenclature" (1803), "The Muscular Motions of the Human Body" (1808), and "Engravings representing the Bones of the Human Skeleton with the Skeletons of some of the Lower Animals" (1819). He had a philosophic conception as well as an extensive knowledge of comparative anatomy, and was one of the first to recognise that all animals have the same general outline of structure, as well as the principle of homology in the two limbs. It was

proposed indeed to make for him a Chair of Comparative Anatomy in the University, though this was vehemently opposed by Monro and Jamieson, the Professors of Anatomy and Natural History respectively.² The proposal, though it never eventuated, gave rise to much discussion, personal, political and scientific, and in Kay's "Edinburgh Portraits" there is a contemporary caricature showing several of the participants, entitled "The Craft in Danger."³

Contemporary with Barclay was Dr. John Gordon, who lectured at No. 9, Surgeons' Square, from 1808 to 1818, to a class of about a hundred students. Apart from his activities as a teacher, his best-known work was "Observations on the Structure of the Brain, comprising an Estimate of the Claims of Drs. Gall and Spurzheim to Discovery in the Anatomy of that Organ." This attempt to



CARICATURE OF "THE CRAFT IN DANGER"
(From Kay's "Portraits")

John Barclay, mounted on the Elephant, is attempting to enter the University. The other figures, from the left, are Professors James Gregory, T. C. Hope, A. Monro (*tertius*), Jamieson (Natural History), and Mr. R. Johnston (a member of the Town Council)

¹ C. W. Cathcart: "Some of the Older Schools of Anatomy connected with the Royal College of Surgeons, Edinburgh," *Edinburgh Medical Journal*, March, 1882.

² Sir G. Ballingall: "Life of John Barclay," 1827.

³ John Kay: "A Series of Original Portraits and Caricature Etchings," Edinburgh, 1837, Vol. I, p. 448

show that the claims of these two men to have localised various faculties in different parts of the brain were inadmissible, went far, in this country at least, to discredit the science of Phrenology.

He was succeeded by David Craigie, who wrote the excellent article on "Anatomy" in the seventh and eighth editions of the "Encyclopædia Britannica," and taught Anatomy in No. 3, Surgeons' Square, from 1818 to 1822; Dr. Craigie had followed Dr. Smith, of whom little is known, but neither of them had much success as a teacher. Craigie became Inspector of Anatomy for Scotland in 1832 under the new Anatomy Act.

One of Barclay's demonstrators was Robert Liston, who, having disagreed with Barclay, began to teach anatomy on his own account, with James Syme as his demonstrator, to a class of sixty students in the winter session 1818-1819. The class-room was in Surgeons' Square, but at what number I have been unable to discover. Here Liston and Syme carried on the class between them for several years with increasing success, Syme eventually taking over the management. They taught both anatomy and surgery on the lines introduced by the Bells; and, at a later date, in 1829, William Fergusson, as Knox's demonstrator, began a course on surgical anatomy which proved exceedingly popular with the students.¹

Another successful lecturer was William Cullen (grand-nephew of the celebrated William Cullen), who lectured in John Bell's old class-room in Surgeons' Square to about a hundred students, moving later (1825) to an anatomical school in "Society," Brown Square, where he succeeded James Syme, who had lectured there for one year on anatomy. Cullen died, after five years as a teacher, in 1828. Mr. Lizars had been teaching anatomy and surgery at No. 1, Surgeons' Square, and on the death of Cullen he moved to the Brown Square School (now the south corner of Chambers Street and George IV. Bridge).

It should be remembered that up to this time the students, as a general rule, did no individual dissection. A few favoured or enthusiastic spirits helped the anatomical teachers to prepare for their demonstrations, but the material available did not permit of universal practical dissection. Instruction was conveyed by lecture-demonstrations, of which one winter's course was compulsory, and of which almost all students took two courses. Preparations ready dissected were also available for reading. To facilitate reading and to supply the dearth of material, there was a great output of plates, tables and coloured illustrations by the various teachers and their assistants. Among these the text-books of John Innes and Andrew Fyfe, who acted successively as prosectors or "dissectors" to Monro *secundus*, were in great demand, and may still be seen occasionally on second-hand bookstalls. There was in them avowedly nothing new, but they frequently displayed considerable merit in draughtsmanship, and the same hands

¹ Miles: "Edinburgh School of Surgery before Lister," p. 134.

illustrated the scientific works of Monro *secundus* and other teachers. Fyfe's "System of Anatomy" (published in 1800) is especially worthy of note. It contained 160 plates and about 700 figures, mostly produced from the works of Continental anatomists and some from his own dissections, the drawing and engraving being the work of his own hand and displaying a great degree of skill. John Aitken, who entered the College of Surgeons as a Fellow in 1770, and apparently conducted coach-classes on most of the subjects in the medical curriculum—anatomy, surgery, midwifery, chemistry and practice of physic, had published, in 1786, an elaborate "System of Anatomical Tables with Explanations."¹ The works of the Monros, of John and Charles Bell, and of Gordon, have been already mentioned. Charles Bell also introduced another form of teaching apparatus, of which many examples may still be seen in the Museum of the Royal College of Surgeons. Clemente Susini and his pupils at Florence had introduced the making of exquisite wax models of dissections. Charles Bell copied the process by making plaster casts, which he covered with a thin layer of variously coloured wax, moulded as it dripped from candles of the colours required.

Andrew Bell, a professional engraver, produced a number of collections of plates from 1777 to 1798, under various titles, such as "Bell's Edition of the Plates of Albinus," "Anatomical Engravings," and "Anatomia Britannica," and he was extensively employed by the anatomical teachers. Edward Mitchell, another engraver, did the plates for Barclay's "Engravings of the Bones, etc." (1819 and 1824); he copied largely from Sue and Albinus. Later editions of this work, and continuations dealing with the nerves (1829), arteries (1831), muscles (1832), and ligaments (1834), were published under the superintendence of Robert Knox (the arteries under that of Wharton Jones), and were generally known as "Knox's Plates."

Another highly popular "System of Anatomical Plates," in five folio volumes, was issued by John Lizars from 1823 to 1826. All these plates by the various teachers were copied from or based upon the works of Albinus, Haller, Camper, Scarpa, Soemmering, Walther, Cloquet, Tiedemann, etc., and the great output in Edinburgh at this time is explained in the preface to Knox's work that they were to be used as a guide in dissecting, which was now becoming more prevalent among students, though not compulsory till 1826. Knox says: "the experiment was eminently successful; and it was easy to observe that, by the use of such delineations and descriptions in the practical rooms, the general character of the dissections shortly became altogether different."²

The College of Surgeons from very early times had been interested in rarities of natural history, and even in Monteath's time (1694) there had been a semblance of a museum containing among other things "ane egyle," "three scorpions and

¹ J. Struthers: "The Edinburgh Anatomical School," Edinburgh, 1867, p. 38.

² "Engravings of the Arteries, with Explanatory Reference by Dr. Knox," 1831, preface.

a chameleon," "an allegatory or young crocodile," and, later, "a strange creature called ourang-outang."¹ In 1702, Pitcairne presented to the College a body showing an elaborate dissection of the muscles, still preserved though sadly gnawed by the tooth of time; and in 1718, Monro *primus* presented a skeleton (still preserved) and other specimens. Specimens of normal and pathological anatomy gradually accumulated, and at the end of the eighteenth century Barclay commenced his valuable collection of pathological and comparative anatomy, which on his death became the property of the College.

With this nucleus, the College, some time about 1820, conceived an ambitious scheme of purchasing a high-class anatomical museum. An attempt was first made to secure that of Professor Meckel, of Halle, and on this proving ineffectual Dr. Cullen was sent to Paris in 1823 to secure a steady supply of specimens. He met with partial success only, and the College finally, in July, 1825, purchased for £3000 the museum of Charles Bell, who was about to retire from teaching anatomy in the Windmill Street School, London. The arrangements for the transfer were superintended by Dr. Robert Knox, Conservator of the College Museum, and one perceives, from a perusal of the Minute Book of the Curators of the College, that Knox displayed an enormous amount of enthusiasm and labour in the foundation of this anatomical museum, which has become in importance second only to the Hunterian Museum in London.

When Barclay retired in 1824, Knox took over his class and lecture room at No. 10, Surgeons' Square, and quickly became the most popular anatomical teacher in Edinburgh. When he had been lecturing four years his class numbered over 500—probably the largest anatomical class that has ever assembled in Britain. Although most of its members were medical students, Knox also attracted to his lectures barristers, scholars, clergymen, noblemen, artists and men of letters. Probably this very popularity, by associating his name especially with anatomy, was the means of turning against him more than against any of the other teachers the odium of the public, following on the Burke and Hare exposures.

As is generally known, Burke and Hare were two debased Irishmen, resident in Edinburgh, who conceived a scheme of supplying bodies for the dissecting rooms at less trouble and danger to themselves than could be effected by the methods of body-snatching commonly followed by the "Resurrectionists" of the time. Their method was to entice friendless people into their house in the West Port, stupefy them with drink, and thereafter suffocate them and sell the bodies to the porters of the various anatomy rooms. At least sixteen people were thus done to death before Burke and Hare were apprehended and tried in December, 1828. The last of these bodies was found in Knox's rooms, and popular animus was therefore naturally directed first at him. Yet Lord Cockburn,

¹ Miles: "The Edinburgh School of Surgery before Lister," p. 15.

commenting upon the affair, wrote: "All our anatomists incurred a most unjust, and a very alarming, though not an unnatural odium; Dr. Knox in particular against whom not only the anger of the populace, but the condemnation of more intelligent persons, was specially directed. But tried in reference to the invariable, and the necessary practice of the profession, our anatomists were spotlessly correct, and Knox the most correct of them all."¹

Although the students remained by Knox for years, and showed him many examples of their affection and regard, his ability both as a teacher and investigator declined, and in 1844 he left Edinburgh to lecture for a short time in Glasgow and afterwards practice in London. Teaching had been Knox's *forte*, and his

lectures were studied and rehearsed with the utmost care, even down to his dress and jewellery. He had an extraordinary power of lucid exposition, as one may still perceive from his writings, and he appears to have infused an interest into the dull facts of anatomy, partly by his caustic wit and partly by a constant reference to the structure and functions of the parts he happened to be describing, as they existed in the lower animals. He published numerous short papers on circumscribed anatomical subjects, and longer works, such as "The Races of Men," "A Manual of Artistic Anatomy," "A Manual of Human Anatomy," etc., all of ephemeral interest as regards their subject, but striking for the lucidity and force of their descriptive power.²



ROBERT KNOX (1791-1862)

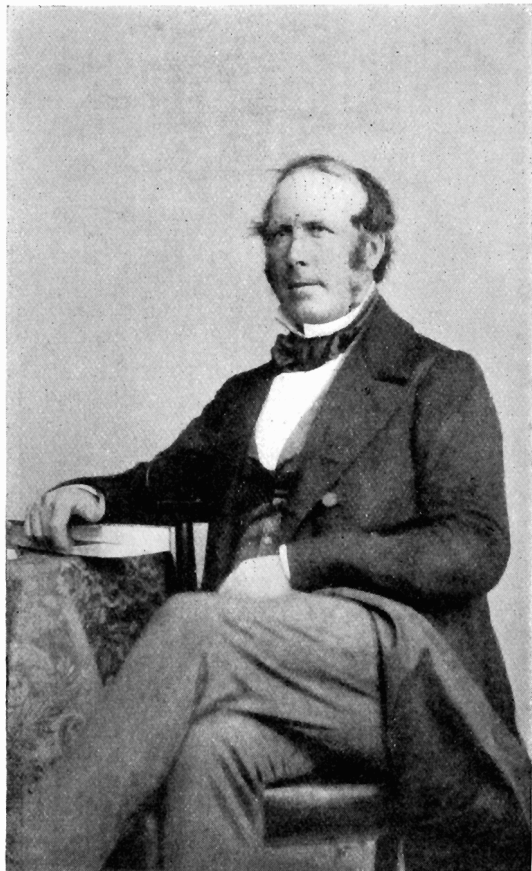
(From a sketch made by Edward Forbes,
the naturalist, while a member of
Knox's class)

The years between 1828 and 1831 mark a definite stage in the history of anatomical instruction. The College of Surgeons had made a course of three months practical anatomy compulsory for its students after March, 1826, and the University followed in the next year. These exactments, by pressure on the already restricted material for dissection, led to an increase of "Resurrectionist" activity, incidentally were indirectly responsible for the Burke and Hare atrocities, and so led ultimately to the Anatomy Act of 1830. This regulation, which made body-snatching unnecessary and useless, had long been craved by teachers in all the medical schools of Britain.

In 1828 the College made attendance on two courses of anatomy compulsory, and in 1829 the practical anatomy course was extended from three to six months, to be again extended to twelve months in 1838. In 1831 the University

¹ Henry Cockburn: "Memorials of his Time," Edinburgh, 1856, p. 257.

² Lonsdale: "Life and Writings of Robert Knox," London, 1870.



WILLIAM SHARPEY, M.D., F.R.S. (1802-1880)



JOHN GOODSIR (1814-1867)

separated the Chair of Surgery from that of Anatomy, producing a necessary change in the scope of the anatomy lectures. This had been agitated by the College of Surgeons since 1776, but, being bitterly opposed by Monro *secundus* at that time as an infringement of his rights, the separation could not then be effected. From this year, 1831, anatomical instruction and surgical teaching entered upon the modern epoch in Edinburgh.

Another extra-academical lecturer of a slightly later period was Dr. William Sharpey, who lectured on anatomy from 1832 to 1836, and who, during his Edinburgh period, discovered the "cilia" possessed by some mucous membranes. Allen Thomson, another extra-academical lecturer on physiology along with Sharpey, and Dr. Martin Barry were two of the earliest inquirers, with the help of the microscope, into the mysteries of the developing ovum, and many fundamental discoveries in embryology were made by them. In this matter the Edinburgh Medical School kept pace with Joannes Müller and his pupils Henle, Schwann, etc., who at this time were making similar discoveries with the microscope in Berlin.

The Edinburgh School played a notable part in the great movement of the first half of the nineteenth century, which resulted in the recognition of the cell as the morphological unit in vital processes. This it did through the work of John Goodsir. Goodsir (1814-1867) acted first as Curator of the College of Surgeons' Museum, then in a similar capacity to the University, and finally, as Professor of Anatomy from 1846 to 1867. In his early days, like others of the time, he was interested in parasitology, and the *sarcina ventriculi* and the fungus responsible for potato blight were two of his discoveries. About the period 1842-1845 he published a number of papers dealing with the activities of the cell. Up to this time it was generally accepted that new cells were developed by a process of precipitation of granules in a fluid exudate. Goodsir, on the contrary, not only advocated the importance of the cell as a centre of nutrition, but considered that the organism was divided up into territories of cells presided over by one central cell. Virchow recognised his indebtedness to Goodsir by dedicating to him his "Cellular-Pathologie" (1858), in which he calls Goodsir "one of the most acute observers of cell-life."

The cellular doctrines are to be found in Goodsir's "Centres of Nutrition," "Absorption and Ulceration," "Ulceration in Articular Cartilages," "Secreting Structures," "Diseased Conditions of the Intestinal Glands," etc. His treatises on natural history subjects were numerous, as were also those on Morphological and Teleological Anatomy, such, for example, as that "On the Mechanism of the Knee-Joint," "On the Morphological Constitution of Limbs," etc. He was succeeded by William (later Sir William) Turner in 1867.