CHAPTER IX

CLINICAL TEACHING IN THE ROYAL INFIRMARY IN THE EIGHTEENTH CENTURY

THE PROFESSORS OF MEDICINE IN THE EARLY AND LATER YEARS OF THE CENTURY—LECTURES IN CLINICAL SURGERY—FOUNDATION OF THE CHAIR OF CLINICAL SURGERY IN 1803—MEDICAL STUDENTS IN THE INFIRMARY AND THE SCHOOL OF MEDICINE—THE INFLUENCE OF EDINBURGH ON MEDICAL EDUCATION IN THE NEW WORLD.

HAVING sketched the main steps taken to effect a better service from the physicians and surgeons it is now necessary to trace the gradual development of the methods adopted for imparting clinical instruction in the hospital. With the opening of the new building of the Royal Infirmary, in December 1741, accommodation was obtained for an increased number of patients along with improved facilities for clinical teaching. The school of medicine had been in existence since 1726: St Clair, Rutherford, Plummer, Innes and Monro were still teaching respectively the theory and practice of physic, chemistry, anatomy and surgery in the University, while botany was being taught in the Physic Garden by Charles Alston. Since the opening of the Little House in 1729, clinical instruction had been given by the physicians and surgeons attending in rotation for short periods. Although the school in 1741 was still comparatively young, it was acquiring a growing reputation and was attracting students in increasing numbers from beyond the confines of Scotland.

The students of medicine while attending the hospital in Robertson's Close had received from the members of the visiting staff practical instruction in the small wards and operating theatre, and for this privilege the Board of Management exacted a fee of two guineas from each pupil, the money thus raised being applied to the ordinary annual revenue of the house. When the new building was opened this sum was

reduced to one guinea in the case of the surgeons' apprentices.[1] Later, in 1756, a system of issuing "perpetual" hospital tickets was introduced for which the apprentices paid five guineas and other students seven and a half, these tickets admitting the holders to the practice of the hospital "in all time coming."[2]

In February 1748, however, after the completion of the new building, a further method of clinical teaching was introduced for which no additional fee was at first charged.[3] John Rutherford proposed to give a course of clinical lectures in the hospital to illustrate in a practical way the principles of medicine taught in his systematic class in the University. For some time he had encouraged his pupils to bring patients to him on Saturday morning, when he enquired into the nature of their diseases and prescribed for them in the presence of the class.[4] Learning, however, that some of his students who were desirous of attending the new course did not possess hospital tickets, and being unwilling for that reason to admit them into the Infirmary, he wished to postpone his lectures till the following winter session commencing in October 1748, making it a condition that all should then have the necessary hospital tickets. But "the managers, having considered the proposal, were of the opinion that, as the year of attendance in the Infirmary is far spent, it would not be reasonable to insist with the students who want tickets to take them now, and, as these lectures may be of very great service to the students and likewise an advantage to the house, they recommend to Dr Rutherford to begin his lectures immediately and agree to give him the use of a room in the Infirmary for that purpose, and that all who desire to attend them shall be admitted."[5]

[1] Minute, Royal Infirmary, 30th November 1741.

[2] Minute, Royal Infirmary, December 1756. The "Perpetual" ticket was afterwards made £10, 10s. and, in 1805, £12, for all students, the latter sum being the cost of the ticket at the present time, if taken in one payment, but, if in instalments, £12, 12s.

[3] Later in the century the University charged a fee of £3, 3s. for attendance on a qualifying course of lectures in Clinical Medicine.

[4] *Chambers's Biographical Dictionary*, vol. xxvi.: John Rutherford.

[5] Minute, Royal Infirmary, 1st February 1748.

Accordingly, Rutherford commenced his clinical lectures in February of that year. The course, at first, was given only during the period of his attendance at the Infirmary as physician-in-rotation, and suitable patients were selected from the several wards of the hospital. Alexander Bower, in *The History of the University of Edinburgh*,[1] states on the authority of a writer in the *Scots Magazine* that the first course was given in the winter session of 1746-47.[2] But the records of the Royal Infirmary do not confirm this date, the minute of 1st February 1748, above quoted, being the first reference to the subject. It is also interesting in this connection to quote an extract from the letter of a contemporary student of medicine, the first of the young colonial students from the American continent to take the doctor's degree at Edinburgh.[3] Writing to his father in Charleston, South Carolina, on 2nd February of the winter session, 1747-48, he says :—

> We are very busy just now in ye Colledges (courses of instruction), and Dr Whytt, our new Professor, who succeeded Dr St Clair as Professor of Institutes, fills ye Chair and gives satisfaction to all his hearers. We have a new Class set on footing here this winter by our Professor of ye Practice of Physic, which is to lecture on the Cases of ye Patients in the Infirmary, in which he gives the Diagnosis, Prognosis and Method of Cure, which Lectures are reckon'd very valuable and serviceable. I shall not attend him this Session as I have enough to do already, but shall ye next.

There was thus introduced a system of clinical instruction, at first confined to the teaching of medicine but afterwards extended to surgery, which has survived in the school to the present day and which, in the years that followed its inception, was adopted far and wide in other centres of medical training. Sir William Osler, when addressing the members of the Royal Medical Society of Edinburgh on 7th February 1907, alluded to Rutherford's lectures in the following terms, " they are of great value as a record of the initiation of clinical teaching in the English-speaking schools, and what has been called

[1] Vol. ii, p. 213. Edinburgh, 1817.
[2] *Scots Magazine*, 1750, vol. xii, p. 52.
[3] *University of Edinburgh Journal*, 1930-31, vol. iv, p. 274.

JOHN RUTHERFORD
Professor of Practice of Physic

(*Photograph from the portrait in the Royal College of Physicians of Edinburgh, painted by Henry W. Kerr, R.S.A., from the original by Allan Ramsay*)

the 'Edinburgh Method' dates from the introduction by Rutherford of practical classes in the Royal Infirmary." [1]

Rutherford owed his inspiration as a teacher to his great master, Boerhaave of Leiden, and in his clinical lectures he systematised bedside instruction as he had seen it conducted in the old Convent Hospital of that city. Manuscript notes of Rutherford's lectures written by his students have been preserved, a few copies of which are still extant.[2] In his introduction to the course he explains the purpose he has in view :—

> As health is the greatest blessing we enjoy in this life, and gives a relish to all other enjoyments, so the Art, which restores it when lost, must be of great service to mankind . . . the physician is acquainted with the fundamentals of his Art, he understands the animal economy, he knows when Nature makes an effort, he supports her in all her operations, varies his practice as the symptoms change and in all things acts according to reason. . . .
>
> I shall examine every patient appearing before you that no circumstances may escape you : I shall give you the history of the disease, enquire into the cause of it, give you my opinion as to how it will terminate, lay down the indications of cure which will arise or, if any new symptoms happen, acquaint you of them that you may see how I vary my prescriptions : If at any time you find me deceived in giving my judgment, you will be so good as to excuse me, for neither do I pretend to be, nor is the Art of Physic, infallible. . . .

Thus Rutherford propounded the Hippocratic teaching that experience must be the chief rule of practice, reasoning must be based on observation and experience, and that hypotheses not founded on facts must be condemned. His clinical lectures were from the first a success, not only as a valuable form of tuition, but in augmenting the revenue of the hospital through the disposal of a larger number of students' tickets. Although the managers at that period were not infrequently presenting tickets gratis to a certain number of students, the receipts from those sold during 1747-48—

[1] *Scottish Medical and Surgical Journal*. Edinburgh, March 1907.

[2] The writer possesses a MS. volume written by a student at Edinburgh in 1758. Early notes of Rutherford's clinical lectures are also preserved in the Library of the Royal College of Physicians of Edinburgh.

sixty-eight in number—amounted to £95, 11s. But in the following year, 1st October 1748 to 30th September 1749, one hundred and twelve tickets were disposed of, the hospital receiving as revenue therefrom £172, 4s.; the additional £76, 13s. from this source were attributed "in good measure" to the success of Rutherford's course of instruction.

Although the early courses of lectures on clinical medicine were delivered by Rutherford, a similar privilege had been granted at the same time to all the "Professors of Medicine" in the University. The Statutes and Rules prepared by the managers in 1748, and approved by the Court of Contributors on 23rd January 1749, contain the following regulation: "The Professors of Medicine in the University may during their attendance give clinical lectures to the Licensed students on the cases of the patients in the Infirmary at any hour excepting the ordinary time of visiting and may have the perusal of the Ledger."[1] Further extensions of the facilities for this system of instruction were soon provided, and a clinical ward was opened in 1750 for the accommodation of the patients who were to illustrate Rutherford's lectures.[2] These beds, which at first were not to exceed ten in number, were placed on the ordinary establishment of the hospital, and there was every expectation that the students' fees would provide for their maintenance. Again, by a statute approved and adopted by the Court of Contributors on 7th January 1751, the limitation, previously restricting the delivery of the lectures to a specified time, was withdrawn and the professors were authorised to teach at any period "they shall find most beneficial for the students without limiting them to the time of the professors' attendance as physicians." With the increasing number of young men attracted by this form of instruction, it soon became necessary to provide additional clinical beds, the number being at first raised to fifteen in 1751 and to twenty in 1752.

Another step in the evolution of clinical instruction was introduced at the beginning of 1757 when the professors of

[1] *History and Statutes of the Royal Infirmary of Edinburgh, 1749.*
[2] Minute, Royal Infirmary, January 1750.

medicine proposed to give a conjoint course of lectures, a suggestion which at once met with the approval of the Board of Management.[1] Alexander Monro, *primus*, William Cullen, professor of chemistry, and Robert Whytt, then in the chair of institutes of medicine, joined forces with John Rutherford and proceeded to deliver a course extending over a period of five months, each of the lecturers teaching in turn during the space of five weeks. At the same time clinical wards were fitted up both for male and female patients, the number of beds being increased to twenty-nine. Alexander Monro, *primus*, professor of anatomy, hitherto an active member of the Incorporation of Surgeons and one of the original members of the surgical staff of the Infirmary, had been elected a Fellow of the Royal College of Physicians of Edinburgh in March 1756 and was thus qualified to act as a physician to the hospital.[2] His son, Alexander, *secundus*, recently appointed to assist his father in the work of the chair, liberated the latter for his new duties in the Infirmary. Monro, *primus*, having resigned his chair in 1758, continued to cooperate with his colleagues in the conjoint course of clinical medicine.

An explanation of the collective term "Professors of Medicine" is desirable at this point. To the managers of the Infirmary it was not unfamiliar through its employment in the Charter of 1736 and, many years prior to that date, the term was used in Acts of the Town Council, when, as patrons of the University, they appointed the early professors in the faculty of medicine.[3] As new subjects were added to the curriculum and their study made compulsory to qualify for the degree in medicine—materia medica, forensic medicine and general pathology—the occupants of these chairs also became professors of medicine; and, provided they were Fellows of the Royal College of Physicians and practising as physicians, they were privileged if they so desired, on obtaining

[1] Minutes, Royal Infirmary, 27th November and 6th December 1756.
[2] On 1st January 1756, the University of Edinburgh conferred the degree of doctor of medicine on Alexander Monro, *primus*.
[3] Acts of Town Council of Edinburgh, 9th September 1685, 9th February 1726, and 31st March 1738.

the consent of the managers, to take part in the teaching of clinical medicine in the Royal Infirmary.[1]

As the years passed and the scientific subjects in the medical curriculum grew in importance and absorbed more and more of the time and attention of the occupants of the chairs, it eventually became difficult for them to combine satisfactorily the duties of the scientific chair with those of physician to the hospital. Consequently today the term professors of medicine has a more restricted application than it had in the eighteenth and early part of the nineteenth century.

What manner of men were these early professors of medicine who taught in the Royal Infirmary? John Rutherford, as the pioneer, is deserving of special mention. A Lowland Scot, born in 1695 in the Manse of Yarrow, he spent his childhood's days in the Border countryside, the history and scenery of which his grandson, Sir Walter Scott, delighted to chronicle in prose and verse. As a boy, Rutherford attended the Grammar School at Selkirk and in his daily journeyings to and from the Manse,

> He pass'd where Newark's stately tower
> Looks out from Yarrow's birchen bower.[2]

From the school at Selkirk he entered the faculty of arts in the University of Edinburgh and, after a period of apprenticeship with a surgeon in the city, he proceeded to London and eventually to Leiden where he completed his medical studies. After graduating at Rheims in 1719, he returned to Edinburgh to assist in the foundation of the medical school in which he became the first professor of medicine, delivering his lectures in Latin, a language in which he was highly proficient.[3] He

[1] The privilege was not exercised by every professor on his appointment to a chair in the medical faculty: neither John Hope (botany) nor Joseph Black (chemistry) gave clinical lectures. When the chairs of forensic medicine and midwifery were created, the subjects were not at first compulsory for medical students, consequently their occupants were not entitled to teach clinical medicine in the Infirmary. In 1833 these subjects became obligatory.

[2] *The Lay of the Last Minstrel.*

[3] As a clinical teacher John Rutherford imparted his instruction in his native tongue.

resigned the chair in 1765. Through the marriage of his daughter, Anne, to Walter Scott, Writer to the Signet in Edinburgh, Rutherford became grandfather to Sir Walter, "that eminent ornament of Scottish literature," who has described his forbear as one "To whom the school of medicine in our northern metropolis owes its rise, and a man distinguished for professional talent, for lively wit and for literary acquirements."

Robert Whytt, who succeeded to the chair of institutes of medicine in 1747, was conspicuous as a leader in medical science in the middle of the eighteenth century. Born in 1714, the second son of Robert Whytt of Bennochie, Fife, a member of the Scots Bar, the younger Robert graduated M.A. St Andrews at the age of sixteen. On the conclusion of his medical studies at Edinburgh, London and Paris he graduated M.D. Rheims in 1736 and returned to Scotland to practise in the capital. His reputation at home and on the continent of Europe added greatly to the contemporary fame of the Edinburgh School. Whytt's experimental investigations upon the nervous system embodied the subject of reflex movements and the localisation of reflex action in the spinal cord. He was the first to give a clear clinical account of tuberculous meningitis, under the title of "Observations on the Dropsy in the Brain," and although he did not recognise the specific nature of the disease the accuracy of the clinical syndrome is remarkable. He died in 1766 at the comparatively early age of fifty-one.[1] The family assumed the name of Whyte-Melville—a name familiar to later generations through the writings of George Whyte-Melville, the sporting novelist, a grandson of the distinguished physician of the eighteenth century.

William Cullen, translated from the chair of chemistry in Glasgow to occupy a similar position in Edinburgh as one of the professors of medicine, commenced his long career as a clinical teacher in the Royal Infirmary in 1755. Prior to

[1] *Memoir of the Life and Writings of Robert Whytt, M.D.*, by William Seller. "An 18th Century Neurologist," by J. D. Comrie, M.D., *Edin. Med. Journ.*, November, 1925.

this he had been an active and vital force in founding the medical school in the western city. His reputation, like that of Boerhaave, rested mainly upon his gifts as a teacher, his clinical lectures illustrated by numerous examples of varieties of disease being characterised by clarity of thought and lucidity of exposition. Cullen's period as a university professor at Edinburgh covered thirty-four years, 1755 to 1789, during which time he occupied the chairs of chemistry, the institutes of medicine and the practice of physic: he was equally capable of giving instruction in botany and materia medica, and thus, like Boerhaave at Leiden, he was equipped to teach nearly all the subjects in the curriculum of medicine. He attracted to his classroom men from many parts, especially from the American colonies where his influence on his pupils materially affected the early development of medical education in the New World. Cullen may be said to have broken the Boerhaave tradition in the medical school: in his *Synopsis Nosologiæ Medicæ* he adopted a rigid classification of diseases based upon symptoms, a plan which simplified the study of medicine at that period, though its reputation as a text-book did not long survive its author.[1] Retiring in 1789, Cullen died in the following year: the preservation of his grave and monument in Kirknewton churchyard now rests in perpetuity in the reverent care of the Royal College of Physicians of Edinburgh.

While instruction in medicine at the bedside, as originally practised in the ordinary wards, continued to be conducted by the physicians attending in rotation, teaching by clinical lectures remained for many years entirely in the hands of the professors to whom the special clinical wards were assigned for that purpose. The explanation of this action on the part of the Board of Management is clearly expressed in the following quotation from *The History and Statutes of the Royal Infirmary of Edinburgh, 1778*:—

A School of Medicine having been for many years established in Edinburgh and having arisen, before the erection of this hospital,

[1] *The Life and Writings of William Cullen, M.D.*, by John Thomson. Edinburgh, 1859.

to a flourishing state, the Managers of the Infirmary resolved to spare no pains in cherishing it as far as the hospital could serve that purpose; and foreseeing that its interests would soon be interwoven with that of the University, they resolved to adopt every measure that could tend to facilitate medical education, and to render it compleat . . . further, considering that the defect of clinical lectures in medical seminaries had often proved a ground of complaint gave liberty to the Professors of Medicine to lecture on such cases of the patients as they should find most conducive to the instruction of the students . . . this was the only branch wanting in the medical course.

Hence, at a very early period in the history of the Infirmary, the University was not only granted the sole privilege of giving courses of clinical instruction in medicine but also the use of special wards for that purpose. The extension of a similar privilege to the physicians-in-ordinary, first appointed in 1751, came at a much later date. In 1790, forty years after the delivery of John Rutherford's inaugural course, Henry Cullen, one of the two physicians-in-ordinary, was authorised to give a summer course of clinical lectures upon the patients in his own care;[1] but his death in the autumn of the same year terminated the arrangement for the time being. With the appointment of Daniel Rutherford, professor of botany from 1786 to 1819, to fill the vacancy as physician-in-ordinary in 1790, clinical lectures were delivered by him and, after his resignation as physician in 1802, he lectured at the request of his professorial colleagues as one of the professors of medicine.[2] Eventually in 1829, when four physicians-in-ordinary, previously appointed for a period of seven years, sought permission to give clinical lectures, no opposition was raised by the professors of medicine and the request was granted by the managers.[3]

Thus, as a system of staffing and teaching evolved, two groups of physicians gradually became differentiated, superseding those who had formerly served by rotation. One comprised the professors of medicine in the University—sometimes styled in the minutes the clinical physicians—

[1] Minute, Royal Infirmary, 1st March 1790. [2] *Ibid.*, April 1791.
[3] Minutes, Royal Infirmary, 25th May and 1st June 1829.

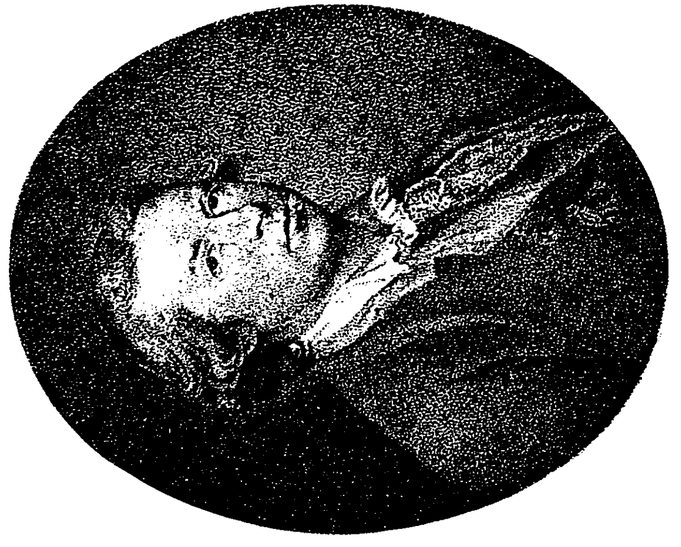
to whom were assigned the duties of clinical lecturers with wards allocated to them for that purpose, their period of attendance coinciding later with the period of tenure of their chairs. The second group—the physicians-in-ordinary to the hospital—was appointed in charge of wards, primarily for the purpose of conducting the daily service of the Infirmary; and, in more than one instance, the occupant of a chair in the medical faculty was chosen to fill one of these posts.[1] To the ordinary physicians, but at a much later date, was extended the privilege of giving clinical lectures. Hence were established within the Royal Infirmary two groups of physicians, those representative of the University or academical school and those belonging to the extra-academical body of teachers who in the early years of the nineteenth century were in considerable numbers. The latter, although at first teaching as individuals without any cohesion as an organised school and subject to no disciplinary authority, later constituted themselves an association of lecturers making their own arrangements. It was not till near the end of the nineteenth century, in 1895, that the association sought a closer connection with the two Colleges in Edinburgh, established a Governing Board of the Fellows and formed a definite Extra-academical School of Medicine of the Royal Colleges.[2]

Among the professors of medicine in the second half of the eighteenth century were Daniel Rutherford, Francis Home, the Gregorys, John and James, and Andrew Duncan, senior. Daniel Rutherford, the son of John Rutherford and the uncle of Sir Walter Scott, made his reputation in the scientific world while still a young man as, in his graduation thesis in 1772, he announced as the result of experiment his discovery of nitrogen gas. He became a member of the Board of Management in 1806. "A little, sluggish-looking man, with a large placid face, who, through the inroads of frequent

[1] Professors John Hope, Joseph Black, Daniel Rutherford and others were at various dates elected Physicians-in-Ordinary.

[2] Minute, Royal College of Physicians, 5th August 1895. Constitution of the School of Medicine was adopted.

JAMES GREGORY
Professor of Institutes of Medicine, 1776-1789
Professor of Practice of Physic, 1790-1821
(From a portrait by Sir Henry Raeburn)



JOHN GREGORY
Professor of Practice of Physic, 1766-1773
(From a portrait by F. Cotes)

gout, moved slowly . . . his accents and manner, unless he happened to be cross, were mild, kindly and dreamy." [1] His portrait was painted by Sir Henry Raeburn. Francis Home, appointed the first professor of materia medica in the University, in 1768, occupied the chair for thirty years : in 1769 he was given permission to deliver a course of clinical lectures in medicine. A man of exceptional ability he was the first to describe " the croup " as a distinct disease and, in his *Principia Medicinæ* written in correct and elegant Latin, he enhanced his reputation on the continent of Europe. Outside the immediate province of his chair he contributed valuable observations on bleaching and wrote on the Principles of Agriculture. He died in 1813 at the advanced age of ninety-four.

The Gregorys, John and James, father and son, were members of a Scottish family distinguished in mathematics and medicine. John Gregory was a son of the " mediciner " at King's College, Aberdeen, but Edinburgh claimed his services in 1766 as professor of practice of physic and, along with William Cullen, he taught clinical medicine in the wards of the Royal Infirmary. A man of culture and of great personal charm, on intimate terms with Edinburgh's literary circle, he brought more than mere technical knowledge to the study of medicine. His career was unfortunately terminated in 1773, at the comparatively early age of forty-nine, when he succumbed to gout, a disease from which he had always dreaded an early death. His son James, elected to the vacant chair of institutes of medicine in 1776 at the age of twenty-three, became successor to William Cullen in the chair of the practice of physic, thus establishing a link between eighteenth century and nineteenth century medicine, as he occupied the latter office till his death in 1821. More virile than his father, " he was a man having authority impressed on every feature, radiant with affection for his friends, intolerant of enemies, asking his own way and getting his own way, loving, hating, thinking, speaking, feeling, always

[1] *Life of Sir Robert Christison, Bart.*, vol. i, p. 55. William Blackwood & Sons. Edinburgh, 1885.

with intensest ardour: a man whom none of his associates could regard dispassionately; they either loved him as a friend or hated him as an enemy."[1] He wasted much of his ability in controversial feuds with his professional brethren. Commencing clinical instruction in the hospital in 1777, his remarkable gifts as a teacher proved a source of attraction. "The Gregorian physic was free blood-letting, the cold affusion, brisk purging, frequent blistering and the nauseating action of tartar emetic" and, one might add, in the exhibition of the famous mixture which still bears his name.[2] Andrew Duncan, senior, became professor of the institutes of medicine in 1789, but his first connection with the Infirmary was in the winter session of 1774-75 when he temporarily discharged the duties of the chair and was granted permission to give clinical lectures. A man of genial disposition, generous and hospitable and untiring in his devotion to the interests of the medical profession in Edinburgh, his name has come down through the years as the founder of the Æsculapian Club and the Harveian Society, and as one who did much to secure Charters for the Royal Medical Society, the Royal Public Dispensary and the Royal Edinburgh Asylum.[3] He retained his vigour to a ripe old age, invariably climbing Arthur's Seat on May-day morning, a feat he accomplished for the last time in the year prior to his death. He died, in 1828, aged eighty-three years.

Practical teaching in surgery by means of clinical lectures, on lines similar to those already adopted in medicine, was introduced twenty years after John Rutherford gave his first course in the hospital.[4] Moreover, when in 1769 these lectures became part of the system of surgical instruction, they were delivered by the surgeons-in-ordinary to the Infirmary and not by professors in the University. The explanation of

[1] *The Academic Gregories*, by Agnes Grainger Stewart. Famous Scots Series, 1901.

[2] *The Life of Sir Robert Christison, Bart.*, vol. i. William Blackwood & Sons, Edinburgh and London.

[3] The Royal Edinburgh Hospital (Morningside Asylum) for Mental and Nervous Disorders.

[4] Minute, Royal Infirmary, 2nd October 1769.

this is simple. When the faculty of medicine was created in 1726, surgery was given no separate academic status, no chair in that subject being then founded. The instruction was a somewhat minor part of the duties of Monro, *primus*, the professor of anatomy; consequently the University was not in a position to approach the managers, as had been done in the case of medicine, to ask for the establishment of a course of surgical lectures in the Infirmary.

The privilege of teaching surgery in the city was regarded by the Incorporation of Surgeons as their prerogative and, since the opening of the Infirmary, the surgeons attending in rotation had given bedside instruction in the wards. After the appointment of four surgeons-in-ordinary to the hospital in 1766, with the terms of their service, for the time being amicably adjusted,[1] a proposal to institute lectures in clinical surgery was made by the Incorporation of Surgeons.[2] The suggestion was submitted to the Board of Management by the surgeons, in response to more than one appeal by the students of surgery who recognised the advantages derived from a similar system of teaching in medicine. The surgeons, cognisant of contemporary progress in the science and practice of surgery both in London and on the Continent, and desirous of effecting some improvement in the methods of teaching in Edinburgh, asked permission to have the necessary accommodation in the hospital, a request which was at once granted. Thus the movement to institute surgical instruction by means of clinical lectures was of extra-academical origin.

The success attending the courses of instruction both in systematic and clinical surgery by the teachers outside the University encouraged them to take a further step in promoting the interests of the subject: in 1777, therefore, they memorialised the Crown with the view of founding a professorship of systematic surgery in the University. But the opposition of Alexander Monro, *secundus*, supported by his colleagues in the Senatus Academicus, thwarted this early attempt to raise the status of surgery by instituting a university chair. Monro's

[1] Chapter VIII, p. 124.

[2] Minute, Royal Infirmary, 2nd October 1769.

selfish opposition to the project induced him to seek and to obtain from the Town Council of Edinburgh a new Commission "expressly authorising him to be professor of medicine and particularly of anatomy and surgery." In granting this request, however, the Town Council wisely reserved to themselves and their successors the power to separate the two offices at any time after the decease of Alexander Monro.[1] Although the teaching of systematic surgery by means of a separate chair was thus postponed for more than fifty years, clinical surgery received academic distinction in 1803.[2] In the previous year, James Russell, one of the six surgeons appointed by the managers in 1800, petitioned the Town Council to erect his lectureship at the Royal College of Surgeons into a professorship of clinical surgery in the University, a recommendation which was favourably received both by the Town Council and the Senatus Academicus. In order that the chair might be endowed, the Crown was approached and, in June 1803, a Commission was received from George III creating the regius chair of clinical surgery with an endowment of £50 per annum.[3]

In 1802, a letter from the Principal of the University had been presented to the managers of the Infirmary relative to James Russell's probable appointment to the chair.[4] The purport of this communication was to seek information concerning the accommodation which might be available in the hospital if the chair were founded: "and it will be extremely obliging if the managers state their opinion as to how far there is a probability or a certainty, if the chair shall be established, of that accommodation being rendered permanent in all time coming." In minuting their appreciation of the fact that the Senatus contemplated rewarding Mr Russell's past services in this way and anxious to give him every assistance in their power, the managers replied "that they could not consistently with the regulations of the hospital

[1] *The Story of the University of Edinburgh*, by Sir Alexander Grant, 1884, vol. i, p. 320.
[2] The chair of systematic surgery in the University was founded in 1831.
[3] Sir Alexander Grant, *op. cit.*
[4] Minute, Royal Infirmary, 14th May 1802.

bind themselves or their successors by any promise or agreement to render permanent such accommodation as they might be induced to give to the professor. They must reserve to themselves the power of determining both by whom and in what manner such lectures shall be given in the Royal Infirmary. They, however, beg to assure the Senatus that they would be most happy to give every accommodation in their power to Mr Russell and his successors in office in so far as the same may not interfere with the lectures which the attending surgeons of the hospital are entitled to give or with those delivered by the Professors of Medicine."[1]

The Senatus had to be content with this assurance. As James Russell, at the date of his appointment to the Chair in 1803, had recently terminated a period of two years as one of the two surgeons-in-ordinary and could not again take office till after an interval of four years, according to the regulations of 1800, he became dependent upon the goodwill of his colleagues for the patients illustrative of his course of lectures. After two further short periods as surgeon on the staff he declined to seek re-election in January 1815, intimating his desire to forgo election so as to relieve the managers from their embarrassment consequent upon the number of candidates seeking appointment.[2] He was then given the privilege of "delivering clinical lectures during all the days of his life" and was entitled to attend all consultations in the hospital and, if required by the surgeons, might give his opinion upon the patients. While Russell held the chair of clinical surgery attendance at his lectures was not obligatory upon the students proceeding to graduation. The explanation is probably to be found in the fact that no security had been given to the University by the managers that efficient means of teaching would be always at the disposal of the professor and, without such an understanding, the clinical course of lectures could not be made compulsory.[3]

Professor James Russell occupied the chair till 1833, when

[1] Minute, Royal Infirmary, 14th May 1802. [2] *Ibid*, 26th December 1814.
[3] See evidence given by Professor W. P. Alison before the Royal Commission of 1826.

he resigned at the age of eighty-one. A man universally respected, "he was singularly free from the jealousies and rivalries of his contemporaries." A tall, thin, elegant gentleman of the old school, with his red wig, white neckcloth, tail-coat, knee-breeches and silk stockings he was not a stimulating teacher. As a lecturer he has been described by a contemporary as somewhat "somnolent—a quality which was aggravated 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." [1]

The creation of the chair of systematic surgery, in 1831, and the succession of James Syme to the chair of clinical surgery in 1833, with their repercussions upon the arrangements in the Infirmary, may be left for consideration in their proper chronological sequence.

Up to this point a brief description has been given of the changes considered advisable for the improvement of the medical and surgical service of the hospital and for promoting the interests of clinical instruction. The dual purpose underlying the origin of the Infirmary had been at no time lost sight of and, so far as it was economically possible, provision had been made to increase the accommodation necessary for the care of the sick poor and to advance the cause of medical education. But to complete this chapter it is necessary to sketch the progress of the Edinburgh School of Medicine during the eighteenth century, with its growing reputation and with the steady increase in the number of students severely taxing the resources both of the University and of the Royal Infirmary.

The course of training for the degree of doctor of medicine —the single qualification then conferred by the University— covered a period of three years, although residence in Edinburgh was not necessary during the whole of that time. Evidence was required of attendance at lectures on anatomy and surgery —practical anatomy in the form of dissection was not then compulsory — on botany, chemistry, materia medica and

[1] *Edin. Med. and Surgic. Journal*, 1805.

pharmacy, on the institutes or theory and on the practice of physic, along with the clinical lectures in the hospital.[1] Only one examination for the degree, held at the termination of the curriculum, required to be passed. A thesis written in Latin was presented and *viva voce* examinations were conducted in the same tongue by the professors in the faculty. A written commentary on an aphorism of Hippocrates, and an expression of opinion upon one or more cases prepared by the examiners, completed the test.

The buildings on Kirk-o'-Field which constituted the old Town's College presented a very different appearance from those which now occupy the same site. Some of them were in a neglected and ruinous condition and ill-adapted for the purpose to which they were applied. The classrooms were, in general, "mean, straitened and inconvenient and, with the exception of the library and Monro's anatomical theatre, there was little to recommend them." After the completion of the South Bridge spanning the Cowgate and with the extension of the main thoroughfare southwards, the foundation stone of the new University was laid in 1789. Although the students in the University in that year numbered 1090, of whom 440 matriculated in medicine, yet more than forty years elapsed before the whole of the much-needed classrooms were provided and the Adam-Playfair building of today was completed.

The accommodation in the Royal Infirmary both for patients and pupils might also be described as "straitened" and the lack of sufficient annual income prevented the utilisation of all the available beds. Although the hospital in Infirmary Street was originally designed to contain 228 patients, that number had not hitherto been accommodated at one time. When in December 1741 the eastern part was opened, with beds from sixty to seventy in number, only thirty-four were in daily use; but as funds permitted, these were raised at intervals by increments of ten, so that, in 1799, as many as one hundred beds were on the ordinary establishment of the hospital, maintained by the annual revenue from Capital.

[1] In 1833, the period of study was extended to four years, and from time to time new subjects were added to the curriculum.

But the actual number of patients entertained exceeded the ordinary establishment, the additional maintenance being provided by special funds:[1] these patients, as previously stated, included the insane, the domestic servants, the soldiers, the supernumeraries paying sixpence per day and awaiting admission to the establishment, and the few supported on Lord Hopetoun's incurable fund. Further, many sick and injured were treated in the out-patient department of which no statistics have been preserved.

The accompanying Table, compiled from returns entered in the minutes of the hospital, shows the progressive increase in the number of patients in selected years along with, when possible, the relative proportion of the different classes of patients for whose treatment special payment was received.

TABULAR STATEMENT ILLUSTRATING INCREASE IN IN-PATIENTS, 1742-1800

A. *Prior to Introduction of Classes of Patients Maintained on Special Funds*

Year 1742

Number of In-Patients	155	34 beds occupied on ordinary establishment.

Year 1745

Number of In-Patients—		
On 1st January	25	34 beds occupied on ordinary establishment
Admitted during the year	121	
Total	146	

B. *After Introduction of Patients Maintained on Special Funds*

Year 1758

In Hospital on 1st January	111	Patients on ordinary establishment	440
Admitted during the year	678	Soldiers	274
		Domestic servants	75
Total	789	Total	789

Year 1768

In Hospital on 1st January	119	Patients on ordinary establishment	721
Admitted during the year	975	Soldiers	234
		Domestic servants	102
		Supernumeraries	37
Total	1094	Total	1094

[1] Chapter VII, p. 93 *et seq.*

Year 1789

In Hospital on 1st January	147	
Admitted during the year	1830	No figures supplied.
Total	1977	

Year 1800

In Hospital on 1st January	169	
Admitted during the year	1836	No figures supplied.
Total	2005	

Note.—The number of patients remaining in hospital on 1st January of each year indicates approximately the beds in occupation.

A summary of the figures compiled from the returns made during the years 1742-46—the first quinquennial period in the Royal Infirmary—will give a more comprehensive picture of the number of patients then in the care of the physicians and surgeons than can be obtained from the returns of the two years 1742 and 1745, recorded in the above Table. During the five-year period, 676 patients were treated in the wards but, unfortunately, no records are extant differentiating the medical and surgical cases, or the proportion of beds allotted to these two departments of the hospital. The surgical operations performed during the five years numbered 141: of these, 31 were amputations, being nearly 22 per cent. of the total; the operation of lithotomy was performed on 29 persons, *i.e.* on 20.5 per cent.; the removal of malignant disease occupied the third place on the list. Throughout a period of one hundred and forty years or more in the history of the Infirmary, patients suffering from the infectious fevers, typhus, smallpox, scarlet fever, etc., were treated in the same building with the other cases, consequently the statistics invariably include patients who are today relegated to special hospitals.

To what extent, therefore, was the hospital, with its somewhat limited number of beds in daily use, able to provide the material necessary for the clinical instruction of the students of medicine? Although various sources of information attest to the growing popularity of the Edinburgh School of Medicine at that time, it is difficult to arrive at an accurate estimate

of the actual number of students attending the Infirmary year by year. The hospital tickets issued by the Treasurer, the class lists of the professors, the matriculation and graduation rolls of the University, and a few figures relative to the number of apprentices receiving the diploma of the College of Surgeons are available for the purpose. Much that is instructive can be learnt from their study, but the defects in the system of registration then employed make accurate deductions impossible, so that the number of those attending the hospital can only be estimated approximately. No subdivision was then made into first, second and third year students with a specified time in the curriculum of training assigned for clinical instruction : in all probability the hospital was visited by some during the greater part of the period of study, by others for only a limited time, while a number came to Edinburgh to sit in the classrooms of the professors of medicine, without seeking tuition in the Infirmary. Moreover, only a proportion of the students proceeded to graduation at Edinburgh, many afterwards qualifying elsewhere, while others who attended were already qualified.

The records of the Infirmary are unfortunately lacking in detail, nor do they cover the whole period under review. Further, it may be recalled that a uniform fee was not exacted by the managers from all the students attending the hospital, the sum chargeable to the apprentices of the surgeons being two guineas, to the other students, three guineas, and no indication is given in the minutes as to the proportion of tickets distributed to each group. In 1759, 79 tickets were disposed of, for which £225, 15s. were received, a sum suggesting that the greater proportion was sold at three guineas. During the triennial period 1760-63, 304 tickets—an approximate average of 100 per annum — yielded the sum of £852, 11s. In 1765-66 the income of the hospital from this source was £410, but no statement is made as to the number of tickets distributed ; in 1773 the sum of £356, 9s. was received. The missing minute book and the absence of figures during the closing decade of the century preclude further information from this source.

When the records of the University are explored the same difficulty is experienced. Prior to 1762, the matriculation roll makes no differentiation between the students of medicine and those entering the other faculties. In 1763, however, the names of the former are for the first time entered alphabetically and the subjects studied by each student are appended, but even these lists are incomplete, so that the following figures give only an approximate estimate of the actual number who enrolled.[1] In that year 223 matriculated in medicine, of whom 93 entered for clinical lectures and the study of obstetrics, two subjects necessitating attendance at the hospital. In 1773, the number of matriculates was 293, with 112 enrolling in the same two subjects ; and in 1783 matriculation had reached the maximum figure of 444, with 119 attending clinical lectures and obstetrical practice. In the closing year of the century the total was 417, with 150 enrolling in the two special clinical classes. At the two periods 1763 and 1773, when some comparison is possible between the figures furnished by the sale of Infirmary tickets and the attendance of those at the clinical and obstetric classes, there is approximate agreement (p. 150). The limited basis, however, on which the university calculation is made, is open to criticism, and students, other than those enrolling in the two specified classes, probably " walked " the hospital : to these the apprentices of the surgeons must be added.[2] In those days, therefore, notwithstanding the increasing number of patients, year by year, both physicians and surgeons must sometimes have experienced considerable difficulty in obtaining the necessary cases to meet the growing demand for clinical instruction.

For several years after the foundation of the school of medicine the majority of the students were Scotsmen, among whom were a few Englishmen. But, after the disturbances created by the Jacobite rising of the '45 had ceased and

[1] *University of Edinburgh Journal*, vol. viii, No. Two, 1936. "Dr Alexander Morgan on Matriculates in the Faculty of Medicine Prior to 1858."

[2] From 1790-94 inclusive, 113 diplomas were granted by the Royal College of Surgeons of Edinburgh, an average of 22 apprentices qualifying in each of these years.

Scotland was in a more settled condition, the cosmopolitan character of the school, which became one of its distinctive features, was soon firmly established. The combination of a university education along with clinical instruction in the hospital, modelled on the pattern of Leiden, offered an academic training in medicine not obtainable elsewhere in Britain at that period. At Glasgow and Aberdeen a similar development took place at a somewhat later date, but at Oxford and Cambridge no steps were then taken to adopt the scheme initiated at Edinburgh. In London the old apprenticeship system of training became supplemented by the introduction of the proprietary schools teaching anatomy, of which that carried on by the Hunters, William and John, in Great Windmill Street, was an example ; and, in the hospital schools of St Bartholomew's, St Thomas's and Guy's, anatomy and physiology were taught along with medicine and surgery in preparation for the examination for the diplomas licensing the recipients to practise.

Men flocked to Edinburgh in the eighteenth century for the same reason as their predecessors in the seventeenth had rallied to Leiden, and the Scottish capital became the new medical Mecca, gradually supplanting and finally eclipsing its nursing mother. The impressions left on the mind of a Danish physician who had spent some months in the city as a student in 1765, are thus recorded : "At the University of Edinburgh, Americans and West Indians, Portuguese and Italians, Frenchmen and Englishmen, Irishmen and Dutchmen, Germans and Swiss, Russians and Danes wandered together," a graphic description recalling similar scenes of former days at Leiden. While the matriculation lists, after 1762, record the majority of the names of students enrolling in medicine at the University they do not invariably state the country from which these men entered. The graduation roll, on the other hand, inscribes in every instance the latter fact, so that an approximate estimate may thus be made of the cosmopolitan character of the medical school. From 1726 to 1799 inclusive, 1143 men qualified in medicine and, of these, 237 graduated as Scotsmen, 254 as English, and 8 as Welsh, 280 as Irish, 195 from the

West Indies and the North American continent, 2 from South America (Brazil), 1 from the East Indies, and 26 from the nations on the continent of Europe. The total 1143 is completed by the addition of 140 graduates designated as British, with no distinction made as to whether they were Scottish, English or Welsh.[1]

The influence of the teaching of the Monros, *primus* and *secundus*, of John Rutherford, Whytt, Cullen, and Black, of John Gregory and John Bell, and the methods adopted in the Edinburgh School thus became widely diffused, and nowhere was this more markedly revealed than in the development and growth of the young schools of medicine on the North American continent. In the early colonial days medical education had received little consideration : the young men graduated in Arts in the first American Colleges, but the apprentices in medicine imbued with scientific enthusiasm, many of them of Scottish descent, had to turn to the old country to seek more adequate instruction than was then obtainable in the New World. They went, therefore, to Edinburgh and to London to study under the leaders in the profession. As early as 1744 the first colonial student, who came from the island of Antigua, took his degree at Edinburgh and, five years later, John Moultrie of Charleston, South Carolina, graduated. They were followed by others, some of whom, on returning to their own country, became founders of the early schools of medicine in America and pioneers in medical education. Even after the War of Independence, many, as citizens of the United States, sought further experience at Edinburgh.

The first medical school in America was created in 1765 in Philadelphia as a department of the young College of Pennsylvania, before it had received university status, and above the entrance to the medical buildings is still emblazoned the thistle, the emblem of its debt to the country of its parent institution. It was founded by the young Pennsylvanians, William Shippen and John Morgan, pupils of John Hunter and

[1] Prior to the creation of the Faculty of Medicine, in 1726, the degree of doctor of medicine was conferred upon 21 candidates, thus making the total number of graduates, 1164, during the eighteenth century.

students and graduates of Edinburgh, who on their return impressed upon the trustees of the College the necessity for a medical school. Shippen taught anatomy and Morgan the institutes and practice of physic; they were soon joined by their compatriots, Benjamin Rush and Adam Kuhn also Edinburgh graduates. Both Rush and Kuhn signed at Philadelphia, in 1776, the Declaration of Independence. The Scottish influence was still further maintained, at a later date, by Caspar Wistar and Philip Syng Physic, graduates of Edinburgh, who became professors in the medical faculty of the University of Pennsylvania. The leader in the foundation of America's second school of medicine, King's College, New York, was Samuel Bard, a graduate of Edinburgh in 1765: he was made the first professor of the theory and practice of physic and, like Benjamin Rush, was one of the most distinguished American physicians of that period.

It was not till the commencement of the nineteenth century that students from those parts of the North American continent that continued under the British flag enrolled from Canada, Nova Scotia, New Brunswick and Newfoundland. In Montreal, a school of medicine, which afterwards constituted the medical faculty of McGill University, founded in 1821, was created mainly through the zeal and labours of a small group of men who had received their training and taken their degree at Edinburgh. About the same time the first students of medicine arrived from New South Wales and from the Cape of Good Hope, and they were followed by increasing numbers from Australian territory, New Zealand and South Africa. Thus the Greek spirit in Medicine, revived at the Renaissance in Bologna and Padua and borne across the Alps to Leiden and Edinburgh, spread overseas to enrich the medical schools of the New World and the Edinburgh influence played its part in cementing the foundations of the Empire.

Notwithstanding the fact that fewer subjects were included in the curriculum of study in the eighteenth century than at the present day, and that instruction was mainly by means of the formal lecture—practical classes in the laboratory being unknown—the student, like his successors in the twentieth

century, found his days fully occupied. Then as now there was a daily routine, though it differed considerably in matters of detail. A serious student "at the College" in the winter session of 1771-72 has left on record how he rose about 7 o'clock and read till 9, when he attended the lectures of William Cullen. He then breakfasted at 10 o'clock, after which he transcribed his notes. From 12 to 1 he "walked the wards" of the Infirmary and from 1 to 3 o'clock he was in the anatomical department with Monro, *secundus*. Having dined in his lodging between 3 and 4 he proceeded to Thomas Young's classroom to listen to his discourse on midwifery and from 5 to 6 he recast his notes taken at the lectures of Monro and Young. His working hours were not yet at an end as the hour 6 to 7 found him at the anatomical demonstrations of Dr Innis, Alexander Monro's "Dissector." He supped at 9 o'clock and then worked in his lodgings till midnight. In addition to the above, he attended, on two days in the week at the Infirmary, the clinical lectures of William Cullen and John Gregory. The cost of his tuition during the winter session was £17, 18s. 6d., a sum which included 9s. 6d. in the payment of "tips" to the janitors and the porter at the Infirmary! The cost of living varied with the type of lodging selected. "I have everything found but washing" he wrote to his father, "and I pay £10 per Quarter, which is the lowest one can get boarded in a genteel manner, and there is as high as £12 per Quarter." [1]

[1] *University of Edinburgh Journal*, vol. viii, No. One, p. 57.